The impact of value-based pricing policies for new medicines on negotiation behaviour and societal outcomes: implications from three economic experiments

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ABSTRACT

Background: Since the financial crisis, there has been a substantial increase in reform discussion and efforts of pricing policies for new medicines. Various forms of value-based pricing policies have been introduced in the last decade in OECD countries. These initiatives are expected to have a positive impact on societal outcomes such as availability, affordability and value for money, but there is little scientific evidence of these impacts due to confidential arrangements in many countries.

Objective: The overall objective of this dissertation is to explore how experimental economics could be used to inform reforms of value-based pharmaceutical pricing policies. A methodological framework for experimental policy analysis is proposed. On this basis, an experimental design for the analysis of price negotiations for medicines and value-based policy interventions is developed and tested.

Methods: First a systematic literature review was performed to assess the available evidence. This was followed by three controlled economic experiments on social preferences (n=202, n=404), bargaining behaviour (n=404) and the effects of two value-based policy interventions (N=367) in pricing negotiations for new medicines.

Results: No evidence was found in the literature reviewed on the effectiveness of value-based pricing policies on societal outcomes, nor on the impact of other pricing policies on health outcomes in particular. The experiments conducted showed that the preferences in the negotiation situation allowed agreements in favour of the patients. However, as soon as final offers were stated, the chances of success dropped markedly, which negatively affected access and benefit for patients as well as value for money for the overall population. Further, price offers were influenced both by the magnitude of the given price range ("real world" oncology prices vs unconverted payoffs) as well as by available alternatives ("standard of care"). A voluntary valuation framework (cost-benefit tool) seemed to mitigate the adverse behavioural effects and improve overall patient access, benefit and value for money. The cost-containment effect of a mandatory risk-sharing agreement on the other hand was offset by the negative effects on the overall patient benefit.

Conclusion: This dissertation shows how testing health policy measures in controlled laboratory experiments could contribute to reform discussions on pharmaceutical price regulation. As is already being done in other policy areas. According to the results presented, value-based pricing policies could improve patient access to medicines and increase the value for money of price negotiations. Provided that negotiations are based on a common valuation framework oriented towards value for money.

SUMMARY

Since the financial crisis, there has been a substantial increase in discussions and measures to reform the existing regulations on the pricing of new medicines. Both in research and in politics. Different forms of value-based pricing policies as well as outcome-based managed entry agreements have been introduced in the last decade in OECD countries. These initiatives are expected to have a positive impact on societal outcomes such as availability, affordability and value for money, but there is little scientific evidence of these impacts due to confidential arrangements in many countries. Reforms are therefore being discussed not only for the valuation and pricing methods, but also for the reimbursement processes as such. Due to the limited availability of empirical data on pharmaceutical price negotiations, the corresponding research and reform efforts need new, complementary approaches. The overall objective of this dissertation is to explore how experimental economics could be used to inform reforms of pharmaceutical pricing policies. Especially since the insights and heuristics of experimental and behavioural economics, which have evolved over the past decades in many countries and areas of policy, including health care, have not yet been applied to pharmaceutical price negotiations. Of interest are potential cognitive biases and concerns about others that influence negotiation outcomes, and the ability of value-based policy interventions to affect these behavioural effects.

This thesis is divided into five chapters. The first chapter provides a broad overview of the policy challenges, introduces a basic framework for policy analysis and proposes an experimental approach based on which a design is developed to study value-based price negotiations and policy interventions. The following chapters present the four studies conducted, which form the basis for the approach developed.

In the first study (Chapter 2 [1]) the published literature on effectiveness of public pricing regulations for patent-protected pharmaceuticals in OECD countries was reviewed. No evidence was found for the effectiveness of value-based pricing policies on societal outcomes, nor for the impact of other pricing policies on health outcomes in particular. In the three consecutive studies an experimental design was developed to assess pricing negotiations for new pharmaceutical therapies in a controlled laboratory setting. The first experimental study examined the stated social preferences (Chapter 3 [2]), the second the influence of incentivised bargaining behaviour (Chapter 4 [3]) and the last the effect of two interventions, a voluntary cost-benefit tool and a mandatory risk-sharing scheme (Chapter 5 [4]). Decisions of participants had real monetary consequences on other participants and through donations to a patient association. The first two studies were planned, implemented and executed as controlled online (laboratory) experiments (n=202, n=404), while the third experiment was

planned and implemented as a physical laboratory experiment. Due to the COVID-19 control measures ordered by the Swiss authorities in spring 2020, the latter also had to be executed online (n=367).

In all three experiments, the participants on average stated preferences that allowed an agreement in the negotiation in favour of the patients. However, as soon as they made final offers in a negotiation setting, the chances of success decreased markedly, which had a negative impact on patient access, patient benefit and the value for money (inverse of the cost-benefit ratio) of the overall population. It was further shown that while negotiators had clear preferences for incremental patient benefit, their price offers were influenced both by the magnitude of the given price range ("real world" oncology prices vs unconverted payoffs) as well as by an already existing alternative ("standard of care"). The introduction of a voluntary valuation framework (cost-benefit calculator) seemed to mitigate the negative behavioural effects and increase the overall patient access, patient benefit and value for money. The cost-containment effect of a mandatory risk-sharing agreement on the other hand was offset by the negative effects on the overall patient benefit.

The present work shows that testing policy interventions in controlled laboratory experiments could contribute to reform discussions regarding pharmaceutical price regulation, as is already being done in other policy areas. According to the results of the experiments conducted, value-based pricing policies could increase the value for money of price negotiations for new medicines in favour of the overall population. Provided that the negotiators make price offers based on a common valuation framework, which is oriented towards value for money. Public pricing processes, internal pricing policies, as well as policy reforms should aim to promote relative, value-based guidelines for price agreements, rather than nominal reference prices (anchors). This could reduce the duration of negotiations and increase the overall value for money. This assumes that organisations on both sides, as well as policy makers, have a genuine interest in or are mandated to improve patient access and value for money. Public pricing policies should, however, not impose uniform performance-based guarantees for the market entry of new therapeutic options with uncertain benefits, but rather set requirements for evidence development in combination with predefined price reviews.

The basic intention of this dissertation is to demonstrate how policy reform debates on the regulation of new, patent-protected medicines could benefit from advances in experimental health economics and the related interest in the behaviour of the professional actors involved. The experimental studies presented show how such a bridge could be built and allow preliminary conclusions for policy design and further development of the experimental design. The paper concludes with an outlook on how further research and practice could take up and develop the presented approach.

LIST OF ABBREVIATIONS

ACE:	angiotensin-converting-enzyme (inhibitors)
ATC:	anatomical therapeutic chemical classification
BDM:	Becker-DeGroot-Marschak
CB:	Cost-benefit
CBA:	controlled before-after studies *(since 'cost-benefit analysis' is not used in abbreviated form*
CE:	cost-effectiveness
CEA:	cost-effectiveness analysis
CED:	coverage with evidence development
CHEC:	Consensus on Health Economic Criteria
CHF:	Swiss Francs
CI:	confidence intervals
CRD:	Centre for Reviews and Dissemination
CUA:	cost-utility analysis
DB:	data base
DCE:	discrete-choice experiment
DRG	Diagnosis related groups
EFPIA:	European Federation of Pharmaceutical Industries
EMA:	European Medicines Agency
EPOC:	Cochrane Effective Practice and Organisation of Care group
ERP:	external reference pricing
EU:	European Union
FDA:	U.S. Food and Drug Administration
GDP:	Gross Domestic Product
H0:	null hypothesis
HTA:	health technology assessment
ICC:	interclass correlation
ICER:	incremental cost-effectiveness ratio
ITS:	interrupted time series
MAH:	marketing authorisation holder
MEA:	managed-entry agreement
MTurk:	Amazon Mechanical Turk
NHS:	National Health Service (from the UK)
NSAIDS:	non-steroidal anti-inflammatory drugs
OECD:	Organisation for Economic Co-operation and Development
P&R:	pricing and reimbursement
PAS:	patient access scheme
PBRSA:	performance-based risk-sharing arrangements
QALM:	quality adjusted life months
QALY:	quality-adjusted life year
QHES:	Quality of Health Economic Studies
QoL:	quality of life
R&D:	research and development
REG:	regulator
RM:	repeated measures study
RS:	risk-sharing
RSA:	risk-sharing agreement
SEL:	seller
SLR	systematic literature review
SoC:	standard of care
TRP:	therapeutic reference pricing
UK	United Kingdom
US	United States
USD:	US Dollars
VBP:	value-based pricing
VfM:	value for money
VG:	valuation gap
WHO:	World Health Organization
WTA:	willingness to accept
WTP:	willingness to pay

Dedicated to my wonderful wife Deborah and our adorable daughter Elika.
To my wife for always believing in me, patiently waiting for me and putting up with my moods. And to my daughter for regularly bringing me back to reality by impatiently yelling at my closed office door. The fact that she recently found out how to open the door has helped tremendously in bringing this dissertation to a conclusion.

CHAPTER 1

Introduction: An experimental approach to inform pharmaceutical pricing policy reforms

Wettstein, D.J. (2021).

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1. Background

1.1. The pharmaceutical industry: from small-molecule chemicals for large patient populations to high-priced specialty pharmaceuticals and personalised medicine

Pharmaceutical products[1] are an essential component of healthcare care [9]. OECD countries spent an average of 16% of their total health expenditure on pharmaceuticals in recent years, 75% of which was on prescription drugs [10,11]. In recent decades, survival rates and quality of life have improved significantly for various types of cancer such as prostate cancer or breast cancer, but also for infectious diseases such as chronic hepatitis C [12-17]. These improvements, along with earlier diagnosis and changing lifestyle risk factors, are also due to improved treatment options, including new pharmaceutical treatments [12-17]. Advances in pharmaceutical treatment in general may be a contributing factor to increased life expectancy in developed countries, although this effect is difficult to isolate and quantify [18,19]. In fact, the life-prolonging effect of new cancer therapies for example is still mostly only a few months and can often only be insufficiently confirmed at market authorisation, which repeatedly gives rise to criticism of the related prices demanded by the pharmaceutical industry [17,20-23]. On the other hand, in hepatitis C, for example, new treatment regimens have been proven to increase the cure rate for certain patient groups from 41 to over 95%, with a simultaneous reduction of the originally severe to minimal side effects [24-27].

The pharmaceutical industry does not only contribute to the health of individual patients and society, it is also an important macroeconomic factor, globally and in many individual countries. IQVIA estimates the size of the global medicines market (net spending) at US$ 995 billion in 2019 and forecasts it to grow to US$ 1.1 trillion by 2024 [28]. At the same time, the sector spends US$ 102 billion on R&D in Europe and the United States (2018) and directly employs approximately 5.5 million people worldwide (2017), of which 0.8 million in Europe [15,29]. Since the middle of the first decade of this millennium, the industry has been undergoing a fundamental transformation, which began after a ten-year phase of massive company formations and mergers [30,31]. Many so-called blockbuster drugs (over US$1 billion in yearly sales) lost patent protection between 2001 and 2015, while the trend of new (patent-protected) blockbusters declined and new approvals in general stagnated [32-36]. The expected loss of revenue due to patent expiry with related price erosion and the lack of promising product pipelines forced the large pharmaceutical companies to restructure their

[1] In this dissertation, including all subsequent chapters, we use the term “medicine” or “pharmaceutical” synonymously to the terms “pharmaceutical product”, “medicinal product” or “drug product”, following the definition from the World Health Organization (WHO), the European Medicines Agency (EMA), similarly used by the U.S. Food and Drug Administration (FDA) for a “substance or combination of substances that is intended to treat, prevent or diagnose a disease, or to restore, correct or modify physiological functions by exerting a pharmacological, immunological or metabolic action” [5-8]. This work further focuses on *new* pharmaceutical products in the *patent-protected* market (not new generic products), for which HTA and VBP are typically applied in several OECD countries.

product portfolios (focus or diversify), adjust their R&D organization and increase their productivity in general [30,32,34,37,38].

From a scientific and technological perspective, the market was dominated by chemical compounds for large patient populations until the turn of the millennium [39]. This is despite the fact that the emergence of biotechnology, based on breakthroughs in genetic engineering, dates back to the late 1970s and early 1980s [40]. The past two decades have been dominated by the rise of biotechnological pharmaceuticals, new high-revenue biologics, as well as a focus on smaller populations and increasingly rare diseases (from block- to "nichebuster") [17,32,39,41,42]. Parallel to this development, a shift towards vertical specialisation and horizontal consolidation took place in the industry [43]. The strong consolidation has been driven by mergers and acquisitions, following a peak of company formations in 2004 [31,32,35]. At the same time the importance of large pharmaceutical companies in originating successful therapies and filing them for regulatory approval decreased, in favour of the emerging biopharma companies [32,44]. This development was not only driven by the market entry of biopharma companies. It also reflects the transformation of large pharmaceutical companies, which had to change their business models with a focus on in-house product development towards more collaborative R&D organizations ("open innovation") with a portfolio of research and venture partnerships [15,34,40,44-46]. The reasons for this included steadily rising development and commercialisation costs with a declining "innovation output" (because the "easy" problems had already been solved), which has been described as the "productivity crisis" in the pharmaceutical industry [37,40,47-52]. However, the next phase of technological development has already begun with the approval of the first cell and gene therapies in Europe and the USA [53]. These technologies, together with more biomarker-driven therapeutic decisions and the new possibilities of "next-generation sequencing", represent the new era of personalised medicine, which promises an even greater focus of new medicines on specific target groups [32,35,39,54,55]. While the loss of revenue from small molecule ("chemicals") branded medicines will continue to increase due to generic entry, biologics originators are likewise coming under increasing pressure from patent expiry and the growing biosimilar market [28,56]. The upcoming decade might bring additional opportunities as well as threats to biopharma industry from outside by digital therapeutics and could finally lead to a certain convergence of tech and pharma industry [34,45,54].

1.2. Regulation of pharmaceutical prices: current policy challenges

Financing regimes for pharmaceutical therapies vary considerably across the OECD, but their pricing and reimbursement (P&R) is regulated by law in most countries [11,36]. The available policy options can generally be divided into those that address the supply side and those that address the demand side [1,57,58]. On the supply side, they can address pricing directly, based on prices in other countries, the cost of already available and comparable therapeutic options, clinical value, economic value, etc. [57,58]. They can further control reimbursement by directly addressing expenditure through mandatory rebates, payback

schemes, price-volume agreements, etc. [57,58]. A third group of supply-side options focuses only on the impact of reimbursement for marketing authorisation holders (MAHs) by exercising profit controls or tax incentives [57-59]. The demand side includes options that address the behaviour of prescribers (physicians), patients, pharmacists and wholesalers, for example, through guidelines, budgets, cost sharing, distribution margins, generic substitution, etc. [1,57-59]. This dissertation does not deal with all P&R regulations in the following, but focuses on the pricing on the supply side between the pharmaceutical supplier (MAH) and the price setter (authority or payer). We use the term pricing policies according to the definition of the WHO.[2]

Most common pricing policies for pharmaceuticals are external or international reference pricing (ERP), internal or therapeutic reference pricing (TRP), as well as various forms of value-based pricing (VBP, see Chapter 2.1.2 for a description of current pricing policies) [1,59,60]. ERP and TRP have been introduced in many European countries since the 1990s, while the discussion on the introduction of VBP only gained momentum in the second half of the first decade of this millennium. [60-63]. The WHO recommends that policy-makers use ERP and TRP policies, as well as VBP policies, provided that they are each used in conjunction with other pricing policies and based on verifiable data sources (among further conditions) [59]. ERP, the practice of determining the price on the basis of the average or the lowest price in predefined reference countries, is widely used especially in Europe due to its conceptual simplicity compared to other regulations and probably also due to its publicity (no higher prices than abroad) [59,61]. It is more often used in the patent-protected than in the off-patent market [64,65]. However, the design of the instrument varies greatly between countries and has significant shortcomings [66-68]. It incentivizes MAHs to introduce new therapies first in high-cost countries and delaying or not introducing them at all in low-cost countries [61,65,66,69-73]. In addition, MAHs and pricing authorities are incentivised to negotiate confidential discounts, which reduces transparency and results increasingly in official list prices being higher than actual reimbursement prices [61,65,66]. Finally, the effectiveness of the policy, if only in terms of reducing international price disparities, is open to question, or at least difficult to verify (see Chapter 2) [1,57].

Instead of referring to the prices of the same product in other countries, pricing can also refer to comparable products in the domestic market. TRP is the "practice of using the prices of a

[2] This dissertation, including all subsequent chapters, follows the WHO definition which defines "pharmaceutical pricing policies as a set of written principles or requirements for managing the prices of pharmaceutical products, agreed or adopted by a public institution (e.g. a government authority), a group of purchasing organizations, or individual health services" [59]. The work focuses on pricing between the marketing authorisation holder and the price setter (authority or payer) on the supply side. The WHO seems to use its own definition more broadly, in the sense of P&R policies, as it also includes, for example, measures for generic substitution in its guidelines. Further, the proposed framework (Chapter 1.2.2) and the concluding discussion (Chapter 1.5) as well as the systematic literature review in Chapter 2 focus on *public* pricing policies, while the controlled experiments in Chapters 3, 4 and 5 can in principle also be applied to non-public purchasing organizations.

set of pharmaceutical products that are therapeutically comparable" or interchangeable [59], determined by chemical class of the active substance (e.g. ATC level 4 or 5) or by the therapeutic indication (potentially considering even non-pharmaceutical treatments) [59,66]. Most countries use the policy for the off-patent and generic market, while only few apply it also for new, patent protected products [60,65,74]. The probable reason for this is that pricing of a new, patented product under the simple reference to existing, comparable therapies (e.g. average price, adjusted for differences in dosage and pack size) does not yet provide an answer as to whether and how a potential additional therapeutic benefit should be priced. If the marketing authorisation holder does not receive a "premium" for a demonstrable added benefit, he might refrain from launching the product in the country, e.g. because of the impact on ERP in other countries. Or a third party, usually the patient, has to pay for the difference between the reference price and the list price [1,62,74]. Another challenge with TRP is that prices are usually set at the product level, while new products in oncology and immunology in particular are increasingly used for multiple indications and also not always in the same line of treatment, and both may change during the product life cycle due to expanded evidence [23,75,76]. Finally, also combination therapies pose a difficult challenge (not only under TRP) especially if offered by different companies [22,76,77]. If a new product is approved in combination with an already existing treatment in the same indication, the payer might not be willing to double the price for the therapy while the two MAHs hardly want or are able to split the price.

The term "value-based" in the context of health care blossomed in the 2000s [17,63]. One of the most cited examples is the 2006 book by Porter and Teisberg entitled "Redefining health care: creating value-based competition on results" which recommends a corresponding reform (primarily) of the US health care system [78]. A search for publications in PubMed and Google Scholar shows that although "value-based pricing" in the context of pharmaceuticals had been described earlier, the discussion only gained momentum with the 2007 report of the Office of Fair Trading (OFT) in the UK, which recommended a reform of the Pharmaceutical Price Regulation Scheme (PPRS) that replaces the "current profit and price controls with a value-based approach to pricing" [79]. The report expected VBP to improve value for money and sustainability of the NHS, as well as create better incentives for investment in R&D [79]. Although the UK did not have ERP, the OFT's report explicitly addressed the UK's role as a reference country for many other health systems, estimating that its own price regulation would potentially affect approximately 25% of the global pharmaceutical market at the time [79]. In the last decade, several OECD countries have adjusted their price regulations in the spirit of VBP, or at least in such a way that the added value of new medicines can be taken into account in the P&R decision [63,80-84]. While there is still no widely accepted definition for VBP, it is best described as the practice of setting the price of a new pharmaceutical product "based on the measured and quantified 'value' […] that patients and health systems attribute" to it, "usually assessed through health technology assessment

(HTA) or economic evaluation" [1,7,23,59,63,85]. However, the implementation of VBP has proven to be challenging, resulting in a heterogeneous landscape of VBP systems in Europe (see Chapter 5.1.1) [4,23,66,80]. This could be one reason why there is currently no evidence of the VBP's ability to achieve any of the promised goals (see Chapter 2) [1]. Another reason is the sheer density of other reform measures on national pharmaceutical pricing regulations in the past decade. This is because the birth of the VBP reform ideas coincides with the financial and economic crisis of 2008. Their impact on public finances caused a surge in reform discussions and measures in the area of pharmaceutical price regulation [22,29,36,60,86-90]. Between 2010 and 2015 reimbursement and pricing authorities in Europe reported 557 policy measures taken related to pharmaceutical pricing [89]. A large part of the measures (74) directly addressed prices through price freezes and price cuts, but a significant part of the measures (69) also addressed external and internal reference pricing policies [89].

These predominantly cost-containment reforms, together with patent expirations of several top-selling products, appeared to have a dampening effect on pharmaceutical expenditure growth in the OECD [10,36,63]. While the average real annual growth of pharmaceutical expenditure was above the growth of total health expenditure in the 1990s and early 2000s, it dropped significantly in the second half of the 2000s and was negative from 2009 (with the exception of 2004) until the current data status [10,16,36,63]. While retail expenditure on pharmaceuticals in the OECD as a whole has remained roughly stable at 1.4% of GDP in recent years, it has risen significantly in certain therapeutic areas [16,28]. The market evolution described above (1.1.1.) has brought a steady increase in the annual therapy costs of newly launched products in areas such as oncology, immunology and rare diseases in general [17,28,36,39,91]. For example, the list prices of new cancer medicines at launch increased on average from $79,000 in 2013 to over $150,000 in 2017 [92]. This general development was driven by the described shift from primary care towards specialty pharmaceuticals[3] for specific patient populations, resulting in a strong increase in their share of global pharmaceutical expenditure [16,28,30,32,36,37]. It has almost doubled in developed countries from 23% in 2009 to 47% in 2020 and is estimated to reach 59% in 2025 [10,16,28,55].

Rising list prices and annual therapy costs have led to growing concerns about affordable access and the sustainability of health care spending in many countries around the world, and have prompted calls for reform of pharmaceutical pricing by the WHO, the OECD and

[3] While there is no standard definition of a specialty pharmaceutical, this dissertation will follow the commonly used definition of IQVIA, which proposes the term (among other criteria) for pharmaceuticals that treat chronic, complex or rare diseases (i.e. often more serious medical conditions such as cancer or autoimmune diseases, etc.), which are initiated or managed by a specialist, and are typically offered at a high list price so that patients need financial support to pay for them [16,28,93]. Other characteristics are that these pharmaceuticals and/or the disease addressed by them require additional monitoring (e.g. due to significant side effects) and that the products often have special logistical requirements (e.g. continuous cold chain, etc.) [28].

the Commission, as well as the Council of the European Union, among others [17,22,57,59]. The pharmaceutical industry is also calling for reforms. The European Industry Association EFPIA asks for improved pricing systems as well as new financing models that "award appropriate prices", "align[ed] with value and ability to pay" [39,94]. At the same time EFPIA shares with authorities and providers the concern about "significant" and partly "unacceptable" differences between European countries regarding patient access to innovative medicines [16,22,39,65,94-100]. The demands apply in particular to therapies of personalised oncology, but also to expected curative treatments for infectious diseases and beyond, as well as to expected advances in preventive and early detection interventions [34,39,54]. According to the industry, the ongoing scientific advances (1.1.1.) require adaptation of existing P&R systems, particularly for the pricing of one-off curative gene and cell therapies (upfront payments), dealing with increasing uncertainty about the extent and duration of clinical benefit, and the use of medicines across indications and combinations [101].

Due to the increasing shortcomings of the existing price regulation systems, authorities, payers and industry seem to agree that the implementation and further development of value-based pricing policies is necessary. The common goal appears to be to ensure access to and sustainable financing of improved treatment options and to increase the value for money in order to promote effective R&D investments [16,22,65,66,101-103]. Major challenges include establishing a value framework, including defining value components and how they should contribute to decision-making, as well as dealing with the uncertain value parameters of new therapies at market approval (see Chapter 5.1.1) [4,80-82]. To address the latter, various forms of so-called managed entry agreements (MEAs) have increasingly been agreed upon in recent years (see Chapter 5.1.2) [104-107].

1.3. Pricing negotiations for new pharmaceuticals: why do they take place?

According to EFPIA, the differences in patient access in Europe are due, among other factors, to delays in price negotiations, which take place after the (potentially already delayed) HTA process and the P&R assessment [94]. But why do such negotiations take place at all, given that the pricing of new pharmaceuticals is regulated by public policies in many countries (1.1.2)? In reality a price acceptable to both sides can rarely be derived directly with the help of any public pricing policy. The pricing of pharmaceuticals in the patent-protected market and particularly for speciality pharmaceuticals is ambiguous (see Chapter 3.1 and 5.1.3) [2,22,108-112]: It usually takes place in a bilateral monopoly and the product attributes are complex, often uncertain and in part also represent a public good [4]. Moreover, in many countries, the demand side is divided into three or even four actors; the price-setter (public authority) is not always the payer (health insurer), and the consumption decision is usually not made by the beneficiary (patient) but by an expert (prescribing physician). Suppliers and buyers have to make a complex assessment of total (social) benefit and cost, based

on uncertain value parameters, which may both lead to different conclusions. And even if both had full information about all relevant benefit and cost parameters, there is not just one but a set of optimal prices in a bilateral monopoly that leave both parties better off with an agreement than without one [4,113-116]. In other words, the "explicit and implicit allocation of power to set prices" and the "unavoidable uncertainty around value measurement and aggregation" might be the reasons why "known factors such as clinical benefit or population size" or reference prices alone cannot fully explain negotiations outcomes for new medicines [22,117-125]. Interestingly, the general population also seems to think that pharmaceutical price negotiations are necessary. At least this is what a recent survey in Australia showed. While the general population stated that price negotiations should not hinder access to new therapies for patients (80% of respondents), at the same time 70% felt that price negotiations are justified even if they result in the pharmaceutical company refusing to sell the medicine in the domestic market [126]. However, complex reimbursement negotiations can result in delayed availability of new, life-saving treatments, which has led to increasing concern among authorities, the pharmaceutical industry and providers, and various calls to reform the pricing process itself [2,16,22,23,65,66,86,94,95,98,99,107,127-133].

2. Objective

2.1. On what information do reforms of pharmaceutical pricing policies rely? The rationale for evidence based policy analysis

As outlined in the introductory section (1.1), several developments are driving the pressure for reform of pharmaceutical price regulation: the general development of the global pharmaceutical market, technological progress which makes benefit assessments of new therapies increasingly complex and pushes existing reimbursement models to their limits, the development of public finances, the international debate and cooperation on access to essential therapies, etc. As laid out further, policy makers and the industry seem to agree on the main policy goals (maybe not on their order of relevance, or on how they interact) and to a certain extend also on the fact that policy instruments should be adapted towards value-based pricing[4]. Despite the reform efforts described, little is known about the extent to which value-based pricing policies in general, and outcome-based managed entry schemes in particular, achieve the desired goals (see Chapter 2) [1,65,104,105,136,137]. This is despite the fact that the developments described were accompanied by a corresponding growth in the published literature on the topic of pharmaceutical price regulation (Figure A2, Appendix 1). One major reason for this is that value and price determination for new pharmaceuticals take

[4] Based on our definition of pharmaceutical pricing policies, additional reform proposals addressing intellectual property rights (patent protection) or establishing "adaptive" licensing or pathways for new medicines (see for example [22,134,135]) are not the focus of this thesis.

place in reimbursement negotiations, which are often confidential in process and outcomes [3,22,23,66,93,138]. However, it is also methodologically difficult to test the effectiveness of introduced regulatory measures in the real world, as various confounding variables such as other parallel policy interventions, economic and technological developments, as well as country-specific characteristics have to be taken into account [1,4].

The overall objective of this dissertation is to explore how experimental economics could be used to inform reforms of value-based pharmaceutical pricing policies. On the one hand, given the limited availability of empirical data on the effects of implemented price regulations. On the other hand, due to the existing insights and heuristics of experimental and behavioural economics that have emerged over the last decades in many countries and policy areas, including health care, which have hardly been applied to pharmaceutical price negotiations so far (see 1.3.3)[5] [4,139-146]. Or to put it more simply: the overall aim is to build a bridge between established research in experimental and behavioural economics on the one hand and the current policy reform debate on pharmaceutical price regulation on the other.

2.2. A framework for the analysis of pricing policies for new medicines

The perspective of this dissertation can be assigned to the field of *policy design*, and within that again to an evidence-informed approach [147]. Policy design involves the "deliberate and conscious attempt to define *policy goals* and connect them in an instrumental or logical fashion to the *instruments or tools* expected to realize those objectives [147-150] (emphasis added). It often "begins with the *analysis* of the abilities of different kinds of *policy tools* […] to trigger *behavioural* and other mechanisms among *target groups* in order to *affect policy outputs and outcomes*" [147,151] (emphasis added). Based on this understanding, we first propose a conceptual framework for policy analysis and design (Figure 1). This will serve as a basis for a systematic literature review (Chapter 2) to identify the policy *instruments* (pricing policies), the *actors* involved (behavioural effects) and the policy *outcomes* in the pharmaceutical pricing policies discourse. The completed framework will in turn serve as the basis for the development and testing of an experimental design for the analysis of pharmaceutical pricing negotiations (Chapters 3, 4 and 5). At the same time, it offers the opportunity to contextualise the experimental results in the market development and reform debates (Chapters 1.1.1, 1.1.2 and 1.5). Finally, the literature review in Chapter 2 also offers the opportunity to identify the most important methodological approaches in the analysis of pharmaceutical price regulations. The goal is to attempt to integrate experimental analysis of pharmaceutical price negotiations into economic policy research on effectiveness of phar-

[5] Our literature searches did not reveal any experimental studies on price negotiations of medicines. One theoretical essay on pharmaceutical pricing negotiations was found which suggests that "several behavioural economic related phenomena may affect price negotiations […] between pharmaceutical 'buyers' and 'sellers'" [133].

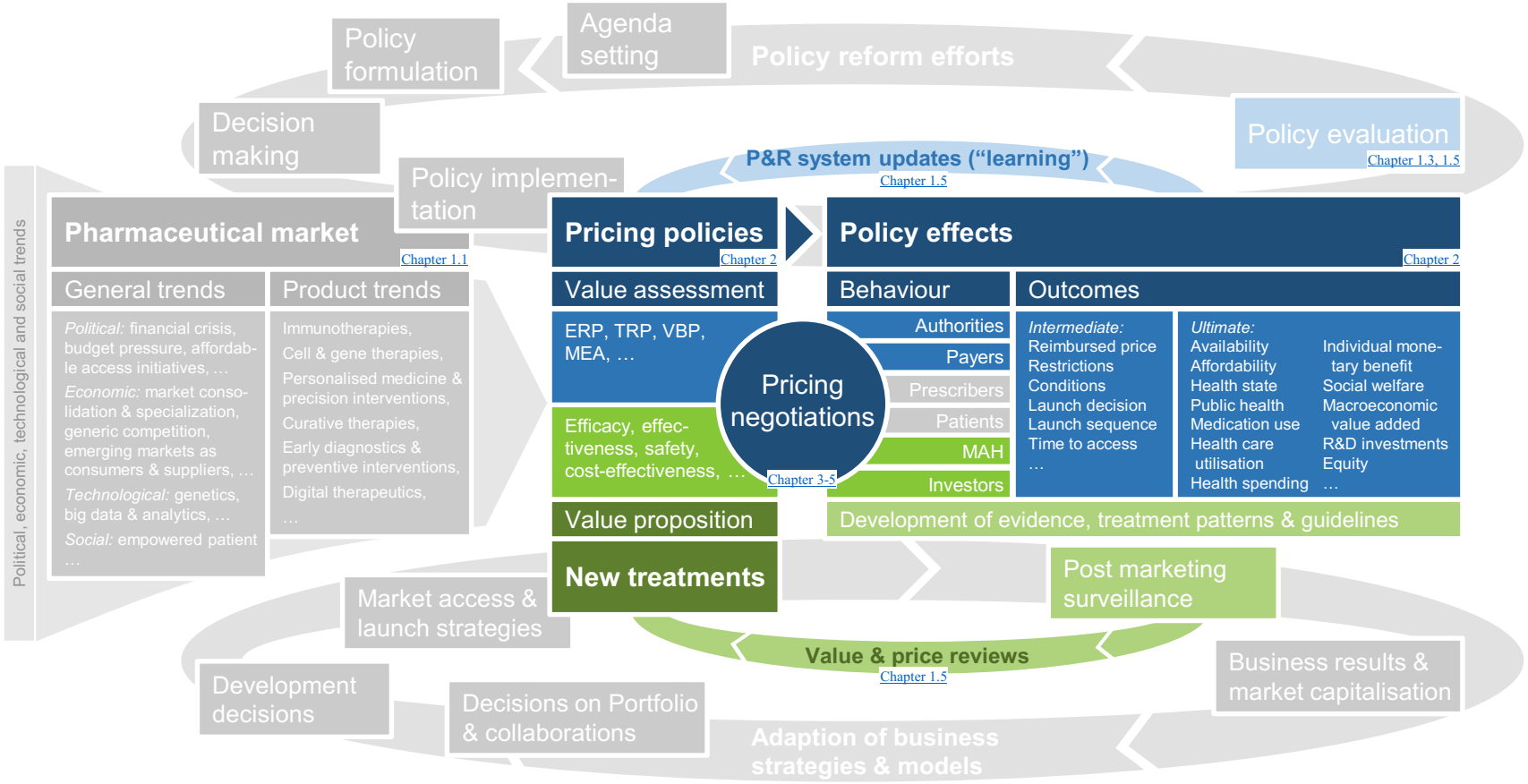
maceutical pricing regulations (Chapter 1.5). To do this, we will draw a rough methodological map that links the currently separate discourses of application-oriented health policy research and experimental health economics (Figure 2). However, it is outside the scope of this thesis to attempt a detailed outline of the methodology of policy analysis in this policy area, as well as a detailed overview of the different fields of behavioural economics research.

Figure 1 provides the conceptual framework for our policy analysis and design. It has already been completed with the key findings of the literature reviews described in Chapter 1 and 2. On the one hand, the framework places the pricing policies in the context of the described, long-term societal and market developments. On the other hand, the policies and their effects are presented as part of a medium-term policy reform cycle. At the same time, the price setting of newly launched therapies is presented in the context of short- and medium-term evolving business strategies and models in the industry. The contextual references serve to delineate the experimental analysis within the overarching industry and policy reform developments. On the one hand, the elements of the cycle heuristics provide an established aid for structuring the literature contributions. On the other hand, the reform process perspective can be used to discuss the influence of country-specific, historically evolved price regulations and institutions in general, as well as the influence of the actors involved. It is explicitly not assumed that the developments strictly follow a linear, causal cycle.[6] Several of the literature contributions from academia, politics and industry analysed in this paper are not only to be assigned to an ("objectively neutral") policy evaluation. They also represent attempts to influence reform agendas, ongoing reform projects and current political decision-making processes. Similarly, the evolution of the industry's business orientations may involve, for example, global portfolio decisions in parallel with clinical research or local commercialisation decisions. Ultimately, however, legal requirements, multi-year government plans and business strategies, established business processes, and good public and corporate governance in general provide some direction of impact.

The coloured elements of the framework show the focus of the studies conducted, while the grey elements serve to structure the background description and the concluding discussion.

[6] This takes into account the different criticisms of the original understanding of the policy cycle concept as well as of top-down evidence-based concepts: [147,152-155].

Figure 1: Conceptual framework for the analysis of pharmaceutical pricing policies



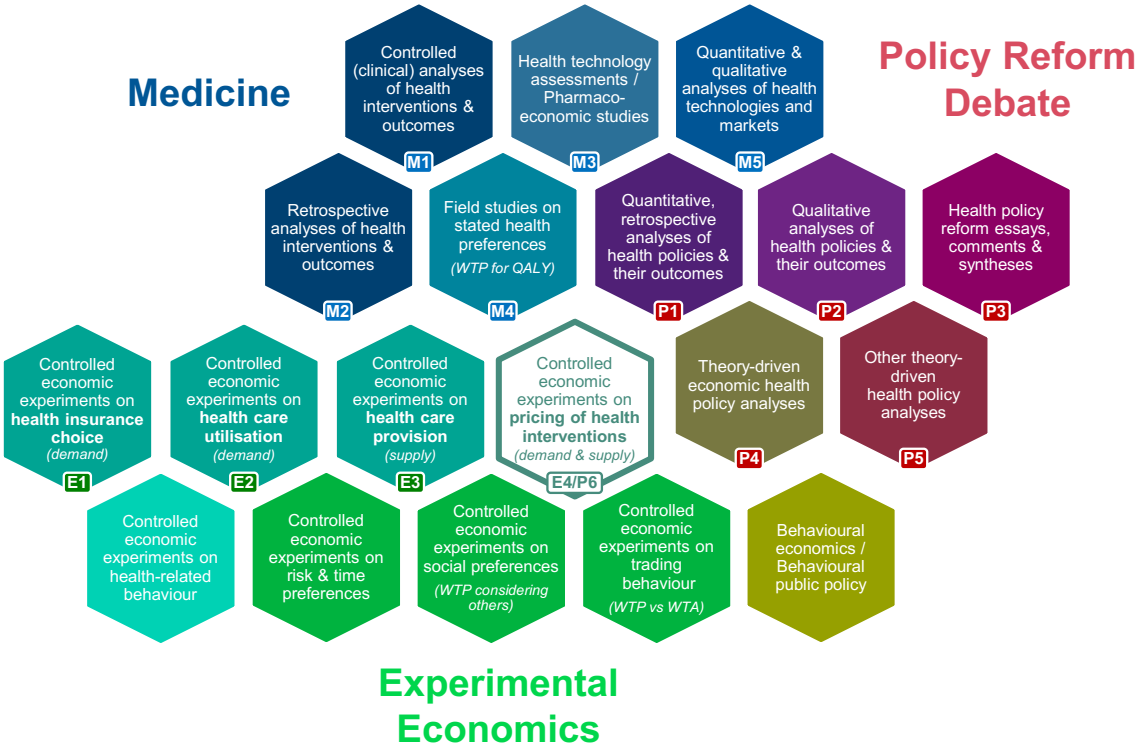
Own illustration, based on Wettstein & Boes 2019 [1], OECD 2017 [17], Howlett 2019 [147].
MAH: marketing authorization holder

3. Methods

3.1. Methodological context of the analysis of pharmaceutical pricing policies

A variety of quantitative and qualitative methods are used to analyse pharmaceutical pricing policies and their outcomes. Figure 2 represents an attempt to present the relevant literature within the focus of this thesis and its context in generic groups. As described, the focus lies on the reform discourse around pharmaceutical price regulation (in red shades, P1-P5). These contributions refer to literature in the broader context of medical, pharmacoeconomic and market research (blue, M1-M6, not the focus of this work). The third, lower part of the methodological map represents the growing discourse of experimental health economics (blue-green), focusing on supply and demand in health care (E1-E4). These contributions refer to the already established research in experimental economics, as well as behavioural economic theory (green, not the focus of this work, selected according to relevant research background). In the following, a research approach is presented that brings together policy analysis and experimental economics. The aim is to extend policy analysis with a prospective, controlled design (P6) by simultaneously extending experimental health economics with a design to study the pricing of new health interventions (E4).

Figure 2: Methodological context of the analysis of pharmaceutical pricing policies



Own illustration

3.2. Methodological approaches for the analysis of pharmaceutical pricing policies

The relevant literature on pharmaceutical price regulation can be roughly assigned to the common methodological categories of policy analysis (see e.g. [156-160]). Appendix 1 provides details on the updated review of the respective literature. 30% of the contributions are retrospective, quantitative studies (P1), for instance interrupted time-series studies on the development of medicine prices after a historic reform of price regulation in a country. Or studies using multiple regression analysis to explain medicine prices and expenditures in different health systems. A further 18% represent qualitative studies (P2), mainly interpretative analyses of published research literature and government documents, interpretative interviews with experts, as well as country-specific case studies. 16% represent theory-driven economic analyses (P4), such as game-theoretical models of the impact of regulatory intervention in the market for medicines, or simulations of the (national or international) impact of ERP and VBP. However, most of the contributions in the literature (35%, P3) are not based on established quantitative or qualitative research methods. These include various formats of essays and reports that (selectively) comment on and derive conclusions from existing research contributions and published statistics on pharmaceutical prices as well as from planned or implemented reform projects. The majority of the contributions do not specify the research method chosen as the basis for the synthesis, the conclusions or the recommendations. Nevertheless, as these are again referenced by other (research) articles (P1-P4) they are an essential part of policy analysis and design, especially since they are partly produced or funded by governmental and industry organisations. According to our (Chapter 2 [1]) and comparable (e.g. [90,161]) systematic literature reviews, there are no prospective, controlled (before-after or randomised) studies on pharmaceutical pricing policies[7].

In a first study (Chapter 2) a systematic literature review on the effectiveness of pricing regulations in OECD countries was performed. The methods chosen were generally based on the recommendations of the Cochrane Effective Practice and Organisation of Care group (EPOC) [162]. Only randomised or non-randomised trials, controlled before-after studies and interrupted time series studies were included [163]. In deviation from the EPOC recommendations and comparable reviews, other quantitative empirical studies were included if appropriate methods were reported [1]. Further details on the methods applied (inclusion, searches, data extraction, analysis, assessment of risk of bias, synthesis) are described in Chapter 2.2.

[7] In the last update of the review (July 2021) our own, first two experimental studies were found, as well as two prospective studies in the systematic review of Tordrup for the updated WHO 2020 guidelines which did however not fall within the focus on supply-oriented pricing policies as defined above (1.1.2). See details below (1.4.1).

3.3. Controlled economic experiments on supply and demand of health care

In recent decades, experimental methods have been successfully introduced into economics and respective findings, together with behavioural economic heuristics, have been applied to public policy analysis and implementation in many countries and policy areas, including health care [139-146,164]. Although controlled health economic experiments, like experimental economics in general, are nothing new, their broader application and acceptance has only recently taken place [144,164,165]. This is especially true for controlled experiments that do not investigate health-related behaviour in general, but demand and supply behaviour related to health care services offered by the health sector (see below and Figure A4 in Appendix 2). While a taxonomy for the still evolving field of research can only be provisional, the following characteristics are proposed for a controlled health economic experiment, based on the recent review by Galizzi and Wiesen (2018, GW), the reviewed literature (Appendix 2), guidance for experimental economics in general and the above mentioned methodological guidelines from EPOC for appropriate study designs [144,163,164,166-168][8]:

1) *General study design:* The study is a prospective, randomised experiment[9] with an intervention related to human behaviour and has at least two experimental groups. If only one experimental group is studied, an interrupted time series analysis with repeated measures and at least three data points before and after the intervention measured in the same individuals (within-subject) is used.
2) *Study population*: A controlled recruitment of either
   - a standard population with described characteristics or
   - a relevant target population with specific described characteristics is ensured.
3) *Research interest:* The underlying research intentions and questions of the study are based on assumptions and considerations of conventional (micro-) or behavioural economics. The intervention (independent variable) targets the decision-making situation of the study participants ("choice architecture") and is not, for example, purely physiological in nature (e.g. administration of a chemical substance to influence behaviour), while the endpoints measured can also be non-behavioural (e.g. medical endpoint or financial outcome).
4) *Decision situation*: The research design ensures a controlled decision-making situation, either in the natural ("day-to-day") or in a constructed (physical or virtual laboratory) setting[10]. The conditions differ between groups or points in time only in terms of the interventions. If the decision takes place in a constructed setting, it is

[8] The list and the criteria per item are far from exhaustive. It represents the author's attempt to summarise the current emerging common denominator or minimum standard in the literature reviewed.
[9] The term "randomized controlled trial" is avoided in the health/behavioural economics context, since it is mainly used for clinical studies in the literature.
[10] See considerations below on the differentiation between natural and constructed (laboratory) setting

controlled by clear instructions describing its procedure, tasks, rules, objects of exchange/application, decision consequences and, if applicable, the context.

5) *Research focus*: The behaviour under investigation is health or health care related and involves decisions made by healthy consumers, patients, physicians, insured persons (potential patients), pharmaceutical representatives, etc. that affect patients, physicians, healthcare payers, etc. If a constructed setting is used with no health-related ("neutral") framing, a specific health-related research intention and design must be present and/or a specific study population related to health care must be selected. Focus of studies:
    a. Health-related behaviour in general, such as addictive behaviour, healthy eating, physical activity, etc.
    b. Demand and supply behaviour related to health care services offered by the health sector, i.e., health care providers, the pharmaceutical and medical devices industry or health insurances, etc.
6) *Measurable outcomes with real consequences*: The primary outcomes are observable and are collected during the decision-making situation and not self-assessed by the participants afterwards. The participants' behaviour is incentivized and has real (typically monetary), incentive-compatible[11] consequences for themselves and/or other participants in the experiment and/or for decision-relevant actors outside of the experiment. Participants are informed about the consequences of their decisions and are not deliberately deceived.

Criterion 6 excludes (most) discrete-choice experiments (DCE) for assessing stated health preferences (M4 in Figure 2), which have experienced a parallel increase in the past two decades, but are generally based on hypothetical surveys [144,173-176]. The effects of hypothetical decisions related to health preferences without consequences in the real world are the subject of an ongoing debate that will not be commented on further here [177-180].

Since this work focuses on supply and demand behaviour related to the health care sector (*Criterion 5b*), controlled economic experiments on general health-related behaviour (*5a*) are not commented further, although they fall under the proposed taxonomy.

Criteria 2, 4 and *5* imply that it may be necessary to distinguish between certain *types* of controlled health economic experiments. The typology most commonly used in the literature distinguishes between (different forms of) "laboratory" and "field" experiments

[11] This thesis uses the term 'incentive compatibility' for the taxonomy of experiments like GW "in the usual experimental economics sense that participants bear some real behavioural consequences for their choices in the experiment" (induced value theory) [144,168-171]. The objective is that "subjects are incentivised to give truthful responses to the decision problems the experimentalist presents them with under the controlled conditions of the lab" [172]. A comprehensive summary of the complex concept can be found in Hofmeyr 2021 [172]. The vast majority of controlled health economic experiments used for this work did, however, not use the term.

[144,166,172,181-183]. However, a uniform and plausible distinction between the historically evolved types is hardly possible, which is why it is the subject of ongoing debates in the literature without a clear emerging consensus [144,166,172,181-183]. In the following, a plausible typology is explored to find the appropriate design with regard to the research objective of this thesis (1.3.4). The types are often used in the combination laboratory-/field-"setting", "environment" or "context" [165,166,182-187]. These three terms are, however, not used consistently in the reviewed literature. For the following considerations, *setting* is understood as part of the design and an overarching term for the consciously provided procedures, tasks, rules, objects of exchange/application, decision consequences as well as the consciously provided *context*[12] of the decision situation (Table 1). The *infrastructure* chosen to carry out the experiment includes the infrastructure for recruitment, execution, and data collection in the experiment, all of which can be done physically as well as online (virtually) or digitally. In contrast to the given context, the infrastructure is part of the design but usually not part of the instructions and not part of the setting, as the same setting can be implemented on different infrastructure. The term "environment" is avoided since it can refer to the physical location of the participants, the (physical or virtual) infrastructure or device of execution, as well as any provided or described context of the decision situation. The described context of the decision-making situation can have a significant influence on the behaviour of the participants (framing effect) [188-192]. Such "framing" can either be given naturally or be deliberately designed (neutral or naturalistic) and can also refer to further setting elements, such as the exchanged objects or the actual task, etc. [166]. Finally, several of the setting elements can be given or considered jointly as "institutions" [172]. The "conscious provision" of these design elements may sometimes be difficult or not useful in experimental studies of a natural decision situation. These are much more likely to be determined by the natural conditions and must be controlled otherwise, if possible and appropriate.

While there are few precise definitions of the term "laboratory" in the reviewed literature, the advantages of laboratory experiments are generally described in terms of the possibility of tight control and measurability of the independent and dependent variables, their internal validity and reproducibility, which allows theoretical models and interventions to be tested under ceteris paribus conditions and causal conclusions to be drawn [144,164,191,193] [172]. This seems particularly advantageous when the behaviour to be analysed is difficult to observe in the real world or when the intervention (e.g. institutional changes) is difficult to isolate from other influencing factors [144,164,193]. In contrast, the advantage of field experiments is often described as higher external validity, as decisions are made in a more relevant, natural environment. [166,172,182].

[12] The term context is used in a narrow sense for any consciously instructed background information and provided scenery to frame the decision situation, not for the cultural context brought along by the participants (see next page).

Table 1: Overview of selected design elements for determining types of controlled experiments

Study population (subject pool)	Standard population Relevant target population	
Sampling methods & groups		
Experimental setting	Context (background) Tasks Objects Rules Procedures Consequences ...	*Framing,* *Institutions,* *Interventions,* ...
Infrastructure	Recruitment Execution platform Execution/access location Data collection Payment	 face-to-face / virtual (online), electronic device standardised physical location / remote (online)

Own illustration, based on the qualitative synthesis of the reviewed literature (Appendix 2)

In the tradition of "field-oriented" research, the term setting is usually understood in a broader sense than described above, as is the term context. A frequently cited taxonomy is that of Harrison and List (2004, HL), according to which the setting of field experiments is determined by six factors [166]: Subject pool, information subjects bring to the task, commodities, task or trading rules applied, stakes, environment in which subjects operate. According to HL and contributions that refer to it, a "non-standardised" ("non-student") study population seems the most important characteristic of a field experiment, which is recruited from a relevant target group in the "field" to be studied [166,181-183,185,186]. However, an advantage is seen in bringing the "lab paradigm" into the "field" (i.e. to the relevant target population) in order to be able to analyse not only natural decisions with limited control [182,185]. HL proposes the two types of "artefactual" and "framed field experiment" in addition to "conventional lab" and "natural field experiments" [166]. The first having a neutral, the second a specific framed setting relevant to the research objective. Some of the more recent contributions subsume these two under "lab-in-the-field"[13] [183,186] ("extra-laboratory" [185], "lab-like field" [182]) experiments.

In summary (and somewhat simplified), the degree of control vs. authenticity of the *experimental setting (decision situation)* and the standardisation vs. representativeness of the *study population (subject pool)* seem to be main dimensions to categorise the types [165,166,172,181-187]. Table A8 (Appendix 2) represents a rough attempt to structure the

[13] With exception of Gneezy (2017) who refers with "lab-in-the-field" to HL's "artefactual field experiments" only [182].

referenced literature in this respect. Table 2 below presents a suggested typology for determining a suitable design for this research project.

The relevance of the *experimental infrastructure* for a typology remains far less conclusive or is mostly mentioned only in passing in the "field-oriented" contributions described above[14]. The question remains, however, to what extent a distinction should be made between controlled, constructed experiments with participants on site in a physical laboratory and those with (remote) online participants. Publications on online experiments on health-related behaviour as well as online laboratory experiments have steadily increased over the last ten years (Figure A5, Appendix 2). In addition to the expanded technical possibilities and solutions available, the main advantages are a much larger, potentially more diverse and easier to reach recruitment pool, as well as a much easier implementation without the required physical infrastructure, associated travel requirements for participants, as well as the potentially lower implementation costs [194-200]. The need to conduct experiments without physical interaction and travel has dramatically increased in the past year due to global restrictions on face-to-face experiments during the COVID-19 pandemic [201,202]. Nowadays, all phases of an experiment, from recruitment, implementation of the setting (experimental flow), execution, data collection, and payment of participants can be conducted online [200,202-204]. For this purpose, existing (commercial) platforms, such as Amazon Mechanical Turk (MTurk), or a lab's own server infrastructure can be used [200,202,204,205]. In fact, today the interactions in the physical lab are mostly computer-mediated and the participants increasingly access an experimental setting provided online (e.g. using z-Tree, oTree, Qualtrics, etc.) [204,206,207]. As in the physical lab, the participants' decisions can take place simultaneously and be interactive in real time, or they can take place spread over a predefined time slot and be matched afterwards using the "strategy method"[15] [198,203,204,206,208].

In recent years, a wide variety of studies have been published on the reliability of online experiments and their replicability in physical laboratories and conventional field experiments [196,197,203,205,206,209-218]. There are, however, some conceptual as well as logistical differences that should be considered depending on the setting under investigation [203]. Probably the most important difference in real-time interactive settings carried out online is the attrition (or dropout) of participants [203,213,217]. In physical laboratory experiments, participants are much less likely to drop out before the end of the experiment, whereas this is more common in online experiments. Arechar et al. show that the difference in dropout rate does not necessarily affect validity and may be mainly exogenous (e.g. technical reasons for dropping out) [203]. To ensure this, appropriate measures must be taken,

[14] For example for Druckman (2022) the "location of the intervention" is relevant for the type while for Charness et al. (2013) the "venue" of an experiment is not a distinctive factor [185,186].
[15] See Chapter 3.3.3.

for example, to prevent participants who have already completed one stage of the experiment from leaving the experiment while waiting for a counterpart (e.g. by specifying a waiting time counter) [203]. Another factor to consider is possible insufficient attention and or understanding of the task, whereby the latter also applies to experiments in physical laboratories [198,203,213,217]. To reduce and control associated biases of results, comprehension and attention tests can be used during (intervening) and after (stratifying) the experiment, whereby these elements should be tested for robustness and their effect reported [198,213,217,219]. Especially attention screeners should only be used to stratify results, as the strict exclusion of inattentive participants can reduce the generalisability of results [219]. There may be other reasons why reduced physical monitoring of participants is suboptimal in certain settings, e.g. if they are only expected to solve the task with selected sources of information. At the same time, the physical absence of caregivers or support persons may also reduce unintended effects on participants' behaviour [213]. Finally, multiple participations by the same person in online experiments are possible, but of decreasing importance as online platforms offer increasingly better measures to prevent this or to control it afterwards [196,203].

Due to the growing technical possibilities and the advantages of online experiments, it can be assumed that their use for constructed, controlled and interactive behavioural experiments will continue to increase. And with it, the further establishment of appropriate measures to ensure comparable control to physical laboratories. It is therefore possible that the distinction between online or virtual experiments and conventional laboratory and lab-field experiments will become less important. Regardless of this, however, it remains important to distinguish between experimental analyses of the natural decision-making situation and controlled, constructed settings. For the sake of simplicity, a distinction is made hereafter between *natural* and *laboratory* (constructed, controlled) settings[16], irrespective of the study population and infrastructure. However, for the selection of the appropriate design for the present work, the proposed typology was supplemented by a third dimension for the infrastructure. (Table 2).

Appendix 2 provides details on the performed review of the literature on controlled health economic experiments. The included studies were categorized according to the research focus of the studies (E1-E4) and their basic decision setting (natural vs laboratory). The abstracts of 781 non-duplicate entries were screened. Of these, 128 (16%) qualified as original controlled health economic experiments, of which 79 (62%) examined behaviour related to the supply and demand of health care services[17]. Most of them (41, 52%) examined the delivery of health services (E3), primarily the behaviour of treating physicians (with student or

[16] The term laboratory is preferred because of its historical association with controlled, constructed designs and because the term 'artefactual' is used inconsistently and can also be misleading.
[17] The actual proportion of studies analysing other (general) health-related behaviour (E0) could be higher, as the chosen search strategy was aimed at finding controlled experiments related to healthcare services.

real physician subjects). 29 studies investigated the consumer side (E2), i.e. the behaviour of patients, and 7 studies the behaviour of health insurance holders (E1). The vast majority of studies on health professional and insured behaviour used a laboratory setting, while a clear majority of studies on patient behaviour examined a natural setting[18]. However, the share of laboratory experiments in the latter has also increased in recent years. Overall, the laboratory studies found were distributed over the last 10 years only (from 2011, see Figure A4).

Table 2: Types of controlled health economics experiments

		Experimental setting				
	General setting	**constructed, standardised, controlled, instructed[1]**				**natural situation (reduced control)[2]**
	Framing	neutral (abstract)		health / healthcare related		neutral (natural), health-related
Study population	**relevant target population**	lab-field experiment	online lab-field experiment	lab-field experiment	online lab-field experiment	natural field experiment
	standard population	laboratory experiment	online laboratory experiment	laboratory experiment	online laboratory experiment	
		Experimental infrastructure				
	Recruitment	Online platform / other channels, pre-existing pool / specific advertisement, active recruitment / self-registration				
	Execution platform	face-to-face / virtual (electronic device, online)	virtual (electronic device, online)	face-to-face / virtual (electronic device, online)	virtual (electronic device, online)	face-to-face
	Location of access / execution	Standardised physical location	remote (online)	Standardised physical location	remote (online), control of device	physical location
	Data collection	physical / digital				
	Payment	on-site / after, cash / cashless	after, cash / cashless	on-site / after, cash / cashless	after, cash / cashless	none/before/on-site/ after, cash/cashless

Own illustration, based on the reviewed literature (see details in Table A8, Appendix 2)
1: experimental control of independent/dependent variables; limited and uniform instructions for each group and intervention; participants are fully aware that an experiment is being conducted
2: During decision-making, there may be reduced or no awareness among participants that an experiment is being conducted.

[18] However, the actual proportion of studies with natural settings could generally be higher, as the chosen search strategy was aimed at finding controlled, designed (laboratory) experiments.

3.4. An experimental design for the analysis of pharmaceutical pricing policies

Consequently, in order to find a suitable experimental design for the analysis of pharmaceutical pricing negotiations and intervening policies, a decision has to be made with regard to:

1) a natural or a laboratory *setting*,
   a neutral or health-related framing (if it is a laboratory experiment),
2) a standard or relevant target *population* (subject pool),
3) the appropriate experimental *infrastructure* for implementation.

For this purpose, the following must be considered, among others:

- the natural decision-making situation of interest and the possibility to study a controlled setting,
- the already available empirical evidence from natural decision-making situations and existing research designs,
- the already available theory and experimental evidence from laboratory decision situations and existing research designs,
- the availability of a target population and relevant differences between standard and target populations for the research intention.

1) General setting

As described above (1.1.3) the price determination for new, patent-protected pharmaceutical interventions usually takes place in bilateral, oligopolistic negotiations. Therefore, these price-setting processes between single, mandated individuals (or negotiating delegations) are the focus of our interest (Figure 1), for which an experimental analysis of individual decisions seems promising. However, as described further (1.2.1), in many countries these negotiations take place in confidential settings, which makes the analysis of the natural setting practically impossible. Accordingly, there is also no experimental evidence or already applied designs to follow up on. A laboratory environment therefore offers itself for the design. Furthermore, a framed setting seems promising for two reasons: On one hand, various factors influencing the outcome of a negotiation have already been studied in laboratory experiments. In particular, anchor effects and the available alternatives to an agreement, as well as valuation gaps that hinder agreement, are of interest (see Chapter 5.2.1) [220-225]. The same applies to the consideration of benefits for third parties (social preferences) in a trade, which is particularly important in the specific stakeholder constellation in the health sector [226-231]. An abstract setting for the study of a neutral negotiation thus does not seem to be purposeful. And since the pricing takes place in a highly specific setting (parties involved, product specifics 1.1.3), also an abstract experiment on value-based pricing interventions would hardly be valid. A growing number of laboratory experiments in a specific health framing show that meaningful findings can be obtained with a targeted setting (see

GW [144] for an overview). These experiments can be used as a basis for the setting of interest.

The general setting (Figure 3) is based on a combination of corresponding designs for analysing health care treatment decisions (E3, e.g. [192,226,232-237]), considering third party payers (e.g. [192,226,237]), and health-related decisions considering uncertainty (E1, e.g. [238-241]). These are combined with the above-mentioned established settings for the analysis of negotiation situations with focus on trade-inhibiting behaviour (see [220,225,242] for an overview), which have not yet been applied to health interventions. To elicit the negotiators' preferences, in addition to the methods established in laboratory experiments, the recommendations from the field of stated preferences are considered (M4) [243-246]. The setting is designed to study the behaviour in price negotiations for new medicines, influenced by the specific context and assigned role, available treatment alternatives and uncertainty about incremental benefit. Of interest are the effects of this behaviour on negotiation success (intermediate outcome, Figure 1)[19] and societal outcomes such as availability, affordability and value for money (ultimate outcomes, Figure 1).

The primary measurable outcomes of the experiment are

- the stated reservation price (x),
- the price offer (y),
- the agreed reimbursement price (y*) and
- the achieved (monetised) patient benefit (v*).

The first two reveal the potential for success of the decisions in the negotiation situation and thus give an indication of the impact on (time to) patient access.[20] The latter two can be set in relation to each other to allow the analysis of the cost-benefit ratio (y/v) or the value for money (v/y) under different price regulation regimes. From a societal perspective, neither any of the pricing policies nor any available alternative in terms of patient benefit should induce rational negotiators to reduce value for money for the population. Therefore, the effectiveness of any value-based policy intervention can be measured by its impact on overall value for money [4].[21] The patient benefit can additionally be related to hypothetical health outcomes, in the present case with reference to oncology survival (in months, m) and quality of life (q).

[19] Based on "recent discussions and concern about timely access to essential new therapies for patients in Europe [39,65,94-98], patient access (rate of availability) is to be understood as a snapshot, to which the duration of reimbursement negotiations (time to access) and thus failed negotiation rounds make a significant contribution [94]" [4]. See explanation in Chapter 5, Appendix 4.

[20] See Footnote 19 above.

[21] This, of course, from a simplified economic point of view. A corresponding discussion follows below under 1.5. Further details on the underlying model, the associated assumptions and the hypotheses based on them are described in the individual methodological chapters and the related appendices.

Figure 3: Basic decision-making situation in the three controlled experiments

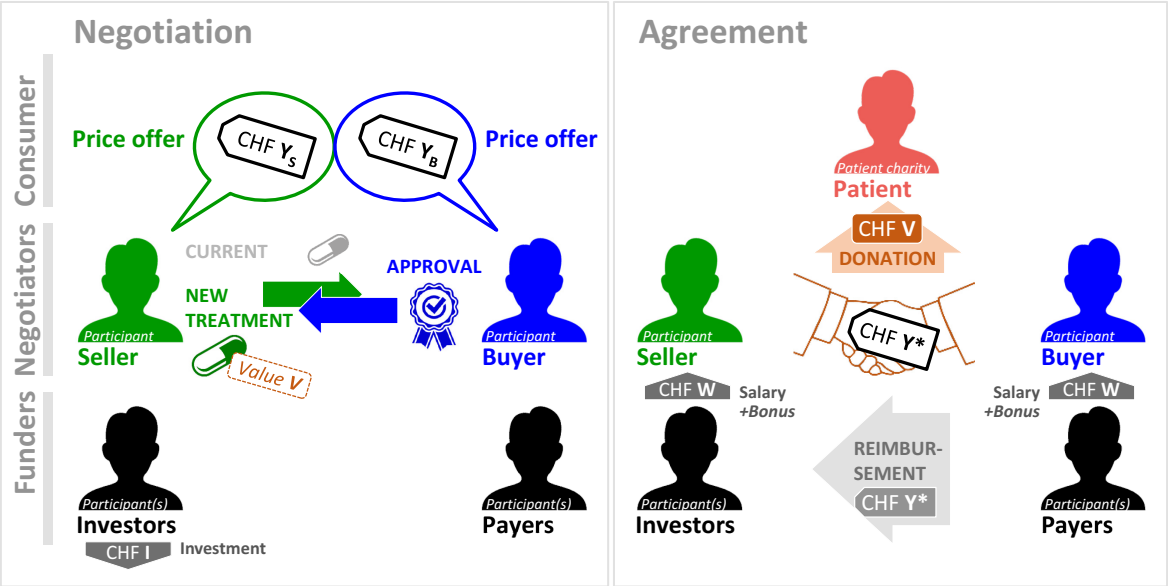


Illustration adapted from Wettstein & Boes 2021 [2,4].

The design was developed in three settings, building on each other, which were studied in three consecutive experiments (Table 3 and 4). Participants were introduced to the topic of price negotiation for new medicines (focus on cancer treatment) and instructed to conduct a real negotiation to improve patient benefit. They were informed that one of their pricing decisions would be randomly selected for implementation[22] at the end of the experiment and would have real consequences for themselves (depending on the setting), as well as for other participants (payers and investors) and real patients. Incentive compatibility in terms of social preferences was ensured through payments after the experiment to participants as well as to a cancer patient charity as a proxy for patient benefit[23]. This is based on comparable experiments, whereby the distribution of patient benefits by means of charitable donation has become standard practice in "medically framed experiments" [192,232-235,247-249]. Participants were randomly assigned to the roles of buyers (payer side) and sellers (pharma side). In this role, they had to (simultaneously) submit final price offers for a possibility to increase the patient benefit in different negotiation situations. If the buyer's offer was equal to or higher than the seller's, the negotiation was successful and the patient could benefit from the incremental benefit. The agreed price was the average of the two price offers and had to be paid by the passive payer to the equally passive investor.

[22] "Strategy method", see Chapter 3.3.3.

[23] Participants were informed that the respective patient organisation provides direct financial support to patients, with an additional hyperlink to the relevant information on the organisation's website (Leukemia & Lymphoma Society LLS in the first two studies, Swiss Cancer League in the third study).

The first experimental study examined the stated social preferences in the negotiation situation (Chapter 3 [2]), the second the influence of incentivised bargaining behaviour (Chapter 4 [3]) and the last the effect of two interventions, a voluntary cost-benefit tool and a mandatory risk-sharing scheme (Chapter 5 [4]). Separating the first two studies was important to understand whether reimbursement negotiation outcomes are influenced more by role and context framing or by incentivised bargaining behaviour. To better understand the former, the setting was additionally divided into a group with prices in the range of real cancer therapies and a second group with unconverted payoffs. In all experiments, players received their wages as part of an employment (framing the principal-agent relationship). In the first study, they received a fixed salary for solving their task. In the second, they could earn an additional bonus if they achieved a negotiation outcome below (buyer) or above (seller) their stated preferences. In the last experiment, their wages were paid in full by the respective funder (payer, investor), played by a fellow player who had the negotiation result achieved at hand for the wage decision.

In the first two experiments, the incremental patient benefit to be negotiated was known (Figure 4a). To simulate the challenge in real-world reimbursement negotiations of pricing a benefit with uncertainty (1.1.1, 1.1.2), the incremental benefit to patients was uncertain in the third experiment (Figure 4b). In addition, the framing of the actual decision-making situation was made more neutral in the final study by not negotiating a hypothetical cancer therapy but an envelope containing a donation to cancer patients (with the pharma context and role framing remaining the same). As the most important extension, in the last experiment the regulated but in terms of pricing "free" reimbursement negotiation (control group) was contrasted with two settings with a policy intervention. One group received a simplified cost-benefit calculator[24] for value-based pricing and a corresponding introduction to the concept. The other group was imposed a simplified version of a value-based risk-sharing agreement in real reimbursement negotiations (see Chapter 5.2.1). Table 3 gives an overview of the studies carried out and Table 4 shows a combined overview of the groups and games of the three experiments. The decision situations of the experiment with varying social payoff parameters are referred to as separate *games*. In the first two experiments, five different games were played in two cycles (*stages*). The first to elicit the stated preferences, the second to collect the final offers. In the last experiment, the first stage consisted of two *rounds* of the same reservation price game (game one). Stage two consisted of seven offer games, of which the first (game two) was played twice (two rounds). In the last experiment, there was an additional third stage in which the salary game was played.[25]

[24] In the experiment the term "cost-effectiveness ratio" (price in relation to effect for the patient) was used, due to the reference to policy instruments in real world. Since the patient benefit was monetised, "cost-benefit" is used in the analysis of the results [4].

[25] In Chapters 3 and 4, the terminology differs: *stage* one is referred to as "reservation price game", stage two as "offer game", played in five "rounds" (*games*) each. Chapter 5 uses the terminology proposed here. The

Figure 4a: Price decision with known incremental patient benefit (study 2 and 3)

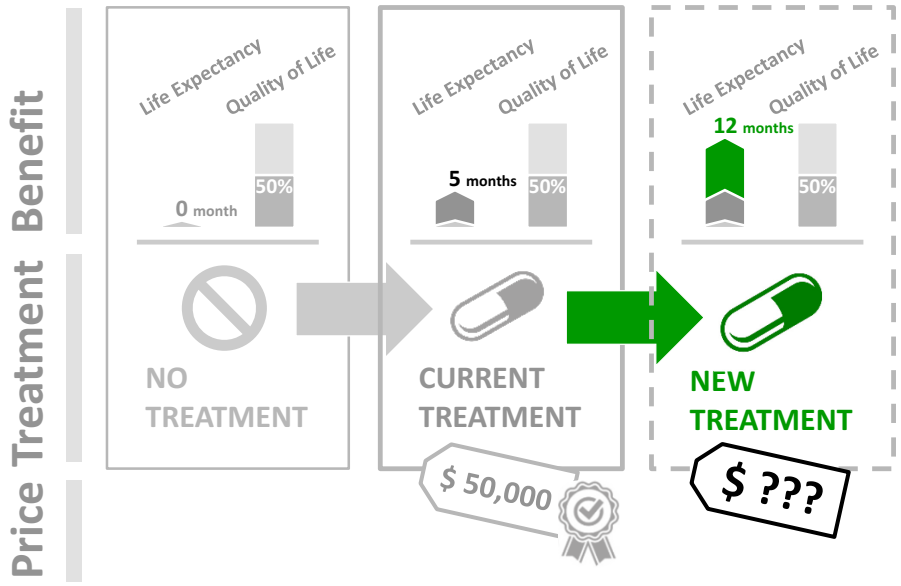


Illustration: Wettstein & Boes 2020/2021 [2,3].
The picture served as an illustrative comprehension aid (game three of five), shown on the decision screen, in addition to the text description of the tasks, above the decision table with the monetary consequences for all stakeholders and the input slider.

Figure 4b: Price decision with unknown incremental patient benefit (study 4)

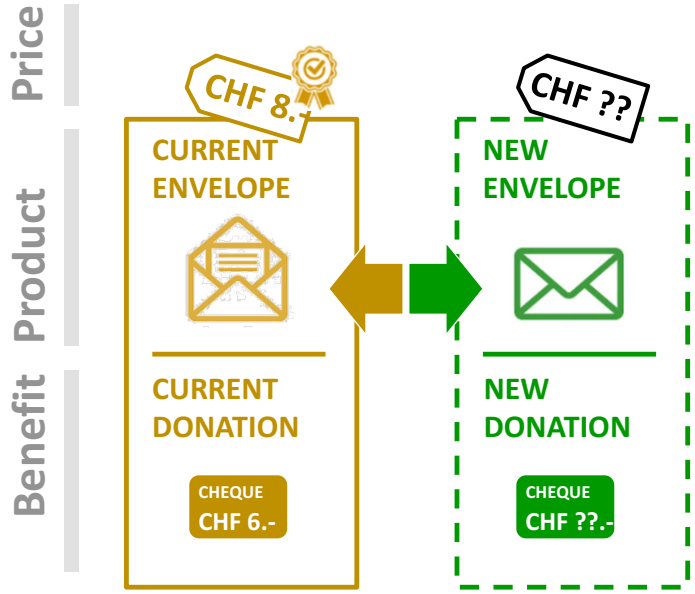


Illustration: Wettstein & Boes 2021 [4].
The picture served as an illustrative comprehension aid (game seven of eight), shown on the decision screen, in addition to the text description of the tasks, above the input slider.

wage game served to reinforce the principal-agent relationship (Chapter 5, Appendix 2) and will not be analysed separately.

2) Study population

In principle, the basic setting could be used in an experiment with both a standard and a relevant target population of reimbursement negotiators. However, various reasons speak in favour of selecting a standard subject pool (see Chapter 3.3.5 [2]). At least in the early development stage of this type of setting. On the one hand, the expert surveys of competent authorities conducted in recent years give an indication on how limited the available pool seems to be (see e.g. [57,66,93,138]). Much more importantly, the individual experiences of the experts would hardly be controllable due to country and company specific characteristics, as well as therapeutic area focus, etc. Finally, the link to the described laboratory experiments in terms of incentive compatibility (monetary, social payoffs) would be questionable. Based on these considerations, a sufficiently large, easily accessible (standard) subject pool with known characteristics was chosen for the new experimental approach (see below). Participants had to be at least 18 years old and resident in the USA for the first two experiments and in Switzerland for the last experiment in order to minimise differences in health system experience.

Subsamples of interest (stratification of results): As described above (1.3.3), for laboratory experiments in general and online experiments in particular, it is important to understand and reduce possible bias in results due to insufficient understanding and attention to the task. For the three experiments conducted, it was essential that participants understood the concept of a reservation price (i), made correspondingly consistent price offers (ii) and understood the requirements for and consequences of a negotiated settlement (iii).

i) *Monotone preferences:* For the first two experiments, the concept of a reservation price and monotone preferences was introduced and trained before the actual experiment. During the experiment, participants were shown their reservation prices stated in previous games. Additionally, they were shown a hint under the decision slider if they selected a non-monotone price (Chapter 3, Appendix 1).[26] For the analysis of the results, the participants were divided into those with strictly monotone preferences and those without (non-monotone). In the third experiment, the expected patient benefit of the bargaining item was constant in all games, so the reservation price was only requested once in game one.[27] In consequence, the monotonicity of stated preferences was not measurable.

ii) *Consistent offers:* For the second and third experiment, participants were familiarised and trained with the concept of reservation price and the consistent offers

[26] The hint was introduced for run two only and the training was voluntary in run one (see Table 1 of Chapter 3.3.1).

[27] In the first two experiments, the preferences were asked for each offer game due to the varying patient benefit, while the alternative for the patient remained constant in all games. In contrast, in the third experiment, the available alternative varied while the expected (but uncertain) patient benefit of the bargaining item was constant.

based on it (Chapter 3, Appendix 1, and Chapter 4, Appendix 1,). That is, a consistent offer is equal to or lower than the WTP (buyer) or equal to or higher than the WTA (seller).[28] For the analysis of the results, the participants were divided into those with consistent offer behaviour and those without (inconsistent).

iii) *Demonstrated understanding:* In all three experiments, the participants were also familiarised with the prerequisites for negotiation success and the consequences of a successful or a failed negotiation for patients, payers and investors. The corresponding understanding was consolidated by answering control questions. Due to the uncertain patient benefit at a varying status quo (alternative) in experiment three, the participants' understanding of expected payoffs was particularly important. For this reason, the answers to four control questions (two trials each) on the preconditions and consequences of a successful negotiation were collected. Since a corresponding training effect was expected, the last of the four questions was used as an indicator of sufficient understanding of the task.

Taking into account the recommendations for online experiments, the variables were used to stratify the results [219]. (i) For the first, (i, ii) for the second and (ii, iii) for the third experimental study.[29] They were tested for their impact on the variance of the price statements, the time needed for the experiment, and the performance on an attention screening question. The latter was used with restraint for additional stratification, considering that the exclusion of inattentive participants can reduce the generalisability of results [219]. Since monotonicity of preference statements, consistent price offers and a demonstrated understanding of the negotiation situation were considered prerequisites and indications for task- and incentive-compatible behaviour, the analysis focuses on the respective subsamples.

3) Implementation

The first two experiments were conducted online in two runs (n = 202, n = 404) on 18 February 2019 and 2 May 2019, preceded by a technical pre-test (n=31, 22 December 2018). They were implemented in Qualtrics[30] in collaboration with the Decision Science Laboratory (DeSciL) at the Swiss Federal Institute of Technology (ETH) in Zurich and conducted via the online labour market Amazon MTurk (as Human Intelligence Task HIT). The third experiment was planned as a physical laboratory experiment in the DeSciL facilities in Zurich[31] and implemented in Qualtrics. Due to the restrictions imposed by the Swiss authorities in spring 2020 to combat the COVID-19 pandemic and corresponding measures taken by ETH

[28] Players were shown again a hint below the decision slider if their selected offer was below/above their stated WTA or WTP, similar to the hint for non-monotone preference statements (see above).
[29] In the first two experiments, two out of four control questions were specific to the negotiation situation, but the correct answer was forced and the number of attempts was not collected for these two.
[30] hosted on https://ethzurichenv.eu.qualtrics.com
[31] https://www.descil.ethz.ch/lab/

Zurich, a physical execution was no longer possible. The experiment was therefore conducted online by the DeSciL. Apart from this, the experiment was conducted as originally planned, without any adjustment of the setting or the subject pool. The study sample (n=367) was recruited from Swiss university students via the University Registration Center for Study Participants[32] at ETH Zurich and the University of Zurich (UZH). The experiment took place in four sessions between 21 June and 2 July 2020.[33] To determine the negotiation outcomes in the second and third Study, the final price offers[34] were recorded and paired afterwards instead of matching the pairs in real time. The reason for this was not only the much simpler implementation, but mainly a methodological consideration. While a one-time random pairing of participants was appropriate for the final payoffs of participants according to the protocol, the corresponding result would not have been representative of the potential for success and the negotiation outcomes of the respective group. For this reason, the random pairing was repeated for a representative sample of variations for the statistical analysis. The pairing of trade offers based on an experimental data set has been applied similarly before by Borges and Knetsch (1998) [3,250]. Details are described in Chapter 5, Appendix 3.

4) Statistical analysis

Table 3 shows the primary outcomes for the statistical analyses. On the one hand, the stated reservation prices (x) and price offers (y) were analysed to determine differences between the groups with regard to average price level and success potential (t-test, Mann-Whitney-U-test and linear hierarchical regression using a random effects model). Second, the results of the random pairing were analysed to determine differences (t-test, Mann-Whitney-U-test) between the groups in average reimbursement price (y*) and achieved patient benefit (v*). The latter two were set in relation to each other for the fourth study to allow the analysis of the value for money (v/y) under different price regulation regimes.

[32] www.uast.uzh.ch
[33] Further details on the implementation are described in the individual method chapters and the related appendices.
[34] Based on the "strategy method", see above 1.3.3 and Chapter 3.3.3.

Table 3: Overview of the studies carried out

Chapter	Study design	Independent variables		Dependent variables		
		Value proposition (benefit-risk parameters)	**Pricing rules** (public pricing policies)	**Policy effects**		
				Behaviour	Outcomes	
					Intermediate	Ultimate
Chapter 2: **The effectiveness of public pricing policies for new pharmaceuticals**	Systematic literature review (study 1)	--	Supply-side regulations External reference pricing Therapeutic reference pricing Value-based pricing Managed entry agreements Other supply-side regulations *Demand-side regulations* *for prescribers* *for pharmacists/wholesalers* *for consumers* *Free market*[1]	P&R authorities Payers MAH Investors *Prescribers* *Pharm./wholes.* *Consumers*	Launch decision Launch sequence Time to access Price Restrictions Conditions	Availability Affordability Individual health state Public health state Medication use Healthcare utilisation Health care expenditures Economic benefit (indiv.) Social welfare (macro) R&D investments Equity
Chapter 3: **Assessing social preferences in price negotiations for new pharmaceuticals**	Economic laboratory experiment (study 2)	Survival Quality of life Patient benefit (Constant status quo)	Reimbursement negotiation (approval of reimbursement, but free pricing)	Stated social preferences of negotiators (buyers and sellers)	--	--
Chapter 4: **The impact of price negotiations on cost and availability of new pharmaceuticals**	Economic laboratory experiment (study 3)	Survival Quality of life Patient benefit (Constant status quo)	Reimbursement negotiation (approval of reimbursement, but free pricing)	Incentivised price offers of negotiators (buyers and sellers)	Prices agreed	Success rate (availability) Patient and population benefit Negotiators' benefit Payers' and investors' benefit (expenditure or revenue)
Chapter 5: **How value-based policies affect outcomes of pharmaceutical price negotiations**	Economic laboratory experiment (study 4)	Expected value of patient benefit (Varying status quo)	Value-based pricing and Risk-sharing agreement (reimbursement negotiation)	Incentivised price offers of negotiators (buyers and sellers)	Prices agreed Minimum patient benefit agreed	Success rate (availability) Patient and population benefit Prices reimbursed (expenditure or revenue) Value for money (cost-benefit ratio)

Italics: not the focus of this work and therefore not analysed
P&R: pricing and reimbursement; MAH: marketing authorization holder; Pharm./wholes.: pharmacies and wholesalers

Table 4: Combined overview of the groups and games of the three experiments conducted

Experiment	**Experiment (RUN) 1**		**Experiment (RUN) 2**				**Experiment (RUN) 3**					
Trading object	New cancer treatment (hypothetical)						Envelope with donation					
Incremental patient benefit	Known (benefit to cancer patient charity)						Unknown (benefit to cancer patient charity)					
Game currency to real payoff	Real world prices (50k-500k $)				Unconverted payoffs (0.5-10 $, 0.0-10 CHF)							
Policy intervention	No intervention								Risk-sharing agreement		Cost-benefit tool	
Salary	Fixed		Fixed + bonus (offer games)				Determined by principal (payer, investor)					
Assignment	*Random assignment*		*Random assignment*				*Random assignment*					
Role	Buyer (n)	Seller (n)	Buyer (n)	Seller (n)	Buyer (n)	Seller (n)	Buyer (n)	Seller (n)	Buyer (n)	Seller (n)	Buyer (n)	Seller (n)
Stage 1 (reservation price games)	WTP (100)	WTA (101)	WTP (97)	WTA (101)	WTP (105)	WTA (101)	WTP (60)	WTA (60)	WTP (62)	WTA (63)	WTP (62)	WTA (60)
Role	Seller (n)	Buyer (n)										
Stage 2 (reservation / offer price games)	WTA (100)	WTP (101)	Price offer (97)	Price offer (101)	Price offer (105)	Price offer (101)	Price offer (60)	Price offer (60)	Price offer (62)	Price offer (63)	Price offer (62)	Price offer (60)
Assignment							*Random assignment*		*Random assignment*		*Random assignment*	
Role							Payer (n)	Investor (n)	Payer (n)	Investor (n)	Payer (n)	Investor (n)
Stage 3 (salary games)							Salary (60)	Salary (60)	Salary (62)	Salary (63)	Salary (61)	Salary (61)
	Study 2											
			Study 3									
							Study 4					

Combined overview of the three experimental studies, described in detail in Chapter 3, 4 and 5, published in [2-4]. Marked grey: focus of respective study.
One participant removed in RUN 1 due to age not meeting inclusion criteria. No participants removed for RUN 2 and 3. Further inclusion criteria applied during analysis, see individual method chapters.
50k: 50,000; $: US Dollar; CHF: Swiss Francs; n: sample/group size. Further details on the three study designs are described in the individual method chapters.

4. Results

The following provides a summary of the main results of the studies conducted, which are described in detail in the following chapters and have been published here [1-4].

4.1. The effectiveness of public pricing policies for new medicines

For the original, published systematic literature research ([1] Chapter 2) 1,265 records were identified (as per August 2018) in PubMed, Medline, Scopus, Web of Science and other databases searching titles, abstracts and keywords. An update of the literature review was performed in July 2021 (Appendix 1), identifying additional 368 records in PubMed searching titles, abstracts and keywords. 205 records were included in the original review for research categorization of which 31 records were included for assessment of risk of bias and qualitative synthesis. No prospective, experimental studies on price regulation of new medicines were found. Six out of seven assessed ITS and seven out of twelve assessed systematic literature reviews were rated as low risk of bias for reported policy effects, while all other assessed empirical studies were rated as high risk of bias [1]. In general, it could not be ruled out across all evaluated studies that the results were influenced by uncontrolled confounding variables, which is why the risk of bias in this respect was classified as high for almost all studies (with the exception of [251]) following the EPOC guidelines [1,252]. A total of 17 evaluable effects, i.e. policy-outcome pairs (e.g. 'TRP on prices') were found [1][35]. In summary, the qualitative synthesis of the findings allowed the conclusion that TRP may reduce medicine prices and, in the short term, also medicine expenditure, as well as have an impact on substitution towards lower-priced therapy alternatives [1]. Other effects were uncertain or did not allow any conclusions to be drawn [1]. This was particularly true for VBP and for all pricing policies regarding impacts on health outcomes [1].

The updated abstract screening and research categorization conducted in July 2021 revealed 23 new records with a potential research objective of interest (policy-outcome effect) and a potentially adequate quantitative research design (Appendix 1). Based on the low number of adequate study designs[36] and the reported results, the full-text screening did not suggest a change in the main conclusions found in [1], especially for VPB and health outcomes. In consequence, the assessment of risk of bias and qualitative synthesis were not updated. Still, no prospective, experimental studies on price regulation of new medicines were found.[37] Four new systematic literature reviews (SLR) were found that met our original inclusion criteria: one broad review for the updated WHO pricing policies guidelines [90], one focusing on ERP only [253], one on oncology medicines in high-income countries at market entry

[35] See Table 2 in Chapter 2.3.4 for a summary of the assessed policy effects and related quality of evidence.
[36] Taking into account the guidelines from EPOC mentioned above 1.3.2.
[37] Apart from our own studies of which the first two (Chapters 3, 4) were found in the last update.

[254], and one was our own [1]. The SLR by Tordrup et al. for the updated WHO guidelines included one randomised controlled trial [255] and one controlled before-after study [90,256] – in contrast to our review. However, both examined the distribution of medicines (demand-side) and not the pricing at market entry (supply-side) as defined above (1.1.2). The former investigated incentives for physicians to prescribe generics in the USA [255], the latter the removal of a distribution margin for healthcare providers (primary care and hospitals) in China [256]. Thus, both studies are outside the scope of this thesis in several aspects. The WHO review included 56 records for the analysis and synthesis[38] [90]. Eight studies on TRP were analysed, which were distinguished from studies on generic referencing. However, the TRP studies included in the review examined effects that also included therapy classes with generic substances. The main conclusion is in line with our findings, with the certainty of evidence for 'TRP on prices' being slightly higher ('moderate' vs 'low') and for 'TRP on expenditures' slightly lower ('very low' vs 'low short-time / very low mid-term') [1,90]. For VBP three studies were included, of which one however focused on disinvestment of existing therapies ("price cut for cost-ineffective drugs") [90,257]. Of the remaining two one was inconclusive regarding effects of VBP [258], while the other, reporting a negative effect of cost-effectiveness analysis on prices, was rated with a higher certainty of evidence ('moderate') than we did ('low') [58,90]. The reviewers conclude that "VBP is probably effective in lowering unit prices for certain classes of medicines, but is not necessarily sufficient to control overall expenditure" [90], which seems a bit daring, given the evidence base. They point out, however, that the conclusion is based on only two studies and more research is needed [90]. Tordrup et al. rate the risk of bias related to 'intervention independence' as high for TRP and VBP, in line with our assessment [90]. In contrast to our review they found none of the studies on ERP eligible for assessment. The second SLR analysed 46 studies[39] on the international effects of ERP [253]. Due to the difficulty of isolating the effects of ERP from other influencing factors (e.g. other regulatory measures), the effectiveness of ERP was inconclusive according to the authors [253]. The third SLR assessed 80 (including 23 quantitative) studies[40] on diverse policies addressing medicine prices at market entry related to oncology in high-income countries [254]. They conclude that the available evidence is "insufficient to deduce price effects" [254].

Apart from the lack of empirical evidence for VBP, no theoretical work was found in the excluded publications that would provide a simple, generalizable model of value-based pric-

[38] Out of 1,000 full-text screened records, which in turn were selected from 32,011 unique records found [90].
[39] Out of 507 full-text screened records, which in turn were selected from 3,977 unique records found [253]. Unlike this SLR, ours excluded studies that looked exclusively at the effect of a national ERP on other national health systems. However, as this SLR also analysed price conversion in detail, which is also a national effect of interest, it was included in our update.
[40] Out of 4,775 screened records [254].

ing for direct testing in a laboratory setting. Across the entire review time period (2005 January to 2021 June), 37 theory-driven economic studies with a potential research objective of interest (policy-outcome effect) were found, 12 of which focused specifically on value-based pricing, managed entry agreements or risk-sharing agreements. Most of the models presented treat prices under VBP or an MEA as exogenous for either the seller or the buyer or both, whereas the minority (e.g. [116,259,260]) model endogenous pricing (see [137,261] for an overview of theoretical contributions on MEA).

4.2. Assessing social preferences in price negotiations for new medicines

For the analysis of the results of the first two experimental studies, the prices in the group with "real world" oncology prices ('100k$' group) were converted to the real payoff magnitude at the end of the experiment for comparison with the unconverted '1$' group. The majority of participants in both experimental runs stated strictly monotone preferences for incremental patient benefit (56% in run one, 59% in run two) [2].[41] The variance of reservation prices was significantly higher in the non-monotone group and the time needed for the experiment was significantly lower than in the monotone group ($p<0.01$) [2]. In addition, the players in the non-monotone group performed significantly worse in answering the control questions and missed the inserted attention test with a large majority of 81% ($p<0.01$) [2].[42] Since monotonicity was an essential part of the instruction, the training and the experiment itself, the analysis focuses on the sub-sample with monotonic preferences.

The main interest of the first experimental study was on possible valuation gaps (reluctance to trade with WTP<WTA) between buyer and seller of a new pharmaceutical treatment. This was tested within (run one) and between subjects (both runs). The results showed no significant price differences per game within players ($p>0.05$) [2]. There were also no valuation gaps between the average negotiators, but the WTP in the 1$ group was higher than the WTA in two games ($p<0.05$), indicating a "preference range" [2].[43] Another point of interest was the possible impact of framing the price level. The buyers who were confronted with a price range in the magnitude of real oncology therapies stated a lower WTP than their peers in the 1$ group in four out of five games ($p<0.05$) [2]. In contrast, the WTA of sellers was higher in the 100k$ group compared to the $1 group in the first of five games ($p<0.05$) [2].

[41] The mentioned changes between the two runs (training voluntary vs mandatory, additional hint on non-monotone preferences, see footnote 26 above) might explain the slightly higher share of participants with strict monotone price statements in the second run.

[42] Another indication of a lack of instruction-compliant behaviour in the non-monotone group was the effect of the small adjustments to the design between the two runs (see footnote above). The adjustments had no effect on the reservation prices of the monotone players, whereas the prices of the non-monotone players were significantly different between the two runs [2].

[43] The significance levels remains the same if the analysis is further restricted to attentive players only (who detected the attention screener).

Figure 5: Reservation prices, means per role and price group (study 2)

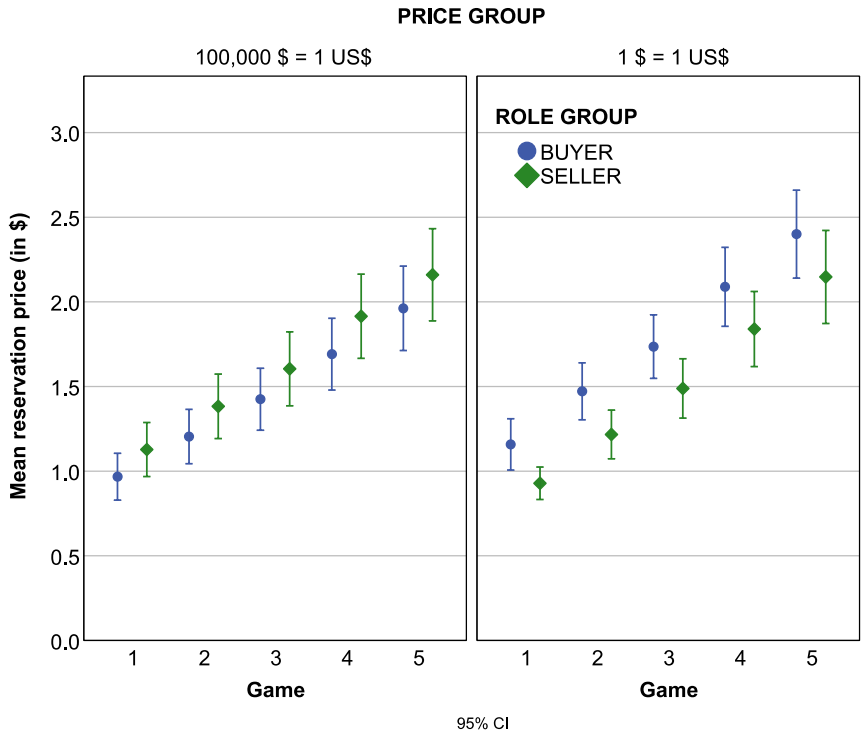


Illustration adjusted from Wettstein & Boes 2021 [2].
Experimental run two, monotone preference group. CI, confidence intervals. The parameters per role and game are displayed in Table 2 of Chapter 3.3.1.

The linear regression confirmed the findings indicating in addition a slightly lower sensitivity for incremental patient benefit in the 100k$ group ($p<0.05$) [2]. Figure 5 shows the stated preferences in both price groups for both roles over the five games. More detailed results are provided in Chapter 3.4.

4.3. The impact of price negotiations on cost and availability of new medicines

The interest of the second experimental study was on the incentivized bargaining behaviour and the related final offers stated. Negotiators could earn a bonus if they achieved an agreement above (seller) or below (buyer) their preference statement. The adjusted incentive structure was introduced after the preference games to avoid strategic bias in stated preferences. Again, the analysis focuses on participants with strict monotone preferences. In addition, the consistency of price offers with the stated reservation prices was of relevance. 64% of players with strictly monotone preferences only made consistent bids (compared to 27% in the non-monotone group) and 86% submitted at least one consistent offer [3]. For the analysis of average offers, two sub-samples were considered: for the stricter view, only bids from players who had shown consistent behaviour in all games were included (‘consistent players’). For a less restrictive view and a larger sample, the inconsistent bids were excluded separately per game (‘consistent offers’). The two sub-samples also showed no valuation

gaps between the average negotiators (p>0.05) [3]. Likewise, the preference range in the 1$ group was confirmed for consistent players and consistent offers [3].[44] The average buyer and seller in both price groups submitted final offers below respectively above their reservation prices (p<0.01) [3].[45] However, 47% of negotiators made an offer equal to their reservation price at least once (i.e. they did not claim a margin) and 15% did not make an offer different from their preferences in all five negotiation games [3]. Although the margins claimed were not significantly different between the two price groups (p>0.05), there was a relevant difference in the success potential of the final price offers (Figure 6). Since the mean consistent sell offer in the 100k$ group was significantly higher than the mean buy offer in four out of five games (p<0.05), agreement between the mean negotiator was only possible in one game in this group [3].[46] On the other hand, no corresponding offer gaps were found in the 1$ group (p>0.05) [3].

Figure 6: Price offers, means per role and price group (study 3)

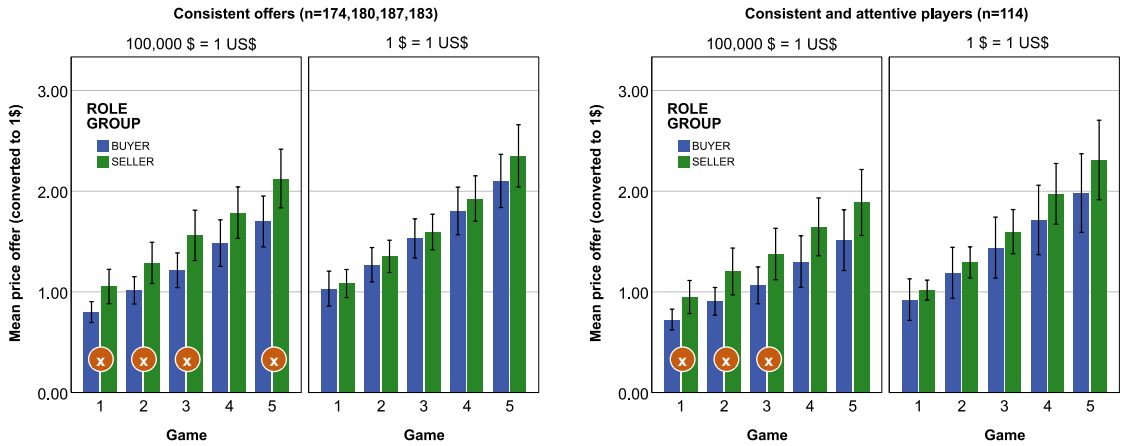


Illustration adjusted from Wettstein & Boes 2020 [3]. Experimental run two, monotone preference group.
Confidence intervals: 95%. games marked with "x": mean price offer significantly different between roles (p<0.05), hence no trade possible. Left side: inconsistent price offers excluded for each game separately ('consistent offers'). Right side: only participants with consistent offers in all games ('consistent players') and correct answer to attention screening question ('attentive players'). [3] The parameters per role and game are displayed in Table 2 of Chapter 4.3.1.

[44] All games for consistent players at p<0.05, for consistent offers in game one to four at p<0.01, game five p<0.05. There are minimal differences regarding p-values compared to Chapter 4, where the results were additionally filtered for attentive players and a Mann-Whitney U-test was conducted in addition to t-test.
[45] Except for the first game (consistent players), respectively the first two games (consistent offers), in buyers of the 100k$ group which were significant at p<0.05 [3].
[46] The significance levels remain the same if consistent offers are evaluated for attentive players only. For consistent players only the first game in the 100k$ group show an offer gap (p<0.05). If restricted further for consistent and attentive players, three games (one, two and three) in the 100k$ group have an offer gap (p<0.05, Figure 6) [3].

In order to assess not only potential but actual negotiation success, the players were randomly assigned to negotiation pairs.[47] This was repeated for a representative sample of 500 variations of negotiating pairs [3]. Across all groups and games, 61% of couples on average would have been able to reach an agreement ("trades possible") [3]. Because the buyer's respective WTP was equal to or higher than the seller's WTA. Yet, only 63% of them were successful, leaving an average of 61% of patients without access to the new therapy option [3]. Patient access was noticeably lower in the $100k group (34%) than in the $1 group (43%). The latter obviously benefited from the observed preference range (average WTP>WTA) with a correspondingly higher number of trades possible at comparable margins claimed, as described above (see also Figure A6 in Appendix 3). At the same time, the average agreed price in the $1 group was 18% higher than in the 100k$ group.[48] More detailed results are provided in Chapter 4.4.

4.4. How value-based policies affect outcomes of pharmaceutical price negotiations

The interest of the final experiment was on the behavioural impact of two value-based policy interventions. In contrast to the previous experiments, there was no longer any price framing, but the additional benefit for patients was now uncertain. Again, the analysis focuses on participants with price offers that were consistent with their stated preferences.[49] In addition, performance on the comprehension questions was collected and used as an indicator of sufficient understanding of the task. Furthermore, an attention test was again built into the experiment and collected as an additional variable to stratify the results. Both the introductory comprehension question four and the attention screener had a significant impact on the standard deviation of the overall price level ($p<0.05$), while only the former also had an impact on the price level ($p<0.05$) [4]. Performance on the introductory questions was positively associated with the performance on the attention screener ($p<0.01$) [4]. Of the total study sample (n=367), 82% showed consistent offer behaviour (n=301). In both the overall study sample and the consistent sub-sample, 89% answered the fourth comprehension question correctly on the first attempt (n=328, n=269). The following analysis of the results focuses on the latter, as consistent price offers and a demonstrated understanding of the preconditions and consequences of an agreement were considered as prerequisites and indications of task- and incentive-compatible behaviour.

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[47] The pairing was performed with consistent offers (per round) of players with strictly monotone preferences.
[48] The differences between groups for access rate and agreed prices were significant at observation level variation ($p<0.01$). Due to the higher number of variations (in favour of representativeness) compared to the smaller number of negotiating pairs, the p-values might be overstated. For this reason, in the final experiment, the significance (t-tests) was recorded at the level of the negotiation pairs for each variation for the negotiation outcomes (see 1.4.4 below and explanations in Chapter 5, Appendix 3).
[49] Consistency was measured for the first and last offer game without alternative (game two rounds one and two) for which participants had explicitly stated their reservation price. Although the reservation price of a rational player should not change in the other offer games with different opportunity costs. Consequently, there was only one sub-sample for consistent offer behaviour evaluated.

Mean stated preferences were not different between the treatment groups, neither overall nor when looking at buyers and sellers separately (p>0.05) [4]. This was true for the sub-population of consistent players as well as for the sub-population of consistent players with demonstrated understanding (p>0.05). As in the unconverted group in the previous experiment, no valuation gap was found, but rather a preference range between CHF 4.5 (WTA) and 6.4 (WTP, p<0.01) [4]. However, when final offers were subsequently made in anticipation of a salary from the payer (in the case of buyers) or the investor (in the case of sellers), the picture was reversed. Agreement between the average negotiator was only possible in the risk-sharing and control groups when no alternative for the patient was available (game two, round two, Figure 7) [4]. The average offers in the cost-benefit group, on the other hand, allowed agreement in all offer games except the last two with an available alternative for the patient (Figure 7) [4]. The increasing price, patient benefit and value for money of the available alternative had a positive effect on the price offers with an also increasing offer gap (p<0.01, Table A7, Chapter 5, Appendix 4) [4]. However, respective sensitivity was less pronounced in the cost-benefit group (p<0.05) [4].

Again, participants were randomly matched in pairs to determine actual negotiation success and outcomes. This was repeated for a representative sample of 9,600 variations.[50] The stated preference range would have allowed an average of 85% of pairs to reach agreement across all groups and games (trades possible).

Figure 7: Price offers, means per role and treatment group (study 4)

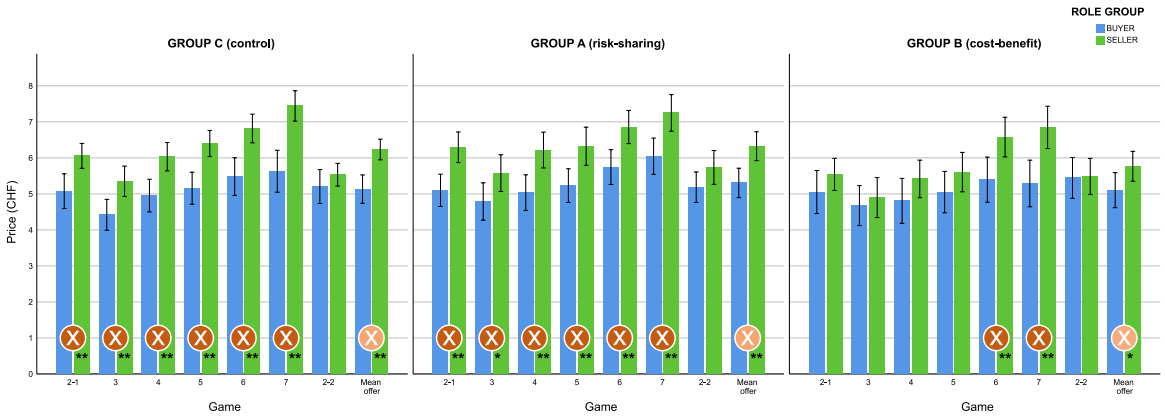

Illustration: Wettstein & Boes 2021 [4].
Games marked with "x": mean price offer significantly different between roles, hence no trade possible. ** Difference between price offers significant at p<0.01, * difference between price offers significant at p<0.05, T-bars: 95% confidence intervals. Differences were examined using t-test and Mann-Whitney U-test for independent samples. The significance results were identical for both tests, except for the mean offer in group B (p<0.05 with t-test, p<0.01 with U-test).
The parameters per role and game are displayed in Table A1/A2 of Chapter 5 (Appendix 1).

[50] In contrast to the previous experimental study not only differences between treatments groups but also the respective t-test results were recorded for each pairing variation. In consequence, a larger sample of variations in favour of representativeness could be calculated (see footnote 48 above). The sample size was determined based on the standard formula for the determination of sample sizes in large populations due to the high number of possible variations resp. permutations (see Chapter 5, Appendix 3) [4].

Yet only 38% of them were successful, leaving an average of 68% of patients without access to the negotiated patient benefit, in favour of an existing (game three to seven) or no existing (game two) alternative. The negotiation outcomes for the population overall[51] are displayed in Figure 8. In the majority of pairing variations, the patient benefit achieved was lower in the risk-sharing group than in the other groups ($p<0.05$) [4]. This was accompanied by lower reimbursement costs compared to the control group ($p<0.05$) [4]. The resulting value for money was higher in the cost-benefit group compared to the risk-sharing group ($p<0.05$) [4]. The other differences were not significant for the majority of variations ($p>0.05$) [4].

Finally, the overall realised value for money for all groups was also significantly lower than implicitly preferred[52] in the reservation game ($p<0.01$, Figure A7, Appendix 3) [4]. More detailed results are provided in Chapter 5.3.

Figure 8: Negotiation outcomes, mean of means over all pairing variations (study 4)

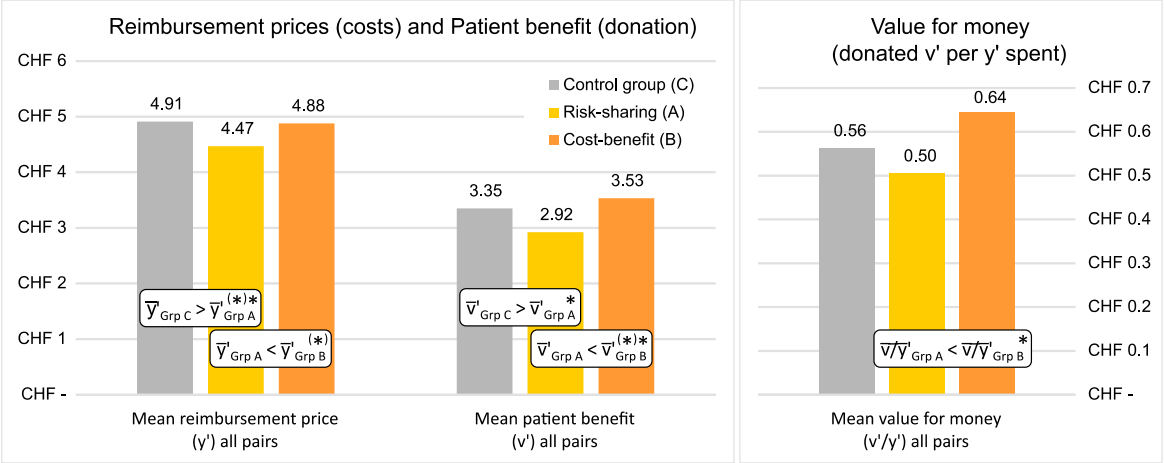

Illustration: Wettstein & Boes 2021 [4].
** Difference between treatment groups significant at $p<0.01$ for the majority of variations (>50%).
* Difference between treatment groups significant at $p<0.05$ for the majority of variations (>50%).
(*) Significance level different between t-test and Mann-Whitney U-test. Differences were examined using both tests. The significance results shown were identical, except for reimbursement prices between group A and C ($p<0.01$ with t-test, $p<0.05$ with U-test), reimbursement prices between group A and B ($p<0.05$ with t-test, $p>0.05$ with U-test) and patient benefit between group A and B ($p<0.01$ with t-test, $p<0.05$ with U-test).
Grp: treatment group. Amounts displayed are in Swiss Francs (CHF). Details are displayed in Table A8/A9, Chapter 5, Appendix 4.

[51] The results for the total population include those of both successful and failed negotiations. In the case of a successful negotiation, the resulting patient benefit (v') corresponded to the outcome of the lottery (out of possible CHF 0 to 10) at the agreed price (y*). In the risk-sharing group, the agreed price was halved if the achieved patient benefit (v') did not correspond to the mutually agreed expectation (v*). The resulting reimbursement price (y') of a successful negotiation could thus deviate from the agreed price (y*) in the risk-sharing group. In failed negotiations, the resulting patient benefit (v') and reimbursement price (y') corresponded to the available alternative (both zero, if no alternative was available, as well as the resulting VfM). The pairing variations were calculated both with the lottery and with its fixed expected value. For the results shown, the expected value E(v) = CHF 5 was taken for comparability. However, over the entire sample of 9,600 variations, the lottery converged to the expected value for all three treatment groups and did not differ ($p<0.01$).
[52] The stated price preferences can be set in relation to the expected patient value, assuming rational expectations [4]. Alternatively, the price preferences can also be compared with the players' guess for v from the first game (see detailed explanation in Chapter 5, Appendix 4) [4].

5. Discussion and conclusions

The literature review conducted shows an increasing interest in the question of the effectiveness of government measures to regulate pharmaceutical prices. At the same time, it reveals how difficult it is to verify the effectiveness of the reforms and pricing models introduced in recent years. Especially for value-based pricing policies and managed entry agreements for new, innovative therapies. On the one hand, this is due to the general challenges in the empirical evaluation of policy reforms. Because corresponding effectiveness analyses have to take into account country specifics, other parallel policy interventions as well as economic and technological developments [1,4]. In the case of price regulation of new, patent-protected medicines, policy evaluation is further complicated by the fact that in many countries agreements on actual reimbursed prices are confidential [22,23,66,93,138]. As a consequence, little to no evidence is available on the societal impact of price regulations for patent-protected medicines [1]. Especially for value-based pricing policies and health-related policy outcomes, there is a lack of evidence [1]. However, it is precisely value-based pricing policies that industry, regulators and payers hope will improve patient access and the value for money of new, innovative therapies [16,22,65,66,101-103]. Against this background, laboratory experiments offer an opportunity for testing corresponding policy interventions under controlled conditions in the sense of a "wind tunnel" [144,262,263]. Although the proposed approach is based on established methods of experimental economics, the credibility and applicability of the results depend crucially on the experimental design. This applies in general to economic laboratory experiments and in particular to those that investigate social preferences [3,144,188-191,264-266]. The validity of findings from economic laboratory experiments is still a matter of some dispute and it is beyond the scope of this chapter to provide an overview thereof [144,188-191,264-266]. The following discussion therefore focuses on external validity, or rather the configuration of the presented design for obtaining relevant results for policy analysis and design. For this purpose, possible conclusions for policy design are first derived from the initial results of the experiments, including some further considerations based on the policy analysis framework introduced (1.5.1). These are followed by some selected considerations for adapting the present design to increase internal and external validity, with focus on the latter (1.5.2).[53] The discussion concludes with some thoughts on the further development of the presented approach, again based on the introduced policy analysis framework (1.5.3).

5.1. Policy implications of the initial findings and some further reflections based on the policy framework

From a policy design perspective, insights to facilitate (or reduce the time to) agreement in reimbursement negotiations in favour of (access to) improved patient benefit are of particular

[53] This in the knowledge that internal validity is of course a prerequisite for external validity.

interest. As proposed, this applies under the additional condition that the negotiation results must not reduce the value for money (inverse to the cost-benefit ratio) from a societal perspective. An effective value-based policy intervention in this sense addresses both the concerns of regulators and industry regarding patient access to new treatment options as well as the expectation of improving their value for money [16,22,39,65,66,94,95,97-103]. In real-world value-based reimbursement decisions, patient benefit can hardly be directly monetised. That is why the cost-effectiveness or cost-utility ratio is usually used instead of the cost-benefit ratio [80-84,267]. They measure the patient benefit expressed in terms of the health outcome or the quality-adjusted life years (QALYs) gained.[54] For the transfer of the results, value for money in real world is therefore better understood as the ratio of health outcomes or QALYs achieved to costs spent.[55]

In all three experiments, the participants on average stated preferences that allowed an agreement in the negotiation in favour of the patients. However, as soon as they made final offers in the negotiation setting, the chances of success decreased markedly, which had a negative impact on patient access, patient benefit and the value for money of the overall population. It was further shown that while negotiators had clear preferences for incremental patient benefit, their price offers were influenced both by the magnitude of the given price range ("real world" oncology prices vs unconverted payoffs) as well as by an already existing alternative ("standard of care"). The introduction of an additional indicator relating patient benefit to price seemed to mitigate the negative effects on behaviour and increase the overall patient access, patient benefit and value for money. The cost-containment effect of a mandatory risk-sharing scheme on the other hand was offset by the negative effects on the overall patient benefit.

In terms of applicability to policy reforms, the influence of the available alternative is of particular interest. The reason for this is that current standard of care options are usually an important factor in determining the added value and consequently the value-based price of a new treatment option [16,22,65,80,268]. It seems that the alternative served as a (biasing) anchor for the price decision. Such anchor effects have already been demonstrated in many experimental studies and are presumably a decisive factor for pharmaceutical price negotiations in particular (see Oliver 2019), influencing the success (or duration) of negotiations and their price outcome [16,123,133,225,269-272]. Similarly, the effects of the two policy interventions tested can be linked to the existing experimental evidence and behavioural economic theory. Trade reluctance can arise, on the one hand, because buyers and sellers focus on different aspects of the trade [2,225,273-278]. On the other hand, the fear of a "bad

[54] These can then be compared with society's willingness to pay for the impact of an improved treatment option, for example based on empirically surveyed and/or derived data from existing therapy costs.

[55] In the first two experiments, hypothetical health outcomes (life expectancy and quality of life) were converted into monetary payments to the patient organisation. In the third experiment, this framing element was omitted. A brief discussion of this follows below (1.5.2).

deal" and the uncertainty of a satisfactory outcome can prevent agreements [225,279-285]. Finally, decision-makers tend to use heuristics to simplify the decision [192,229,239,286]. Against this background, guiding the negotiation by introducing the cost-benefit calculator could have helped to reduce perceived uncertainties due to the multiple decision parameters and align decisions in opposing roles towards a common performance indicator [4]. In addition, negotiators may have been more willing to concede due to the positively framed value-based indicator [4,269]. The joint valuation concept might therefore not only have contributed to increasing the success rate (role-related effect), but also to shifting the focus from the nominal price of the available alternative (reference price) to the value-based key figure and thus reducing possible anchoring effects [4]. On the other hand, the mandatory risk sharing may have increased regret avoidance due to the additional, prominent risk parameter and may have been perceived differently by the negotiating partners [4].[56]

Assuming that the maxim for regulators, payers, industry and society as a whole is indeed the best possible patient access and value for money (not profit maximisation or cost containment), the following initial policy recommendations can be derived. Value-based pricing policies can increase patient access and value for money of price negotiations for new medicines. Provided they facilitate reimbursement negotiations where parties make price offers based on a common, voluntary valuation framework, which is oriented towards value for money [4]. The public price regulations could, for example, stipulate corresponding minimum specifications for reimbursement applications and official responses to them [4]. This regardless of whether an HTA procedure has already taken place beforehand. In the sense of a "nudging" policy, which aims to positively influence behavioural biases due to the role and comparators available, without restricting freedom of choice [139,145,287-290]. This could reduce the length of negotiations and increase the overall value for money. A necessary prerequisite for this is that the internal guidelines of the organisation on both sides are also aligned with the above-mentioned maxims and, therefore, permit corresponding negotiation behaviour (see 1.5.3 below) [4].

If we broaden the perspective within the presented framework (Figure 1) to the entire policy and business cycle, corresponding recommendations can be derived for political and private sector decision-makers. In order to align the potentially different focus (and beliefs) on value parameters in price negotiations, policy makers and authorities together with industry should aim for a common value framework with extended value components (e.g. taking into account uncertainty reduction, disease severity, etc.), as suggested in recent proposals [4,82,291,292]. Further, the valuation framework and value-based reimbursement system in general needs to be adaptable (Figure 1, upper small loop), taking into account technological development (Figure 1, left side), without having to go through a whole legislative process

[56] See further considerations with reference to theoretical research on MEA negotiations in Chapter 5.4.

(full policy cycle) each time.[57] In alignment with demand-side pricing policies for providers. Most countries that use DRGs for inpatient hospital payments regularly update the respective system including special payments for the introduction of new "beneficial innovations with higher initial costs" [293-296].[58] This "to encourage adoption of value-adding and cost-effective technologies" in line with the recommendation of the OECD [17]. In the case of new, patent-protected therapies in the outpatient sector, however, this would require a corresponding review of value-based prices in most countries, which brings us to the implications regarding the managed entry (risk-sharing) intervention in the experiment conducted.

Based on the presented results, the assumption can be made that price regulations should not impose mandatory requirements in the sense of uniform, performance-based guarantees ("risk sharing") for the market entry of new therapeutic options with uncertain incremental benefits. Nevertheless, this does not imply that outcome-based MEA should be generally avoided. In the opposite, coverage with evidence development (CED) could have a positive impact on overall value for money in the long term when patient benefits are subject to a high level of uncertainty[59] [4]. In combination with a regular review of value-based prices (lower small loop in Figure 1), CED could ensure that comparators (anchors) for future negotiations of alternative treatment options are "up-to-date" and not overvalued [4]. A regular review of VBP decisions and their evidence base, as recommended by the WHO, may also address concerns that current MEAs lead to higher list prices without sufficient incentives for manufacturers to collect relevant evidence [59,260,298].

5.2. Methodological limitations and further development of the experimental design

Due to the novelty of the approach and the design used, there are many possible limitations and design modifications. On the one hand, these could have an influence on the results and derived conclusions. On the other hand, it is quite possible that certain limitations of the approach cannot be eliminated even by design modifications. However, as mentioned above, certain concerns are part of the ongoing fundamental debate on the validity of economic laboratory experiments, which will not be summarised here. In the following, a selection of limitations and possible design adjustments will therefore be discussed with a focus on the transferability and meaningfulness of the experimental results to reform efforts in pharmaceutical price regulation. They are grouped as follows:

[57] For example, pricing policies for conventional (packaged) medicines in certain countries (e.g. Switzerland) cannot currently be directly applied to the new, personalized CAR-T cell therapies.
[58] Fee-for-service systems seem to see less regular updates while at least conversion factors for payment are in some countries renegotiated regularly [297]. This may lead to unequal treatment in the pricing of new medicines administered to inpatients and outpatients, see again the example of CAR-T cell therapies for which the reinfusion of the cells must currently usually be carried out during an inpatient stay.
[59] Especially, if the marketing authorisation for a new form of therapy is based on phase two trials with design limitations (e.g. concerning the control group).

1) relevance and validity of stated social preferences,
2) comparability of decision situation,
3) relevance of specific trading experience.

1) Stated preferences

The collection of health preferences outside the laboratory has made progress in the last two decades. This is probably not least due to the potential direct applicability of the results for price and cost considerations in the health care system. As described (1.3.3), laboratory-based behavioural economics research has been reserved towards the primarily hypothetical format of field surveys on health preferences due to incentive compatibility considerations. However, important progress has been made in recent years to improve the incentive compatibility of preference surveys [243,244]. At the same time, social preferences collected specifically in abstract laboratory settings cannot always be reproduced in more natural field settings [188]. Most laboratory experiments on health care supply and demand, such as the ones presented here, do not aim to collect nominal willingness-to-pay data for the real world. Rather, the interest is in behavioural changes due to controlled interventions. Nevertheless, there is a clear "potential for a dynamic interaction" between the research field of preference elicitation in the field (M4 in Figure 2) and economic laboratory experiments on health care supply and demand (E1-E4) [167]. The design presented here is an attempt to make this connection, which is why the first experimental study analysed only the stated preferences. However, it became apparent how difficult it is to apply established formats for increasing incentive compatibility from the field such as single binary or dichotomous choice surveys to an interactive negotiation setting (see Chapter 3.3.4). Still, the present preference range for the patient benefit in the results presented is not completely satisfactory. To narrow this range, it would be possible to test the impact of variants of the decision situation involving choices on a limited set of price-outcome options. Regarding the relevance of the reservation price games for the negotiation outcomes of interest, it should be noted that it could of course also be omitted. However, on the one hand, an important variable for stratifying the results in terms of plausibility would be missing, as well as for controlling for potentially different social preferences between the groups (internal validity). On the other hand, the preference elicitation also offers the possibility to compare the negotiation results and intervention effects with a preferred outcome.

2) Decision situation

The comparability of the negotiation setting is clearly the area with the greatest need and potential for further development of the design. The following considerations focus on five elements: complexity of the decision situation in general (i), consequences in terms of price (ii) and patient benefit (iii), negotiation process and tactics (iv), extent of regulatory restriction (v). The selection and considerations are oriented towards the overview in Table 4.

i) *Complexity of decision situation*: The decision situation in the experiment has a rather high complexity compared to other laboratory experiments. However, this also applies to price negotiations for medicines in the real world, which are much more complex and less repetitive than other trade interactions (see 1.1.3, Chapter 3.5 and 4.5) [2,3]. Thus, in principle, complexity seems to benefit the transferability of the results. However, the legitimate question naturally arises whether the observed behaviour was influenced by an (intended) complexity comparable to the natural decision situation, or by an (unintended) lack of understanding and compliance with the instructions. This would of course limit the applicability of the results (due to limited internal validity). The basic intention of this thesis was to build a bridge between experimental economics and application-oriented policy debate. To achieve this, different design elements were tested in three experiments (Table 4). As described, various measures were taken during the experiment and the analysis of the results in order to obtain data compliant with instructions. Nevertheless, for a further development of the approach, it would be reasonable to specifically test individual design elements in a follow-up experiment while omitting (controlling) others. This applies in particular to the consequences of the decision (ii, iii) and the pricing in an interactive setting (iii) discussed below.

ii) *Consequences in terms of price*: From the perspective of policy analysis, the most pressing question is to what extent price negotiations for high-priced medicines can be simulated in a fundable laboratory experiment with stakes in the lower double-digit dollar range. In the first two experiments conducted, the influence of different price frames was tested, with the real effects being the same for participants and passively affected parties. The results showed a significant difference to the disadvantage of patient access in the higher price frame. The question again arises whether the different behaviour at the level of real cancer therapies was actually closer to the real decision-making situation, or whether the behaviour was rather distorted by unintentional complication. Existing experimental evidence shows that non-consequential variations of outcome descriptions, including presentation of prices can affect decisions (e.g. [299-302]). However, this could speak for both. A further study could investigate, whether the differences found between the two price framings (equal stakes) are due to an intended approximation to the real decision situation with high financial consequences, or to an unintended increase in complexity. This could be done, for example, with a 2x2 design with different price framings (unconverted vs converted) and different context framings (neutral vs health care). However, it is questionable to what extent a “neutralisation” of the multi-stakeholder setting of the natural decision-making situation is possible (see Chapter 5, Appendix 1). Another possibility

would be to increase the real decision consequences for the funders by means of higher stakes. Generally, the existing evidence from laboratory experiments shows that results from games with lower stakes can be reproduced with higher stakes and observed behavioural biases do not disappear with higher payoffs [303]. At the same time, the results suggest that especially in complex designs, the performance of participants can be improved with higher stakes [303]. Against this background, it would be worth considering e.g. reducing the number of interventions and therefore study sample in a subsequent experiment in favour of higher stakes.

iii) *Consequences in terms of patient benefit*: In the first two experiments, hypothetical health outcomes (life expectancy and quality of life) were converted into monetary payments to the patient organisation, while in the third experiment this additional framing element was omitted. The focus on purely financial consequences for patients was made in favour of increased incentive compatibility and reduced complexity of the setting. It would still be possible to reintroduce the hypothetical element in favour of realism and combine it with the cost-benefit (in this case cost-effectiveness or cost-utility) intervention from the last experiment. Incentive compatibility could be increased through the adjustment towards a limited choice set of price-outcome options as described under 1) above.

iv) *Negotiation process and tactics*: The negotiations conducted in the experiments presented took place in only one round each, in which final offers had to be made simultaneously. Multiple rounds of bidding or even interactive bids would have been difficult to combine with multiple games of incremental patient benefit or varying alternatives. This would have increased complexity for participants and implementation beyond an acceptable level. At the very least, it would hardly have been possible to conduct the experiment in a reasonable time frame and sufficiently instruct a majority of the subjects. This excluded the possibility of strategic behaviour or specifically the use of negotiation tactics. However, the tactic of influencing the negotiating partner and the outcome of the negotiation, e.g. with an initial offer that deviates from the target price, has been quite well researched in other areas and is likely to be of particular importance in pharmaceutical negotiations [133,269,270]. A very promising further development of the design would therefore be to extend the single negotiation from one to two or three rounds. While reducing other design elements or the number of games. This could additionally be combined with real or simulated counter-offers, which take place sequentially. Both to consciously allow for strategic behaviour. It would be interesting, for example, to investigate whether a group with initial offers from the seller achieves different results than a second group with initial offers from the buyer. Corresponding results could even suggest a follow-up study in the

form of a natural experiment, in which reimbursement applications with a price proposal are switched to those without, or the two variants compared in parallel. However, in addition to methodological challenges, legal requirements for equal treatment of applicants would probably severely limit the possibilities for a parallel comparison in many countries.

v) *Extent of regulatory restriction*: Finally, promising in terms of transferability of the policy interventions studied would be the variation of voluntariness (nudge) versus obligation. This would be particularly important for risk-sharing and the operationalisation of MEA in general, as it could potentially have a positive effect on the success of negotiations if the parties themselves could decide in which situations they want to negotiate additional risk-sharing conditions or performance guarantees. But also the positive effect of the relative cost-benefit ratio could be examined to see whether it is influenced by voluntary versus mandatory application (i.e. no price offer without reference to cost-benefit).

3) Trading experience

A repeated concern from the peer-reviews of the three published studies, besides the comparability of the decision-making situation, was the different preconditions of the decision-makers of a standard laboratory population compared to professional negotiators. This concern should be explicitly distinguished from questioning the relevance of individual decision-making behaviour in the pricing of new medicines. The latter is a fundamental assumption or prerequisite for the present approach. As described above (1.1.3), there is evidence from Europe and the USA that agreed prices for new therapies cannot be fully explained by known factors such as the added clinical benefit and that price offers change in the course of the application process and with post-launch price reviews without a uniform pattern [22,117-125]. In addition, the delays and differences in access noted by industry and public authorities can hardly be explained only by the necessary administrative time. Based on the theoretical considerations of price formation in a bilateral monopoly, it is not surprising that reimbursement negotiations take place with the aim of influencing the final price. Assuming that the negotiators themselves have no relevant influence on the outcome (perfect agents) shifts at most the decision to other involved actors within the organisations on both sides.[60] However, the question of whether the behaviour of participants in a standard population can be transferred to negotiators with specific experience is quite legitimate. And yet it is also not new. The influence of decision-specific experience has been studied in experiments on various occasions, showing that behavioural biases remain relevant even in experienced decision-makers [3,271,304-311]. This has also recently been demonstrated in health economic experiments for student versus physician populations [144,234,236,237,312]. Nevertheless, in view of the developments regarding lab-field experiments ("a new era of experimental

[60] See below 1.5.3 for some considerations to extend the design to other involved stakeholders.

political sciences" [186,313]), it would be exciting to conduct an adapted follow-up study with people who are directly or indirectly involved in reimbursement decisions for new medicines.[61] It would, of course, be necessary to address the challenge mentioned in 1.3.4 of potentially very different country, company and therapy area-specific experience.

5.3. Outlook: further development of the approach within the framework for policy analysis

Finally, some selected thoughts regarding possible further development of the approach beyond the setting presented. First of all, on the basis of the framework introduced, the design can be extended to analyse additional policy outcomes. Beyond that, decision-making situations of other stakeholders involved in the context of pricing new medicines could also be investigated. The first extension dimension offers itself from the above-mentioned proposals to develop an extended value framework for VBP that goes beyond added clinical value, budget-impact and cost-effectiveness. Not least because a too narrow definition of value and value for money could, for example, result in unequal outcomes for patient populations with different research potential and disease burden, which might not correspond to societal (or political) preference. In this respect, the existing design could already be adapted with regard to patient characteristics, e.g. to investigate different framings of patient age or disease burden. In the second dimension, for example, the demand side could be examined with regard to the effects of VBP on the prescribing behaviour of treating physicians.[62] However, derived from the basic ambition of VBP there is a much-discussed policy issue that has not yet been addressed here, which would require further development in both dimensions: the promotion of "better" R&D investments and the reduction of investments in "me-too" therapies in the patent-protected sector with no significant added value from a societal perspective. The promise is simple, but has yet to be proven: If pricing policies in high-income countries, especially in large markets, focus on value for money, this could, in the medium term, create incentives for global R&D to abandon therapies during clinical development that promise little added benefit with high uncertainty. This would subsequently free up research capital and capacity in favour of more promising treatment options. Against the background of the development described at the beginning (1.1.1), the global R&D composite success rate of pharmaceuticals has decreased in recent years to a historic low of 8% [315].[63] This is generally attributed to the increasing complexity of research, but also to possibly inadequate study designs and scientific rigour [315,317]. Particularly in the field of oncology, clinical phase

[61] See a very recently published DCE study which investigated reimbursement decisions on the buyer side in the Netherlands. [314].
[62] For example, as a laboratory follow-up of the two field studies mentioned in 1.4.1 [255,256].
[63] Based on data up to 2019 [315]. The data for 2020 [316] are only of limited comparability due to the COVID-19 pandemic and the corresponding suspension of clinical trials.

two trials seem to inadequately qualify candidates for phase three [315,317,318]. The declining success rate in the third clinical phase and in the subsequent approval process raises the question of whether the reimbursement prices to be expected in the major markets constitute an inappropriate incentive for the research-based industry to continue less promising second phase studies into the most expensive final phase [15,319,320].

Investigating the influence of price regulations on R&D investment decisions in a laboratory experiment would hardly be plausible and unrealistic. Not least because "long-run inter-firm differences" could play a relevant role in the determination of R&D strategies [321]. However, the impact of a company's performance in terms of negotiation outcomes on its attractiveness as an investment could be investigated. As described above, an orientation of negotiations towards value for money presupposes that the organisations' strategies (on both sides) also permit corresponding behaviour. For some years now, there has been a growing literature, including some few experimental studies, on socially responsible investing that provides some (but not yet consistent) evidence that financial market investors care about non-financial outcomes of potential investments [322-324]. Corresponding experiments could be specifically targeted at the speciality pharmaceuticals market. They could analyse whether players in investment games would be willing to sacrifice a share of their own profits in favour of a higher value for money. Or at least demand a premium for investments that underperform a benchmark in terms of (time to) patient access. Such studies could support industry self-regulation efforts as well as supranational cooperation efforts to improve patient access and value for money. While the necessary comparisons in terms of patient access are already being developed (e.g. Access to Medicine Index[64]), this is much more difficult in the case of value for money. If only because of the lack of verifiability due to confidential price agreements. However, a publicly available performance indicator relating patient access or benefits to costs would potentially have the advantage of making price concessions more attractive. This possibly on both sides, if differences by manufacturer (analogous to the Access to Medicine Index) as well as by country (analogous to the Patients W.A.I.T. Indicator [98]) are made transparent.

The basic intention of this dissertation is to demonstrate how policy reform debates on the regulation of new, patent-protected medicines could benefit from advances in experimental health economics and the related interest in the behaviour of the professional actors involved. This is in view of the fact that existing price regulation systems are increasingly struggling to keep pace with technological developments and the simultaneous lack of evidence on their societal impact. Authorities, payers and industry seem to agree on the need to implement and

[64] https://accesstomedicinefoundation.org

further develop value-based pricing policies. For it promises to ensure access to and sustainable financing of novel treatments and to improve value for money in order to encourage effective R&D investment. The approach presented shows how a bridge between experimental economics and political reform debates could be designed. Negotiations for new medicines are complex and their duration and outcomes are likely to be determined to an important extent by behavioural influences. The initial experimental results presented show that value-based pricing policies could improve (timely) patient access and value for money in pharmaceutical price negotiations. Provided that negotiations are based on a common valuation framework that focuses on value for money. From this, preliminary recommendations can be derived for public pricing processes (specifications for applications and official responses), for internal pricing policies (negotiation guidelines), as well as for policy reform processes (common value framework). Reforms at all three levels should aim at setting relative, value-based guidelines for price agreements instead of referring to nominal reference prices (anchors). This assumes that organisations on both sides, as well as policy makers, have a genuine interest in or are mandated to improve patient access and value for money.

These preliminary recommendations are subject to the proviso that the approach presented still requires further development in various aspects. They can be understood as working theses for further research.

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CHAPTER 2

The effectiveness of public pricing policies for new medicines

Wettstein, D.J., Boes, S.: Effectiveness of national pricing policies for patent-protected pharmaceuticals in the OECD: a systematic literature review. Appl health econ health policy 17(2), 143-162 (2019). https://doi.org/10.1007/s40258-018-0437-z

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SYSTEMATIC REVIEW

Effectiveness of National Pricing Policies for Patent-Protected Pharmaceuticals in the OECD: A Systematic Literature Review

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Abstract

Objectives The aim of this review is to assess the current state of empirical research regarding the effectiveness of national pricing regulations of the patent-protected market for prescription pharmaceuticals. Effectiveness is understood to be the capacity of policies to have a desired impact on outcomes, such as health status, patient access, healthcare expenditure, and research investments, among others.

Methods A systematic review of the published literature on pricing regulations in OECD countries was performed. The PubMed, MEDLINE, Scopus, Web of Science, Cochrane Library and the OECD iLibrary databases were searched in September 2016 and December 2017, with an update in August 2018. Interrupted time series studies and additional empirical studies were included, as well as systematic reviews if appropriate methods were applied. The risk of bias was assessed based on the recommendations of the BMJ guidelines, Cochrane EPOC criteria, QHES instrument, HTA good practice guidelines, CRD's guidance and the CHEC criteria. The quality of evidence was evaluated using the suggestions from EPOC and GRADE.

Results Thirty-one publications met the inclusion criteria. Most of the assessed empirical research included therapeutic (TRP) and/or external reference pricing (ERP), with a clear majority focusing on TRP. The main outcomes that were analysed were drug prices, expenditures and drug use. For value-based pricing (VBP), only limited empirical data were found.

Conclusions We found evidence that TRP may reduce pharmaceutical prices and expenditures in the short term. Furthermore, TRP may lead to substitution effects towards lower-priced pharmaceuticals. The effects of TRP on patient access, healthcare utilisation and R&D investments were found to be uncertain. No conclusions were drawn for ERP and VBP. No evidence was found for the effects on health outcomes for any of the analysed policies. There is a strong need for evidence generation regarding effective pricing policies, particularly for VBP, managed entry agreements and non-financial outcomes.

Key Points for Decision Makers

We found evidence that therapeutic reference pricing may reduce pharmaceutical prices and expenditures in the short term and may lead to substitution effects towards lower-priced drugs in the short term.

Apart from the above, the existing research does not provide credible evidence that the current policies have an impact on healthcare utilisation, patient access, health outcomes or R&D investments.

There is a strong need for evidence generation regarding effective pricing policies, particularly for value-based pricing policies and for non-financial outcomes.

Policy makers should systematically define the assessment of policy effectiveness during the policy formulation process. In addition, experimental research on the topic could augment the scarce amount of available evidence, especially for value-based pricing policies.

Electronic supplementary material The online version of this article (https://doi.org/10.1007/s40258-018-0437-z) contains supplementary material, which is available to authorized users.

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1 Introduction and Background

1.1 Description of the Policy Issue

In most OECD (Organisation for Economic Co-operation and Development) countries, laws regulate the pricing of prescription pharmaceuticals. Parliaments and governments aim to control public spending on pharmaceuticals, while securing access to innovative treatments for their citizens.

Desired policy outcomes of pricing and reimbursement regulations are focused on short-term reduction and mid-term stabilisation of health expenditures [1]. In light of the financial and economic crisis, a majority of the countries in Western Europe in recent years decreed one-off as well as permanent, cost-containment policy measures to increase the control of spending on pharmaceuticals [1, 2]. However, these policies face increasing criticism that they are not sufficiently effective, not only regarding impacts on public finances, but even more due to their potential consequences on access for patients to new treatment options [3, 4], although new procedures for early access (conditional approval) and managed entry (coverage with evidence) have been introduced in Europe to make new therapies with "unsettled benefit–risk profiles" available [5].

Currently, the calls for reform are getting louder, in light of a growing number of new molecules and increasingly complex treatments, especially in oncology. According to IMS, the R&D pipeline for oncology "has expanded by more than 60% over the past decade", amounting to 710 late-phase therapies in 2017 [6, 7]. Knowledge of the clinical benefits of the new therapies is often scarce at the time of marketing authorisation [8], and the promised survival benefits imply a longer therapy duration, and therefore, additional budget impacts. Additionally, an increasing number of molecules are used in combination with other medications [6, 7]. Most of the national health systems have struggled to adapt to this new challenge, resulting in the reduced availability and coverage of new treatments [6].

The current regulations might have not only adverse incentives for short-term availability, they are also claimed to have further undesirable effects on the long-term research decisions of industry, reducing related investments [9, 10].

Finally, the ongoing change in the pharmaceutical sector, shifting from a "traditional blockbuster model" to more segmented markets offering therapies for smaller patient populations, leads to the discussion among authorities of whether current national policy approaches set the right incentives for industry to optimise research towards "value for money" [1, 11, 12]. In general, new drugs entering an established market can address previously unmet needs or target new populations for existing therapies (e.g. paediatric) and, consequently, increase treatment options [1]. While new therapies with high cure rates (e.g. for hepatitis) may be considered as cost effective even at high nominal costs per patient and month, other innovations may seem hardly worth a premium compared to existing standards [13]. Most recently, OECD classified "many high-cost cancer drugs" as low-value ("type C") technologies, if value is "based solely on the cost per life year or per quality-adjusted life year" [13]. From a health system perspective, there is a clear need for the evolvement of current reimbursement policies in industrialised countries to better reflect "value for money" of new treatments [14]. This calls for pricing regulations that promote fast access to essential innovations, while not incentivising investments in "me-too" compounds that offer no additional benefit. The challenging part of such policy reforms towards a more value-based assessment is not only a technical but also a normative one: how to find consensus on which technologies are "essential" (funded on a system level) and which are "nice to have" (individual funding). The discussion on how to measure value for money and whether the new pricing schemes are increasing is still ongoing [15–17]. Figure 1 provides an overview of our policy analysis, summarising the most common pricing policies and the most discussed policy outcomes. The latter were defined with consideration to recent policy papers from the WHO and the OECD, as well as existing reviews of the topic [1, 12, 18–22]. We refined the effect taxonomy after the first abstract screenings. The differentiation between intermediate (behaviour, result) and ultimate policy effects represents our own proposal, which reflects the screened study designs.

1.2 Description of Current Policy Designs to Address the Policy Issue

The most common pricing policies for pharmaceuticals in industrialised countries are therapeutic (internal) reference pricing, international (external) reference pricing and value-based assessments. These are generally combined with positive reimbursement lists (formularies), regular price reviews (individual or in groups) and tendering. These direct pricing policies are often supplemented with measures on the demand side to set desired incentives for prescribers, pharmacies and patients. Finally, authorities can link reimbursement authorisations to managed entry agreements, including coverage with evidence obligations and pay-for-performance schemes. The definitions below closely follow the suggestions of the "Glossary of Pharmaceutical Terms" issued by the WHO Collaborating Centre (CC) for Pharmaceutical Pricing and Reimbursement Policies.

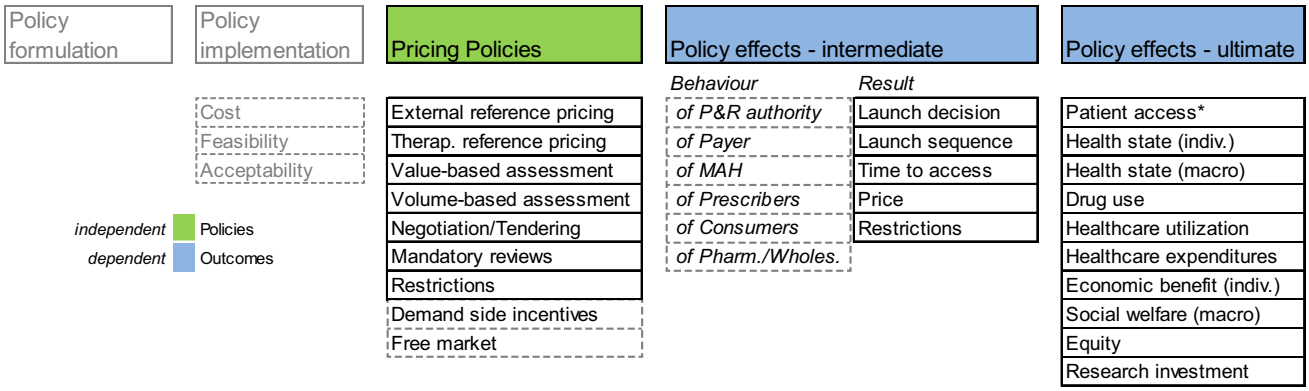

Fig. 1 Layout of pharmaceutical pricing policy analysis. *Includes affordability and availability (supply). *MAH* marketing authorisation holder, *P&R* pricing and reimbursement

1.2.1 Therapeutic (Internal) Reference Pricing (TRP)

TRP is defined as the governmental practice of using the prices of identical (ATC 5 level) or similar medicines (ATC 4) or therapeutically equivalent treatments (beyond medicines) in a country. One or a set of therapies are used as benchmark or reference to set or negotiate the reimbursable price of a product in a given country [20, 23]. The concrete mechanics can differ between the national systems (average or lowest of "equal" treatments, weighted for multiple indications, or not, measured per cycle, month or year). TRP can also be combined with other pricing instruments, such as external reference pricing (ERP), and may also allow for an "innovation premium" for added therapeutic value (both are currently the case in Switzerland, based on Art. 65b KVV [24]). TRP sets the reimbursable price and thus implies that a third party, normally the patient (or insurance), has to cover the costs beyond the fixed price.

1.2.2 International (External) Reference Pricing (ERP)

ERP is the practice of using the prices of a medicine in one or several countries to derive a benchmark or reference to set or negotiate the price of a product in a given country [20, 23]. All but two EU member countries (Sweden, UK) have implemented some type of ERP [15]. While the policy intends to affect the national market of the issuing state, its external effects are the subject of debate, since marketing authorisation holders are incentivised to launch new therapies in countries with higher prices first and delay in others [15].

1.2.3 Value-Based Pricing (VBP)

The value-based assessment for pharmaceutical pricing is also referred to as "cost effectiveness-based", "outcome-based" or "pharma economic" pricing. There is still "no widely accepted definition" of the value part of this instrument [23]. Following the WHO glossary, when referring to VBP, we mean the practice of authorities of "setting prices for new medicines and/or deciding on reimbursement based on the therapeutic value which the medicine offers, usually assessed through a health technology assessment (HTA)". VBP can be combined with cost-effectiveness thresholds, such as in Sweden or the UK, to define a range for the acceptable price of a treatment. VBP agreements are predestined for combination with managed entry schemes (see below), such as the Patient Access Scheme (PAS) in the UK, which allows the manufacturer to adjust the offer to the authorities (bringing the ICER down). However, most managed entry agreements (MEAs) and PASs are still volume based and not value based [1, 2, 23, 25, 26].

1.2.4 Managed Entry Agreements (MEAs)

A MEA is an "arrangement between a manufacturer and a payer/provider that enables access to (coverage/reimbursement of) a health technology subject to specified conditions" [27]. It has established itself as the overarching term for arrangements such as "performance-based schemes", "risk-sharing agreements" (RSAs), "patient access schemes" (PASs) or "coverage with evidence" schemes. MEAs aim to address uncertainties of new health technologies regarding clinical performance, cost effectiveness, effective use or long-term budget impacts [23, 27].

While some MEAs focus on real-world evidence collection after the market authorisation, others are set up as profit controls, volume-based agreements or other forms of predefined ("capped") quantities or annual expenses for a new treatment. According to the ISPOR taxonomy, "cost-sharing" arrangements fall outside the definition of performance-based risk-sharing arrangements (PBRSA), since they are

not linked to underlying cost effectiveness [28]. While we do not limit our analysis to "financial schemes" [26], our focus lies on MEAs as part of or linked to pharmaceutical pricing regulations, following the WHO definition [23] (see inclusion criteria below under Sect. 2.1).

1.2.5 Other Pricing and Reimbursement Policies

In addition, the simple instrument of issuing a positive (or negative) reimbursement list is a widely used component of pharmaceutical pricing regulation. Further, in several countries, the official reimbursement label is subject to negotiations for official reimbursement authorisation. In addition to price, it often defines additional limitations of reimbursable use, e.g. the eligible population, sometimes including mandatory tests to prove eligibility, subject to approval by a medical examiner (insurance physician). This practice was recently applied to control costs of the new hepatitis C therapies, which led to a controversial discourse on politics and health sciences [1, 13, 29].

Finally, an interesting complement to TRP, VBP and other pricing policies under discussion is "indication-based pricing", which aims to "capture the differential value of drugs across indications or patient groups" [25]. Thus far, this has been applied to only a very few special therapies across the European countries [30]. One example is bevacizumab, which in Switzerland has the same official list price for all of its seven reimbursable indications. However, for two of these, the official reimbursement label defines an indication-specific (renal cell carcinoma and breast cancer) payback that is reimbursable by the health insurance of the treated patient [31]. One common challenge for indication-based pricing is that existing administrative structures in many countries are not designed to "track patients' indications" for reimbursement purposes [32].

1.3 Why This Review is Important

Since the 1990s, scientific interest in pharmaceutical pricing regulation has steadily increased, with a clear rise in publications in PubMed since 2013 [33]. In recent years, there have been a few systematic reviews published on existing evidence regarding pharmaceutical pricing regulation. Most of these reviews are limited to specific policies and have not been updated to reflect the most recent studies published on various health system and policy changes, especially regarding value-based pricing. The Cochrane Library has published seven systematic reviews in the research area in which we are interested. The review by Acosta et al. [20] entitled "Pharmaceutical policies: effects of reference pricing, other pricing, and purchasing policies" was found to be a very comprehensive, but was also a very restrictive, structured review.

Acosta et al. included only interrupted time series (ITS) and repeated measures (RM) studies. A more inclusive analysis of the existing body of research is necessary to provide a broader picture on current state of the discourse, which often takes place in the political arena. Otherwise, the analysis might reach an exclusive expert audience only. Finally, and most importantly, the previous reviews did not focus on the patent-protected market and did not simultaneously include all relevant policies. Most studies actually did the opposite—including or focusing on the off-patent market, while limiting the analysis to a single or a few selected policies. Against the background of the mentioned challenges for financing and incentivising new, innovative health technologies, we consider the inverse focus to be essential.

1.4 Objectives

The aim of this review is to assess and summarise the current state of empirical research on the effectiveness of national pricing regulations on the patent-protected market for prescription pharmaceuticals. Effectiveness is understood to be the capacity of policies to have a desired impact on outcomes such as health state, patient access, drug use, healthcare utilisation, drug prices, healthcare expenditure, research investment, individual or organisational benefit, overall welfare, behaviour other than drug use and equity.

The study aims to contribute to the discourse around reform options of pricing regulations for new ("innovative") pharmaceuticals in developed health systems with established public policies. Therefore, the analysis focuses on high-income OECD countries. There is undoubtedly a high need for health systems and related pharmaceutical policies to evolve in developing countries. However, the majority of the respective policy settings and the data and evidence availability and quality were rated to not be supportive for the overarching research aims of this review.

2 Methods

2.1 Inclusion Criteria for Studies

2.1.1 Type of Studies

Controlled before-after studies (CBA), interrupted time series studies (ITS) and repeated measures studies (RM) were included. Inclusion was generally based on the recommendations from the Effective Practice and Organisation of Care (EPOC) for review authors [34]. However, to gain a broader picture of the current research, empirical studies not fulfilling the EPOC criteria were included if appropriate quantitative data and methods for inductive statistics

were used. Additionally, existing systematic reviews were included if appropriate methodologies were applied.

2.1.2 Type of Policy Designs

National pricing regulations for patent-protected pharmaceuticals, including international (external) reference pricing, TRP, VBP (based on clinical and pharma economic data), MEA, positive reimbursement lists (formularies), and regular price reviews (individual or in groups) were included if they were linked to price decisions. Not included were studies focusing on demand-side policies only, such as co-payments (patients), prescription quotas or budgeting (physicians), and substitution and margins (pharmacists).

Our definition of "pricing policies" follows the Glossary of Pharmaceutical Terms, published by the WHO CC for Pharmaceutical Pricing and Reimbursement Policies: "Regulations and processes used by government authorities to set the price of medicine as part of exercising price control" [23]. Based on this definition, we excluded analyses of MEAs not linked to price setting.

In contrast to the definition of the WHO CC and the Cochrane review by Acosta et al. [20], our scope was limited to official pricing policies issued by public authorities (i.e. national parliaments or governments, but not regulations issued by single health plans). Furthermore, effects of national pricing policies were considered only if they were realised in the addressed (sovereign) territory. In consequence, impact assessments of local policies on other countries, especially of ERP, were excluded. We acknowledge, however, that international effects are indirectly affecting the performance of national pricing policies [35].

2.1.3 Type of Outcome Measures

Outcomes of interest were policy effects such as health state (individual/societal), patient access, drug use, healthcare utilisation, drug prices, healthcare expenditure, research and development (R&D) investments, welfare (economic benefit for an individual or organisation, along with overall social welfare), behaviour other than drug use and equity (see Fig. 1).

2.1.4 Scope of the Studies: Health Systems Considered

Only research focusing on "high-income" (World Bank classification) OECD countries was included, considering the historical changes of countries in their classification [36]. The reason for the defined scope is laid out above (Sect. 1.4).

2.2 Search Methods

Published studies were identified by an electronic database search using the following sources: PubMed, MEDLINE, Scopus, Web of Science, Cochrane Library, and the OECD iLibrary. Searches with different word variations and combinations of "pharmaceutical" and "pricing" or "prices", as well as "policies" and "regulation" were performed. Publications on "reference pricing", "value-based pricing" and combinations with "patient access" and "innovative" were also searched. Further, a supplementary check on publications on "managed entry" or "risk sharing" agreements not flagged with "pricing" keywords was performed. The complete search strategy is listed in Supplementary Appendix 1, Table 3.

The searches were performed in September 2016, December 2017 and August 2018 (update of PubMed, Scopus and Web of Science search) and were restricted to records published in 2005 or later. No additional filters for language or quality of evidence (e.g. "peer-reviewed journal only") were applied at this stage. Only duplicate records (394) were excluded for initial abstract screening. Four additional publications not identified through the keyword search were added manually for abstract screening, since they were cited by at least one of the included systematic reviews on the topic.

2.3 Data Extraction and Analysis

As revealed in the PRISMA study flow [37] in Fig. 2, the review was performed in five main phases: (a) identification (electronic database searches), (b) abstract screening, (c) research categorisation (full text), and (d) assessment of risk of bias with (e) subsequent qualitative synthesis. The first author (DJW) conducted the literature search and extracted the articles for initial abstract screening and research categorisation. When articles met any of the exclusion criteria, they were excluded from further assessment. If the assignment was ambiguous or unclear, the first author (DJW) consulted with the second author (SB) to reach an agreement.

In the abstract screening, the exclusion criteria (Fig. 2) were tested sequentially. If no exclusion criteria were met, then the publication was included in the research categorisation step (c).

In the research categorisation step (c), the full texts of the selected publications were analysed, and they were classified according to "research type" (16 types, see Supplementary Appendix 1, Table 4) and "research objective" (see Supplementary Appendix 1, Table 5). If the publication was not classified as one of the six predefined research types, it was excluded. At the same time, the research objective of the publication was assigned to one of 24 predefined research objective pairs (see Table 5 in

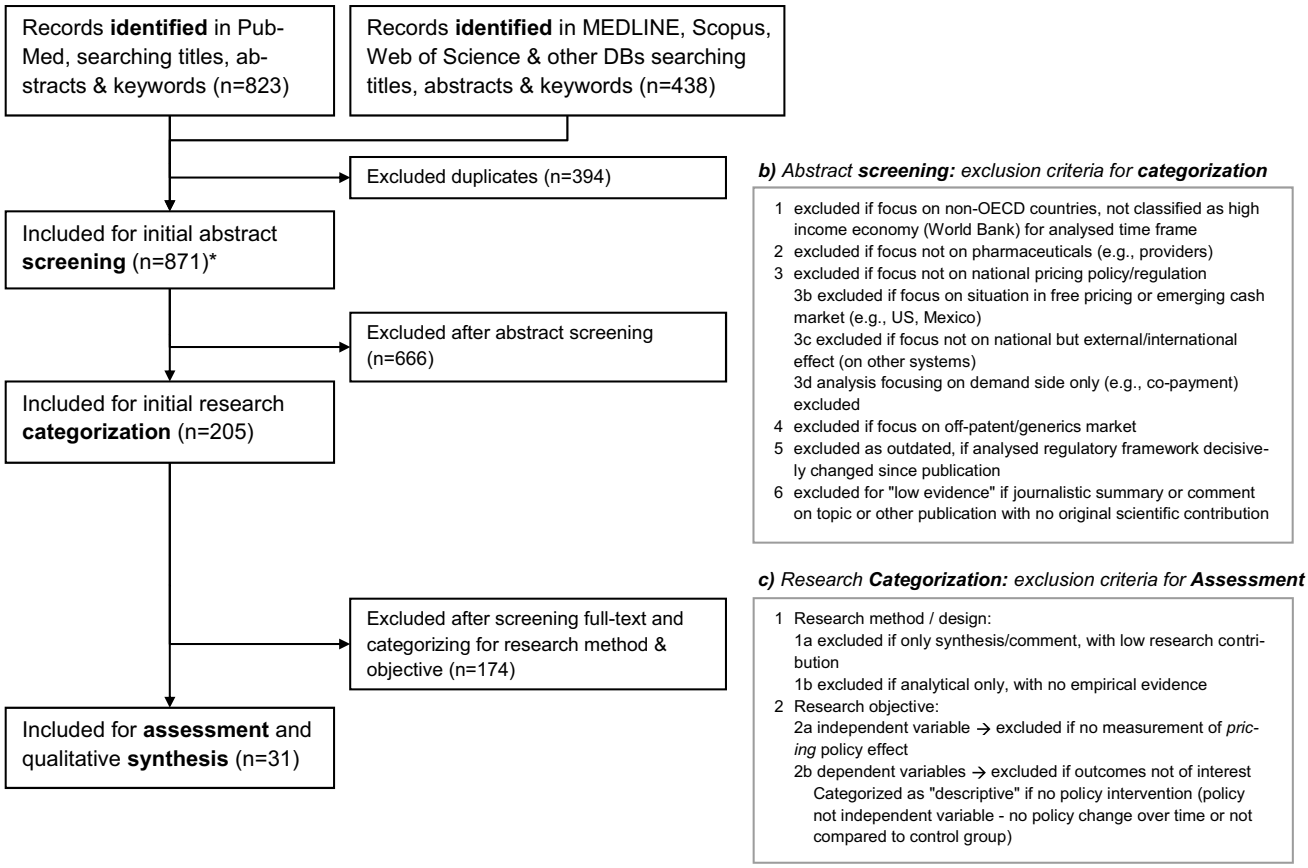

Fig. 2 Study flow (PRISMA diagram). *Four studies were added manually because they were cited by at least one of the included systematic reviews. *DB* databases

Supplementary Appendix 1, based on the policy analysis layout in Fig. 1). Studies were excluded if pricing policy was not the independent variable. Further, if no policy change was analysed (no change over time or no comparison with another country or district with a different policy setting), then the study was categorised as "descriptive" and was excluded.

For poster abstracts included after screening, research categorisation was performed on the available abstract text. If, based on the available information, no exclusion criteria were applicable, then the abstract was included in the risk of bias assessment and qualitative synthesis.

2.4 Assessment of Risk of Bias

The assessment of the risk of bias was based on a synthesis of existing tools. The reason for this was that none of the commonly used tools were designed for an inclusive analysis of all of the types of research included in this analysis: empirical research, analytical microeconomic models and systematic literature reviews. The most common tools were designed for health interventions and had to be adjusted for health policy designs. The integrated questionnaire was based on a selection and synthesis of the recommendations from:

- the BMJ guidelines [38] and a later, additional questionnaire by Drummond et al. [39],
- the Cochrane EPOC criteria [40],
- the Quality of Health Economic Studies (QHES) instrument [41],
- the good practice guidelines for modelling in HTA by Philipps et al. [42],
- the CRD's guidance for reviews [43] and the criteria list from the Consensus on Health Economic Criteria (CHEC) project [44].

The questionnaire comprised a total of 18 questions, four on the study design (S1–S4), four on the data source and handling (D1–D4), three for the analytical modelling (M1–M3) and seven on the empirical analysis, synthesis and conclusions (E1–E7). The full questionnaire is given in Supplementary Appendix 1, Table 7.

For each publication and each question, the risk of bias was assessed as either low, unclear or high, following the EPOC suggestions [40]. Since the EPOC criteria were integrated with other assessment questionnaires, the scoring recommendation had to be adapted. In general, the score "unclear" was used restrictively. This was a necessary adaption for the rating of policy "interventions" compared to specific health interventions. If a question could not be answered since it was "not specified in paper" [40], the risk was rated high. The rating "unclear" was assigned only if credible arguments against relevant bias of the conclusion were indicated in the publication. For example, D4 (intervention dependent on other changes) was only rated low if it was plausible that the stated impact of the policy on the defined outcome was not influenced by other changes. It was rated unclear if efforts were displayed to control one or some of the most important confounders (e.g. other pharmaceutical policies implemented in parallel, other relevant healthcare policy measures in parallel, changes of the relevant market structure, relevant trends in technology, or relevant macroeconomic factors on the distribution or demand side).

Missing information from assessed poster abstracts was rated with a high risk of bias.

Low was scored with 2 points, unclear with 1 and high with 0. The final SCORE per record was the ratio of scored points to the total possible points, in percent. With the risk of bias defined as 1-SCORE, the grouping was set as: 0% no risk, 1%–19% low, 20%–39% moderate, 40%–59% medium, and 60%–100% high risk of bias.

2.5 Synthesis of Results

For each of the assessed publications all policy-outcome pairs analysed were listed and grouped into the four main policy designs (TRP, ERP, VBP, other), as described in Sect. 1.2. The results per pair and publication were assigned to one of the following six policy-outcome effects:

- positive (↑),
- negative (↓),
- contradictory/inconclusive (↕),
- effect exists (different directions possible, →),
- no effect (X),
- no conclusion (–).

The effects were contrasted with the risk of bias for the respective analysis for a qualitative synthesis per policy-outcome pair. We used the GRADE method [45] to rate the quality of evidence (high, moderate, low, very low), and based on that, followed the EPOC guidelines [46] to report the effect per pair.

3 Results

3.1 Included Studies

A total of 31 publications met the inclusion criteria, and none were classified as CBA or RM. Eight publications were based on interrupted time series studies (ITS), and seven were included because they met the requirements for quantitative data and methods. A further four publications presenting analytical models were included, since empirical validation was performed. Finally, 12 systematic reviews were also included.

Included ITS: Armeni et al. 2016, Augurzky et al. 2009, Barros et al. 2010, Grootendorst et al. 2005, Grootendorst et al. 2006, Morgan et al. 2008, Stargardt 2010, Yfantopoulos 2007 [47–54].

Additional empirical research included (inductive statistics but no qualified ITS): Golec et al. 2010, Kalo et al. 2012, Kanavos et al. 2011, Kyle 2007, Leopold et al. 2012, Stargardt 2011, von der Schulenburg et al. 2011 [10, 55–60].

Included analytical models with empirical validation: Atella et al. 2012, Comanor et al. 2018, Kaiser et al. 2014, Koenig et al. 2011 [61–64].

Included systematic reviews: Acosta et al. 2014, Espin et al. 2011, Galizzi et al. 2011, Green et al. 2010, Lee et al. 2012, Lee et al. 2015, Morgan et al. 2009, Puig-Junoy 2005, Relakis et al. 2013 (poster abstract), Rémuzat et al. 2015, van der Gronde et al. 2017, Zhou et al. 2014 (poster abstract) [19–22, 65–72].

Table 1 provides an overview of the included studies.

3.2 Excluded Studies

Of the 871 publications included for initial abstract screening, 666 did not meet the inclusion criteria. Most of them (281) did not focus on pharmaceutical pricing regulations according to the definition. A total of 169 did not focus on OECD and/or on high-income countries; 82 focused on the off-patent market. Of the 205 records included for full-text research categorisation, 174 were excluded because they did not analyse a policy change (134) and/or did not classify as an appropriate research type (147). Full details on every screened record and summary per criteria are given in Supplementary Appendix 2, Table 9.

The main reasons for the exclusion of empirical studies, which were included in other systematic reviews on the topic (included in this review as well), were that they were either published before the defined time frame (23), did not meet our definition of pricing policy (17), or focused on the off-patent (4) or free-pricing (2) market. Details are displayed in Supplementary Appendix 1, Table 6.

Table 1 Overview of included publications

Database	Publication	Type of economic research	Dependent variable	Methods	Scope/setting of analysis	Policy analysed	TRP	ERP	VBP	In general	Other	Outcomes
Pubmed	Atella [61]	Economic model (analytic, empirical data)	Prices	OLS regression	US, Italy	Price controls vs none				X		Drug prices and drug quality (R&D invest)
Scopus	Comanor [64]	Economic model (analytic, empirical data)	Prices	Ratio and linear regression	US, UK	Price controls vs none			X	X		Drug prices
Pubmed	Kaiser [62]	Economic model (analytic, empirical data)	Welfare[c]	Log-linear regression, random coefficients logit (RC logit) model	Denmark 2005, statins	Change from external to therap. reference pricing	X					Drug prices, demand (drug use), expenditures, (co-payment)
Pubmed	Koenig [63]	Economic model (analytic, empirical data)	Invest (R&D)	Random parameters logit model	27 European countries	External, therap. reference pricing, price controls overall	X	X		X		Location choice (incl. R&D investment)
Pubmed	Armeni [47]	Interrupted time series study (ITS)	Expenditures	ITS	Italy	Therap. reference pricing, quotas, [co-payment]	X					Drug expenditures
Pubmed	Augurzky [48]	Interrupted time series study (ITS)	Prices	ITS	Germany	Therap. reference pricing	X					Drug prices
Pubmed	Barros [49]	Interrupted time series study (ITS)	Expenditures	ITS	Spain	Administrated price reductions, therap. reference pricing	X				X	Drug expenditures
Pubmed	Grootendorst [50]	Interrupted time series study (ITS)	Expenditures	ITS	Canada, NSAIDs	Therap. reference pricing	X					Drug expenditures, drug use
Pubmed	Grootendorst [51]	Interrupted time series study (ITS)	Prices	ITS	Canada, ACE Inh. and CCBs	Therap. reference pricing	X					Drug expenditures, drug use
Pubmed	Morgan [52]	Interrupted time series study (ITS)	Invest (R&D)	ITS	Canada	Therap. reference pricing	X					R&D investment (local)
Pubmed	Stargardt [53]	Interrupted time series study (ITS)	Usage[b]	ITS	Germany, statins	Therap. reference pricing	X					Drug use (adherence), healthcare utilization (visits), drug expenditures

Table 1 (continued)

Database	Publication	Type of economic research	Dependent variable	Methods	Scope/setting of analysis	Policy analysed	TRP	ERP	VBP	In general	Other	Outcomes
Pubmed	Yfantopoulos [54]	Interrupted time series study (ITS)	Prices	ITS	Greece	Positive list pricing					X	Drug expenditures
Pubmed	Golec [10]	Statistical analysis—inductive (not ITS)	Invest (R&D)	OLS regression	US, EU	Price regulation by government vs none				X		Profitability, stock return, R&D investments
Pubmed	Kalo [55]	Statistical analysis—inductive (not ITS)	Usage[b] and Exp	Aggregated linear regression	Hungary, asthma (2 prod.)	Therap. reference pricing	X					Drug expenditures (daily cost of therapy)
Pubmed	Kanavos [56]	Statistical analysis—inductive (not ITS)	Prices	Random effects panel data analysis	OECD	Therap. and external reference pricing, free pricing	X	X				Drug prices
Scopus	Kyle [57]	Statistical analysis—inductive (not ITS)	Access[a]	Negative binomial regression	OECD	Price controls vs none	X		X	X	X	Patient access (countries launched, time to launch)
Pubmed	Leopold [58]	Statistical analysis—inductive (not ITS)	Prices	Linear regression model	14 EU countries, 14 products	External reference pricing		X				Drug prices
Scopus	Stargardt [59]	Statistical analysis—inductive (not ITS)	Prices	Hierarchical multi-level random intercept model	Germany	Therap. reference pricing, price freeze	X				X	Drug prices
Pubmed	von der Schulenburg [60]	Statistical analysis—inductive (not ITS)	Prices	Fixed/random effects panel data analysis	6 EU countries ACE Inhibitors	Therap. reference pricing, cost-effectiveness analysis (value-based), profit controls, etc	X		X		X	Drug prices
Pubmed	Acosta [20]	Systematic review	Diverse	Systematic review of ITS, RM, CRM, CBA	18 articles included	Therap. and external reference pricing, maximum pricing, index pricing	X	X			X	Health outcomes, healthcare utilization, drug expenditures and drug use
Haiweb.org	Espin [19]	Systematic review	Prices	Systematic review [plus case studies]	21 articles included	External reference pricing		X				Drug prices

Table 1 (continued)

Database	Publication	Type of economic research	Dependent variable	Methods	Scope/setting of analysis	Policy analysed	TRP	ERP	VBP	In general	Other	Outcomes
Pubmed	Galizzi [65]	Systematic review	Prices	Systematic review of theoretic and empiric research	35 articles included	Therap. reference pricing	X					Drug prices, drug expenditures, other effects
Pubmed	Green [21]	Systematic review	Diverse	Systematic review of ITS, RM, CRM, CBA	29 articles included	Restriction of reimbursement					X	Drug use, healthcare utilization, health outcomes, drug expenditures
Pubmed	Lee [66]	Systematic review	Diverse	Systematic review of empiric research	16 articles included	Therap. reference pricing	X					Drug prices, drug expenditures, drug use and healthcare utilization
Pubmed	Lee [22]	Systematic review	Expenditures	Systematic review of ITS, RM	29 articles included	Policies to control expenditure (incl. therap. reference pricing)	X			X		Drug expenditures, drug prices, drug use, healthcare utilization, health outcomes, [behaviour]
Pubmed	Morgan [67]	Systematic review	Diverse	Systematic review of ITS	3 [plus 12] articles included	Therap. reference pricing [and tiered formularies]	X					Drug expenditures (patient, insurer), drug use, healthcare utilization
Pubmed	Puig-Junoy [68]	Systematic review	Welfare[c]	Systematic review of empiric research	10 articles included	Therap. reference pricing	X					Overall social welfare, drug prices, healthcare utilization, [level of competition]
Web of science	Relakis [69]	Systematic review	Diverse	Systematic review of published evidence	na	Price controls				X		R&D investment, patient access (availability), drug expenditures, welfare
Pubmed	Rémuzat [70]	Systematic review	Prices	Systematic review of empiric research [plus survey]	234 articles included	External reference pricing		X				Drug prices, patient access, R&D investment, [international spill-over effects]

Table 1 (continued)

Database	Publication	Type of economic research	Dependent variable	Methods	Scope/setting of analysis	Policy analysed	TRP	ERP	VBP	In general	Other	Outcomes
Pubmed	van der Gronde [72]	Systematic review	Diverse	Systematic review of scientific (peer-reviewed) and newspaper (journalistic) articles	221 (153 + 68) articles included	Various	X	X	X	X	X	Drug prices, expenditures, access, various
Pubmed	Zhou [71]	Systematic review	Expenditures	Systematic review of theoretic and empiric research	na	Therap. reference pricing	X					Drug prices, drug use, drug expenditures, patient access

ERP external (International) Reference Pricing, *IST* Interrupted Time Series Study, *na* not applicable, *R&D* Research and Development, *TRP* therapeutic reference pricing, *VBP* value-based pricing

[ ] not included in analysis

[a]Includes affordability and availability (supply)

[b]Includes drug use and healthcare utilization

[c]Includes individual benefit and overall welfare

3.3 Summary of Risk of Bias

Study design: For all the non-ITS empirical studies and empirically verified theoretical studies, the risk of bias was rated high. The main reasons for this were the lack of measures to control relevant underlying trends and confounding variables and limited time points before and after the analysed policy change. Further, the policy intervention for some of the studies was not clearly defined [73–76]. For example, Kaiser et al. defined the policy intervention as a "change from external to internal reference pricing" in Denmark in 2005 [62], while Atella et al. bundled "regulatory regimes" with or without price controls for the USA and Italy [61]. In the latter, since effective (potentially interacting) policies remained unspecified, and no indication and justification for the data range was given, the risk of bias for the section study design was rated as high. Golec/Vernon investigated the impact of overall price controls on R&D spending and profitability of EU versus US firms [10]. However, the basic design lacks plausible methods to isolate the policy effects from confounding drivers for R&D spending or stock market returns.

Data: Most studies did not report techniques, evidence or plausible arguments to prevent outcomes from being influenced by other confounding variables during the analysed period [40]. Both Grootendorst/Steward and Morgan/Cunningham analysed the implementation of TRP policies in British Columbia [51, 52]. The first study reports a negative (decreasing) effect on drug expenditures, while the latter concluded that there was no impact on local R&D spending. While the risk of bias for the analysis of Grootendorst/Steward was rated low overall, they admit that the introduction of low-cost generics during the analysed period could not be adequately controlled for [51]. Morgan/Cunningham neither control for nor discuss changes in the market in their analysis. Differences between the two systems regarding market structure (e.g. R&D intensity, companies entering/leaving the market) were neither controlled for, nor disclosed or discussed [52].

Empirical analysis: Disaggregated results were missing for some of the studies and for some of the reviews. Additionally, some of the conclusions were enriched with opinion statements that were not founded on the analysed data and presented results. Yfantopoulos concludes that the introduction of positive list pricing in Greece was not effective in controlling pharmaceutical expenditures [54]. However, the underlying parameter is not significant, and many more details on the expenditure data that were used would be needed to reduce the risk of bias. The literature review from Espin/Rovira/Labry and that of Rémuzat et al. lacked an assessment of the evidence quality and risk of bias [19, 70]. For both, it remains unclear whether the summary and the reported conclusions were based on the performed systematic review; additionally, no potential limitations of the analysis were disclosed.

Overall risk: The average risk of bias for the included ITS studies was rated low. Only the analysis from Yfantopoulos [54] left concerns, since information was missing on the independence of the effects from other changes, as well as on the aggregation of data and basis for conclusions, resulting in a medium risk of bias. The included analytical models with empirical verification scored lower, with moderate risk, mainly due to leaving doubts regarding the independence of the analysed changes and due to the lack of data reported on a disaggregated level. The non-ITS empirical studies were assessed only partly, since their risk of bias was judged as high after the initial assessment of the study design and data selection (except Kyle and Stargardt 2011, which was medium [57, 59]). Most of the selected systematic reviews had a credible low risk of bias, with the exception of Rémuzat [70], Espin [19] and van der Gronde [72]. In Espin et al., more than half of the included studies were classified as opinions, while information on the included research designs was found to be incomplete. For the analysis of Relakis [69] and Zhou [71], no full results completing the published poster abstracts were found. Van der Gronde et al. [72] provided a comprehensive and up-to-date overview on the topic of pharmaceutical pricing; however, their paper did not disclose relevant information on the exclusion criteria (screening, eligibility), criteria for additional inclusions, the chosen time period, and selection criteria for newspapers. Furthermore, no assessment of the risk of bias or the method of synthesis was disclosed (see PRISMA recommendations [37]), and central statements were either based on a single publication or not referred at all. An overview of the assessment of the risk of bias is provided in Supplementary Appendix 1, Table 8.

3.4 Effects of the Policy Changes and Quality of Evidence

Table 2 provides an overview of the synthesised effects of the policy changes reported in the assessed empirical publications, as well as in the analysed systematic reviews. We found result statements for eight outcome categories. The only outcome category completely missing in the assessed publications was "equity". No research intention was formulated for 7 potential policy-outcome pairs, leading to 17 potential effects for synthesis. A conclusive statement could be derived for only 11 pairs.

TRP on drug prices: Five of the empirical studies and six systematic reviews performed an analysis of the impact of TRP on drug prices. Three of the original studies found evidence for prices to decrease after the introduction of TRP, one study reported inconclusive results (increase as well as

decrease) and one study did not find an impact. Four of the reviews concluded that the introduction of TRP was likely to have a negative (reducing) impact on prices, while one publication reported "minimal" impact, with no details. For a general statement of the respective correlations, the evidence quality was rated low. We conclude that TRP may reduce drug prices [22, 48, 56, 59, 60, 62, 65, 66, 68, 71, 72].

TRP on healthcare expenditures: Seven of the empirical studies and six systematic reviews performed a respective analysis. Four of the original studies reported reduced reimbursed expenditures. One study stated a transitory reduction with no impact on the trend. Furthermore, one study found that TRP did not reduce expenditures, and a recent (2016) analysis concluded that TRP leads to higher expenditures. Of the systematic reviews, all five reported that TRP reduced the amount of drug expenditures. However, the definition of savings and expenditures was heterogeneous, and uncertainties on sustainability of the effects were reported. Although the average risk of bias was moderate, the effect was ambiguous, and for half of the studies the evidence was limited to a specific therapy or substance. In consequence, the overall quality of evidence for a general statement was rated as low for short-term expenditures and very low for mid-term expenditures. We conclude that TRP may reduce drug expenditures in the short term, while the long-term effect is uncertain [20, 22, 47, 49–51, 53, 55, 62, 65–67, 71]. This finding is in line with that of Acosta et al. [20].

TRP on drug use: Four of the empirical studies and five systematic reviews reported a respective analysis. All of the publications reported, in some form, shifts, switches or substitutions due to TRP between reference and referenced drugs. Very limited information and evidence was reported on overall drug use for the affected therapies. The empirical studies were limited to four therapeutic/pharmacological subgroups: ACE inhibitors, calcium channel blockers, nonsteroidal anti-inflammatory drugs (ATC level 3) and statins (ATC level 4). Consequently, the overall quality of evidence for a general statement was found to be low, although the average risk of bias was low for the reported substitution effects. We found that for a "moderate" rating, broader empirical research is needed that includes different therapies [20, 22, 50, 51, 53, 62, 66, 67, 71].

For TRP and the outcomes *healthcare utilisation, patient access* and *R&D investment*, the quality of evidence was rated very low, and we conclude that it is uncertain whether a respective policy impact exists. No evidence was reported for effects on *health outcome* or overall *welfare*.

As displayed in Table 2, the body of research was markedly limited for ERP and very limited for VBP policies. We found the negative impact of both policies on *prices* and *patient access* to be uncertain, similar to the impact of ERP on research investments. For all other possible outcomes, no clear conclusion (or no conclusion) was reported in the analysed literature.

Further effects were reported for other policies such as administered price reductions (Spain) [49], positive list pricing (Greece) [54], price freeze (Germany) [59] or profit controls [60]. A Cochrane review from 2010 found that "Implementing restrictions to coverage and reimbursement of selected medications can decrease third-party drug spending without increasing the use of other health services" based on the results from six ITS studies [21]. We found no evidence for impacts from MEA in the context of pricing policies. There is a growing interest, with a corresponding increase of publications, on "use, advantages and disadvantages" [77], while evidence on these outcomes remains scarce [26, 78, 79].

4 Conclusions and Discussion

OECD countries have implemented numerous policy reforms on pharmaceutical pricing in the last decade [1]. The scientific evidence of whether these policy adjustments have the desired or unwanted effects on debated outcomes is, however, still scarce. In particular, for patent-protected pharmaceuticals ("new innovative technologies"), qualified evidence on policy effects remains very limited. The majority of empirical studies and reviews included in this review focused on therapeutic reference pricing. We found evidence that TRP may reduce pharmaceutical prices and expenditures in the short-term and may lead to substitution effects towards lower-priced drugs in the short term. Apart from that, the existing research does not provide certain evidence that the current policies have an impact on healthcare utilisation, patient access, health outcomes or R&D investments.

The aim of this paper was to analyse qualified empirical research on the effectiveness of existing policies. It was not the aim to perform an impact analysis of the existing research on current policy debates. To consider potential reasons for the scarce evidence that we found, we investigated the inclusion of the analysed research in selected topical policy publications from the OECD and the European Union. Of the 205 publications included in our initial research categorisation, only two (Paris et al. [12] and Vogler et al. [80], both qualified as "descriptive") were referenced in the recent 231-page OECD paper on "New Health Technologies: Managing Access, Value and Sustainability" [13]. Additionally, the very recent report from the European Commission (Expert Panel on Effective ways of Investing in Health EXPH) on "Innovative payment models for high-cost innovative medicines" [14] refers only to one study (again, Paris et al. [12]). The cited OECD working paper No. 63 "Value in Pharmaceutical Pricing" [12] itself referrers to one of the categorised studies (Leopold

Table 2 Summary effects of policy changes and quality of evidence

Policy	Outcome	Orig. studies	Syst. reviews	Effect			Risk of Bias[a]		Quality of evidence[b]	Synthesis[c]
TRP	Drug prices	5		Kanavos [56]	Not significant	–	69%	High	LOW	TRP may reduce drug prices
				von der Schulenburg [60]	Results inconclusive	↕	69%	High		
				Kaiser [62]	Substantial reduction in prices	↓	19%	Low		
				Augurzky [48]	No full but fast price adjustment, manufacturers seem to compensate TRP prices with non-TRP prices	↓	17%	Low		
				Stargardt [59]	TRP reduces prices	↓	44%	Med		
			6	Galizzi [65]	After intro of TRP prices are likely to drop	↓	8%	Low		
				Lee [66]	reduced drug prices	↓	8%	Low		
				Lee [22]	Minimal impact on prices	→	4%	Low		
				van der Gronde [72]	Lower prices	↓	96%	High		
				Zhou [71]	Reference pricing could reduce prices	↓	92%	High		
				Puig-Junoy [68]	(Descriptive/no conclusion)	–	8%	Low		
	Healthcare expenditures	7		Grootendorst [50]	Reduced drug expenditures, due to substitution of lower cost for higher-cost drugs, coupled with reduced reimbursement of higher-cost drugs	↓	0%	No	LOW for short-term VERY LOW for mid-term	TRP may reduce drug expenditures in the short term It is uncertain whether TRP reduces drug expenditures in the long-term
				Grootendorst [51]	Substitution of lower cost for higher-cost drugs, coupled with the reduced reimbursement of higher-cost drugs, had the effect of lowering drug expenditure	↓	7%	Low		
				Stargardt [53]	Decrease in expenditures	↓	10%	Low		
				Kaiser [62]	Substantial reduction in healthcare expenditures	↓	19%	Low		
				Kalo [55]	Therap. reference pricing does not reduce expenditures	X	69%	High		
				Barros [49]	Impact on expenditures transitory: on level but not trend	↓ X	17%	Low		
				Armeni [47]	Therap. reference pricing leads to higher expenditures	↑	10%	Low		
			6	Galizzi [65]	Saving effects (short-term) at least on molecule level, due to switches	↓	8%	Low		
				Lee [22]	Reference pricing may result in cost savings		4%	Low		
				Acosta [20]	TRP may reduce drug expenditures in the short term by shifting drug use from cost share drugs to reference drugs. effect on expenditures of cost share drugs is uncertain	↓	0%	No		
				Morgan [67]	Reduced expenditures	↓	17%	Low		

Table 2 (continued)

Policy	Outcome	Orig. studies	Syst. reviews	Effect			Risk of Bias[a]		Quality of evidence[b]	Synthesis[c]
				Lee [66]	Decreases in expenditures	↓	8%	Low		
				Zhou [71]	Could reduce expenditures	↓	92%	High		
	Drug use (substitution/total use)	4		Grootendorst [50]	Substitution of lower cost for higher-cost drugs	→	0%	No	LOW	TRP may lead to substitution effects towards lower priced drugs in the short term
				Grootendorst [51]	Substitution of lower cost for higher-cost drugs	→	7%	Low		
				Stargardt [53]	Increase in switches and of non-adherence	→	10%	Low		
				Kaiser [62]	Reform induced consumers to substitute away from branded drugs	→	19%	Low		
			5	Acosta [20]	Drug use shifting from cost share drugs to reference drugs	→	0%	No		
				Morgan [67]	Increased switching, reduced overall use	→	17%	Low		
				Lee [66]	Increased switching No increased use	→ X	8%	Low		
				Lee [22]	Shifts in use	→	4%	Low		
				Zhou [71]	Increase use of lower priced drugs	→	92%	High		
	Healthcare utilization	1		Stargardt [53]	Limited evidence that increased switching leads to increased visits in some sub-groups	↑	10%	Low	VERY LOW	It is uncertain whether TRP increases healthcare utilization
			4	Lee [22]	(Nothing reported)	–	4%	Low		
				Acosta [20]	Effects on healthcare utilization are uncertain due to lack of evidence	–	0%	No		
				Morgan [67]	Increase in short-term physician visits	↑	17%	Low		
				Puig-Junoy [68]	(Descriptive/no conclusion)	–	8%	Low		
	Patient access	1		Kyle [57]	TRP leads to earlier launch	↑	56%	Med	VERY LOW	It is uncertain whether TRP leads to earlier launches
			1	Zhou [71]	No impact on patient access found	–	92%	High		
	Health outcome	–	3	Lee [22]	(Nothing reported)	–	4%	Low	–	–
				Acosta [20]	No evidence found	–	0%	No		
				Morgan [67]	No evidence found	–	17%	Low		
	Welfare	–	1	Puig-Junoy [68]	No evidence on found	–	8%	Low	–	–
	Research investment	2	–	Koenig [63]	Less investments for countries with price controls, but not significant for R&D only	–	33%	Mod	VERY LOW	It is uncertain whether TRP has an effect on R&D investments
				Morgan [52]	Reference pricing did not have impact on local R&D	X	23%	Mod		

Table 2 (continued)

Policy	Outcome	Orig. studies	Syst. reviews	Effect			Risk of Bias[a]		Quality of evidence[b]	Synthesis[c]
ERP	Drug prices	2		Kanavos [56]	Not significant	–	69%	High	VERY LOW	It is uncertain whether ERP reduces prices
				Leopold [58]	Leads to lower prices, but price level not driven by ERP only	↓	75%	High		
			3	Rémuzat [70]	Inconclusive	↕	63%	High		
				Espin [19]	No evidence found	–	63%	High		
				van der Gronde [72]	(Nothing reported)	–	96%	High		
	Healthcare expenditures	–	1	Acosta [20]	(Nothing reported)	–	0%	No	–	–
	Drug use	–	1	Acosta [20]	(Nothing reported)	–	0%	No	–	–
	Healthcare utilization	–	1	Acosta [20]	(Nothing reported)	–	0%	No	–	–
	Patient access		2	Rémuzat [70]	Evidence for delay or avoidance of launches	↓	63%	High	VERY LOW	It is uncertain whether ERP has a negative effect on patient access
				van der Gronde [72]	Countries with a lower willingness to pay could see a drug launch delayed or no launch at all	↓	96%	High		
	Health outcome	–	1	Acosta [20]	(Nothing reported)	–	0%	No	–	–
	Research investment	1		Koenig [63]	Less investments for countries with price controls, but not significant for R&D only	–	33%	Mod	VERY LOW	The effect of ERP on R&D investments is uncertain and unclear
			1	Rémuzat [70]	(Descriptive/no conclusion)	–	63%	High		
VBP	Drug prices	2		von der Schulenburg [60]	Cost-effectiveness analysis has a negative impact on price	↓	69%	High	VERY LOW	It is uncertain whether VBP reduces drug prices
				Comanor [64]	VBP leads to same prices as free-market pricing	X	97%	High		
			1	van der Gronde [72]	VBP incentivizes high prices for innovative drugs	↑	96%	High		
	Patient access	1	–	Kyle [57]	Pharmaco-economic evidence requirement seems to delay launch	↓	56%	High[d]	VERY LOW	It is uncertain whether VBP has a negative effect on patient access.

Policies: *ERP* external reference pricing, *TRP* therapeutic reference pricing, *VBP* value-based pricing

Effect: ↑ positive effect, ↓ negative effect, ↕ contradictory/inconclusive effect, → effect (different directions possible), X no effect, – no conclusion

[a]Risk of bias: 1-SCORE (0% no risk, 1–19% low, 20–39% moderate, 40–59% medium, 60–100% high), overall outcomes are per publication unless stated otherwise

[b]Grades of evidence according to the GRADE Working Group [45]: HIGH: We are very confident that the true effect lies close to that of the estimate of the effect. MODERATE: We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different. LOW: Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect. VERY LOW: We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

[c]Synthesis of the effect following the EPOC guidelines on how to report the effects of interventions [46]. R&D: Research and Development

[d]Risk for this policy-outcome pair adjusted, since it was considerably higher than for the publication overall

[81], qualified as "descriptive"). The more recent OECD working paper No. 87 on "Pharmaceutical Expenditure and Policies" [1] makes reference to one of the included and assessed studies, the systematic review from Lee et al. [66], without placing it into context of other systematic reviews or original research.[1]

For a general conclusion, a proper impact analysis would be needed that would consider the sequential influence of original research (e.g. using a "payback model", see [82, 83]) in a broader selection of recent policy papers. Yet the conclusions might be noted for their discrepancy between imminent legislative discussions and available scientific evidence. While external and therapeutic reference pricing are still broadly applied and are not expected to be abandoned, new "innovative payment models for new medicines" are desired by authorities [14] and by the pharmaceutical industry [84]. There seems to be a high-level consensus that new models should reflect therapeutic value added for the society and focus on patient-relevant outcomes. Several OECD countries have already incorporated value-based elements into their pharmaceutical pricing policies; for example, Sweden has been doing this for more than 10 years [12, 18]. The trend in OECD countries is clear, with HTA being "increasingly used to inform coverage decisions" [1]. In this context, the lack of evidence on value-based pricing policies is consternating, if not alarming, especially given the current scepticism of the European Parliament, where value-based pricing "can be misused as a profit maximising economic strategy" [85]. As was very recently stated by Vogler (WHO) and Paris (OECD) et al. "regular reviews and evaluations of the impact of pricing and reimbursement policies" are critical to determine their effectiveness in "achieving the intended aims" [15]. There is a particular "need for impact assessments of managed entry agreements, value-based pricing and HTA" [15, 77].

Why is the value-based pricing policy debate not informed by a more solid body of empirical evidence? There are admittedly methodological challenges with the empirical analysis of such policy changes in general. The different settings of the included studies in this paper reveal an unsurprising picture. The reported results (regarding TRP) with a lower risk of bias focused on only a few, established therapies or substances with a certain technological "stability" over a few years. Some of those studies could hardly be repeated for current oncologic treatments, where an increasing number of completely new therapies (e.g. targeted immune oncology) are coming to the market. This technological trend is "multiplied" by the increasing number of interdependent policy changes in recent years in most OECD healthcare systems.

[1] The three papers from the OECD and EXPH refer to some of the recent literature on MEAs, which we excluded since none of them provides a policy effect analysis (see above).

These scientific challenges are confronted by the changing needs of the policy makers—the emerging legislative necessity to move from generally valid, static regulations to adaptive policies based on a mix of models [14]. In addition, the effort of designing and evaluating policy adaptions is a disproportionately higher burden for smaller countries [86].

Finally, value-based, performance-oriented agreements are often linked to MEAs and RSAs [78]. The resulting prices and conditions are, in most countries, confidential and are therefore difficult to access for scientific evaluation [19, 26, 28, 78, 87].

It has never been more obvious that the interaction of health policy formulation and academic policy research needs to move beyond an "iterative" process (Habermas [88]) to a more "co-creative", "co-evolutionary" process (Jasanoff [89]). This could also increase legitimacy. In the concrete example of value-based pricing of new pharmaceutical therapies, this should mean the following:

- Need for the early and regular involvement of policy makers in the design of new policy research. Define the concept of qualified policy effectiveness analysis in the policy formulation phase, and roll it out jointly with the regulation change in the policy implementation phase.
- Need for research institutions to proactively approach the changing needs of the policy formulation process with appropriate research tools. Promote applicable empirical tools to analyse smaller, faster and interdependent policy changes. Additionally, complement the classical empirical tools, such as interrupted time series studies, with economic (field or laboratory) experiments to test policy hypotheses at an early stage.
- Need for the pharmaceutical industry, healthcare providers and insurance companies to set up and cooperatively participate in health economic studies beyond established clinical trials (post-marketing authorisation), using real-world data on clinical and non-clinical outcomes.

Main limitation: While our restrictive focus on qualified study designs and the chosen methodology to adjust for the risk of bias follows the current practices [34, 40], it comes at a cost. The current state of the underlying policy reform might call for a broader analysis of survey data, discussion papers and policy statements—from scientific and from political stakeholders. These data were not included in the findings of our study. On the other hand, the broader selection of designs, compared to the recommendations from EPOC [34, 40], and the inclusion of meta-literature might also have skewed our findings.

Nevertheless, we conclude that there is a high need for evidence generation on effective pricing policies. In particular, the emerging value-based pricing policies and managed entry agreements should be assessed continuously on

a scientific basis to inform policy formulation processes in OECD countries [15]. In general, it is recommended to define policy effectiveness analysis in the policy formulation and implementation process.

Data Availability Statement The datasets generated and/or analysed during the course of the current study are available in the electronic supplementary material (online version).

Author Contributions All of the authors (DJW and SB) fulfilled the authorship criteria and contributed to the design of the study, review of the search protocol, analysis and interpretation of the results, and writing and review of the manuscript. DJW prepared the search protocol, performed the database searches, screenings, categorisations, and assessments and prepared the draft of the manuscript. All of the authors are aware of the submission and are in agreement with the manuscript.

Compliance with Ethical Standards

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Conflict of interest DJW is an external PhD student at the University of Lucerne and was employed at the pharmaceutical company Takeda Pharma while performing this research. Neither the former employer of the first author nor any other private or public entity supported or influenced this research in any relevant way. SB has no conflicts of interest to declare. All of the authors submitted a signed Conflict of Interest disclosure form.

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CHAPTER 3

Assessing social preferences in price negotiations for new medicines

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RESEARCH ARTICLE Open Access

Assessing social preferences in reimbursement negotiations for new Pharmaceuticals in Oncology: an experimental design to analyse willingness to pay and willingness to accept

Dominik J. Wettstein* and Stefan Boes

Abstract

Background: Price negotiations for specialty pharmaceuticals take place in a complex market setting. The determination of the added value of new treatments and the related societal willingness to pay are of increasing importance in policy reform debates. From a behavioural economics perspective, potential cognitive biases and other-regarding concerns affecting outcomes of reimbursement negotiations are of interest. An experimental setting to investigate social preferences in reimbursement negotiations for novel, oncology pharmaceuticals was used. Of interest were differences in social preferences caused by incremental changes of the patient outcome.

Methods: An online experiment was conducted in two separate runs ($n = 202$, $n = 404$) on the Amazon Mechanical Turk (MTurk) platform. Populations were split into two (run one) and four (run two) equally sized treatment groups for hypothetical reimbursement decisions. Participants were randomly assigned to the role of a public price regulator for pharmaceuticals (buyer) or a representative of a pharmaceutical company (seller). In run two, role groups were further split into two different price magnitude framings ("real world" vs unconverted "real payoff" prices). Decisions had real monetary effects on other participants (in the role of premium payers or investors) and via charitable donations to a patient organisation (patient benefit).

Results: 56 (run one) and 59 (run two) percent of participants stated strictly monotone preferences for incremental patient benefit. The mean incremental cost-effectiveness ratio (ICER) against standard of care (SoC) was higher than the initial ICER of the SoC against no care. Regulators stated lower reservation prices in the "real world" prices group compared to their colleagues in the unconverted payoff group. No price group showed any reluctance to trade. Overall, regulators rated the relevance of the patient for their decision higher and the relevance of their own role lower compared to sellers.

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Conclusions: The price magnitude of current oncology treatments affects stated preferences for incremental survival, and assigned responsibilities lead to different opinions on the relevance of affected stakeholders. The design is useful to further assess effects of reimbursement negotiations on societal outcomes like affordability (cost) or availability (access) of new pharmaceuticals and test behavioural policy interventions.

Keywords: Willingness to pay, Willingness to accept, QALY, Medicines regulation, Pharmaceutical policies, Value-based pricing, Behavioural economics

Introduction

Price negotiations for specialty pharmaceuticals[1] are characterized by specific features: They predominantly take place in bilateral oligopolistic or bilateral monopolistic market settings (patent-protection on the supply side and few to single payers on the demand side) [5, 9–12]. Further, the demand side is in most health systems divided in a "tripartite structure" of decider (provider), consumer (patient) and payer (insurance) [9, 11, 13, 14]. On top of that, the evaluation of the product characteristics (effectiveness, quality and safety) is inherently and increasingly complex [9, 14]. The availability of product information and thus the complexity of price negotiations has further increased with the introduction of cost-effectiveness models [5, 15, 16]. And it will further increase due to the demand to include also budget impact, burden of disease, socio-economic impact etc. in economic valuations for price determination besides cost-effectiveness [17–20]. To make a new treatment available to patients, sellers (pharmaceutical companies) and buyers (governmental regulators, health insurances or budget holders) need to agree on a reimbursable price. This holds true even in health systems with regulated pricing rules, since the market authorization holder can usually decide not to supply the respective market with the product. The determination of the added value of a new pharmaceutical and the society's willingness to pay for an additional, quality-adjusted life year (QALY) plays an increasing role in policy reform debates [5, 16, 21–25]. Although the reform efforts are generally focused on the rules of value assessment and price determination, the process of reimbursement negotiations is itself subject to demands for reform [5, 7, 26–28].

Background

Perspective

The aim of our study is to broaden the debate from a behavioural perspective. The overarching ambition of our research is to bridge the gap between established health economic behavioural research on the one hand and the current discourse in research and policy on reforming pricing policies for new specialty pharmaceuticals on the other. Over the past decades, behavioural economic studies have provided insights and evidence on how individuals deviate from the standard assumption of neoclassical models [29–33]. In price negotiations in general, and reimbursement negotiations in particular, deviations due to anchoring effects, trade uncertainties, regret avoidance or concerns for others might affect negotiation outcomes [28, 31, 33, 34]. The following sections 2.3 to 2.5 summarize the relevant literature.

Objective

We used an experimental setting to investigate social preferences in reimbursement negotiations for novel, specialty pharmaceuticals. The aspired design shall be useful to assess negotiation situations in a controlled laboratory environment. Our main interest lies on differences in stated social preferences caused by incremental changes of the patient outcome. Of further interest are differences in those preferences between different treatment groups, especially in response to the assigned roles (valuation gaps). Preferences are measured by stated reservation prices complemented by statements on the relevance of affected stakeholders. In principle, the design might be applicable to any new therapy that has a defined benefit for the patient compared to an existing alternative, measured in terms of life expectancy and quality of life. However, the study is primarily intended to contribute to the current debate on how public

[1]We use the term "pharmaceutical" in this study synonymous to the terms "medicine", "medicinal product" or "drug product". Following the definition of the World Health Organization (WHO) and the European Medicines Agency (EMA) this refers to any "substance or combination of substances that is intended to treat, prevent or diagnose a disease, or to restore, correct or modify physiological functions by exerting a pharmacological, immunological or metabolic action" [1–3]. This definition is similar to the one used in the United States by the Food and Drug Administration (FDA) [4]. Our study focuses on the reimbursement of "new high-cost innovative medicines" (European Commission [5]) which are often (predominantly) categorized as "specialty pharmaceuticals" [6]. There is no standard definition of a speciality pharmaceutical, let alone a scientific definition of an "innovative" therapy [6, 7]. Following the frequently referenced definition of IQVIA, we understand it to mean pharmaceutical products that treat chronic, complex or rare diseases (i.e. often more serious medical conditions such as cancers, autoimmune diseases, hepatitis C, etc.) [6, 8]. They are initiated or managed by a specialist and are typically offered at a high list price, so patients need financial support to pay for them [6].

pricing policies for "new high-cost innovative medicines" (European Commission) can be reformed to improve "value for money" [5, 22, 33]. Since healthcare payers and regulators in OECD are faced with increasing numbers of these high-priced pharmaceuticals, which are often (predominantly) categorized as "specialty pharmaceuticals" [5–7, 15]. Global spending for specialty pharmaceuticals is projected to make up 40% in 2024 [6]. Especially new oncology treatments account for a high and increasing proportion of pharmaceutical expenditures in developed countries [7, 35]. This is likely to be accentuated as pharmaceutical companies' oncology pipelines have grown by almost 80% in the last decade and now make up 30% of late-stage pipelines [36, 37]. Not surprisingly, regulators and payers are concerned with the "growth of pharmaceutical expenditures due to new high-cost innovative medicines" and their added value [5, 7]. For this reason, the implemented decision situation was geared towards the evaluation of specialty therapies with life-prolonging effects as in oncology.

The analysis of bargaining behaviour with offer statements and assessment of related societal effects is subject to a subsequent study [33], building on the findings below. We consider the division into two studies as necessary to clearly separate the analysis of stated preferences from the analysis of the interactive behaviour in a negotiation. It is crucial to understand whether societal effects of the reimbursement negotiation result from either contextual framing effects (of the assigned role and the setting) or from the negotiation interaction (bargaining). Our design is based on findings in the following fields of research:

Valuation gaps: willingness to pay vs. willingness to accept

Potential endowment effects, status-quo biases, exchange asymmetries, reluctances to trade or valuation gaps in decisions have been studied in behavioural economics since the seventies (see Zeiler [34] and Korobkin [38] for an overview). A valuation gap (VG) "exists when the most a person is willing to pay for an item (WTP) is less than the least amount that same person is willing to accept (WTA) to give up the same item […]" [34]. This contradicts the neoclassic assumption that choices along the indifference curves are reversible [34, 38–41]. There have been different theories proposed to explain the phenomenon with no clear leader so far[2] [34]. Although no "endowed" item is exchanged in our setting, role-related expectations, a different focus of the seller/buyer role [43, 49–53] or in general valuation and trade uncertainties [44, 45], regret avoidance ("bad-deal aversion") [46–48] or moral commitments [54, 55] might cause a valuation gap [34]. Our research interest is not to contribute to the explanation efforts in general but to evaluate possible VGs for new pharmaceuticals in a plausible and relevant laboratory setting.

Preferences for a quality adjusted life year (QALY)

There is an increasing interest in literature for preferences for a QALY, since cost-effectiveness thresholds are used in different countries to assess the value of new therapies [22, 23, 56, 57]. Several studies have already tried to assess WTP for a QALY in direct stated preference studies, mostly using some format of contingent valuation method [23, 58]. They did this either in general for a QALY of the overall population, or in specific disease areas and patient populations (e.g. diabetes) [59–61]. Our interest does not lie in nominal WTP values, but rather in differences induced the by role, the decision situation and the social effects of the decision.

Social preferences in health economic laboratory experiments

Experimental games like the ultimatum or the dictator game have been widely used to investigate how much individuals deviate from a self-interested utility maximizing behaviour if social norms and consequences are introduced [62–64]. Findings are of special use to understand individual contributions to public goods [64]. However, there is still a surprisingly small number of experimental literature on redistribution, other-regarding or social preferences in choices of heath care provision [65–71]. Even a fewer number of these include, beside the treating physician and the patient, a third-party payer [67, 72]. The laboratory experiments on health insurance choices on the other side mostly focus on individual risk preferences (e.g. [73]), moral hazard (e.g. [74]) or willingness to pool (e.g. [75]), but not on social preferences for incremental (insurable) QALYs. No experimental evidence on pricing negotiations for pharmaceuticals was found in our systematic literature review [76].

Our experimental design integrates the three research interests to assess exchange asymmetries (WTP vs. WTA), QALY preferences (WTP for health) and social preferences (WTA or WTP reflecting distributional effects) [33]. This is necessary to assess preferences in reimbursement negotiations for new health interventions, particularly for specialty pharmaceuticals.

[2]The earlier explanations suggested that individuals experience disutility from losing an endowed good (loss aversion) which triggers reluctance to trade [34, 40]. Later attempts explain the phenomenon e.g. by extra utility experienced from owning a good, respectively a different valuation depending on ownership or role [34, 42, 43]. Newer evidence suggested to explain valuation gaps by choice or trade uncertainty or by regret-avoidance [44–48]. None of these attempts has been able to predict all published empirical findings [34, 38].

Methods

Design[3]

Overview design

Participants were randomly assigned into two (run one) and four (run two) treatment groups of equal size. Populations were split to play either in the role of a health minister (regulator) or as a representative of a pharmaceutical company (seller). In run two the role groups were further split into two different price magnitude framings. One with fictive "real world" prices (100 k$ group) vs one with prices at the "real payoff" level (1$ group). While final payoffs were equal in both groups, prices in the "fictive price" group were converted for the game to 100,000$ = 1USD (in the following, prices for the 100 k$ group are used for simplification). Participants were informed that their decisions would have real monetary consequences on other participants (payoffs for their passive role as premium payers or investors) and in form of charitable donations to a patient association (proxy for patient benefit).[4] See Table 1 below for an overview of the runs and treatment groups.

Overview setting (contextual framing[5])

The reimbursement situation involved a hypothetical country with seven citizens, represented by five different types of stakeholders (Fig. 1). A single patient was chosen for comparability with existing experiments on physician treatment situations (e.g. [66–70]) while the funders were represented by a group of two each. A small patient number is also a plausible framing considering the increasing proportion of small and orphan indications in specialty treatment areas in general and oncology particular, for which high-priced pharmaceuticals are offered [5, 6, 25, 78, 79]. Regarding the number of affected funders the setting builds on the design of Kesternich et al. [67] as well as on Schumacher et al. who found that deciders in a distributional decision situation "attach the same weights to small and large groups" of payers [80].

The role of each stakeholder was explained as follows (scenario displayed in Fig. 1):

The patient is suffering from a deadly blood cancer and is under treatment with an existing therapy (current standard of care, SoC), a pharmaceutical product with a known benefit to the patient.

The regulator is in charge of regulating prices for pharmaceuticals, eligible for payment by the public health insurance.

The seller represents an international pharmaceutical company that developed a new product to treat the patient. He is in charge of negotiating an officially reimbursed price for the product.

The premium payers finance the public health insurance. The collected premiums are the only financial source to pay for the patient's treatment. Only treatments approved by the government for reimbursement are covered. If health expenditures are lower than the actual premiums, payers can accumulate savings. If the expenditures are higher, they will have to eat up their savings.

The investors have invested their savings in the past into the pharmaceutical company. They expect a return on their investment, which compensates them for the additional risk they took, compared to a "risk-free" investment in a government bond for example.

Overview decision situation

The reimbursement process was explained as follows:

The seller offers a new treatment at a proposed price. If the regulator considers the price to be too high, he will refuse approval of the product. Vice versa, if the seller receives a (simultaneous) counterproposal considered too low, he will not introduce the product in this market. If both parties agree, the patient will get access to the new treatment and the related benefits (life expectancy in months m, quality of life in percent q). The two investors will in consequence receive a revenue (price divided by two) and the two payers will pay the cost (leaving them an equal share of the difference between premiums and price). The patient's quality of life is equal to his work ability. The income for a healthy person (q = 100%) is 10,000$ per month or 120,000$ per year. This gives the patient a benefit (total income) of q × 10,000$ × m. See Table 2 below for an overview.

The regulator and the seller are both employed and receive a fixed salary. An agreement is possible with a reservation price (x_S) of the seller below or equal to the reservation price (x_R) of the regulator. The price decision is constrained to a range between 50,000$ (which is the price of the current SoC) and 500,000$.

Price parameters were chosen to meet the following conditions:

[3]The present study on social preferences forms the basis for a follow-up study in which incentivized bargaining behaviour was investigated [33]. In the following, the basic design for both studies is described, the outlines of which were published in summary form in the subsequent study [33].

[4]Donated to the Leukemia & Lymphoma Society (LLS). Participants were further informed, that LLS "provides financial support for patients with blood cancer (https://www.lls.org/support/financial-support)".

[5]Evidence from experimental research has shown that meaningful context can aid in understanding and reduce confusion and implicit associations which helps to gain experimental control [77]. In order to reduce heterogeneous perceptions and expectations of the participants regarding their own role in a pharmaceutical reimbursement negotiation, the simplified context of a fictitious country was introduced.

Table 1 Design of the experiment: number of subjects randomly assigned to treatment groups

Game (round)	Intervention	Group (n), decision					
		Run 1		Run 2			
	Price magnitude[a]	100,000 $ = 1 US$		100,000 $ = 1 US$		1 $ = 1 US$	
		Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
Game 1 (round 1 to 5)	Role	Regulator (100), WTP	Seller (101), WTA	Regulator (97), WTP	Seller (101), WTA	Regulator (105), WTP	Seller (101), WTA
		Role reversal (within-subject)		*No role reversal*			
Game 2 (round 1 to 5)	Role	Seller (100), WTA	Regulator (101), WTP	*Price offers (not covered in this publication)*			

In both runs, participants played the same five rounds in two consecutive games. All relevant information about the consequences of the negotiation were provided before the first game. Participants did not know which rounds would be relevant for final payoffs, nor that the game would be repeated after five rounds

Run one: four rounds voluntary training before first five rounds (initial role only) taken by $n = 92$ participants for group 1 (Regulator) and $n = 93$ for group 2 (Seller). One participant removed in run one due to age not meeting inclusion criteria. No participants removed for run two

Run two: New subjects recruited. Adjustments: introductory training mandatory for all participants; additional bonus for deciders if price offer facilitates an agreement (game 2, not covered in this publication); additional message displayed below decision table if price entered would lead to a not strictly monotone preference statement ("you did not increase your price while the patient outcome of the product increased. Does this truly reflect your preference?"); four comprehension questions (three to pass, one to filter) and one attention screening question in between to identify inattentive responders

Table adapted from Wettstein/Boes 2020 [33]

WTP willingness to pay, *WTA* willingness to accept

[a]Game currency converted to real payoff at the end of the experiment

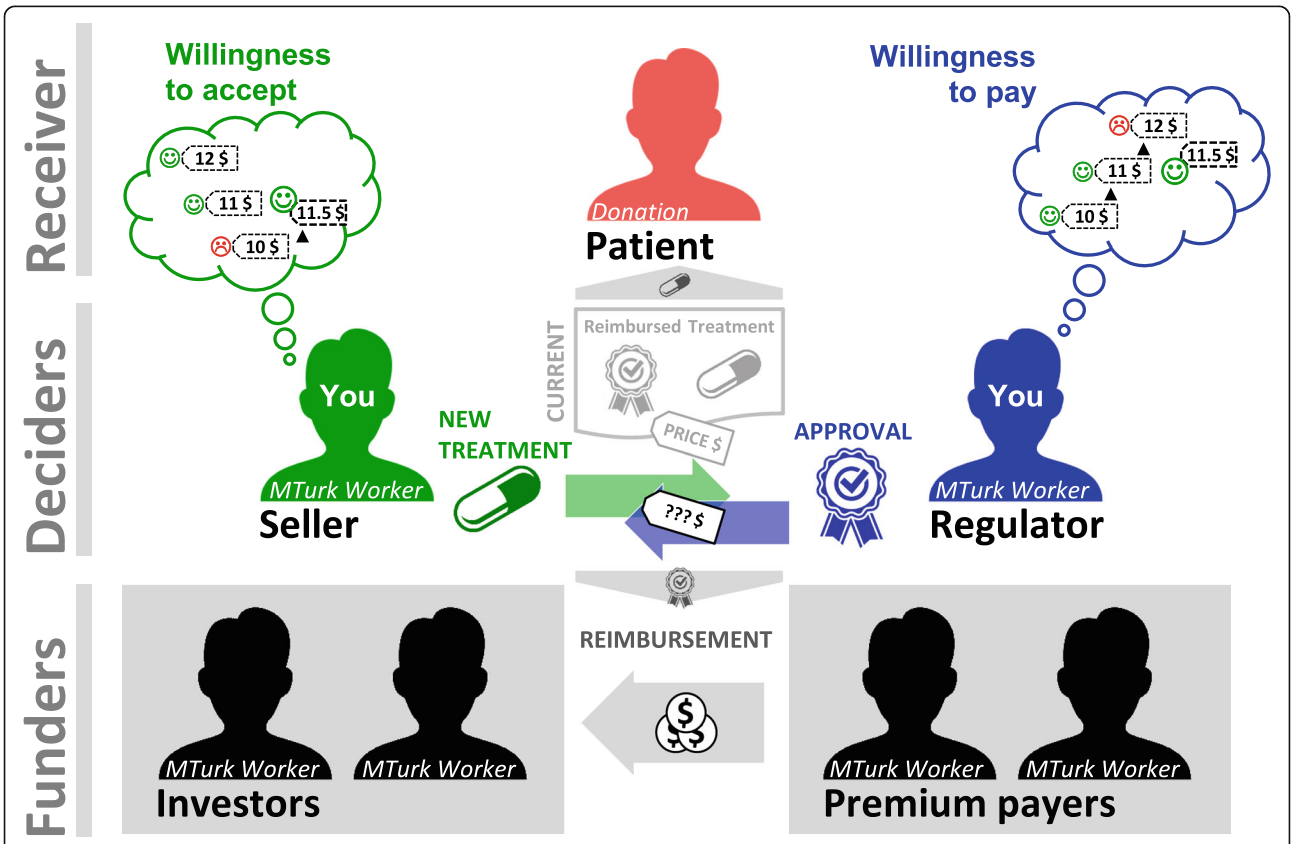

Fig. 1 Design of the experiment: roles and tasks. In the experiment, available premiums were directly redistributed from the premium payers to the investors, depending on the pricing decision of the deciders. In a real setting, the premiums would contribute to a health fund or plan which would pay the treatment, usually via a health care provider, to the local market authorization holder. The final return on investment for the investor would have to reflect in addition research, development and operational cost. Figure adapted from the pictures displayed in the experimental survey used in this and the subsequent study [33]. The experimental surveys are available in Additional file 3 and Additional file 4. The original illustrations are the authors' own creations

Table 2 Design of the experiment: parameters per role and round

			Deciders		Receiver			Funders	
			Regulator	Seller	Patient			Payers	Investors
Treatment option	Round	Reservation price[a]	Benefit[a,b]	Benefit[a,b]	Survival (m)	Quality of Life (q)	Benefit[a]	Benefit[a]	Benefit[a]
No treatment					0	50%	0		
Standard treatment (SoC)	0	50	120	120	5	50%	25	240 - x	x
New treatment option	1	x	120	120	8	50%	40	240 - x	x
	2	x	120	120	10	50%	50	240 - x	x
	3	x	120	120	12	50%	60	240 - x	x
	4	x	120	120	15	50%	75	240 - x	x
	5	x	120	120	17	50%	85	240 - x	x

Table adapted from Wettstein/Boes 2020 [33]
SoC standard of care (status quo), *m* survival in months, *q* quality of life on a scale of 1–100%
[a]for groups 1 to 4, amounts displayed in thousands $ (converted 100,000 $ = 1 US$ at end of the experiment); for groups 5 to 6, amounts divided by 100 and displayed in $ (converted 1 $ = 1 US$ at end of the experiment)
[b]additional bonus for participating in training in run one and for successful offer in run two (game not covered in this publication)

1) Fictive prices had to be in the range of new, specialty pharmaceuticals in oncology, looking at yearly treatment cost [7, 36, 78, 81].
2) The fictive yearly incomes had to be in a plausible range for the framed responsibility (average compensation of middle managers in public services in OECD [82]).
3) Fictive price and salary numbers, as well as real payoffs, had to be easy to use in explanations and calculations, since the topic is complex for an experiment.
4) Conversion between fictive and real payoff amounts had to be simple and comparable while fulfilling at the same the time minimum wage requirement of the MTurk platform.

Hypotheses

A "robust finding" from past laboratory experiments in economics is that "individuals take into account the welfare of all parties and have a preference for efficient outcomes" [33, 62, 63, 80, 83, 84] and that "non-selfish preferences are the rule rather than the exception" [85]. Building on these research results, the model used in this study was based on a simple CES[6]-function, where a rational decider (regulator, seller) should maximize his or her social utility considering the utility of the other involved stakeholders besides his or her own. For details on the underlying model, see Additional file 2.

- *Null hypothesis 1: reservation prices (x) are randomly distributed between 50,000$ and 500,000$ in each round (r) and do not differ between rounds with incremental patient benefit ($E[X_r] = 275{,}000$\$).*
  The first hypothesis tests whether the mean participant responds to the incremental patient benefit between rounds and, if not, whether the mean price is equal to the expected value of a random distribution. The null hypothesis assumes a rational decider with no other-regarding preferences.
- *Null hypothesis 2: reservation prices equal X_r = 120,000$ in each round.*
  The second hypothesis tests whether the mean participant responds to the incremental patient benefit and, if not, whether the mean price leads to an equal distribution of payoffs between the two passive funders. The null hypothesis is based on the assumption that a rational decider does not care about incremental patient benefit, but is averse to inequality between funders.[7]
- *Null hypothesis 3: the incremental cost-effectiveness ratio (ICER) compared to the given standard of care (SoC) equals 20,000$ for every round.*
  The third hypothesis tests whether the mean participant applies a simplifying heuristic to reduce the complexity of the decision situation instead of reflecting on the reservation price. To do this, the player simply divides the costs of the given standard treatment of 50,000$ by its effect of 5 months survival and increases the price for a new therapy option by 10,000$ for every additional month of survival. Reflecting quality of life this corresponds to an ICER of 20,000$ per quality adjusted life month (QALM, see Additional file 2). The null hypothesis assumes a bounded-rational participant with efficiency concerns[8]

[6]Constant elasticity of substitution

[7]For considerations on efficiency concerns see for example [83].
[8]The incremental cost-effectiveness ratio of the given standard of care versus no treatment can be derived by dividing the incremental costs (50,000-0) by the incremental, quality adjusted survival (5×0.5–0×0.5). For details on efficiency and effectiveness measures, see Additional file 2. For considerations on simplifying heuristics, or on efficiency concerns from a behavioural economics perspective, see for example [67, 73, 83, 86].

- *Null hypothesis 4: reservation prices converted to payoff-magnitude do not differ between price groups for any round.*
  The fourth hypothesis tests whether the conversion (framing) of the price range for the 100 k$ group to the magnitude of real world list prices for pharmaceuticals in oncology has an impact on the stated reservation prices (converted back to the level of the final payoffs). The null hypothesis assumes a rational decider who is only interested in the actual payoffs to affected stakeholders at the end of the experiment.
- *Null hypothesis 5: reservation prices do not differ between role groups for any round.*
  The fifth hypothesis tests for potential valuation differences (WTP ≠ WTA) with special interest in valuation gaps (WTP < WTA, representing a reluctance to trade). The null hypothesis assumes a rational decider for whom the reservation price is independent of the assigned role.[9]
- *Null hypothesis 6: ranking of the stakeholders' relevance is identical for all groups.*
  The sixth hypothesis tests for possible differences in the weighting of the stakeholders involved, which is determined after the pricing decisions have been made. The null hypothesis assumes a rational decider for whom the weighting of affected stakeholders is independent of the assigned role and who is only interested in the actual payoffs to affected stakeholders at the end of the experiment.

Implementation

An online experiment was conducted in two separate runs ($n = 202$, $n = 404$) on the Amazon Mechanical Turk (MTurk) platform.[10] The platform allows to conduct an experiment at a narrow timeframe, easily process monetary payoffs and has known reliability (see 3.5). Players had to use a slider to submit their prices.[11] Regulators were instructed to state the "absolute maximum price", which they would "still consider reasonable and fair for the new product", while sellers were instructed to state their "absolute minimum price". Both roles received an identical introduction, apart from their role framing. Participants played the same five rounds to state their reservation prices in both runs. In run one, participants played the reservation price game twice, switching to the opposite role for the second game. Participants had to rank all involved stakeholders after each game in terms of their relevance for the decision. An introductory training was voluntary in run one and mandatory in run two. To control for understanding of the setting, participants had to answer four comprehension questions in run two, three of them forcing correct answers, one without feedback (effect of incremental survival on patient benefit). To test for insufficient attention, an instructional manipulation check was implemented in run two [87, 88].

We used the strategy method [89] to trigger the financial consequences[12]: Participants were informed at the beginning of the experiment that all games would be potentially relevant for the social payoffs. After the experiment, in run one, one out of ten rounds was randomly selected for each participant and implemented for all four passive stakeholders randomly assigned. For run two, all rounds of game two were implemented. Participants were given full information on how any potential price would affect all stakeholders in each round, provided with a table that dynamically displayed all social payoffs for each slider position (see Additional file 1). Further they were shown their decisions from the previous rounds for comparison. In run two a message was displayed, if the entered price was equal or lower than in the previous round. However, participants were allowed to ignore this and submit any price in the given range.

For details on the displayed screens and the payoffs at the end of the experiment, see Additional file 1. The full experimental instructions used in this and the subsequent study [33] are available in Additional file 3 (run one) and Additional file 4 (run two).

Preference elicitation method

While single binary-choice surveys are currently the preferred format for public goods preference elicitations, alternative formats of contingent valuation can be necessary and incentive-compatible under certain conditions [91, 92]. The implementation of a dichotomous choice format or a bidding procedure would neither have been

[9]For considerations on valuations gaps see e.g. [34, 38–41].

[10]The experiment was implemented as Qualtrics survey and linked on MTurk as Human Intelligence Task (HIT). The Decision Science Laboratory of ETH Zurich (DeSciL) executed the experimental runs and delivered anonymized data to the researchers. Bonus distributions were performed by the DeSciL to ensure participants remain anonymous to the researchers. The first run of the experiment was conducted on 18 February 2019, run two on 2 May 2019. We ran a technical pre-test of the survey on 22 December 2018 ($n = 31$) to check for basic understanding by MTurk users, the indicated estimation of time needed in the informed consent and potential errors in the survey flow.

[11]The price range started at 50,000$ (representing the price of the available standard of care SoC) and ended at 500,000$ for the 100 k$ group, respectively at 0.5$ and 5$ for the 1$ group. The slider allowed the participant to "discretely" compare choices in the price range by increments of 2000$ (100 k$ group) respectively 0.02 (1$ group). Default position of the slider was SoC at the very left.

[12]Meaning that participants did not know which of the games they played would be relevant for payoff. This has been used in similar laboratory experiments, based on the findings of Brandts and Charness (2011) who found no difference between the strategy method, where players make "conditional decisions for each possible information set" versus the direct-response method [67, 80, 85, 89, 90].

appropriate nor implementable in the present setting.[13] The contingent valuation method was used in a direct matching format instead, in line with comparable laboratory experiments on social preferences in health care [66–70]. The decision situation, while not dichotomous, was discrete in the sense that participants were forced to choose their reservation price from a defined price range with a finite number of increments.[14] For each of these price increments all monetary consequences for every stakeholder involved were displayed dynamically in the decision table (see Figure 12 in Additional file 1). The table further displayed the change for all stakeholders for any potential price decision versus the status quo (baseline).[15] In order to ensure incentive compatibility, three known sources of bias had to be addressed: bias due to strategic behaviour (i), bias due to lack of understanding of the monetary consequences (ii), bias due to a lack of engagement in the game or indifference to the social payments (iii) [91, 97, 98].

(i) As per the model presented, a rational player had no monetary incentive to over- or understate preference statements. Since this would have led to a suboptimal distribution of payoffs between payers and investors after the experiment, without benefiting the patient or the negotiators themselves.
(ii) To avoid bias due to over- or underestimation of cost and benefit of the decision, participants were provided with the above mentioned decision table consisting of all relevant monetary consequences for any potential price (multi-attribute alternatives). In addition, performance in the introductory training was surveyed to control the results for proper understanding (see 3.3.).
(iii) In online experiments in general, it is important to distinguish participants who understand and follow the instructions from those who focus on completing the survey as quickly as possible to minimise the time spent [87, 88]. In order to do this, the populations were divided after completion of the experiment into those with strictly monotone preferences, as per introduction and training, and those without. The grouping was tested for differences in time spent on the experiment, performance on the training and performance on the attention screener (see 3.3.). Results were reported separately for the two groups.

Study population

No expert population was deliberately selected for the experiment. The expert surveys conducted in the recent past with competent authorities indicate how small the available pool might be (see e.g. [8, 26, 99, 100]). More importantly, the individual experience of professionals due to country specifics, focus in therapy area etc. would not be controllable. Also, the connection to the behavioural economic evidence from laboratory experiments (valuation gaps, social preferences) introduced above would hardly be plausible, nor would the implementation of monetary incentives. Instead the MTurk population with studied characteristics was used [101]. In past years, convincing evidence has been generated to support the reliability of MTurk results compared to laboratory and field experiments in general and the usefulness for assessing social preferences specifically [87, 102–109]. To avoid bias due to health system-related differences, participants had to be US resident (the vast majority of MTurk workers logs in from the US with over 70% [101]), at least 18 years of age. The target population was deliberately not focused on the health sector, but relevant professional experience was surveyed (health service providers, public authorities, pharmaceutical companies, health insurance companies, etc.). Additional demographic information, risk behaviour and health experience were surveyed at the end of the experiment. The respective variables were used to control the results.

Statistical methods

We used Chi-square, Cramer's V, Fisher's exact test, independent and paired sample t-tests, independent Mann-Whitney U and Wilcoxon matched-pairs signed-rank tests, as well as hierarchical linear regressions (two-level random effects model).

[13] To obtain actual WTP and WTA values for the negotiation setting, a single binary or dichotomous choice would not have been sufficient. This was however crucial for the extended setting of the follow-up study with price offers paired with an actual negotiation partner [33]. Alternatively, the decisions would have had to be repeated in an iterative process, which would have meant an inflationary increase in the duration per round and the experiment overall. In addition, the statements in these procedures can also be distorted by anchor effects and interpretation errors due to the increased complexity of the decision [91]. Due to the complexity of the decision situation the implementation of a single bid mechanism like the Becker-DeGroot-Marschak (BDM) [93] or the Random Price Voting Mechanism (RPVM) [94] had to be abandoned as well, in light of the known challenges with the BDM mechanism [34, 95, 96].

[14] A closed-ended format was chosen since an unlimited price range would have required players to be provided with unlimited starting capital to avoid a negative payoff for payers. According to standard laboratory policies, participation in an experiment may not result in any payment obligation for the players in real world. Otherwise, a price increase by the players above a certain level would have no or a distorted distribution effect.

[15] Consequently, in the broadest sense, participants had to choose from a (multinomial) discrete 'choice set', where the set was however not observable in a single view with all properties per choice.

Results

Reservation prices

Prices in the 100 k$ groups were converted in the following to the real payoff magnitude (at the end of the experiment) for comparison with the 1$ groups.

Average prices increased overall with each consecutive round and incremental patient benefit in all three reservation price games ($p < 0.01$, except first increment run one $p < 0.05$). All mean prices were different from the expected value of a random distribution (null hypothesis 1 rejected at $p < 0.01$, except first round in run one $p < 0.05$). Furthermore, for all rounds they were higher than 1.2$, which would have distributed assets evenly between payers and investors (null hypothesis 2 rejected at $p < 0.01$).

Whereas mean reservation prices suggested strictly monotone preferences for incremental patient benefit overall, this was only true for 56 and 57 (run one) respectively 59% (run two) of the respondents. While the majority of the participants submitted four consecutive times a higher price, 14 respectively 17% stated once or twice non-strict preferences for incremental patient benefit in run two. The group of participants with strictly monotone preferences had significantly lower mean reservation prices compared to the other participants ($p < 0.01$, except run one two rounds $p < 0.05$, one round not significant). For the latter group, the difference to the expected value of a random distribution was still significant ($p < 0.01$) for run one and the first three rounds in run two ($p < 0.05$). However, the significantly higher variances in this preference group ($p < 0.01$) raise the question whether these respondents focused on finishing the experiment as fast as possible to collect the fixed salary, rather than on deciding on their reservation price as per instruction. These participants spent significantly less time on the experiment in both runs ($p < 0.01$). They also did significantly worse in answering comprehension question four and detecting the attention screening question ($p < 0.01$) with 81% missing the screener.

The reservation prices per round were not different between the two runs for participants with monotone preferences, while prices for participants with non-monotone preferences were not comparable ($p < 0.01$, first round $p < 0.05$). Unless stated otherwise the following results will focus on the monotone preference group in run two.

Cost-effectiveness as simplifying heuristic

The cost-effective prices were the most frequent answers looking at the modal value (except for one round in run one with two equal modes). However, the mean ICER per QALM versus SoC was significantly higher than 0.2$ overall (null hypothesis 3 rejected at $p < 0.01$, Fig. 2) and for all treatment groups ($p < 0.01$, except group three $p < 0.05$ for the first three rounds, round four not significant). The consecutive ICERs between rounds decreased in the monotone group from round one to three, increasing again in round five ($p < 0.01$, in round four not significant). One explanation could be that the mean participant did not adjust to the higher incremental survival in round four (+ 3 m) compared to the rounds two, three and five (+ 2 m).

Valuation differences due to the price magnitude

Mean reservation prices between the two price groups did not differ overall ($p > 0.05$). They did, however, looking at WTP and WTA separately (Fig. 3). Regulators stated lower prices in the 100 k$ group compared to their colleagues in the 1$ group in round two to five ($p < 0.05$). While sellers of the 100 k$ group had higher reservation prices, but only in the first round ($p < 0.05$). If we filter results further for participants who detected the attention screener, the effect becomes significant for all rounds in the regulator group (null hypothesis 4 rejected at $p < 0.01$) and no round in the seller group.

Role-related differences

We tested two potential valuation gaps, one between subjects (null hypothesis 5a) and one within subjects

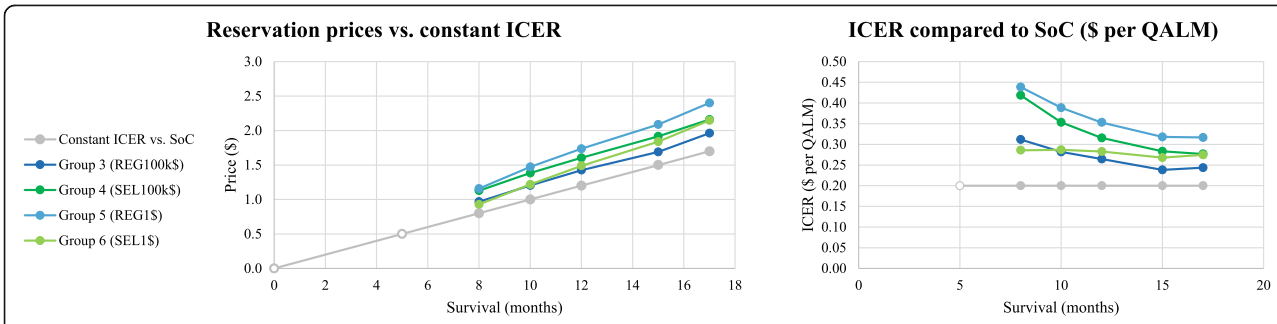

Fig. 2 Cost-effectiveness of reservation prices submitted (run two, monotone preferences). REG, regulator; SEL, seller; SoC, standard of care; QoL, quality of life; pref., preferences; ICER, incremental cost-effectiveness ratio; QALM, quality adjusted life month

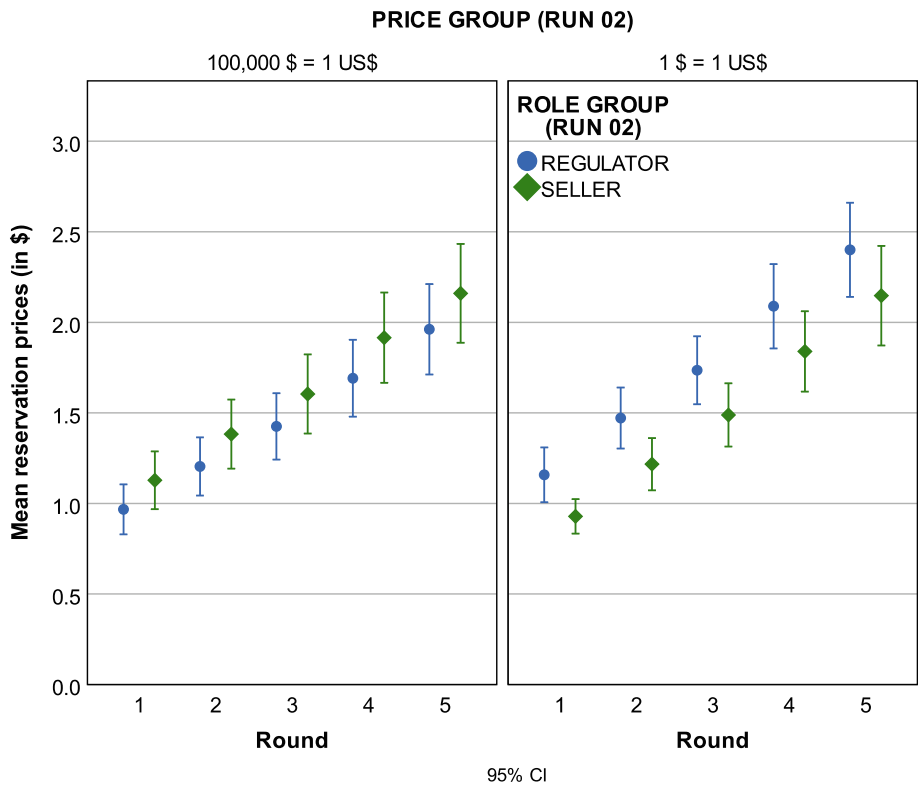

Fig. 3 Reservation prices, means per price and role group (run two, monotone preferences). CI, confidence intervals

(null hypothesis 5b, run one). The paired t-test did not differ for the same round between games for none of the rounds in run one, hence we cannot assume valuation gaps within subjects (null hypothesis 5b not rejected with $p > 0.05$).

Looking at the mean reservation prices in run two (Fig. 3), we found a potential valuation gap between regulators and sellers in the 100 k$ group since WTP < WTA for all rounds. This would represent a reluctance to trade. However, this gap was not significant overall (null hypothesis 5a not rejected with $p > 0.05$). In the 1$ price group, we found a negative gap ("preference range") with WTP > WTA for all rounds. This gap was significant for round one and two (null hypothesis 5a rejected at $p < 0.05$). The Mann-Whitney test confirmed no role-related differences for the 100 k$ group, while distributions were different for two rounds in the 1$ group ($p < 0.05$). The later effect vanished if controlled with the attention screener.

Ranking of stakeholders' relevance

In the first game, the patient was for the majority of participants the most important stakeholder (both runs), followed by the own role (run two $p < 0.01$). After the role switch in run one, the own role caught up to the patient, rated together more often first, compared to the other stakeholders ($p < 0.01$). The ranking of the most relevant stakeholder differed between preference groups in both runs and all games ($p < 0.01$, $p < 0.05$ for the second game in run one) with a higher rating of the patient's relevance by participants with strict monotone preferences.

Looking at the full stakeholder ranking (not only number ones), participants with monotone preferences in run two ranked their negotiation partner third, after the patient (first $p < 0.01$) and the own role (second $p < 0.01$), before investors and premium payers ($p < 0.05$, Wilcoxon test).

Interestingly, participants in run two, who rated the patient as number one, submitted lower prices in all rounds compared to those who rated themselves first ($p < 0.01$). Controlling for preferences, the effect is still significant in all rounds for participants with strict monotone preferences ($p < 0.05$), but only for the first round in the non-monotone group ($p < 0.05$).

The ranking was further significantly different between the two roles in the group with monotone preferences in both runs (null hypothesis 6a rejected at $p < 0.01$, $p < 0.5$ for game one, run one) with regulators rating the patient more often as most important. The ranking of the own role as most important

on the other side was more frequent in sellers. The ranking did not differ between the two price groups (null hypothesis 6b not rejected at $p > 0.01$).

Full regression model

A linear regression (two-level random effects model) over all 1190 reservation prices of the monotone group in run two was performed (Table 3). The results confirm the findings above in general, particularly increasing preferences for incremental patient benefit ($p < 0.01$). The regression confirms the finding regarding price magnitude (4.3 above) with lower price statements for regulators in the 100 k$ group compared to their colleagues in the 1$ group ($p < 0.01$ with model 2, $p < 0.05$ with model 1 and 3). In addition to the above findings, prices increased less in the $100 k group ($p < 0.05$), accompanied by a higher average price across all rounds ($p < 0.01$). The regression further confirms the finding regarding role-related differences (4.4 above); sellers had lower prices than regulators in the 1$ group ($p < 0.05$), while prices did not differ between roles in the 100 k group ($p > 0.05$). In contrast to the results above, controlling for sufficient attention (screener) did not neutralize the role-related difference in the $1 group. The regression finally confirms the correlation between patient orientation and reservation price (4.5 above). With the refinement that players who rated the patient as the most important stakeholder did not generally have lower reservation prices than players who prioritised their own role ($p > 0.05$). Rather, the prices of the former rose less than those of the latter ($p < 0.05$). However, the effect is weak and limited to the 100 k group. The extended model 3 also shows that the effect seems to be driven by self-oriented players and differs between roles, with higher price sensitivity for sellers who prioritise their own role over the patient ($p < 0.05$). The attention screener explained price differences overall ($p < 0.01$) and in the 1$ prices group ($p < 0.05$), while the comprehension question had no additional impact ($p > 0.05$).

Discussion

The objective of the present study was to assess differences in stated social preferences caused by incremental changes of the patient outcome in a controlled experiment. Of special interest were differences between assigned roles (valuation gaps) and the price magnitudes. The design proposed led to meaningful results with a majority of participants stating strictly monotone preferences for incremental survival of the patient. No systematic reluctance to trade (valuation gaps) was found which would prevent an agreement (patient access) between mean negotiators in a subsequent trade interaction. However, the found impact of the assigned role on the stated relevance of the stakeholders involved could have a potential influence in a subsequent price negotiation.[16] From a methodological point of view, the valuation differences found in the $1 group require further investigation and potential improvement of the design. The preference range could be due to the complexity of the decision situation in general, which should, however, affect both price groups equally.

The price magnitude of current oncology treatments seems to affect stated preferences for incremental survival. Differences found between price groups call for further investigation of different price framings. It cannot be completely ruled out that the given (limited) price range had an influence on the stated preferences. Such an anchoring effect should be the same across price groups, since the real payoffs were also the same. However, the mean differences found could vary just as well with a larger or smaller given price range. This might be important, especially since anchoring in real reimbursement negotiations, driven by the first offer (but also by the standard of care), is likely to play a relevant role for negotiation outcomes [28].

The finding that participants did not apply a stable cost-effectiveness rule as a simplifying heuristic could be a promising starting point for further research. To address the need mentioned above to understand the influence of the complexity of the decision situation, as well as the impact of nominal price anchors. The incremental cost-effectiveness ratio (ICER) reflects financial consequences in relation to the resulting patient benefit. The introduction of an ICER-calculator in the pricing decision could help to reduce potential behavioural biases. The available evidence from laboratory experiments shows that participants do show efficiency concern and use or are susceptible to simplifying heuristics [67, 73, 83, 86]. At the same time, investigating the use of cost-effectiveness in reimbursement negotiations would be a plausible bridge to the real world setting and related reform debates. The key figure has been found to be the most important predictor for NICE decisions for example [27, 112]. While other countries such as France, Germany, Sweden or Italy also require or allow elements of economic evaluation (like cost-effectiveness or cost-benefit) to directly or indirectly influence their reimbursement decisions, the evidence for the effectiveness of such measures is generally still scarce [18, 76, 113, 114]. The design presented could be enhanced by introducing an ICER tool to test its potential impact on reservation prices and value-based price negotiations.

[16] It would also so interesting to assess whether the patient-orientation in professional negotiators on the selling side is higher considering the current attempts of the pharmaceutical industry to become more patient-centric [110, 111].

Table 3 Linear regression for reservation prices in run two (two-level random effects model)

	Overall										Price groups											
Model	***Model 0***		***Model 1***		***Model 2***		***Model 3***		***Model 3b***		***Model 1***				***Model 2***				***Model 3***			
Price magnitude[c]											**100 k$**		**1$**		**100 k$**		**1$**		**100 k$**		**1$**	
Estimates of fixed effects (explanatory)	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**
Intercept	1.60	a	0.41	–	−0.01	–	−0.15	–	−0.15	–	0.59	–	0.58	–	0.40	–	0.24	–	−0.01	–	0.55	–
Survival			0.13	a	0.15	a	0.15	a	0.15	a	0.11	a	0.13	a	0.13	a	0.14	a	0.13	a	0.14	a
ROLE GROUP [=0][d]			0.26	b	0.26	b	0.22	–	0.22	–	−0.11	–	0.28	b	−0.23	–	0.31	b	−0.22	–	0.30	b
PRICE GROUP [=0]			0.37	a	0.40	a	0.36	a	0.36	a												
RANK Patient			−0.01	–							−0.02	–	0.03	–								
RANK Premium payers			−0.05	–	−0.01	–	−0.00	–	−0.00	–	−0.06	–	−0.05	–	−0.01	–	−0.01	–	−0.00	–	−0.03	–
RANK Investors			−0.06	–	−0.04	–	−0.03	–	−0.04	–	−0.06	–	−0.06	–	−0.03	–	−0.07	–	−0.01	–	−0.10	–
RANK Own role			−0.05	–							0.02	–	−0.11	–								
RANK Negotiation partner			0.00	–	0.08	–	0.07	–	0.07	–	0.00	–	0.00	–	0.10	–	0.05	–	0.10	–	0.01	–
Stakeholder No1 (Patient = 0, self = 1) [=0]					−0.12	–	−0.04	–	−0.04	–					0.02	–	−0.29	–	0.08	–	−0.21	–
ROLE GROUP [=0] × PRICE GROUP [=0]			−0.35	b	−0.48	a	−0.39	b	−0.39	b												
ROLE GROUP [=0] × Survival			−0.00	–	0.00	–	0.00	–	−0.01	–	−0.01	–	0.00	–	−0.00	–	0.01	–	−0.00	–	0.01	–
PRICE GROUP [=0] × Survival			−0.02	b	−0.02	b	−0.02	b	−0.02	b												
Stakeholder No1 [=0] × Survival					−0.02	b	−0.02	b							−0.03	b	−0.01	–	−0.03	b	−0.01	–
Stakeholder No1 [=0] × ROLE [=0] × Survival									−0.01	–												
Stakeholder No1 [=1] × ROLE [=0] × Survival									−0.03	b												
Estimates of fixed effects (control variables)																						
Performance: attention screening question							0.26	a	0.26	a									0.20	–	0.31	b
Performance: comprehension question 4							−0.01	–	−0.01	–									0.07	–	−0.03	–
Health experience & risk behaviour							*X*		*X*										*X*		*X*	
Demographics			*X*		*X*		*X*		*X*		*X*		*X*		*X*		*X*		*X*		*X*	
Estimates of covariance parameters																						
Residual	0.29	a	0.01	a	0.01	a	0.01	a	0.01	a	0.01	a	0.01	a	0.01	a	0.01	a	0.01	a	0.01	a
Intercept [subject][e], Variance	0.50	a	0.39	a	0.36	a	0.33	a	0.33	a	0.38	a	0.37	a	0.33	a	0.36	a	0.30	a	0.33	a
Survival [subject], Variance			0.01	a	0.00	a	0.00	a	0.00	a	0.00	a	0.01	a	0.00	a	0.01	a	0.00	a	0.01	a
Model summary																						

Table 3 Linear regression for reservation prices in run two (two-level random effects model) *(Continued)*

	Overall										**Price groups**											
Model	***Model 0***		***Model 1***		***Model 2***		***Model 3***		***Model 3b***		***Model 1***				***Model 2***				***Model 3***			
Price magnitude[c]											**100 k$**		**1$**		**100 k$**		**1$**		**100 k$**		**1$**	
Estimates of fixed effects (explanatory)	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**	**Est.**	**sig.**
Observations: price statements (participants)	1190	(238)	1190	(238)	1020	(204)	1020	(204)	1020	(204)	610	(122)	580	(116)	525	(105)	495	(99)	525	(105)	495	(99)
Intraclass correlation (ICC)[e]	0.63		*0.97*		*0.97*		*0.96*		*0.96*		*0.97*		*0.96*		*0.97*		*0.96*		*0.97*		*0.96*	
Proportional reduction of error term (R2)[f]			0.49		0.53		0.56		0.56		0.50		0.51		0.56		0.51		0.61		0.56	
R2 level 1[g]			0.96		0.96		0.96		0.96		0.96		0.95		0.96		0.95		0.96		0.95	
R2 level 2[h]			0.22		0.28		0.33		0.33		0.23		0.26		0.33		0.26		0.40		0.34	
Model description																						
preferences			*X*		*X*		*X*		*X*		*X*		*X*		*X*		*X*		*X*		*X*	
patient orientation					*X*		*X*		*X*						*X*		*X*		*X*		*X*	
performance & personality							*X*		*X*										*X*		*X*	

Depending variable: reservation prices 1US$; only monotone preferences included

Survival (in months); PRICE GROUP (0, 100 k$; 1 1$); ROLE GROUP (0, REGULATOR; 1, SELLER); Comprehension question (0, wrong; 1, correct); Attention screener (0, wrong; 1, correct); RANK Stakeholder (1, highest … 5, lowest rank); Stakeholder No1 (0, Patient; 1, Own role; excluded if else); Health experience (5 questions on own health history and history with family or friends); Risk behaviour (4 questions on economic, 4 questions on social risk behaviour)

[a]significant at 1% level; [b]significant at 5% level

[c]Game currency converted to real payoff at the end of the experiment

[d]Variable [=1] not displayed, if redundant to [=0];

[e]Due to the significant intercept at level 2 (subject or participant), the two-level model is indicated. The ICC shows for the null model that 63% of variance is explained by differences between subjects (level 2) and 37% by differences within subjects (level 1). For the other models the ICC explains the remaining variance

[f]E.g. for Model 1, the proportional reduction of the predictive error is 49%

[g]E.g. for Model 1, the predictive power is 96% higher with the level 1 predictor compared to the null model

[h]E.g. for Model 1, the predictive power is 22% higher with the level 2 predictor compared to the null model

Our subsequent study on the design presented will complete the negotiation setting with binding price offers to an assigned negotiation partner [33]. This is important, since the effective bargaining behaviour is expected to have an additional impact on prices offered, compared to the players' private reservation price. The analysis of the related negotiation outcome will further allow us to analyse and discuss societal effects regarding cost and availability of new pharmaceuticals. A third experimental study will finally test, whether behavioural (policy) interventions have a positive or negative impact on these societal effects.

Limitations

The heuristics and implications of behavioural economics have been integrated into policy analysis and implementations over the past decades, in health care as well as in other policy areas [32, 33, 115–120]. Yet, external validity of results from laboratory experiments, especially from social-preference games, depend greatly on the relevant context of the experiment [33, 64, 119, 121–126]. A concern towards the study presented could be the transferability of observed behaviour from the mean participant to a professional negotiator in a real life reimbursement situation [33]. While the difference in experience or sophistication should not be neglected, we still deem the results relevant due to two main reasons. On one side empirical research comparing inexperienced with experienced and professional traders in financial markets have shown, "that experience reduces behavioural biases, but biases remain relevant even for experienced traders" [33, 127–135]. This has recently been confirmed for bounded rationality and social preferences in experiments between physician and student populations [69, 71, 72]. On the other side certain biases are much more likely to be linked to "trade uncertainties" and related anticipated regrets which cannot be fully reduced by market experience [44–48]. At least not in markets where "the subjects of the negotiation as well as the relevant rules of the game" are relatively complex and less stable compared to simple, repetitive good exchanges [33]. On a continuum of trade complexity pharmaceutical reimbursement negotiations might be closer to financial market trades than to repetitive trades of exchangeable commodities. However, the weakness of the presented study is certainly the fact that it does not reflect the expressed preferences of professional individuals, which have a direct influence on the reimbursement of new specialty pharmaceuticals in real-world. Moreover, it focuses on a hypothetical situation that had social consequences (on patients and fellow players), but did not take into account long-term consequences due to dependence on an organisation as an employed or mandated negotiator. As mentioned at the beginning, we see our study as bridging the gap between established behavioural research in health economics on the one hand and the current discourse in research and politics on reforming pricing policies for new specialty pharmaceuticals on the other. Further research along these lines could seek to connect with the policy-oriented research with observational data of expert surveys on reimbursement decisions (see [99], as well as [8, 26, 100]). Laboratory experiments can serve as complements to non-experimental methods [119] and have the potential to be a "'wind tunnel' before implementing large-scale studies or institutional changes of the healthcare market" [120, 136]. In our setting of interest their potential in this regard might even be higher, since reliable real-world data on pharmaceutical pricing negotiations is hardly available, not least because of confidential agreements in many European countries [5, 8, 25, 26, 33, 100].

Conclusions

Price negotiations for specialty pharmaceuticals take place in a complex market setting. The determination of the added value of a novel treatment and the related societal willingness to pay are of increasing importance in policy reform debates [5, 16, 21–25]. Not only the pricing rules but also the process of reimbursement negotiation itself is subject to demands for reform [5, 7, 26–28]. From a behavioural economics perspective potential cognitive biases affecting negotiations outcomes are of interest [28, 31, 33, 34]. Laboratory experiments could provide a useful test environment for behavioural policy interventions. Assuming that bounded rationality and other-regarding concerns may differ between inexperienced and experienced traders, but remain relevant in both. As is the case in other markets with complex transactions. Our findings show, that the price magnitude in a reimbursement negotiation for pharmaceuticals in oncology has an impact on stated preferences for incremental survival. Further, the assigned role in the negotiation has an impact on the stated relevance of affected stakeholders. Both could have an undesirable influence on reimbursement negotiations. The design was found useful to further assess the effects of the negotiation setting on societal outcomes like cost and availability of new specialty pharmaceuticals in an experimental setting and test appropriate behavioural policy interventions.

Abbreviations

100 k$: 100,000 $; CI: Confidence intervals; ICER: Incremental cost-effectiveness ratio; MTurk: Amazon Mechanical Turk; OECD: Organisation for Economic Co-operation and Development; QALM: Quality adjusted life month; QALY: Quality-adjusted life year; QoL: Quality of life; REG: Regulator; SEL: Seller; SoC: Standard of care; USD: US Dollar; WTA: Willingness to accept; WTP: Willingness to pay

Supplementary Information

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Additional file 1. Selected screens and payoff details.

Additional file 2. Details on model and hypotheses.

Additional file 3. Complete instructions for the first run of the experiment.

Additional file 4. Complete instructions for the second run of the experiment.

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Authors' contributions

All of the authors (DWE and SB) fulfilled the authorship criteria and contributed to the study. The first author DWE designed and implemented the study, analysed and interpreted the experimental data and wrote the manuscript. SB supervised, reviewed and contributed to design, implementation, analysis, interpretation and editing of the manuscript. All of the authors are aware of the submission and are in agreement with the manuscript. The author(s) read and approved the final manuscript.

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Availability of data and materials

Experimental instructions used in this and the subsequent study [33] are available in Additional file 3 and Additional file 4. Datasets (fully anonymized) analysed during the current and the subsequent study [33] are available in the zenodo repository https://doi.org/10.5281/zenodo.3575971 upon request.

Declarations

Ethics approval and consent to participate

The research design was submitted to the national database BASEC (Business Administration System for Ethics Committees) of swissethics (Swiss Ethics Committees on research involving humans) before the implementation of the experiment. The local ethics commission of the Canton of Zurich reviewed the application and confirmed that the project does not fall within the scope of the Swiss Human Research Act (HRA) and therefore no authorization was required. Participants had to state an informed consent (electronically) prior to the experiment.

Consent for publication

All authors provided consent for their names to be included for publication.

Competing interests

The first author (DWE) is an external PhD student at the University of Lucerne and was employed at the pharmaceutical company Takeda Pharma AG Switzerland and at the health insurance company Helsana AG while performing this research. Neither the former nor the later employer of the first author nor any other private or public entity supported or influenced this research in any relevant way. The second author (SB) has no conflicts of interest to declare. All of the authors submitted a signed Conflict of Interest disclosure form.

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CHAPTER 4

The impact of price negotiations on cost and availability of new medicines

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The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: evidence from an online experiment

Dominik J. Wettstein* and Stefan Boes

Abstract

Background: The necessity to measure and reward "value for money" of new pharmaceuticals has become central in health policy debates, as much as the requirement to assess the "willingness to pay" for an additional, quality-adjusted life year (QALY). There is a clear need to understand the capacity of "value-based" pricing policies to impact societal goals, like timely access to new treatments, sustainable health budgets, or incentivizing research to improve patient outcomes. Not only the pricing mechanics, but also the process of value assessment and price negotiation are subject to reform demands. This study assesses the impact of a negotiation situation for life-extending pharmaceuticals on societal outcomes. Of interest were general effects of the bargaining behaviour, as well as differences caused by the assigned role and the magnitude of prices.

Methods: We ran an online experiment ($n = 404$) on Amazon Mechanical Turk (MTurk). Participants were randomly assigned into four treatment groups for a reimbursement negotiation between two roles (health minister, pharma representative) in two price framings. Payoff to players consisted of a fixed salary and a potential bonus, depending on their preferences, their price offer and the counter offer of a randomly paired negotiation partner. Success had real social consequences on other MTurk users (premium payers, investors) and via donations to a patient association.

Results: Margins between reservation prices and price offers increased throughout the game. Yet, 47% of players reduced at least once and 15% always their bonus probability to zero in favour of an agreement. 61% of simulated negotiation pairs could have reached an agreement, based on their preferences. 63% of these were successful, leaving 61% of patients with no access to the new treatment. The group with "real world" prices had lower prices and less agreements than the unconverted payoff group. The successful markets redistributed 20% of total assets from premium payers to investors over five innovation cycles.

Conclusions: The negotiation situation for pharmaceutical reimbursement has notable impact on societal outcomes. Further research should evaluate policies that align preferences and increase negotiation success.

Keywords: Reimbursement, Negotiation, Willingness to pay, Willingness to accept, Social preferences, Health insurance, QALY, Value-based pricing , Health technology assessment

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Introduction

Health authorities and health care payers in OECD countries face an increasing number of new medicines offered at high prices [1, 2]. Especially in oncology, the pipelines of pharmaceutical companies have grown in the past decade by almost 80%, reaching a "historic high level" of 849 molecules in late-stage [3, 4]. This brings an increasing challenge for regulators and payers to secure access for patients to new, lifesaving treatments while controlling expanding costs. The necessity to measure and reward "value for money" has become central in health policy debates, as much as the requisite for appropriate methods to assess the "willingness to pay" (WTP) for an additional, quality-adjusted life year [1, 5–10]. Not only the policy outcomes, but also the process of value assessment and price negotiation is subject to reform demands [1, 11–15]. While European countries seek to collaborate more in reimbursement decisions [1, 2, 10, 12], pharmaceutical industry expresses concerns about "significant variance in access to new medicines across Europe" [16, 17].

Background

Behavioural perspective

This study aims to enrich the reform debate on pharmaceutical pricing from a behavioural perspective. In the past 30 years behavioural economic studies have delivered evidence on how individuals deviate in different ways from the assumption of neoclassical models [18–21]. Of interest are for example deviations from standard preferences and standard decision making due loss aversion, framing effects, anchoring effects and concerns for others etc. [20, 22]. In recent years the heuristics and implications have been incorporated into public policy analysis and even policy implementation in different countries, including health care [21, 23–27]. Just recently it has been argued, that "several behavioural economic-related phenomena may affect price negotiations […] between pharmaceutical 'buyers' and 'sellers'" [14]. However, the experimental research on pharmaceutical pricing negotiations is still scarce to non-existing [15, 28]. The main reason for this is of course that the respective interactions take place in a much more complex setting than in other markets [15].

Our experimental design [15] integrates three established fields of research around willingness to pay (WTP) and willing to accept (WTA): assessment of QALY preferences (WTP for health), assessments of exchange asymmetries (WTP vs. WTA) and assessment of social preferences (WTA or WTP reflecting distributional effects). The setting allows us to measure underlying preferences, incentivized offer statements, as well as the societal effects of reimbursement negotiations for new life-extending pharmaceuticals. For more background on the three fields of research see our previous study [15].

Objective

Aim of this study is to assess the impact of the negotiation situation for life-extending pharmaceuticals on societal outcomes. Of interest are general effects of the bargaining behaviour, as well as differences caused by the assigned role in a decision situation with incremental changes of the patient outcome. The study was not designed to infer generalizable WTP per QALY values in oncology but to assess selected influencing factors of the negotiation situation. Since there is a clear need for empirical evidence on the effectiveness of pharmaceutical pricing policies, particularly for value-based pricing [28], we deem our experiment a starting point for further investigations on policy interventions that aim to improve negotiation outcomes. Our previous systematic literature review revealed no published results from any experiments on pharmaceutical pricing negotiations [28]. A discussion on external validity for current policy debates follows at the end of the paper.

Preferences in reimbursement negotiations

This study builds on a previous study where we reported the effects of the negotiation situation on stated preferences [15]. Findings showed that the framed price magnitude of current oncology treatments has an impact on stated preferences for incremental survival. Players assigned to the role of the regulator ("health minister") stated lower prices in the fictive "real world" prices (100 k$) group compared to their colleagues in the "real payoff" prices (1$) group. For players in the seller role (pharmaceutical representative), the effect was not significant. We found no systematic valuation gaps ("reluctance to trade" with WTP < TWA) between the two negotiating roles. In contrast, regulators in the 1$ group showed a tendency for lower reservation prices than their counterparts. However, the assigned responsibility had an impact on the reported relevance of the stakeholders affected (the patient, the premium payers, the investors, the opponent and the own role) for the decision. Regulators rated the patient higher and more often as most important while the own role was rated higher in sellers. Finally, we found no evidence for any interest in effectiveness or efficiency by participants. Mean incremental cost-effectiveness ratio (ICER) versus standard of care (SoC) was not stable and higher in all rounds compared to the initial ICER of the SoC versus no treatment.

The previous study focused on stated preferences in the negotiation. This study will complete the setting with incentivized bargaining offers and a matching of the offer statements.

Methods

Design

In the following we provide a summary of our experimental research design, described in more details in our previous study [15].

We ran an online experiment ($n = 404$) on the Amazon Mechanical Turk (MTurk) platform. Convincing evidence exists regarding the reliability of MTurk results compared to laboratory and field experiments, also specifically for assessments of social preferences [29–36]. Participants were randomly assigned into four treatment groups of equal size (Table 1). Group one and three played the games as health ministers (regulators), while group two and four played as representatives of a pharmaceutical company (sellers). The groups were further separated into two different price magnitude framings (the 100 k$ group with fictive "real world" prices of oncology treatments and the 1$ group). Final payoff functions were equal for both groups, but the 100 k$ played with a conversion of the payoffs of 100,000$ = 1USD during the game (we use the prices of this group in the following explanations). To implement social effects, participants were given full information on how their decision would have an impact in real life on others: on other MTurk users for premium payers or investors and via donations to a patient association as a proxy for patient benefits.

The reimbursement negotiation plays in a hypothetical country and involves seven stakeholders:

A patient, suffering from a deadly blood cancer, already under treatment with a reimbursed pharmaceutical (current standard of care, SoC) with a known benefit. A regulator responsible for regulating prices of new pharmaceuticals, approved for payment by public health insurance. A seller, employed by an international pharmaceutical company, commissioned to negotiate a price for a new product to treat the patient. Two premium payers who fund public health insurance. Their accumulated premiums are the solitary funding source for the patient's treatment (no out-of-pocket payment possible). Two investors of the pharmaceutical company who fund the new therapy. They expect a return on their investment, which compensates them for the risk of investment.

In each round of the experiment, the seller offers a given new treatment at a proposed price, while the regulator (simultaneously) proposes an appropriate price for the same treatment. If the seller's price is equal or lower to the regulator's price, the patient will get access to the new therapy, resulting in increased life expectancy (months m) and quality of life (percent q). The treatment will be paid by the payers (deducted from their accrued premiums) and the investors will be compensated with the reimbursed price (divided by two). The patient's therapy outcome converts into an economic benefit since quality of life equals work ability in percent of a fulltime salary for a healthy person of 10,000$ per month or 120,000$ per year. Regulators and sellers receive the fixed salary for a healthy person. The pricing decision is limited to a price range between 50,000$ (representing the price of the current SoC) and 500,000$.

The circumstances of the reimbursement situation with its consequences on all seven stakeholders are expected to have an impact on players' private reservation price decision, as well as on their decision for an effective price offer to their negotiation partner. To compare the two decision tasks, participants played in a first game the reservation price task in five rounds, followed by the price offer task for the same five rounds (game two). All relevant information about consequences described above were introduced and trained before the first game. To prevent strategic behaviour, participants did neither know which round or game would be relevant for final payoffs, nor that the game would be repeated after five rounds with a slight adjustment of the task. In other words, the reservation price was not reported before but rather as a part of the negotiation. Of course, learning effects and assumptions about a "strategically optimal" reservation price might lead to bias. We tested in our previous study in a separate run of the experiment with another population ($n = 201$) differences between the two consecutive reservation games (with a role switch in-between, instead of an offer game). Further, we compared these two reservation price games with the first

Table 1 Number of subjects randomly assigned to treatment groups

Game	Outcome	Groups (n)			
		Group 1	Group 2	Group 3	Group 4
Game currency to real payoff		100,000 $ = 1 US$		1 $ = 1 US$	
Role		Regulator	Seller	Regulator	Seller
Round 1 to 5 (1st game)	Reser-vation price (x)	WTP (97)	WTA (101)	WTP (105)	WTA (101)
Round 1 to 5 (2nd game)	Price offer (y)	Offer (97)	Offer (101)	Offer (105)	Offer (101)

WTP Willingness to pay, *WTA* Willingness to accept

Participants played the same five rounds in two consecutive games. All relevant information about the consequences of the negotiation were provided before the first game. Participants did not know which game would be relevant for final payoffs, nor that the game would be repeated after five rounds to prevent strategic behaviour

game of the population analysed here. No significant differences were found between mean reservation prices per rounds for our sub-population in focus [15].

Based on these findings we would expect participants to state in game two a price offer that equals the respective reservation price of the same round in game one since stated social preferences reflect all relevant payoffs, including the impact of a successful or forgone agreement. A rational decider would have no incentive to deviate if payoff-functions in both games were equal. However, to simulate a setting closer to a real-life situation, we adjusted the incentive structure for game two as displayed in Table 2. Deciders' payoff-functions were extended to incentivize an agency relationship with one of the funders each. Sellers could keep the positive difference between their reservation price and their offer (margin) if their offer lead to a successful agreement as bonus. Similarly, regulators were rewarded with the positive difference between their submitted reservation price and any price offer below if an agreement was reached.

As described and trained in the introduction of the experiment, a successful agreement was assumed with a seller's price below or equal to the regulator's price ($y_S \leq y_R$). Successful agreements were determined by a randomized matching per round after the experiment. This instruction to the bonus mechanism (see Additional file 1) was the only supplementary information provided for the second game compared to the first one. The modification of the task during the experiment was not announced in the introduction.

Research questions and hypotheses

Our underlying model builds on the "robust finding" from existing laboratory research in economics that "individuals take into account the welfare of all parties and have a preference for efficient outcomes" and that "non-selfish preferences are the rule rather than the exception" [15, 37–42]. Consequently we expect a rational regulator or seller to maximize his or her social utility considering own payoffs, as well as the utility functions of the other involved stakeholders. Of course, they can weight each utility differently, also with zero. The extended utility function makes participants adjust their social optimization task. They could tend to maximize own (selfish), overall (prosocial) or even others' (altruistic) benefit. As soon as they care for their own bonus, they face a trade-off between bonus amount and probability of an agreement. In this case, they should base their offer decision on an assumption about their counterpart's offer (for more details about the model, see Additional file 2):

- Research question 1: Do participants deviate with their offer statement from their reservation price?

Players could assume that no valuation differences exist between roles with WTP=WTA for the same round. Based on this assumption, they should offer their reservation price since this maximizes expected overall social payoff, even though their own bonus is zero. They also have no reason to strive for a bonus if they assume a systematic valuation gap (WTP < WTA) since a successful offer would require them to offer a price above their WTP or below WTA, which violates the introduced and trained definition of a reservation price. Finally, this strategy is also dominant if they assume WTP > WTA, but care for the patient only, since this offer maximizes the chance of an agreement and increases the patient's benefit compared to the status without agreement.

Table 2 Design of experiment (parameters per role and round)

State	Round	Reservation price[1]	Price offer[1,2]	Deciders				Receiver			Funders	
				Regulator		Seller		Patient			2 Payers	2 Investors
				Benefit[1,2]		Benefit[1,2]		Survival (m)	Quality of Life (q)	Benefit[1]	Benefit[1,3]	Benefit[1,3]
				fix	bonus	fix	bonus					
State without product								0	50%	0		
Initial state (SoC)	0	50	50	120	x-y	120	y-x	5	50%	25	240 - y	y
New product	1	x	y	120	x-y	120	y-x	8	50%	40	240 - y	y
	2	x	y	120	x-y	120	y-x	10	50%	50	240 - y	y
	3	x	y	120	x-y	120	y-x	12	50%	60	240 - y	y
	4	x	y	120	x-y	120	y-x	15	50%	75	240 - y	y
	5	x	y	120	x-y	120	y-x	17	50%	85	240 - y	y

1: for groups 3 and 4, amounts in ,000 $ (converted 100,000 $ = 1 US$ at the end of the experiment); for groups 5 and 6, amounts divided by 100 and displayed as $ (converted 1 $ = 1 US$ at the end of the experiment)
2: additional bonus for successful offer in second game (if agreement possible, $y_S \leq y_R$)
3. in the first game players see resulting benefits for funders, based on the potential reservation price (240-x and x)
SoC, standard of care (status quo); m, survival in months; q, quality of life on a scale of 1–100%

Hypothesis H0-I: deciders will claim no margins and state a price offer (y) equal to their reservation price (x).

- Research question 2: Do participants differ in their bargaining behaviour (margin claimed) if the price magnitude differs from the expected payoff magnitude, imitating "real world" prices of new oncology treatments?

Since prices convert into equal final payoffs, relative magnitude of the pricing decision should have no influence on the pricing decision of a rational decider, caring for the real social payoffs at the end of the experiment only.

Hypothesis H0-II: margins claimed converted to payoff-magnitude do not differ between price groups for any round.

- Research question 3: Do participants differ in their bargaining behaviour (margin claimed) depending on their role?

Players could have a more general assumption about the distribution of the counteroffer than described above. For example, they could assume that their counterpart's proposal is more likely to be located at the mean of an expected price range of possible or realistic price offers. Assuming further that participants share a certain range of expected prices, rational deciders should differ in their offer decision, depending on their role. If two opposite players share the same reservation price below the expected counteroffer, only the seller should ask for a margin. Vice versa, if they have an equal preference above the expected mean only the regulator should place an offer below his WTP while the seller should offer his reservation price [for a more detailed derivation, see Additional file 2]. However, a less rational player, interested in realizing a bonus, might just stick to a simple fix rule (e.g. "one percent margin"). In this case, margins between roles should not differ.

Hypothesis H0-III: margins claimed do not differ between role groups for any round.

- Research question 4: Does the result of the negotiation differ between rounds and price groups? What are the consequences for all involved stakeholders?

Not all dominant strategies described above result in an optimal social outcome from the decider's perspective, even if we assume no valuation gaps and players to be rational utility maximizers. Nonetheless, if we assume that they prefer an agreement to none, we would expect; the more valid their assumption about each other's price offers, the more successful agreements.

Hypothesis H0-IV: Comparing price offers between the two role groups, an agreement is reached with means $\bar{y}_S \leq \bar{y}_R$ *overall (weak) and for each negotiation pair* $y_{Si} \leq y_{Ri}$ *(strong).*

Implementation

We recruited US residents aged 18 years or older. Participants had to state an informed consent prior to the experiment. Only MTurk users who did not participate in our previous run of the experiment (reported in our previous study [15]) were allowed to participate. No further restrictions for participation were defined. Instead we surveyed additional demographic information, as well as risk behaviour and health experience of each participant (see Appendix 4 of our previous study [15]). The variables were used to control the results reported, combined with the data from two attention screening / comprehension control questions [15, 35, 43]. Before the first game, both roles were introduced to and trained on the concept of a reservation price, the negotiation setting as well as on the consequences of their decisions. WTP was defined as the "absolute maximum price" regulators would "still consider reasonable and fair for the new product", WTA as the "absolute minimum price" still considered "reasonable and fair for the new product" by sellers. Details on the design in general and the reservation price game specifically are laid out in our previous study [15]. Since a consistent price offer in the second game had to be equal or higher than the reservation price for sellers and vice versa for regulators, participants were provided with a message if their offer contradicted this requirement (Additional file 1). However, participants were allowed to ignore the message and submit inconsistent offers.

The design aims at understanding WTP-WTA differences in an interactive reimbursement setting. This implied a sufficiently high number of comparable decision situations for the matching at the end as well as several consecutive rounds (with increasing survival) at a reasonable duration of the experiment. We applied a contingent valuation method instead of a dichotomous choice format, which is the preferred option in experiments interested in nominal QALY preference statements [15, 44]. Due to the high complexity of the decision task, combining preferences for QALYs with social preferences, we refrained from the application of a Becker-DeGroot-Marschak (BDM) mechanism, which is in line with comparable experiments on social preferences in health care [15, 45–51].

Statistical methods

We performed Chi-square, Cramer's V, Fisher's exact and Spearman rho tests, independent and paired samples t-tests, as well as independent Mann-Whitney-U-tests.

Results

For the following, prices in the 100 k$ group are converted to the payoff magnitude for comparison with the 1$ group. Further, we focus on individuals with strict monotone preferences for incremental patient benefit; see also our previous study for a discussion of non-monotone preferences [15]. The offer game of this study expands our set of performance variables (preference structure, comprehension question regarding patient benefit, screening question to capture attentive players) with a fourth one: offer consistency. Participants were introduced and trained to the appropriate relation of reservation price and price offer. Their preferences submitted in the first game were further displayed in every decision of the second game below the decision table. If they moved the slider to an inconsistent offer, a message was displayed (Additional file 1). 90% of players overall (including those with non-monotone preferences) submitted at least one consistent offer. 64% of players with strict monotone preferences placed only consistent offers, compared to 27% in the non-monotone group. We will control for offer consistency in the following as indicated.

Reservation prices considering offer consistency

We can confirm the results from our previous study if we control the reservation prices submitted with the additional information of consistent offer behaviour. Regulators' reservation prices are still lower in the 100$k group compared to the 1$ group (t-test and U-test $p < 0.05$). We can likewise confirm the absence of valuations gaps looking at consistent players only. The negative gap ("preference range") between roles found in the 1$ group can be confirmed as well (three rounds with t-test $p < 0.05$ for players with consistent offers in all five rounds, four rounds with t-test and two rounds with U-test $p < 0.05$ if we exclude inconsistent offers for each round separately).

Bargaining behaviour: price offers

In line with the increasing reservation prices, price offers increased throughout the game from round one to five (t-test $p < 0.01$). Consistent offers were for all four groups and five rounds below the reservation price for regulators (H0-I rejected with t-test at $p < 0.5$ for two pairs, all others $p < 0.01$), respectively above the reservation price for sellers ($p < 0.01$).

As displayed in Fig. 1, price offers of sellers were significantly higher in four of five rounds in the 100 k$ group, compared to those of the regulators (t-test $p < 0.05$). In consequence, an agreement between the average negotiators in this price group was only possible in one round (weak H0-IV rejected). For participants with consistent offers in all rounds and correct answer to the attention screening question, the effect holds for the first three rounds (t-test $p < 0.05$, Mann-Whitney $p < 0.01$). Differences between negotiators in the 1$ group were not significant (t-test and Mann-Whitney $p > 0.05$, except first round Mann-Whitney $p < 0.01$). The negative valuation gap found in the latter group might be an explanation for this result, but we have to look at the margins in both groups to see bargaining differences between the two price framings.

Bargaining behaviour: margins

Margins claimed by participants increased throughout the game from round one to five (t-test $p < 0.01$ for all round-

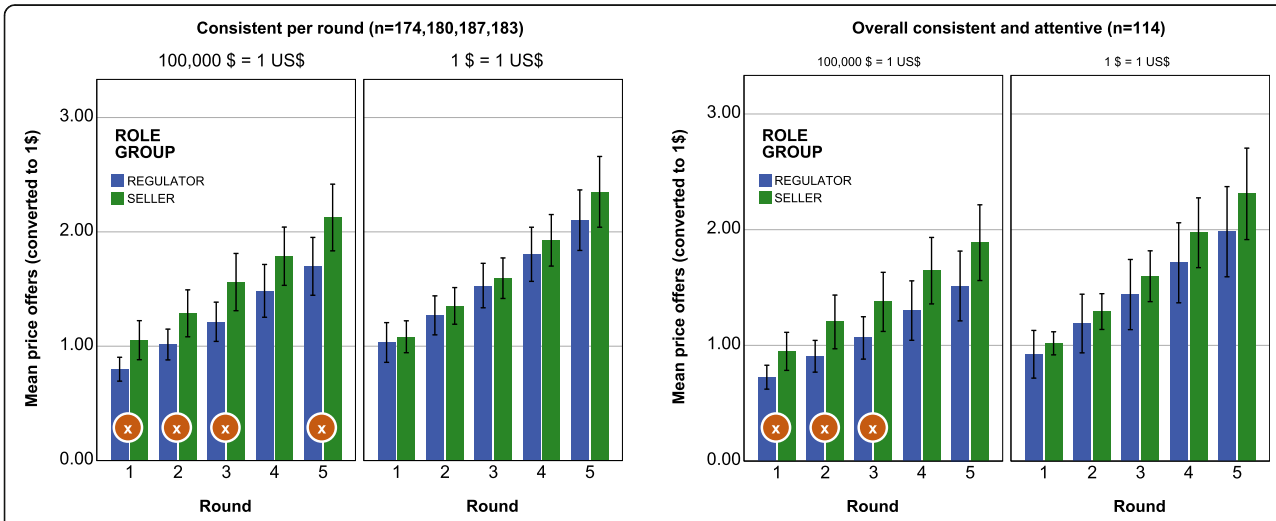

Fig. 1 Price offers in the second game, split by price group and role. Confidence intervals: 95%. Rounds marked with "x": mean price offer significantly different between roles at $p < 0.05$, hence no trade possible. Left side: inconsistent price offers (<WTA or > WTP) excluded for each round separately. Right side: only participants with consistent offers in all rounds (players with one or more inconsistent offer excluded from all rounds) and correct answer to attention screening question

pairs, except last rounds for overall consistent players $p < 0.05$ respectively insignificant with consistency filtered per round). The increase is also significant for the majority of rounds if controlled for role or price group separately and for half of the rounds if controlled for treatment groups (t-tests $p < 0.05$). Margins between price groups differed only in one round per role group (H0-II rejected at $p < 0.5$ for the first round in sellers with U-test and the second round in regulators with t-test and U-test). Sellers in the 1$ price group claimed in the first round a higher margin than regulators (H0-III rejected at $p < 0.5$ with U-test). Margins between roles in the 100 k$ did not differ in any round. Hence, H0-II and H0-III cannot be rejected for the majority of rounds.

We found no evidence that players shared any general assumption about their opponent's most likely offer, resulting in a break point where they would reduce their margin to zero. We tested fix break points for reservation price - margin pairs overall at 1.2$ (equality for funders benefit), 2.5$ (mean of price range) and 2.75$ (mean of slider range), as well as relative break points at reservation price quartiles. All role and treatment groups had above or below any tested break point mean margins different from zero (t-tests $p < 0.05$).

However, only 53% of players submitted in all five rounds a price offer that was different from their reservation price, while 47% claimed at least once no margin. 15% claimed no margin in all five rounds. Based on the assumption of rational utility maximization this could indicate that those players either assumed WTP=WTA or expected a valuation gap (WTP < WTA). It could also indicate that they only cared for the increased patient benefit and therefore chose the best offer to reach an agreement, and hence neglected any other payoffs, including the probability of a bonus for themselves.

Negotiation outcome: agreements possible

As described above, mean negotiators in the 100 k$ did not reach an agreement in the majority of rounds, while in the 1$ group an agreement was possible on average. As alternative to comparing mean negotiators, we can match regulator and sellers on an individual basis.

We paired consistent offers per round randomly (a method applied before e.g. by Borges et al. [52]), split by price group. This was repeated for 500 iterations (states of the society) for the five rounds (products) and the two price groups (framings) for a sample of 5000 market states, each representing an average outcome of all its

Table 3 Random pairing of consistent offers based on monotone preferences – mean of market outcomes

Round	Price group	Pairs	Trades possible based on monotone preferences		Successful trades based on consistent offers		Bonuses realized due to successful negotiation				
			number of trades	in percent of pairs	number of trades	in percent of pairs	regulators with bonus	average bonus in $ (for >0)	sellers with bonus	average bonus in $ (for >0)	total average bonus in $ (for >0)
1	100k$	41	22.0	53.6%	12.6	30.7%	6.8	0.22	8.2	0.09	0.15
	1$	43	29.9	69.5% b1	17.3	40.2%	10.6	0.17	12.7	0.17 b2	0.17
2	100k$	42	24.0	57.0%	14.7 b3	35.1%	7.9	0.41	9.5	0.12	0.25
	1$	46	32.2	69.9% b1,b4	20.0	43.5%	14.8	0.22 a1	15.5	0.17 b2	0.19
3	100k$	45	24.7 b5	54.8%	14.7 b3	32.6%	9.8	0.33	10.9 b6	0.15	0.23
	1$	48	33.6	70.1% b4	21.4	44.7%	15.6	0.23 a1	16.4 a2	0.20 a3	0.21
4	100k$	43	24.5 b5	57.0%	15.6 b7	36.3%	10.7 b8	0.36 b9	10.9 b6,b10	0.17	0.26
	1$	46	30.7	66.8%	20.2 b11	43.9%	15.0	0.33	16.7 a2	0.20 a3	0.26 a4
5	100k$	44	23.3	52.9%	15.5 b7	35.2%	10.7 b8	0.36 b9	11.0 b10	0.19	0.27
	1$	47	29.8	63.3%	20.3 b11	43.1%	16.1	0.29	16.3	0.24	0.27 a4
average		**45**	**27**	**61%**	**17**	**39%**	***63% of trades possible***				

500 iterations (states of the society) for 10 markets (5 products in 2 price frames). Iterations are not correlated with the outcomes. Cases analysed are 5000 market states, not participants. There were no double entries to remove; each market state was unique

Consistent price offers (<WTA or > WTP) excluded for each round separately, instead of excluding inconsistent players (one or more inconsistent offers) overall

Rounds: Independent sample t-test between rounds (consecutive, controlled for price group) significantly different at $p < 0.01$ for all columns, except pairs marked with letter "a" ($p < 0.05$) and "b" (not significant)

Price groups: Independent sample t-test between price groups for all rounds significantly different at $p < 0.01$ for all columns, except total bonus realized in round 5 $p < 0.05$, in round 4 not significant

Trades successful: Paired sample t-test (one-tailed) for same iteration significant for differences between trades possible vs. successful trades ($p < 0.01$)

Roles: Paired sample t-test for same iteration significant for differences between roles regarding number of players with positive bonus ($p < 0.01$, except for 100 k$ round 4 $p < 0.05$; not significant for 1$ round 5) and average bonus for players with bonus ($p < 0.01$, except not significant for 1$ round 1)

The number of unique combinations in each market is high (e.g. for round 1 of 100 k$: 43!/(43–41)!). We increased the number of iterations up to a point where the variables of interest were not significantly different anymore between two runs with the same iteration size and the difference of average trades possible and trades successful (in percent of pairs) between the runs were stable at 0.1%

randomly matched offer pairs. Regulators and sellers with monotone preferences and consistent offers were matched to 45 pairs on average. Table 3 provides an overview of the main outcomes of the average state of the ten markets. Sixty one percent of the negotiation couples could have reached an agreement ("trades possible"), since WTP ≥ WTA. Yet, only 63% of these were successful, leaving on average 61% of patients with no access to the new treatment.

Negotiation pairs increased for both price groups compared to round one with a maximum in round three, which is directly related to the number of consistent price offers per round. Controlling for this, the percentage of trades possible was still significantly different between consecutive rounds for the 100 k$ group and between round three to five for the 1$ group ($p < 0.01$). Further, the percentage of successful trades differed between all consecutive rounds in both price groups, as well as between price groups in all rounds ($p < 0.01$). As displayed in Fig. 2, the percentage of trades possible declined over the five rounds ($p < 0.01$ in the 1$, $p < 0.05$ in the 100 k$ group), while the percentage of successful trades increased ($p < 0.01$). However, at least the 1$ group had a peak in round three with declining agreements after and in the 100 k$ group the increase was inconsistent with two increases and two declines ($p < 0.01$). Given the trades possible, the percentage of realized trades increased between the first and last round for both price groups ($p < 0.01$). This effect was paralleled by a clear increase in average bonus for successful negotiators, as well as for the average player overall, since the number of players with bonus increased for both roles ($p < 0.01$).

All market outcomes displayed in Table 3 were significantly different between the two price groups in all rounds (except total bonus in round 4). The 100 k$ group was significantly and notably less successful in negotiating agreements than the 1$ group. This holds not only after controlling for the number of negotiation pairs ($p < 0.01$), but also if we compare successful trades relative to trades possible for both groups (round three to five at $p < 0.01$). However, the 1$ group closed negotiations also at 19% higher market prices on average. In consequence, the redistribution of constant assets between funders over the five innovation cycles was different between the two framings (see Fig. 3). While successful negotiators in the1$ group started with an even distribution, they allocated in the last round 36% to the payers versus 64% for the investors. The 100 k$ group allocated in all rounds significantly less to the investors respectively more to the payers, starting at 54 to 46%, leaving them a share of 40 to 60% in the final round.

Discussion

There is a high need to understand how existing pricing policies for new pharmaceuticals are effective in reaching conflicting societal goals, like timely access, sustainable health budgets, or incentivizing research in "value for money" rather than "me-too" therapies [28]. However, not only the pricing mechanics, also the process of value assessment and price negotiation is expected to have an

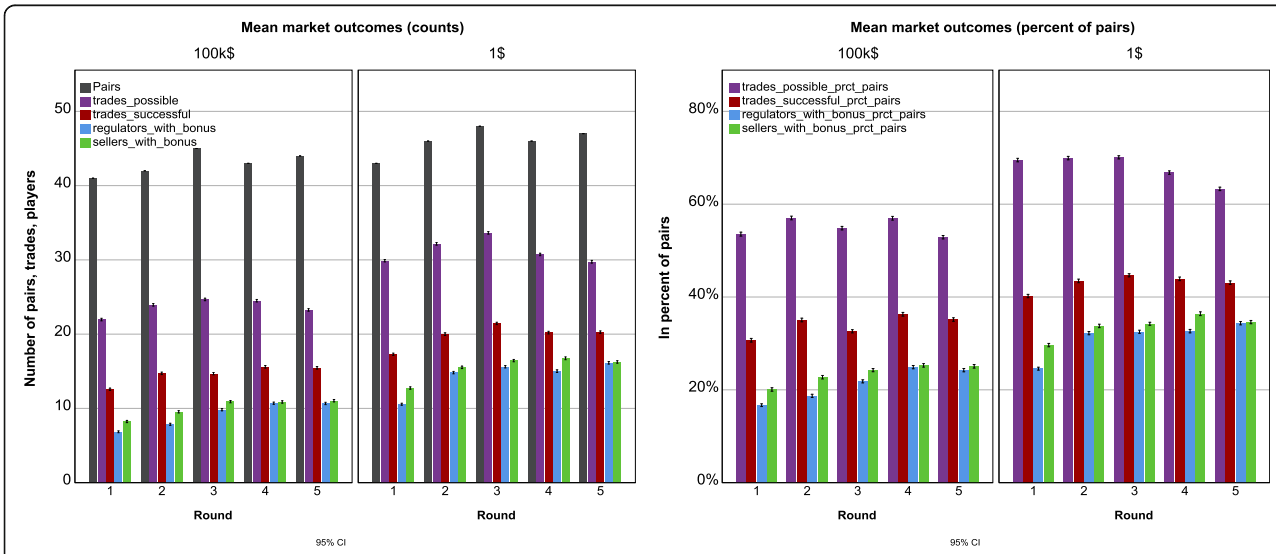

Fig. 2 Mean of market outcomes. Limitation: The 500 markets simulate the societal effect of the fixed preferences and offers of on average 91 individuals randomly paired. Differences in a sample of 500 unique pairs of the investigated population might be less clear due to higher variance. However, the relevant differences in the simulation were based on statistically significant differences in the source population, as shown. CI, confidence intervals

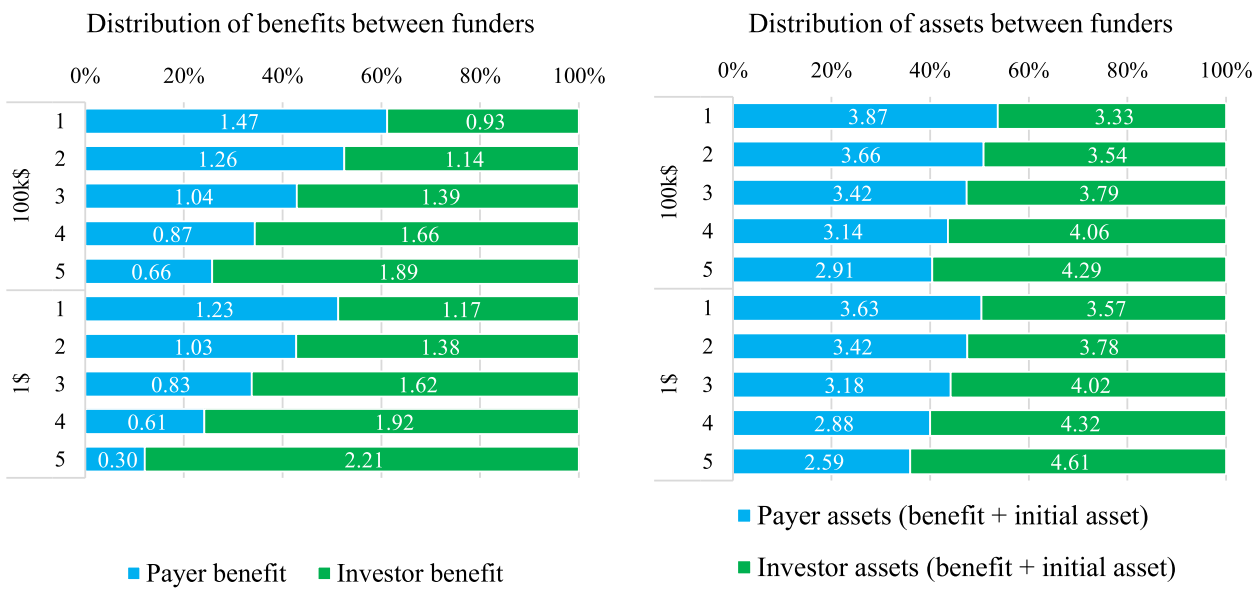

Fig. 3 Mean of market outcomes – funders' benefits and payoffs from round 1 to 5 per price group (means for successful pairs). Total benefit for redistribution by players in all rounds equals 2.4$ (1.2$ premiums from each payer). Total assets equal of funders equal benefit of 2.4$ (premiums unused for payers and price income for investors) plus initial assets of 4.8$ (1.2$ for each of the payers and investors). Total assets were divided by ten for final payoff after experiment

impact [1, 14]. In particular because also the implementation of value-based pricing does not imply that negotiation ranges disappear [1]. While these ranges may arise from information asymmetries (research and development costs, clinical benefit) [1], they might as well arise from behavioural factors [14]. The paper presented here concludes our test of an experimental design [15] to analyse pricing negotiations for pharmaceuticals from a behavioural perspective. Available information as well as payoff functions were equal between the two negotiating roles (apart from the bonus direction in the bonus game). Based on our model, we would have expected rational players to reveal no valuation gaps, no claimed margins and achieve agreements throughout the game. The results of this study show that even if mean negotiators would agree on a "fair and reasonable" price (no valuation gaps), a majority of reimbursement negotiations can still fail because WTP and WTA between regulators and sellers may differ on the level of individual negotiations. Societal consequences differ, related to the price magnitude, with relatively lower patient benefits but also lower payer costs at current price levels of new oncology treatments. At least two possible target points for the current policy reform debate can be derived from the results: price related framing effects, as well as role related behavioural effects.

The framing effect of the price magnitude should be investigated further as potential policy intervention target to affect prices for and access to new pharmaceutical treatments. Relatively lower prices for high cost therapies could reflect a concern regarding budget impact. It could just as well mean, that negotiators tend to neglect the same at lower price levels. Causing higher budget impact for large treatment populations at lower price (per treatment) levels. Moreover, if negotiators incorporate budget impact considerations, this should preferably not decrease the number of agreements and access for patients. Otherwise patients suffering from a high-cost disease would be discriminated compared other patient groups.

From a practical behavioural policy perspective, transparent official reporting on access differences between treatment areas might be a relatively easy real world intervention. In analogy to governmental information campaigning as policy instrument for behaviour change ("sermon") in other policy areas [53]. In addition, further experimental research could investigate, whether price negotiations focusing on incremental cost-effectiveness, rather than nominal prices, align negotiation results between different price magnitudes – for better or worse, depending on the policy interest. Especially since cost-effectiveness has been found to be the most important predictor for reimbursement decisions in countries like the United Kingdom [13, 15, 54].

The primary interest of our design presented was to uncover role related differences affecting negotiation outcomes. The introduced bonus in the offer game caused players to departure from an optimal price, reducing the probability of an agreement. The prospect of a price-related reward might have triggered either

("negatively") a loss-aversion in the sense of regret avoidance ("bad-deal aversion") [55–57] or ("positively") an overestimation of the bonus probability. The "coercive paternalist" approach [58, 59] would be to just prohibit the negotiators' principals from introducing any price-related incentives for their agents to reduce the negative impact of bonuses on patient access. As an analogy: for providers in health care the potential negative impact of bonuses on patient outcome has been widely studied [60–62] eventually inspiring policy reforms to control them (e.g. just recently in Switzerland [63, 64]). Yet, to assume that potential offer gaps in real world are mainly driven by identifiable bonus payments, paid by the negotiators' principals, would be an implausible simplification (especially since bonuses might play a role mainly on the seller side in many health systems). Experimental research in general has shown, that "people are concerned with unobservable payoffs such as reputation, fairness or the well-being of others" [65]. Anticipated regrets alone are likely to relate to much more than just a direct payment. They could for example be linked to general "valuation and trade uncertainties" [15, 66, 67]. Offer gaps in general might also arise from other behavioural effects like a "different focus" of the seller or buyer role [68–73], or role related moral commitments [74, 75], to name a few of many other proposed explanatory heuristics for valuation gaps, discovered in experimental studies [15, 22].

Again, public information could help by making the "hazardous behaviour" more transparent. Assuming of course, that an agreement is not only in the interest of both parties, but also economically viable and at least partly prevented or delayed by bounded-rational behaviour. In this regard the "Patients W.A.I.T." indicator, published by the European Federation of Pharmaceutical Industries (EFPIA) [17] should at minimum benchmark patient access differences (availability and delays) for both sides. Not only between countries, but also between market authorization holders. If an official "patient waiting time" for reimbursement negotiations would be made transparent on an entity level (company, agency, etc.), the policy instrument would be even more promising, providing a strong "nudge" towards finding an agreement rather than "sermonizing" it in the name of the patient. For example in the form of a traffic light system indicating the "access quality" of negotiations, nudging not the consumer (see labels for food items [76]) but the responsible supplier. A red light status might be comparable to the stigma of standing exposed in the "only slightly less convenient" smokers area [77]. Or, without the shaming, comparable to the field experiment of Hallsworth et al. where general practitioners with a "prescribing rate for antibiotics" in the top 20% received a letter informing them "that the practice was prescribing antibiotics at a higher rate than 80%" of their peers [78]. While this "nudge" had a positive effect, the later sent out "patient-focused information that promoted reduced use antibiotic use" (sermon, after re-randomization) hat no effect on antibiotics dispensed [53, 78]. Promising behavioural policy interventions in the context of this study should promote the desired outcomes of reimbursement negotiations: more successful agreements (availability), reached in less negotiation time (time to access), at a cost-effective (value for money) and sustainable (affordability) price level (other outcomes see here [28]).

The starting point for policy reforms, using behavioural science, could indeed be to transfer and adapt behavioural tools from other policy areas. However, there is probably no way around developing specific behavioural tools to solve existing challenges in pharmaceutical pricing. Further experimental research should investigate interventions that shift price agreements closer to stated preferences and increase the number of trades realized towards the number of trades possible. This could stimulate reform efforts in European markets were price agreements are increasingly held confidential and thus can neither be analysed on an actual basis nor be compared to a publicly debated willingness to pay [1, 10, 11, 79, 80].

To judge the usefulness of an experimental approach to inform policy reforms we will briefly discuss at the end two potential limitations regarding external validity: the applicability of the experimental setting (decision situation) and the transferability of the observed behaviour (decision takers) in the experiment to a real world price negotiation. We will however not review the ongoing debate on validity of economic laboratory experiments in general [27, 81–87].

A central prerequisite for a credible applicability is the incentive compatibility of the decision situation. While our survey method was in line with comparable experiments on social preferences in health care [15, 45–50] we cannot rule out that stated preferences in the first games might be biased by certain strategic behaviour as discussed above. However, the optimal price in the offer game is not affected by any strategic behaviour in the first game (only the bonus probability is) and any strategic behaviour in the second game was exactly at the centre of our interest. The experimental payoffs were in line with comparable experiments as well [15, 45–50]. The indirect representation of the patient as receiver by a donation to a cancer patient supporting foundation reduces undeniably the applicability of the design. An implementable and ethically justifiable alternative is to our knowledge not available. The applicability of the setting could be further increased, based on existing experimental evidence. Goal should be to increase its capability to measure generalizable outcome differences, sensitive to relevant (effective, implementable) interventions. External validity of laboratory experiments in general, and social-

preference games in particular might depend to a great extent on a relevant context and avoidance of artificiality [81, 82, 84, 86]. Arlen and Tontrup for example showed in a series of experiments that negotiators "can mute regret by trading through institutions that let them share responsibility with others" [57]. Since negotiators in real world reimbursement negotiations, on the selling and the buying side, usually have to go through approval processes, a shared decision situation in the design could be a promising option to further increase applicability. Another promising and very relevant adjustment to the design could be to vary initial price anchors (different standard of care comparators, or opening offers from the buyer or seller). To understand its potential impact on agreed prices overall [14], but also its potential impact on the share of successful agreements.

The general transferability of the observed behaviour from laboratory participants to actors in the real world is equally important as the applicability of the setting. Main concern is the relevance of specific knowledge and experience for the task, which is expected to differ between mean recruited participants in the experiment versus professional negotiators in the setting of interest.

The impact of trading experience and sophistication on behavioural biases has been studied using data from the laboratory as well as field data from financial market trades, as well as combined data [22, 88–99]. Empirical studies using real market data generally show that experience reduces behavioural biases, but biases remain relevant even for experienced traders [65, 93–100].. Specifically the disposition effect (tendency to sell wining positions too early and holding losing positions too long), linked to regret avoidance, is present in experienced traders as well [93–97, 99–101]. The evidence from the laboratory is largely based on a series of experiments from List et al. who found that experience in trading simple objects reduces reluctance to trade [22, 88–91]. The setting compares the behaviour of untrained versus experienced field traders in trading "pins, sports cards and sports memorabilia" [90]. While the linking of laboratory and field is very interesting, it is unfortunately only in very few, specific markets possible. Further, the simple good transactions analysed lack some very decisive characteristics compared to other markets, which are known to trigger behavioural effects. To name just three, relevant in our case:

i) Higher and changing complexity of product characteristics: Evidence from various experiments has revealed that sellers and buyers in fact do "tend to focus on different aspects of traded goods", which causes exchange gaps [22, 68–73]. This effect is expected to be higher in our market, due to the complexity of actual pharmaceutical therapies and target indications. The characteristics in a real trade situation for sports cards or pins on the other side are likely to be much more comparable and stable, between lab and field, and much more repetitive over recurring negotiations.
ii) Higher uncertainty of product value and trade outcome: Engelmann et al. who replicate and adapt the results of List et al. identify "trade uncertainty" as the relevant driver for exchange asymmetries "which may well be perceived in markets" outside the laboratory [66]. As they argue, "markets may not provide sufficient incentives to explore new strategies that help to overcome exchange asymmetry, hence the asymmetry persists" [66].. According to our opinion (and the first authors own experience from respective reimbursement negotiations on both sides) the subjects of the negotiation as well as the relevant rules of the game itself are often much less constant between each "reimbursement game" than in other markets. Even for a specialized company or regulating agency two consecutive products under negotiation (even in the same therapeutic area) can differ decisively regarding body of evidence (value), relevant comparators (alternative) and price magnitude. New forms of managed entry agreements add even more complexity to this [1, 102, 103]. In parallel, the constant reform efforts in most European countries [5, 104], combined with the growing professionalization of regulating agencies, including internal regulating bodies in the pharmaceutical companies [105], change the rules of the game on a recurring basis.
iii) Irreversibility (lack of tradability). Various experiments have contributed to the better understanding of regret avoidance and "bad-deal aversion" [22, 55–57, 67, 106, 107]. Ratan found in an experiment, where one group of participants could reverse their decision during 24 h, while for the others it was final, no valuation gaps in the group with the option to reconsider, while the other group revealed reluctance to trade [67]. Normally price agreements reached for official reimbursement status are finite and cannot be reviewed for a certain time (or at least not without considerable legal efforts). Both sides face the threat that new, relevant information becomes available after the decision, which could make the quality of the decision and the negotiation success questionable. This might again be different of course in a lot of other markets for simple commodities where prices can be adjusted without governmental approval and "bad deals" bought can be resold.

iv) Moral valence: Some experiments reported results that suggest, that trades triggering "moral responsibility", as well as public goods, induce higher valuation gaps [22, 74, 75, 108, 109]. In the study presented here regulators and sellers reported a different relevance of involved stakeholders for their decision ("regulators rated the patient's relevance for their decision higher and the own role lower compared to sellers", see previous study) [15]. Experienced professionals deal on a daily basis with their responsibility to attach "a price-tag" to life-saving treatments. It is possible, that they refrain much more or fully from a potential morally induced valuation gap. On the other hand, it could just as well be that the different professional environments for buyers and sellers, with selected information provided by differing interests of each principal, lead to different opinions that drive price expectations apart.

Finally it is important to emphasise, that results from laboratory experiments have to be complemented and bridged with non-experimental methods [27, 110]. Compared to the lab-field comparisons in behavioural finance it might to date be inherently more difficult to collect reliable quantitative data on pharmaceutical price negotiations outside the laboratory. There is not only a lack of data on the course of negotiations (e.g. duration from first offer to agreement, number of offers exchanged, etc.) but also of the prices actually negotiated, since these are in most European countries not publicly available [1, 10, 11, 79, 80]. Against this background, observational data collected via expert surveys can serve as promising complement (see Vogler 2018 who provides a comprehensive review and guidance on price surveys in general, including surveys with competent authorities [111], as well as [11, 79, 80].

Conclusions

The incremental value of new pharmaceuticals as well as the willingness to pay for an additional, quality-adjusted life year (QALY) are central in current policy reform debates [1, 5–10, 15]. There is a clear need to comprehend the capacity of "value-based" pricing policies to impact societal goals, like timely access, sustainable health budgets, or incentivizing research to improve patient outcomes [15]. However, not only the pricing methods but also the reimbursement and pricing processes are subject to reform demands in this regard [1, 11–15]. The study presented here aims to enrich the debate from a behavioural perspective. Since "behavioural economic-related phenomena may affect price negotiations" for new pharmaceuticals as they affect professional deciders in other markets [65, 93–100]. The findings show that even if average regulators and sellers could agree based on their stated preferences, a majority of reimbursement negotiations can still fail due to valuation gaps in individual negotiation situations. The societal consequences differ, related to the price magnitude of the therapies. The price level of current new oncology treatments leads to lower patient access, but also lower payer costs, compared to a treatment in a low-price frame.

From a practical behavioural policy perspective, transparent official reporting on negotiation outcome differences on an entity and treatment area level might serve as a nudging policy to address potential behavioural flaws. In addition to transferring behavioural tools from other policy areas, further experimental research should investigate how specific interventions can improve reimbursement negotiation outcomes for new pharmaceuticals. Promising behavioural policy interventions should promote socially desirable outcomes, such as availability, time to access, value for money, affordability and equity.

Supplementary information

Supplementary information accompanies this paper at https://doi.org/10.1186/s13561-020-00267-y.

Additional file 1. Selected screens and payoff details.

Additional file 2. Model and hypotheses.

Abbreviations

100 k$: 100,000 $; H0: Null hypothesis; ICER: Incremental cost-effectiveness ratio; MTurk: Amazon Mechanical Turk; OECD: Organisation for Economic Co-operation and Development; QALY: Quality-adjusted life year; SoC: Standard of care; USD: US Dollar; WTA: Willingness to accept; WTP: Willingness to pay

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Authors' contributions

All of the authors (DWE and SB) fulfilled the authorship criteria and contributed to the study. The first author DWE designed and implemented the study, analysed and interpreted the experimental data and wrote the manuscript. SB supervised, reviewed and contributed to design, implementation, analysis, interpretation and editing of the manuscript. All of the authors are aware of the submission and are in agreement with the manuscript. The author(s) read and approved the final manuscript.

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Availability of data and materials

Experimental instructions and datasets (fully anonymized) analysed during the current study are available in the zenodo repository, https://doi.org/10.5281/zenodo.3575971 upon request.

Ethics approval and consent to participate

Participants had to state an informed consent prior to the experiment. The research design was reviewed by the local ethic committee.

Consent for publication

All authors provided consent for their names to be included for publication.

Competing interests

The first author (DWE) is an external PhD student at the University of Lucerne and was employed at the pharmaceutical company Takeda Pharma AG Switzerland and at the health insurance company Helsana AG while performing this research. Neither the former nor the later employer of the first author nor any other private or public entity supported or influenced this research in any relevant way. The second author (SB) has no conflicts of interest to declare. All of the authors submitted a signed Conflict of Interest disclosure form.

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CHAPTER 5

How value-based policies affect outcomes of pharmaceutical price negotiations

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How value-based policy interventions influence price negotiations for new medicines: An experimental approach and initial evidence

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ABSTRACT

Background: Various forms of value-based pricing policies for new medicines have recently been introduced in OECD countries. While these initiatives are expected to have a positive impact on societal outcomes such as availability, affordability and value for money, scientific evidence on this impact is scarce due to confidential agreements.
Objective: We aimed to assess the impact of value-based policy interventions in price negotiations on patient benefit in an experimental setting.
Methods: An online experiment was conducted (n = 269). Participants were randomly assigned into the active role of either a buyer or seller in two intervention groups (cost-benefit, risk-sharing) and one control group. Decisions had real monetary consequences on other participants and through donations to a patient association.
Results: Patient access, benefit and value for money were higher in the cost-benefit group than in the risk-sharing group. An available alternative to the agreement led to higher price offers. This effect was weaker in the cost-benefit group.
Conclusions: Outcomes of price negotiations on patient benefit depend on the alternatives available for failed or delayed negotiations. A shared but voluntary valuation framework might increase patient access, benefit, and value for money. The cost containment effect of risk-sharing agreements may be offset by the negative impact on overall patient benefit. Further development of the approach could provide support for policy design of pharmaceutical pricing regulations.

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1. Introduction

Over the last two decades, various forms of value-based pricing policies and managed entry agreements for new pharmaceuticals have been introduced in OECD countries [1–7]. While these initiatives are expected to have a positive impact on societal outcomes such as availability (patient access), affordability (budget impact) and value for money, scientific evidence in this regard is still scarce [1–3,5,8–10]. Increasingly confidential price agreements make meaningful empirical analyses difficult [6,11–14]. Similar to the situation for research in other policy areas (financial markets, tax policy, etc.), data from laboratory experiments can complement field data [15–20]. This study assesses the impact of value-based policy interventions in pharmaceutical price negotiations on societal outcomes in an experimental setting.

1.1. Value-based pricing policies

Value-based pricing (VBP) for pharmaceuticals can be understood as authorities' practice of setting the price of a new pharmaceutical product "based on the measured and quantified 'value' [...] that patients and health systems attribute" to it, "usually assessed through health technology assessment (HTA) or economic evaluation" [6,21–23]. However, there is still neither a widely accepted definition for VBP nor a generally accepted definition of value in the context of pharmaceuticals [6,8,21,24]. The main promise of VBP is that it can encourage the creation of value for money and promote access to innovative therapies while reducing costs for therapies with limited added value at the same time [1,12,25]. Implementing it has proven to be challenging with a heterogeneous picture of VBP systems in Europe [6,13,26]. A key challenge is to first establish a value framework, including the definition of value components and how they should contribute to decision making [26–28]. Most countries using HTA apply elements of cost-effectiveness and/or cost-utility analysis, combined with explicit or implicit thresholds [26–31]. However, it remains difficult to deter-

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mine which value components contribute how much to the final agreed reimbursement prices in the currently implemented VBP systems [12,26,27,32–38].

1.2. Managed entry agreements

A major challenge is that the value parameters of new therapies that drive cost-effectiveness or budget impact are often uncertain at market entry [2,4,9,39,40]. A recent study found for the majority of 134 novel cancer therapies approved between 2009 and 2016 in the European Union that the survival benefit for patients was less than three months and the knowledge on clinical benefit at the time of approval was scarce [41]. Against this background, various forms of managed entry agreements (MEAs) have been implemented over the past twenty years in two-thirds of OECD/EU countries [2,3,42,43]. An MEA is "an arrangement between a manufacturer and payer/provider that enables access to (coverage/reimbursement of) a health technology subject to specified conditions" [44]. The term MEA is commonly used to describe the overarching concept, but a variety of other terms are used in the literature, with a majority of them using risk-sharing agreements synonymously to MEA [2,5,43,45,46]. MEAs are expected to address post-licensing uncertainty and facilitate patient access to new treatments [2,4,9,39,45]. Uncertainties addressed relate to clinical and cost-effectiveness, real world utilization and treatment population, as well as budget impact [2,39,43–45]. The various forms of MEA can be divided into financial-based and health-outcome-based agreements [1,2,5,39,43,45,47]. The share of outcome-based agreements is, however, still small [2,3,43,48,49]. Amongst many other factors, the long and complex negotiations are described as one of the challenges of MEAs [1,5,8,9,42,43,45,50–52].

1.3. Reimbursement negotiations

Although pharmaceutical prices are regulated in most OECD countries through public policies [7], this does not imply that the effective prices for new therapies can be conclusively derived from any price mechanism. The pricing of patent-protected, prescription pharmaceuticals is ambiguous for several reasons [12,19,53–59]: First, it takes place mostly in a bilateral monopoly. Second, the product characteristics are complex, often uncertain and promise not only individual but also overall societal benefits, which is a public good. Third, in many countries, the demand side is divided into three (patient, prescribing physician and payer) or even four parties (in countries where the payer is different from the government price setter). This background implies, on the one hand, that the pricing of new therapies relies on the "explicit and implicit allocation of power to set prices", since there is not one but a range of possible prices in a bilateral monopoly where both parties are better off with an agreement than without [12,59–62]. Pharmaceutical companies may thus tactically demand list prices that do not correspond to the value of a product [58,63,64]. On the other hand, both parties have to perform a complex assessment of the benefits and (opportunity) costs of an agreement at a high level of uncertainty [19,58]. Different perceptions of the clinical value by the industry and the price setting authority may be inherent in reimbursement negotiations [58,63,65]. The monopolistic market setting and an "unavoidable uncertainty around value measurement and aggregation" seem to be the reason why prices of mew medicines can only partly be explained by factors such as clinical benefit or population size [32,33,36–38,63,64,66]. Complex reimbursement negotiations may, however, lead to delayed availability of new, lifesaving treatments for patients [1,4,43,45,67–74]. Not surprisingly, the pricing process itself has become the subject of policy reform discussions [1,6,12,13,19,35,75–77].

1.4. Behavioural perspective

In recent decades, behavioural economic heuristics and findings have impacted public policy analysis and implementation in many countries and policy areas, including health care [15,78–84]. While earlier experimental research had a more generic interest in how individuals deviate from neoclassical decision making [79,85–88], more recent experiments shed light on how individuals make health-related decisions that affect patients and third-party payers [19,20,89–96]. Although evidence from laboratory populations has limitations [15,97–103], it has been shown that findings can be reproduced in experienced and professional individuals [91,95,96,104–113]. Laboratory experiments can complement field experiments and nonexperimental research [15–20]. This is particularly promising in our case, as field data on pharmaceutical price negotiations are limited due to confidentiality and country specifics [6,11–14,20]. From a practical perspective, the experiences gained in other policy areas with policies that aim to alter biased behaviour without restricting freedom of choice are of interest [78,83,114–117].

1.5. Objective

The aim of this study is to assess the impact of two value-based policy interventions on the societal outcomes of price negotiations regarding patient benefit. We operationalize two behavioural policy interventions related to VBP and MEA: a voluntary valuation framework (cost-benefit key figure) and a mandatory (outcome-based) risk-sharing scheme. Of interest is the capacity of the two value-based interventions to influence potential behavioural biases of the negotiation setting between buyers and sellers that affect negotiation outcomes.

The study contributes to the growing literature on reimbursement negotiations. First, there is little empirical evidence to date on the societal impact of reimbursement negotiations, which we specifically address in our experimental setting. Second, neither theory nor the manifold applications of behavioural research to political practice have turned their attention to pharmaceutical price regulation in the past [78–84]. The OECD suggests in the field of environmental policy that "policy-makers should be interested in how different bargaining rules and protocols affect behaviour and outcomes" [104]. This could also apply to the pricing of pharmaceuticals, where "several behavioural economic-related phenomena may affect price negotiations […] between pharmaceutical 'buyers' and 'sellers'" [76]. According to our literature review, however, there have been no experimental contributions to date on policy interventions in reimbursement negotiations [8,19,20]. Against this background, we understand our study as a bridge between the discourse of behavioural economics and the reform debate around pharmaceutical pricing policies.

2. Materials and methods

2.1. Design

2.1.1. Design overview

Our design builds on two previous studies in which social preferences in reimbursement negotiations for new pharmaceutical products [19] as well as the impact of negotiations on societal outcomes [20] were investigated. In contrast to the previous experiments, the central interest of the present study lies in the effect of value-based interventions on negotiation outcomes. Moreover, this takes place in situations with uncertain patient benefit. The design is intended to link experimental research with policy reform debates.

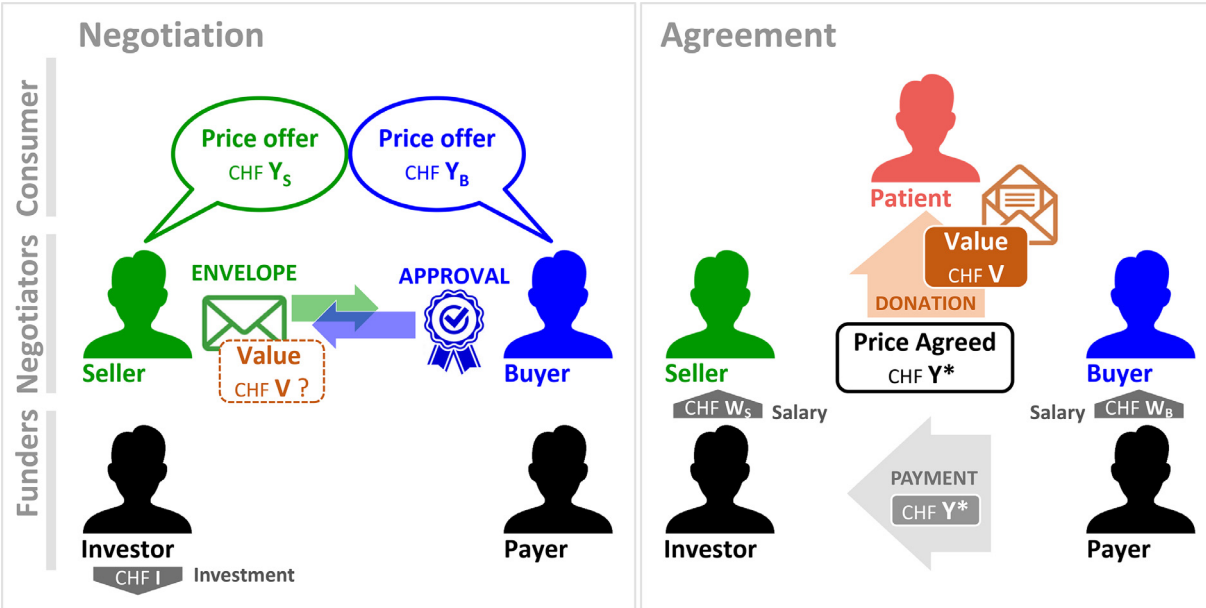

Fig. 1. Experimental setting
v: patient benefit; y_S: selling price offer; y_B: buying price offer; y^*: agreed price (average of both final offers); w_S: salary from investor to seller; w_B: salary from payer to buyer; i: investment costs. CHF: Swiss Francs. During the time the experiment was conducted, one Swiss Franc corresponded on average to 1.05 US Dollars or 0.94 Euro. The envelope represents the uncertain patient benefit, containing a donation to the patient association. In case of an agreement ($y_B \geq y_S$) the patient benefit is revealed, transferred to the patient association and the payer must pay the agreed price (y^*) to the investor. Appendix 1 provides further details on the experimental design. Illustration adapted from [19].

Various factors that influence the outcome of negotiations have been described in the literature. The best documented are the alternative to a negotiated agreement, the first offer effect, anchoring effects in general, and trade-inhibiting valuation gaps, all of which have been studied in the laboratory and in the field [88,118–122]. Our study builds on these findings as follows: Regarding the challenges of VBP, a possible anchoring effect of existing treatment alternatives is of particular interest. This is because the current (standard of) care options are usually a major factor in determining the added value and thus the value-based price of a new treatment option [1,12,26,75,123]. There remains, however, as described above, an inherent room for negotiation in VBP, especially due to uncertain value parameters [12,66]. In the present experiment, negotiators had to decide on the final price offer for a new option to generate patient benefit compared to different existing alternatives. The option to be negotiated was designed in such a way that an improvement in patient benefit could be expected in almost all games, whereby the outcome was uncertain and additionally dependant on the final offer of the negotiating partner.

The general setting (Fig. 1) is based on and influenced by a combination of experimental designs used in the past to assess physicians' treatment decisions on patient benefit [89–96] with a third-party payer [93,94,96], valuation gaps between sellers and buyers [88,124], and health insurance choices under uncertainty [125–128]. For the first part of the experiment, participants were randomly assigned into six groups of equal size (Table 1) to play the active role (negotiator) of either buyer or seller in three different treatment groups (two intervention groups and one control group). For the second part, they were again randomized within their intervention group into the passive role (funder) of either payer or investor.

The participants were introduced to price negotiations in a real opportunity to improve patient benefit. This included information on the monetary consequences of their decisions as well as on the parallels between the experimental setting and real-world price negotiations for new medicines (contextual framing, see details in Appendix 1). They were informed that one of their pricing decisions would be randomly selected for implementation at the end of the experiment and have real consequences not only for themselves but also for other participants (payoffs for payers and investors) and through donations to a cancer patient charity as a proxy for patient benefit. They were also informed that their subsequent role as payer or investor would be independent of their initial role as buyer or seller.

2.1.2. Decision situation

Participants had to sell or buy a sealed envelope with a donation to the patient association of an uncertain amount. The value of the donation (v) was known to lie between CHF 0 and 10 per envelope. The envelope was opened at the end of the experiment to reveal its true value for patients. In each game, sellers received (virtually respectively symbolically) an envelope from their investors. Participants in both roles were told to decide on a price for the envelope (Table 1). In the first game, their maximum willingness to pay (buyers) respectively minimum willingness to accept (sellers) for the envelope was asked, without considering a counteroffer. In the following games 2 to 7, they had to make final price offers to a counterpart for envelopes with the same expected contents. If they agreed on a price ($y_B \geq y_S$), the payer had in consequence to pay the agreed price (y^*, average of both offers) to the investor, and the patient association would receive the as-yet-unknown donation in the envelope (Fig. 1). If no agreement could be reached, the transaction was not executed. In five of the six offer games (games 3 to 7), however, an alternative to the negotiated envelope was available with a known price and patient benefit, which was transacted if the negotiation failed (details see Table A1, Appendix 1). The players were paid a salary for solving the task, which was determined in the second part of the experiment by their principal (payer for the buyer, investor for the seller) depending on the outcome of the negotiation (Fig. 1).

Table 1
Number of subjects randomly assigned to the treatment groups.

Part/stage	Game	Setting	Incentive	Decisions taken by group (and subjects n assigned)					
				Random assignment					
				CONTROL GROUP C		**TREATMENT GROUP A**		**TREATMENT GROUP B**	
Intervention				None		Risk-sharing		Cost-benefit	
First part: active role (negotiator)				Group 1 Buyer	Group 2 Seller	Group 3 Buyer	Group 4 Seller	Group 5 Buyer	Group 6 Seller
Stage 1: reservation price (x)	Game 1	Autonomous	Fixed salary	WTP (60)	WTA (60)	WTP (62)	WTA (63)	WTP (62)	WTA (60)
Stage 2: price offers (y)	Game 2 to 7	Interactive	Salary from principal	Offer (60)	Offer (60)	Offer (62)	Offer (63)	Offer (62)	Offer (60)
				New random assignment		*New random assignment*		*New random assignment*	
				CONTROL GROUP C		**TREATMENT GROUP A**		**TREATMENT GROUP B**	
Second part: passive role (funder)				Group 7 Payer	Group 8 Investor	Group 9 Payer	Group 10 Investor	Group 11 Payer	Group 12 Investor
Stage 3: salary for agent (w)	Game 8	Autonomous	Final game capital	Salary (60)	Salary (60)	Salary (62)	Salary (63)	Salary (61)	Salary (61)

WTP: willingness to pay; WTA: willingness to accept. Appendix 1 provides further details on the experimental design.

2.1.3. Interventions

Treatment group A (risk-sharing, RS): In addition to an agreement on price, the negotiators in this group also had to agree on a minimum of the resulting patient benefit (unknown donation). The seller's promised minimum had to be equal to or higher than the minimum requested by the buyer. If the negotiating parties could not agree on a common minimum despite agreeing on the price, the negotiation failed. If the negotiation was successful but the final donation for the patient turned out to be below the agreed minimum benefit, the agreed price was cut in half. This scheme was implemented to simulate a simplified version of a risk-sharing agreement in real-world reimbursement negotiations. It allowed for the anticipation of reduced revenue or cost and related compensation via higher prices, as is expected for the real-world setting, where performance at the population level should rarely be zero [5,12,129,130]. A recent study found for Sweden that refunds of implemented MEAs were overall approximately 50% of total sales [39].

Treatment group B (cost-benefit, CB): Players were introduced to the (simplified) concept of the "cost-effectiveness ratio", i.e., the ratio between the offered (or agreed) price and the expected (or final) effect for the patient. The term and concept of "cost-effectiveness" was used in the experiment due to its reference to corresponding policy instruments in real world. Since the patient benefit was monetised, "cost-benefit" is used for the analysis and interpretation of the results. For each decision, in addition to the price (y), negotiators had to enter an estimate of the donation (v) in the closed envelope. The cost-benefit of their pricing decision (y/v) was automatically calculated and shown for each price-benefit pair. It was up to the participants to decide whether to take this additional information into account in their decision.

2.2. Basic assumptions and hypotheses

The basic assumptions regarding the behaviour of the participants are based on the behaviour model described in Appendix 2. The model is supported by robust experimental evidence showing that "individuals take into account the welfare of all parties" and that "non-selfish preferences are the rule rather than the exception" [20,94,131–135]. Rational buyers or sellers will maximize their social utility considering the utility of all involved stakeholders, including their own salary as well as the patient's, the payer's, and the investor's utility, with a respective weighting. They further prefer an agreement, expect the same for their counterpart and state price offers which allow an agreement. Hence, mean negotiators can agree on a price with a buying price offer (y_B) equal to or higher than the selling offer (y_S) (Null hypothesis 1). Further, the available alternative (y_0, v_0) to an agreement has no impact on the price offer y (Null hypothesis 2a). This could change for the last two offer games, where players might prefer the available alternative due to its expected higher return for the investor (see Table A1). Or in the last offer game, where the expected patient benefit is higher for failed negotiations. If the alternative affects the price offer (hypothesis 2a rejected), the effect does not differ between treatment groups (Null hypothesis 2b). Since neither role needs to adjust its price offer due to the two interventions, based on the assumptions and payoff design.

The negotiation outcomes of interest are reimbursement prices (y') and patient benefit (v'). The underlying model implies that these do not differ between treatment groups (Null hypotheses 3a and 3b). By comparing the reimbursement price with the expected patient benefit, we obtain the cost-benefit ratio (y'/v') of successful negotiations. The reciprocal value (v'/y') can be interpreted as "value for money" representing the donation for the patient association per 1 CHF transferred from the payer to the investor. The mean value for money does not differ between treatment groups (Null hypothesis 3c).

2.3. Statistical analysis

First the potential for price agreements (hypothesis 1) and the impact of the available alternative (hypothesis 2) were tested by analysing stated price offers (*t*-tests, Mann-Whitney *U*-test and hierarchical linear regression). In a second step, participants and their offers were randomly matched into pairs to determine and analyse negotiation outcomes (hypothesis 3). The random pairing was repeated for a representative sample of variations (hypothesis was rejected if a majority of >50% of variations were significant using *t*-tests and *U*-tests). Appendix 3 provides details on the statistical methods.

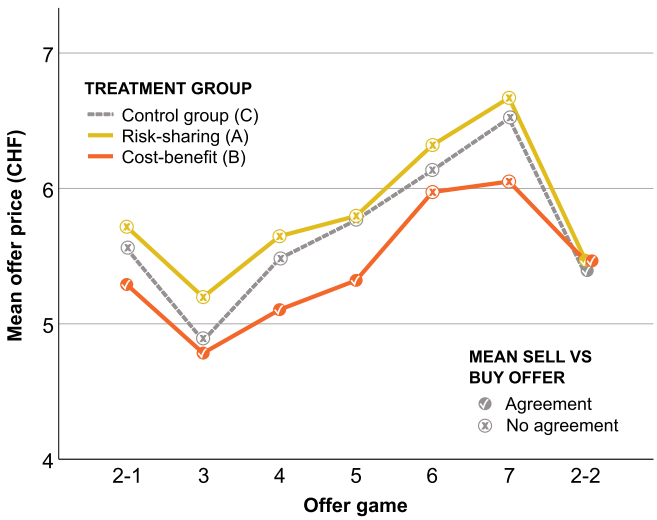

Fig. 2. Price offers: potential for negotiation success and impact of the available alternative
$n = 269$ met the inclusion criteria (Appendix 3) with $n = 87$ for treatment group A (risk-sharing), $n = 86$ for treatment group B (cost-benefit) and $n = 97$ for treatment group C (control group). Games marked with "**x**": mean buyers' price offer significantly lower than mean sellers' price offer ($y_B<y_S$ with $p<0.01$, except game 3 in group A with $p<0.05$); hence, no trade was possible between mean negotiators with no patient access to negotiated option (see details in Figure A38, Appendix 4). Games marked with a tick ("✓"): agreement possible with $y_B \geq y_S$ ($p>0.05$). Differences were examined using both *t*-test and Mann-Whitney *U*-test for independent samples. The significance results presented were identical for both tests. In game 2 no alternative was available if the negotiation failed (played twice). In game 3 to 7 an alternative was available with (patient benefit v_0 / price y_0): CHF 1/3, 2/5, 3/6, 4/7, 6/8. See Table A1, Appendix 1 for parameters per game. CHF: Swiss Francs.

2.4. Study population

The online experiment ($n = 367$) was conducted with Swiss university students recruited over the Registration center for Study Participants of the University of Zurich and the Swiss Federal Institute of Technology in Zurich. Appendix 1 provides details on the experimental protocol including an overview over all games played (Table A1).

3. Results

3.1. Potential for negotiation success (patient access)

Looking at groups overall first, the average negotiators in the risk-sharing and control groups were only able to reach agreement in the negotiation without an alternative ($y_B \geq y_S$ not rejected with $p>0.05$ in game 2, round 2, $y_B<y_S$ in all other games with $p<0.01$, RS game 3 $p<0.05$, Fig. 2). In contrast, the offers of the negotiators in the cost-benefit group allowed an agreement in all offer games, apart from the last two with an alternative (null hypothesis 1 rejected with $y_B<y_S$ at $p<0.01$, all other games $y_B \geq y_S$ with $p>0.05$).

3.2. Impact of the available alternative (comparator)

The available alternative to an agreement had a significant influence on the negotiators' price offer (null hypothesis 2a rejected, Fig. 2). The value for money of the alternative positively affected the offers ($p<0.01$, regression model 1, Table A7, Appendix 4). Similarly, the expected incremental patient benefit or additional cost of the negotiated option had a negative impact on the offers ($p<0.01$, model 2 and 3). This effect differed between treatment groups, as indicated by a lower sensitivity to the available alternative in the cost-benefit group (null hypothesis 2b rejected at $p<0.05$). The regression model with the alternative value for money as predictor had the highest predictive power (Appendix 4).

3.3. Negotiation outcomes

Expected reimbursement prices (y') were lower on average in the risk-sharing group than in the control group (null hypothesis 3a rejected with $\bar{y}'_{Control} > \bar{y}'_{RS}$ at $p<0.05$, Fig. 3). The other price differences were not significant ($p>0.05$). The expected patient benefit (v') was higher in the cost-benefit and control group than in the risk-sharing group (null hypothesis 3b rejected with $\bar{v}'_{CB} > \bar{v}'_{RS}$ at $p<0.05$, $\bar{v}'_{Control} > \bar{v}'_{RS}$ with $p<0.05$). Differences between the cost-benefit and control groups were not significant ($p>0.05$). The value for money (v'/y') was higher in the cost-benefit group than in the risk-sharing group ($p<0.05$). The other differences were not significant ($p>0.05$). Finally, the overall realised value for money was also significantly lower in all groups than implicitly preferred in the reservation price game ($p<0.01$, Appendix 4).

4. Discussion

To evaluate the results, it is necessary to define a "desirable" outcome from a societal perspective. In the presented experiment, it was – in contrast to the real world – possible to analyse all care options and the entire benefit distribution. For this reason, an overall cost-benefit analysis is appropriate. The introduced indicator of the overall value for money (as an inverse of the cost-benefit ratio) represents a neutral measure for assessing the outcome of negotiations from a societal perspective. It considers the distribution of the monetarized value to all actors involved. Neither intervention nor any of the alternatives available should tempt rational negotiators to reduce value for money. Consequently, the effectiveness of a policy intervention can be measured by its impact on value for money.

In summary, the results of the experiment show that both the available alternatives in terms of patient benefits and the value-based interventions influence the success (patient access) and value for money of price negotiations. This is an important finding, as both public authorities and the pharmaceutical industry expect value-based pricing to improve access to innovative therapies accompanied by improved value for money (to incentivize sustainable, effective R&D) [1,12,13,25,75,136,137]. At the same time, they express concerns about timely access to essential new therapies for patients [1,4,12,68,72–75,138,139].

In the experiment negotiators in all groups adjusted their price offers in reaction to an available alternative, while this effect was less strong in the cost-benefit group. Based on existing evidence from economic experiments, the reason for the effect might be that the alternative served as a (biasing) anchor for the pricing decision, as has been found in other studies and is discussed for initial price offers for pharmaceuticals [75,76,87,88,104,140–142]. The impact of the policy interventions can also be linked to available evidence. Various economic experiments have shown that sellers and buyers "tend to focus on different aspects of traded goods", which can lead to gaps between price offers [20,88,143–148]. The decision situation in the experiment, like pharmaceutical price negotiations in the real world, has a much higher complexity than other trade interactions [20]. This might further increase biases due to regret avoidance ("bad-deal aversion") [88,149–154] and trade uncertainty in general [66,67]. However, existing evidence also shows that participants in experiments show efficiency concerns and use heuristics to make decisions [93,126,133,155]. In this regard, the cost-benefit concept might help negotiators reduce the complexity of the decision situation and align their decisions in opposite roles towards a shared key figure. In addition, negotiators

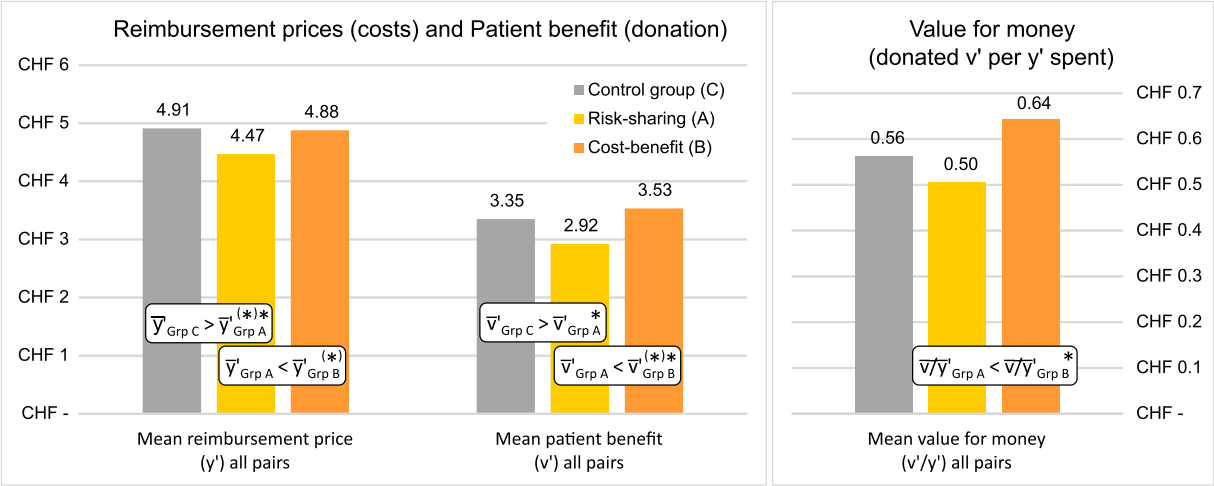

Fig. 3. Negotiation outcomes: mean of means over all pairing variations
** Difference between treatment groups significant at $p<0.01$ for the majority of variations (>50%),
* Difference between treatment groups significant at $p<0.05$ for the majority of variations (>50%),
(*) Significance level different between *t*-test and *U*-test. Differences were examined using both *t*-test and Mann-Whitney *U*-test for independent samples. The significance results presented were identical for both tests, except for reimbursement prices between group A and C ($p<0.01$ with *t*-test, $p<0.05$ with *U*-test), reimbursement prices between group A and B ($p<0.05$ with *t*-test, $p>0.05$ with *U*-test) and patient benefit between group A and B ($p<0.01$ with *t*-test, $p<0.05$ with *U*-test). Grp A: risk-sharing group (RS), Grp B: cost-benefit group (CB), Grp C: control group (Control). Detailed results see Table A8 and Table A9, Appendix 4. Amounts displayed are in Swiss Francs (CHF).

might "be more concessionary" due to a "positively framed" value-based key figure [131]. Apart from the latter, the shared concept could thus not only help to increase the success rate (role-related effect) but also shift the focus from the comparator's nominal price towards the value-based key figure and therefore reduce potential anchoring effects.

The introduction of a mandatory risk-sharing scheme (RSA) might have the opposite effect. The much higher decision complexity, combined with the need to consider a ("negative") default risk rather than a ("positive") value-based key figure, might increase the biasing impact of trade uncertainty and regret avoidance. RSA could still be of interest to payers for cost containment if uncertainty about the incremental real-world benefit of a new therapy is high. The risk-sharing group in our experiment realized lower reimbursement costs for the population overall. However, these agreements come at a "price": the negative impact on overall patient benefit seems to outweigh the positive cost containment effect, which leads to a lower overall value for money. Even if clear performance criteria are verifiable and enforceable (which is often difficult in practical applications), an improved cost-benefit does not seem guaranteed due to negative behavioural effects. The result differs from previous analyses that ignored price negotiation and negotiation success, impacting access [9,156]. They confirm earlier theoretical considerations that welfare is reduced when prices are negotiated in the presence of (rather than before) a risk-sharing regulation or, generally, when costs are low for over-treated patients [129,157]. However, this by no means implies that financial schemes should be preferred over health outcome-based schemes. On the contrary, coverage with evidence development (CED) might have a positive impact on value for money in the long-run whenever patient benefit is subject to a high level of uncertainty. If combined with value-based price reviews at regular intervals CED could ensure that comparators (anchors) for future therapy options are up-to-date and not overstated. *Re*-evaluation of VBP decisions and their evidence as recommended by WHO, could address concerns that current MEAs might lead to higher list prices while not sufficiently incentivising manufacturers to collect relevant evidence [22,130,158].

What should decision-makers on the side of the authorities (payers) and the pharmaceutical industry do, assuming that the strategic goals of their organisations are really geared towards improving patient access and value for money (and not just on profit or budget impact)? They should facilitate negotiations in which agents focus on price offers based on a common valuation framework. Internal price guidelines should be stated relative to the incremental value, rather than just anchoring nominal target prices. To approximate divergent value assumptions in price negotiations, regulators together with the industry should aim at a common value framework with extended value components (e.g., considering reduction of uncertainty, severity of disease, etc.), in line with recent proposals [28,159–161].

Limitations

Finally, some methodological remarks, summarising the considerations in our previous studies [19,20]. Findings from behavioural economics have led to manifold applications in public polices in general and health care in recent decades [15,78–84]. However, the debate on the validity of economic laboratory experiments is still on-going [15,97–103]. Methodological concerns can relate to the applicability (decision situation) or transferability (behaviour of agents) of experimental findings to real-life situations [20]. There are differences between negotiation settings, as well as between negotiators' skills (students versus professionals). Nevertheless, we consider the new approach and the initial results to be relevant for further research in the regulation of pharmaceutical price negotiations: On the one hand, empirical studies have addressed the influence of experience in experiments. For example, in financial markets, laboratory and field experiments have investigated differences between inexperienced and experienced traders, showing that experience can reduce behavioural bias, while distortions remain relevant amongst experienced traders [20,104–112]. This has also been shown for bounded rationality and distributional preferences in experiments comparing physician and student populations [15,91,95,96,113]. On the other hand, the observed role-related differences and anchoring effects are likely linked to trade uncertain-

ties and related anticipated regrets, which cannot be fully eliminated by market experience [149–152,162], at least not in markets where both the objects of negotiation and the relevant rules of the game are complex and less stable compared to repetitive transactions of simple goods [19,20].

Finally, it must be noted that the decision situation of the present experiment involved more complexity than in other laboratory experiments. This complexity of the decision situation considering different parties and an uncertain product value was necessary for the transfer to the real-world setting. However, follow-up experiments are necessary to determine more precisely the factors influencing the observed behaviour. To understand whether the behaviour is consistent with assumptions and instructions (internal validity) and transferable to the real-world decision situation (external validity).

5. Conclusions

Value-based pricing for new medicines is expected to improve patient access and value for money. However, outcomes of value-based price negotiations depend on the alternatives available for failed or delayed negotiations. The use of a shared, voluntary valuation framework seems to have a mitigating effect on offer gaps and anchoring effects of comparators. This can increase the overall value for money as well as patient access and benefit. Mandatory performance-linked agreements come at a price: the positive cost containment effect could be outweighed by the negative impact on overall patient benefit with a lower value for money from the population's point of view. From a behavioural perspective, reimbursement negotiations should focus on value-based price offers rather than performance conditions. To "manage the entry" of new therapy options with uncertain incremental real-world benefit, price agreements should include mandatory evidence development combined with predefined value-based price reviews rather than performance-linked guarantees.

Empirical evidence on the societal impact of pricing policies for new patent-protected medicines is very limited [8]. This not only because it is difficult to account for country-specific characteristics, other parallel policy measures, economic and technological developments, etc. [8] But above all, because in many countries the prices for new, innovative medicines are agreed confidentially [6,11–14]. Against this background, laboratory experiments are a promising complement to expert surveys in the field (see e.g. [11,13,14,163]) and offer the possibility to test policy interventions in the sense of a "wind tunnel" under controlled conditions [15,164,165]. The new approach presented can thus make an important contribution to policy research related to ongoing reforms of pharmaceutical pricing policies.

Funding

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Ethical approval and consent to participate

The research design was submitted to the national database BASEC (Business Administration System for Ethics Committees) of swissethics (Swiss Ethics Committees on research involving humans) before the implementation of the experiment. The local ethics commission of the Canton of Zurich reviewed the application and confirmed that the project does not fall within the scope of the Swiss Human Research Act (HRA) and therefore no authorization was required. Participants had to state their informed consent (electronically) prior to the experiment.

Declaration of Competing Interest

The first author is external PhD student at the University of Lucerne and employed at the health insurance company Helsana Versicherungen AG. The employer did not support or influence this research in any relevant way. The second author has no conflicts of interest to declare.

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Supplementary materials

Supplementary material (Appendices 1 to 4) associated with this article can be found, in the online version, at doi:10.1016/j.healthpol.2021.12.007.

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APPENDICES

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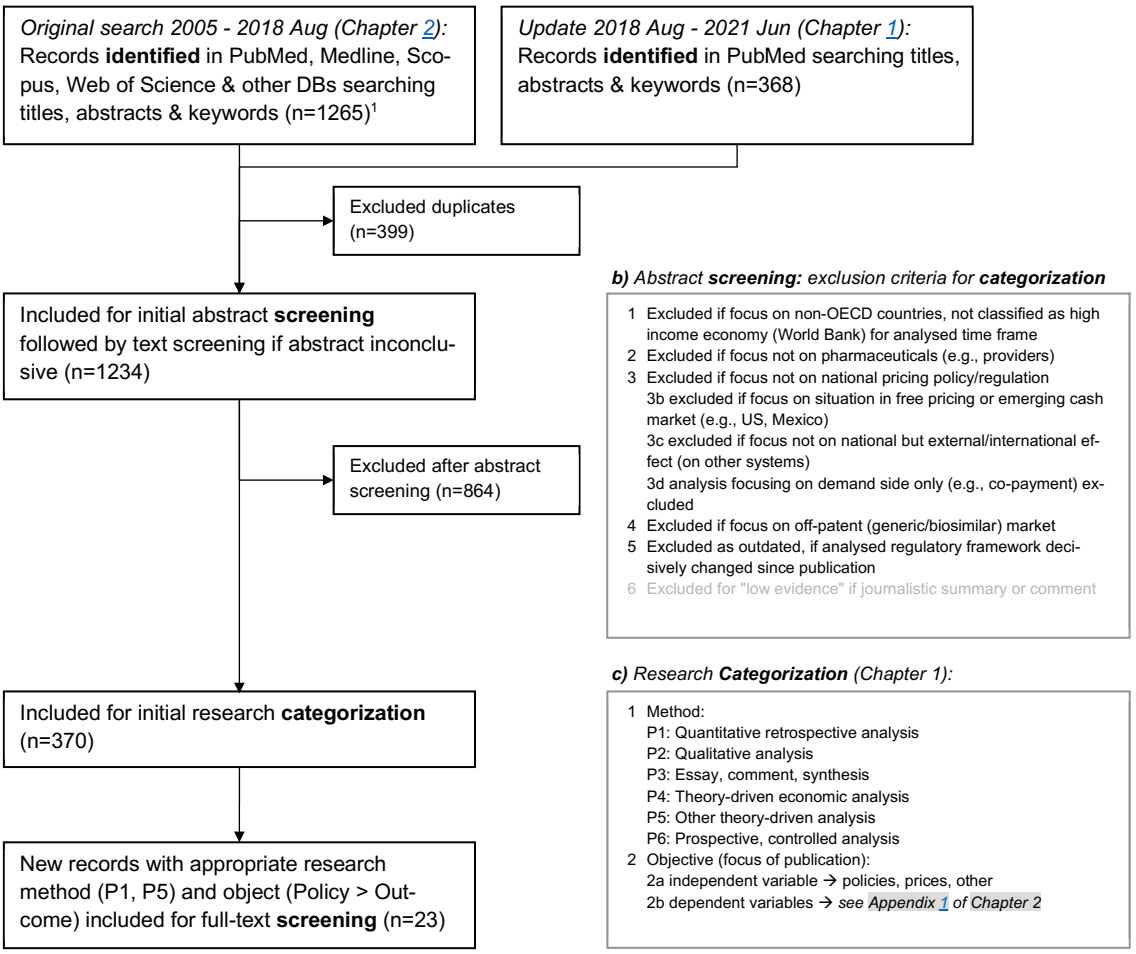
CHAPTER 1: Appendix 1 – overview literature review on pharmaceutical pricing policies

The original systematic literature review is described in Chapter 2. For Chapter 1 the literature review was updated as follows: a) identification (electronic database: PubMed, keywords: see Table A1), b) abstract screening (in difference to original research, essayistic contributions included as well, see Table A2), c) research categorization (based on abstract, full text if abstract inconclusive, categories adjusted for broader overview, see Figure 2 and Table A3). d) Assessment of risk of bias and e) qualitative synthesis were not updated. Figure A1 shows the updated PRISMA study flow [325].

Figure A1: Literature review on pricing policies, study flow (PRISMA diagram)



1: 4 studies were added manually because they were cited by at least one of the included systematic reviews. DB: databases; Figure adjusted from Wettstein & Boes 2019 [1].

Table A1: Literature review on pricing policies, search strategy
(last update only, as per 4 July 2021)

Database	Time frame and key words	Results
PubMed	2018/08/28:2021/07/01[Date Publication] AND (("pharmaceutical"[Title/Abstract] OR "pharmaceuticals"[Title/Abstract] OR "medicine"[Title/Abstract] OR "medicines"[Title/Abstract]) AND ("pricing"[Title/Abstract] OR "prices"[Title/Abstract] OR "price"[Title/Abstract]) AND ("policies"[Title/Abstract] OR "policy"[Title/Abstract] OR "regulation"[Title/Abstract] OR "negotiation"[Title/Abstract] OR "negotiations"[Title/Abstract] OR "risk sharing"[Title/Abstract] OR "managed entry"[Title/Abstract]))) NOT ("generics"[Title/Abstract] OR "generic"[Title/Abstract])	368

Details on the search strategy of the original literature review are provided in Chapter 2.2 and its Appendix 1.

Table A2: Literature review on pricing policies, results abstract screening

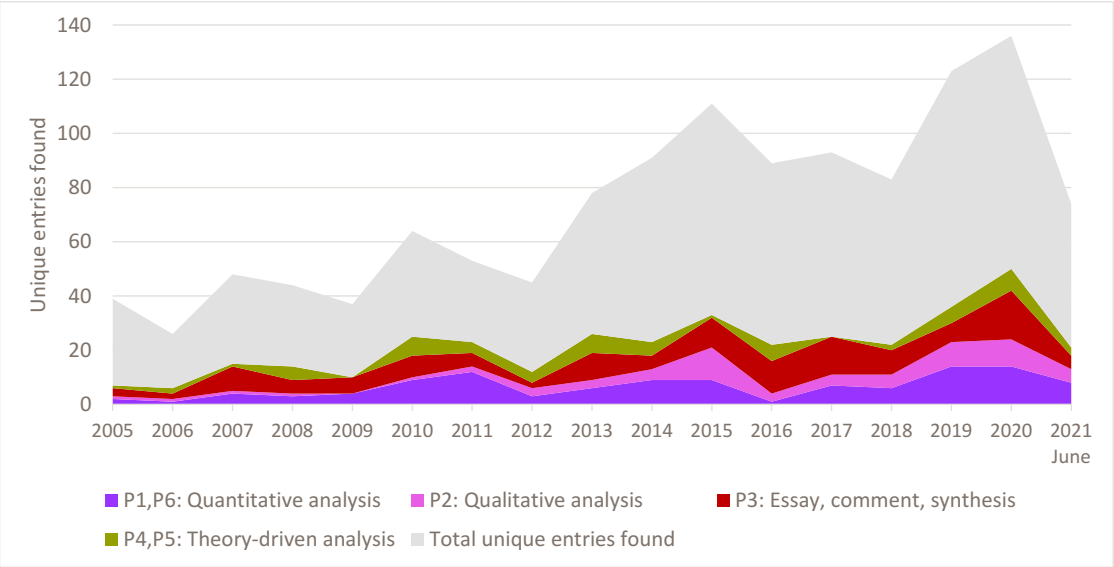
Searches	Records found	Duplicates	**Included for abstract screening**	1: Not OECD / high income	2: Not Pharma	3: No public P&R Policy	4: Off-Patent	5: Outdated	*6: evidence*	7: Other exclusions	***Excluded***	**Included for research categorization**
First searches (2017)	**1028**	*322*	**706**	147	21	210	70	9	*0*	36	***493***	**213**
Updates (2018, 2021)	**605**	*77*	**528**	134	20	187	29	0	*0*	1	***371***	**157**
Overall	**1633**	*399*	**1234**	**281**	**41**	**397**	**99**	**9**	***0***	**37**	***864***	**370**
				Sequential test (only one criterion possible)								

Details on the abstract screening results of the original literature review are provided in Chapter 2.2 and its Appendices 1 and 2.

Table A3: Literature review on pricing policies, results research categorization

Focus of publication		Method category							
		P1: Quantitative retrospective analysis	**P2: Qualitative analysis**	**P3: Essay, comment, synthesis**	**P4: Theory-driven economic analysis**	**P5: Other theory-driven analysis**	**P6: Prospective, controlled analysis**	**Total**	*in percent*
Policies	Policy (descriptive)	16	36	106	21			179	
	Policy > Access*	8	3	2				13	
	Policy > Behaviour		3		3	1	2	9	
	Policy > diverse	10	4		3			17	
	Policy > Equity				1			1	
	Policy > Expenditures	8	2	1	4			15	
	Policy > Health outcome				1			1	
	Policy > Invest (R&D)	5	1	5	7			18	
	Policy > other			1				1	
	Policy > Prices	28	4	2	9			43	
	Policy > Usage**	1						1	
	Policy > Usage** & Exp	3						3	
	Policy > Welfare***	2			9			11	
	Policy process (other)	1						1	
		82	**53**	**117**	**58**	**1**	**2**	**313**	*85%*
Prices		**21**	**7**	**9**	**3**			**40**	*11%*
Other		**7**	**5**	**5**				**17**	*5%*
Total		**110**	**65**	**131**	**61**	**1**	**2**	**370**	*100%*
in percent		*30%*	*18%*	*35%*	*16%*	*0%*	*1%*	*100%*	

Figure A2: Historical development of the published literature on pharmaceutical pricing policies



Based on the literature review performed, described in this Appendix 1.

Table A4: Literature review on pricing policies, retrieved records

See following pages.

Duplicates in original search (2016) already removed. Table adjusted from Wettstein & Boes 2019 [1].

					b) Abstract screening							c) Research categorization							
SEARCHNR	SEARCH_Date	Db	EXCL_double_1st_update	EXCL_double_2nd_update	INCL_1	EXCL_non_OECD_In-inc	EXCL_non_Pharma	EXCL_non_public_P&R_Policy	EXCL_off-Pat_Gx	EXCL_outdated	EXCL_evidence	EXCL_other	INCL_THESIS	Conclusions	Method category	ID	Title	Author (sorted, Updates separate)	Details	Date	PublDate	PublYear
10	20160828	OECD iLibrary			y								y	Policy (descriptive)	P2: Qualitative analysis		Pharmaceutical Pricing Policies in a Global Market	(OECD)	OECD	create date:2011	2011	2011
2	20172131	Scopus			y		y						n				Erratum: Perceptions of general practitioners towards pharmaceutical price war and assessment medicines price variation among general practitioner	[No author name available]	Journal of Medical Marketing			2015
2	20172131	Scopus			y								y	Policy (descriptive)	P3: Essay, comment, synthesis		EU judges overturns Rx price fixing: Foreign consignors must not abide by the Pharmaceutical Price Ordinance [Das eugh-urteil: Eu-Richter kippen Rx-Pr	[No author name available]	Deutsche Apotheker Zeitung			2016
2	20172131	Scopus			y					y			n				Few regulations in pharmaceutical pricing [Per il prezzo dei farmaci poche regole da seguire]	[No author name available]	Giornale del Farmacista			2007
2	20172131	Scopus			y							y	n				More and more drugs under the Pharmaceutical Prices Act (WGP) [Steeds meer geneesmiddelen onder de WGP]	[No author name available]	Pharmaceutisch Weekblad			2010
4	20160828	pubmed			y			y					n			15672563	Commerce: Market-set drug prices abroad wouldn't cut U.S. prices.	[No authors listed]	Med Health. 2005 Jan 10;59(1):1-2. No abstract available.	create date:2005/01/28	28.01.2005	2005
4	20160828	pubmed			y							na	n			16110523	AIDS activists decry steady hikes in HIV drug prices.	[No authors listed]	AIDS Policy Law. 2005 Jul 29;20(14):1, 4. No abstract available.	create date:2005/08/20	20.08.2005	2005
4	20160828	pubmed			y							na	n			16158504	National foundation: AIDS drug prices still too high for poor.	[No authors listed]	AIDS Policy Law. 2005 Aug 26;20(16):5. No abstract available.	create date:2005/09/15	15.09.2005	2005
4	20160828	pubmed			y			y					n			16240494	Medicare should bargain for lower drug prices, study says.	[No authors listed]	Med Health. 2005 Oct 10;59(36):1, 3, 7. No abstract available.	create date:2005/10/22	22.10.2005	2005
4	20160828	pubmed			y							y	n			16250202	Managed care payments, drug prices ripe for savings efforts.	[No authors listed]	Med Health. 2005 Oct 17;59(37):2, 7. No abstract available.	create date:2005/10/28	28.10.2005	2005
4	20160828	pubmed			y							y	n			16365977	Australia: new free trade agreement with US targets drug prices.	[No authors listed]	HIV AIDS Policy Law Rev. 2005 Aug;10(2):36, 38. No abstract avai	create date:2005/12/22	22.12.2005	2005
4	20160828	pubmed			y				y				n			19127766	A few specialty drug prices fall--all generics.	[No authors listed]	Manag Care. 2008 Dec;17(12):46. No abstract available.	create date:2009/01/09	09.01.2009	2009
4	20160828	pubmed			y			y					n			20355274	How insurers' bargaining power affects drug prices in Medicare Part D.	[No authors listed]	Natl Bur Econ Res Bull Aging Health. 2009;(4):1-2. No abstract ava	create date:2009/01/01	01.01.2009	2009
4	20160828	pubmed			y			y					n			20446567	Drug prices on the rise as coverage gap looms.	[No authors listed]	Manag Care. 2010 Apr;19(4):55. No abstract available.	create date:2010/05/08	08.05.2010	2010
4	20160828	pubmed			y			y					n			26417639	Discounted drug prices for hospitals: result in prescriptions for expensive drugs in the community.	[No authors listed]	Prescrire Int. 2015 Sep;24(163):223.	create date:2015/09/30	30.09.2015	2015
4	20160828	pubmed			y								y	*Prices > Invest (R&D)*	P3: Essay, comment, synthesis	26594733	Exorbitant drug prices harm research.	[No authors listed]	Prescrire Int. 2015 Oct;24(164):251. No abstract available.	create date:2015/11/26	26.11.2015	2015
4	20160828	pubmed			y							y	n			26887181	A Campaign to Cut Drug Prices.	[No authors listed]	Sci Am. 2016 Jan;314(1):10. No abstract available.	create date:2016/02/19	19.02.2016	2016
4	20160828	pubmed			y							y	n			27459753	Is There a Cure for High Drug Prices? A Special Investigation From Consumer Reports Best Buy Drugs.	[No authors listed]	Consum Rep. 2016 Aug;81(8):52-60. No abstract available.	create date:2016/07/28	28.07.2016	2016
7	20160828	pubmed			y			y					n			25272635	[Chapter 1. A contemporary history of the Japanese pharmaceutical industry (1980-2010). A contemporary history of the Japanese Pharmaceutical Ind	[No authors listed]	Yakushigaku Zasshi. 2014;49(1):18-38. Japanese.	create date:2014/10/03	03.10.2014	2014
2	20160828	pubmed			y								y	Policy (descriptive)	P3: Essay, comment, synthesis	18179656	Better pharmaceutical price comparison studies are needed for meaningful evaluation of price-control policies.	[Schaffer et al]	Value Health. 2008 Jan-Feb;11(1):129-30. doi: 10.1111/j.1524-473	create date:2008/01/09	09.01.2008	2008
2	20160828	pubmed			y						Double, Up		n			16625648	Pharmaceutical policies: effects of reference pricing, other pricing, and purchasing policies.	Aaserud M, Dahlgren AT, KÃ¶sters JP, Oxman A	Cochrane Database Syst Rev. 2006 Apr 19;(2):CD005979. Review.	create date:2006/04/21 | fi	21.04.2006	2006
2	20172131	Scopus			y			y					n				The cost of US pharmaceutical price regulation: A financial simulation model of R&D decisions	Abbott T.A. Vernon J.A.	Managerial and Decision Economics			2007
2	20160828	pubmed			y								y	Policy > diverse	P1: Quantitative retrospective analysis	25318966	Pharmaceutical policies: effects of reference pricing, other pricing, and purchasing policies (Review)	Acosta A, Giapponi A, Aaserud M, Vietto V, Aus	Cochrane Database Syst Rev. 2014 Oct 16;(10):CD005979. doi: 10	create date:2014/10/17 | fi	17.10.2014	2014
2	20172131	WebOfScience			y								y	Policy > Prices	P1: Quantitative retrospective analysis		IMPACT OF AMNOG ON PHARMACEUTICAL PRICING TRENDS IN GERMANY	Aggarwal, S	VALUE HEALTH. 2			2011
7	20160828	pubmed			y	y							n			25710043	Drug pricing policies in one of the largest drug manufacturing nations in the world: Are affordability and access a cause for concern?	Ahmad A, Khan MU, Patel I.	J Res Pharm Pract. 2015 Jan-Mar;4(1):1-3. doi: 10.4103/2279-042	create date:2015/02/25 | fi	25.02.2015	2015
1	20160827	medline			y	y							n			19150741	Extension of market exclusivity and its impact on the accessibility to essential medicines, and drug expense in Thailand: analysis of the effect of TRIPs-PI	Akaleephan C, Wibulpolprasert S, Sakulbumrungsil R, Luangruangrong P, Jitraknathee A, Aeksaengsri A, Udomaksa	create date:2009/01/20 | fi	20.01.2009	2009
5	20160828	pubmed			y			y					n			22749874	Strategic funding priorities in the pharmaceutical sciences allied to Quality by Design (QbD) and Process Analytical Technology (PAT).	Aksu B, De Beer T, Folestad S, Ketolainen J, Lind	Eur J Pharm Sci. 2012 Sep 29;47(2):402-5. doi: 10.1016/j.ejps.2012	create date:2012/07/04 | fi	04.07.2012	2012
2	20172131	WebOfScience			y	y							n				EXTERNAL VERSUS INTERNAL REFERENCE PRICING: STRATEGIES FOR PHARMACEUTICAL PRICING IN THE ARAB GULF STATES	Al Suwaidi, AS	VALUE HEALTH. 2			2016
4	20160828	pubmed			y			y					n			27423978	The state and consequences of dermatology drug prices in the United States.	Albrecht J, Lebwohl M, Asgari MM, Bennett DE	J Am Acad Dermatol. 2016 Sep;75(3):603-5. doi: 10.1016/j.jaad.20	create date:2016/07/18 | fi	18.07.2016	2016
2	20172131	Scopus			y	y							n				Pharmaceutical pricing in Ethiopia	Ali E.E. Gilani A.-H. Gedif T.	Pharmaceutical Prices in the 21st Century			2015
4	20160828	pubmed			y	y							n			23057369	Controlling medicine prices in Sudan: the challenge of the recently established medicines regulatory authority.	Ali GK, Yahia Y.	East Mediterr Health J. 2012 Aug;18(8):811-20.	create date:2012/10/13 | fi	13.10.2012	2012
1	20160827	medline			y			y					n			21839893	Chronic hepatitis B treatment: the cost-effectiveness of interferon compared to lamivudine.	Almeida AM, da Silva AL, Cherchiglia ML, Andrade EI, de Oliveira GL, Acurcio Fde A.	create date:2011/08/24 | fi	24.08.2011	2011
1	20160827	medline			y			y					n			23503535	[Cost-effectiveness of nucleoside/nucleotide analogues in chronic hepatitis B].	Almeida AM1, Silva AL, Brandão CM, Cherchiglia ML, Andrade EI, Araújo de Oliveira GL, Carmo RA, Acurcio Fde A.	create date:2012	2012	2012
8	20160828	pubmed			y	y							n			19900605	[Stopping the use of unused drugs for humanitarian purposes: Stakes and perspectives].	Aloy B, Siranyan V, Dussart C.	Ann Pharm Fr. 2009 Nov;67(6):414-8. doi: 10.1016/j.pharma.2009	create date:2009/11/11 | fi	11.11.2009	2009
5	20160828	pubmed			y			y					n			17106369	Considerations in developing model-based economic evaluations of glaucoma treatment.	Althin R, Grima DT, Dhawan R, Bernard LM.	J Glaucoma. 2006 Dec;15(6):541-7.	create date:2006/11/16 | fi	16.11.2006	2006
2	20160828	pubmed			y			y					n			24687964	The budget impact of left atrial appendage closure compared with adjusted-dose warfarin and dabigatran etexilate for stroke prevention in atrial fibril	Amorosi SL, Armstrong S, Da Deppo L, Garfield	Europace. 2014 Aug;16(8):1131-6. doi: 10.1093/europace/euu038	create date:2014/04/02 | fi	02.04.2014	2014
12	20160918	pubmed			y								y	Policy (descriptive)	P2: Qualitative analysis	26532912	The Expansion of Use of Discounted Prices for International Reference Pricing Purposes.	Ando G, Lockwood C, Izmirlieva M, Honore A.	Value Health. 2015 Nov;18(7):A519. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
12	20160918	pubmed			y								y	Policy (descriptive)	P3: Essay, comment, synthesis	17401592	Economic aspects of the new Spanish laws on pharmaceutical preparations.	AntoÃ±anzas F, Oliva J, Pinillos M, JuÃ rez C.	Eur J Health Econ. 2007 Sep;8(3):297-300.	create date:2007/04/03 | fi	03.04.2007	2007
5	20160828	pubmed			y			y					n			24934980	Should the patent system for pharmaceuticals be replaced? A theoretical approach.	AntoÃ±anzas F, RodrÃ-guez-Ibeas R, JuÃ¡rez-Ca	Expert Rev Pharmacoecon Outcomes Res. 2014 Oct;14(5):617-26.	create date:2014/06/18 | fi	18.06.2014	2014
2	20160828	pubmed			y	y							n			21598269	Post-Soviet transition: improving health services delivery and management.	Antoun J, Phillips F, Johnson T.	Mt Sinai J Med. 2011 May-Jun;78(3):436-48. doi: 10.1002/msj.202	create date:2011/05/21 | fi	21.05.2011	2011
4	20160828	pubmed			y								y	Policy > Expenditures	P3: Essay, comment, synthesis	20929919	Most OECD countries could save money by improving clinical guidelines and negotiating better drug prices.	Arie S.	BMJ. 2010 Oct 7;341:c5552. doi: 10.1136/bmj.c5552. No abstract	create date:2010/10/12 | fi	12.10.2010	2010
8	20160828	pubmed			y								y	Policy > Expenditures	P1: Quantitative retrospective analysis	26507643	The simultaneous effects of pharmaceutical policies from payers' and patients' perspectives: Italy as a case study.	Armeni P, Jommi C, Otto M.	Eur J Health Econ. 2015 Oct 27. [Epub ahead of print]	create date:2015/10/29 | fi	29.10.2015	2015
8	20160828	pubmed			y								y	Policy > Prices	P1: Quantitative retrospective analysis	27200978	The Simultaneous Effects of Pharmaceutical Policies from Payers' and Patients' Perspectives. Italy as a Case Study.	Armeni P, Otto MH, Jommi C.	Value Health. 2014 Nov;17(7):A405. doi: 10.1016/j.jval.2014.08.9	create date:2014/11/01 | fi	01.11.2014	2014
2	20160828	pubmed			y								y	Policy > Prices	P4: Theory-driven economic analysis	22091623	Pharmaceutical price controls and minimum efficacy regulation: evidence from the United States and Italy.	Atella V, Bhattacharya J, Carbonari L.	Health Serv Res. 2012 Feb;47(1 Pt 1):293-308. doi: 10.1111/j.1475	create date:2011/11/19 | fi	19.11.2011	2011
2	20160828	pubmed			y								y	Policy (descriptive)	P2: Qualitative analysis	26533216	Comparison of Pharmaceutical Pricing and Reimbursement Systems In Turkey And Certain Other Eu Countries.	Atikeler K, Ozcelikay G.	Value Health. 2015 Nov;18(7):A572. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
12	20160918	pubmed			y								y	Policy > Prices	P1: Quantitative retrospective analysis	18677725	Effects of the German reference drug program on ex-factory prices of prescription drugs: a panel data approach.	Augurzky B, GÃ¶hlmann S, Gress S, Wasem J.	Health Econ. 2009 Apr;18(4):421-36. doi: 10.1002/hec.1376.	create date:2008/08/05 | fi	05.08.2008	2008
8	20160828	pubmed			y			y					n			18254125	Pharmaceutical policies: effects of cap and co-payment on rational drug use.	Austvoll-Dahlgren A, Aaserud M, Vist G, Ramsa	Cochrane Database Syst Rev. 2008 Jan 23;(1):CD007017. doi: 10.1	create date:2008/02/07 | fi	07.02.2008	2008
8	20160828	pubmed			y	y							n			24965383	Stakeholders' perspectives on access-to-medicines policy and research priorities in Latin America and the Caribbean: face-to-face and web-based interv	Azeredo TB, Luiza VL, Oliveira MA, Emmerick I	Health Res Policy Syst. 2014 Jun 25;12:31. doi: 10.1186/1478-450	create date:2014/06/27 | fi	27.06.2014	2014
8	20160828	pubmed			y	y							n			17286037	[Preselection procedure for medical devices suppliers at the essential medicines and generic drugs purchasing central in Togo (CAMEG-Togo)].	Babaley M.	Med Trop (Mars). 2006 Dec;66(6):623-30. French.	create date:2007/02/09 | fi	09.02.2007	2007
4	20160828	pubmed			y	y							n			19665741	Effect of privatization of the drug distribution system on drug prices in Malaysia.	Babar ZD, Izham MI.	Public Health. 2009 Aug;123(8):523-33. doi: 10.1016/j.puhe.2009.	create date:2009/08/12 | fi	12.08.2009	2009
4	20160828	pubmed			y	y							n			17388660	Evaluating drug prices, availability, affordability, and price components: implications for access to drugs in Malaysia.	Babar ZU, Ibrahim MI, Singh H, Bukahri NI, Cre	PLoS Med. 2007 Mar 27;4(3):e82.	create date:2007/03/29 | fi	29.03.2007	2007
9	20160911	pubmed			y			y					n			26619354	Payer and Policy Maker Steps to Support Value-Based Pricing for Drugs.	Bach PB, Pearson SD.	JAMA. 2015 Dec 15;314(23):2503-4. doi: 10.1001/jama.2015.168	create date:2015/12/01 | fi	01.12.2015	2015
1	20160827	medline			y	y							n			23640698	A national survey of price and affordability of key essential medicines for children in Sri Lanka.	Balasubramaniam R1, Benaragama BV, Sri Ranganathan S.	create date:2014	2014	2014
1	20160827	medline			y	y							n			26611893	Evaluating the effect of a proposed logistics fee cap on pharmaceuticals in South Africa--a pre and post analysis.	Bangalee V, Suleman F.	create date:2015/11/28 | fi	28.11.2015	2015
12	20160918	pubmed			y								y	Policy > Welfare***	P4: Theory-driven economic analysis	20053474	Retail price regulation and innovation: reference pricing in the pharmaceutical industry.	Bardey D, Bommier A, Jullien B.	J Health Econ. 2010 Mar;29(2):303-16. doi: 10.1016/j.jhealeco.20	create date:2010/01/08 | fi	08.01.2010	2010
12	20160918	pubmed			y								y	Policy > Behaviour	P4: Theory-driven economic analysis	26930001	Health insurance and diversity of treatment.	Bardey D, Jullien B, Lozachmeur JM.	J Health Econ. 2016 May;47:50-63. doi: 10.1016/j.jhealeco.2016.0	create date:2016/03/02 | fi	02.03.2016	2016
4	20160828	pubmed			y			y					n			23115461	'Gray market' not such a gray area anymore: why hospitals are paying exorbitant drug prices.	Barlas S.	P T. 2012 Oct;37(10):544.	create date:2012/11/02 | fi	02.11.2012	2012
4	20160828	pubmed			y			y					n			25136254	Are specialty drug prices destroying insurers and hurting consumers?: a number of efforts are under way to reduce price pressure.	Barlas S.	P T. 2014 Aug;39(8):563-6.	create date:2014/08/20 | fi	20.08.2014	2014
9	20160911	pubmed			y			y					n			26766890	Health Plans and Drug Companies Dip Their Toes Into Value-Based Pricing: The Pressure Is on P&T Committees to Monitor Utilization.	Barlas S.	P T. 2016 Jan;41(1):39-53.	create date:2016/01/15 | fi	15.01.2016	2016
12	20160918	pubmed			y								y	Policy > Expenditures	P1: Quantitative retrospective analysis	20621744	The impact of pharmaceutical policy measures: an endogenous structural-break approach.	Barros PP, Nunes LC.	Soc Sci Med. 2010 Aug;71(8):440-50. doi: 10.1016/j.socscimed.20	create date:2010/07/14 | fi	14.07.2010	2010
8	20160828	pubmed			y								y	Policy > diverse	P4: Theory-driven economic analysis	20575226	Pharmaceutical policies in European countries.	Barros PP.	Adv Health Econ Health Serv Res. 2010;22:3-27. Review.	create date:2010/06/26 | fi	26.06.2010	2010
12	20160918	pubmed			y			y					n			20545588	Public drug expenditure in the Republic of Ireland.	Barry M, Usher C, Tilson L.	Expert Rev Pharmacoecon Outcomes Res. 2010 Jun;10(3):239-45.	create date:2010/06/16 | fi	16.06.2010	2010
12	20160918	pubmed			y								y	Policy (descriptive)	P4: Theory-driven economic analysis	24081570	[Mechanics and effects of European reference pricing for vaccines in Germany according to Â§130a Abs. 2 SGB V: an analysis using the example of influ	Barth J, Hammerschmidt T, Vollmar J, Bierbaur	Gesundheitswesen. 2014 Apr;76(4):e7-e13. doi: 10.1055/s-0033-1	create date:2013/10/02 | fi	02.10.2013	2013
2	20160828	pubmed			y	y							n			26078869	Community pharmacists' attitudes toward the quality and price of locally manufactured generic medicines in Kabul, Afghanistan.	Bashaar M, Hassali MA, Saleem F.	J Pharm Policy Pract. 2015;8(1):16. doi: 10.1186/s40545-015-0037	create date:2015/06/17 | fi	17.06.2015	2015
2	20160828	pubmed			y	y							n			27530584	Requirements and Incentives for Implementation of Pharmaceutical Strategic Purchasing in Iranian Health System: A Qualitative Study.	Bastani P, Doshmangir L, Samadbeik M, Dinarv	Glob J Health Sci. 2016 May 19;9(1):58757. doi: 10.5539/gjhs.v9n1	create date:2016/08/18 | fi	18.08.2016	2016
8	20160828	pubmed			y	y							n			23960843	Pharmaceutical policies used by private health insurance companies in Saudi Arabia.	Bawazir SA, Alkudsi MA, Al Humaidan AS, Al Jas	Saudi Pharm J. 2013 Jul;21(3):267-76. doi: 10.1016/j.jps.2012.10.	create date:2013/08/21 | fi	21.08.2013	2013
12	20160918	pubmed			y		y						n			24752049	Reference pricing with evidence development: a way forward for proton therapy.	Bekelman JE, Hahn SM.	J Clin Oncol. 2014 May 20;32(15):1540-2. doi: 10.1200/JCO.2014.5	create date:2014/04/23 | fi	23.04.2014	2014
1	20160827	medline			y	y							n			22436555	Is the Brazilian pharmaceutical policy ensuring population access to essential medicines?	Bertoldi AD1, Helfer AP, Camargo AL, Tavares NU, Kanavos P.	create date:2012	2012	2012
1	20160827	medline			y	y							n			23697486	The crisis in access to essential medicines in India: key issues which call for action.	Bhargava A1, Kalantri SP.	create date:2013	2013	2013
2	20160828	pubmed			y			y					n			25065814	Costs of telaprevir-based triple therapy for hepatitis C: $189,000 per sustained virological response.	Bichoupan K, Martel-Laferriere V, Sachs D, Ng	Hepatology. 2014 Oct;60(4):1187-95. doi: 10.1002/hep.27340. Ep	create date:2014/07/30 | fi	30.07.2014	2014
2	20160828	pubmed			y								y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	27201014	The Grass is Always Greener on the Other Side or Why There Is Little Meaning in International Pharmaceutical Price Comparison.	Bierbaum M, DÃ¼ttmann S, Amler N, DÃ¶pfer	Value Health. 2014 Nov;17(7):A411. doi: 10.1016/j.jval.2014.08.9	create date:2014/11/01 | fi	01.11.2014	2014
5	20160828	pubmed			y			y					n			27549327	Misoprostol Vaginal Insert in Labor Induction: A Cost-Consequences Model for 5 European Countries-An Economic Evaluation Supported with Literature	Bierut A, DowgiaÃ‚Ã‚o-Smolarczyk J, PieniÃ…Â	Adv Ther. 2016 Aug 22. [Epub ahead of print]	create date:2016/08/24 | fi	24.08.2016	2016
4	20160828	pubmed			y							na	n			25029784	The wrong prescription for drug prices.	Birtwistle M.	Health Serv J. 2014 Apr 25;124(6395):18. No abstract available.	create date:2014/07/18 | fi	18.07.2014	2014
2	20160828	pubmed			y			y					n			24943977	Are pharmacological properties of anticoagulants reflected in pharmaceutical pricing and reimbursement policy? Out-patient treatment of venous thr	Bochenek T, Czarnogorski M, Nizankowski R, Pi	Eur Rev Med Pharmacol Sci. 2014 Jun;18(11):1649-56.	create date:2014/06/20 | fi	20.06.2014	2014
2	20172131	WebOfScience			y				y				n				ANALYSIS OF OUTPATIENT UTILIZATION AND COSTS OF ANTITHROMBOTIC DRUGS IN POLAND - IMPLICATIONS FOR PHARMACEUTICAL PRICING AND	Bochenek, T; Nizankowski, R	VALUE HEALTH. 2			2012
2	20160828	pubmed			y		y						n			15968014	High and rising health care costs. Part 3: the role of health care providers.	Bodenheimer T.	Ann Intern Med. 2005 Jun 21;142(12 Pt 1):996-1002. Review.	create date:2005/06/22 | fi	22.06.2005	2005
12	20160918	pubmed			y			y					n			16761901	Pharmacoeconomics of angiotensin II antagonists in type 2 diabetic patients with nephropathy: implications for decision making.	Boersma C, Atthobari J, Gansevoort RT, de Jong	Pharmacoeconomics. 2006;24(6):523-35. Review.	create date:2006/06/10 | fi	10.06.2006	2006
5	20160828	pubmed			y			y					n			24236878	How do patent rights affect regulatory approvals and data exclusivity rights for pharmaceuticals in the EU?	Bogaert P, Van Keymeulen E.	Pharm Pat Anal. 2012 Sep;1(4):393-405. doi: 10.4155/ppa.12.50.	create date:2012/09/01 | fi	01.09.2012	2012
12	20160918	pubmed			y			y					n			25016848	The promise and the pitfalls of reference pricing.	Boland P.	Manag Care. 2014 May;23(5):36-8. No abstract available.	create date:2014/07/16 | fi	16.07.2014	2014
11	20160918	pubmed			y				y				n			20575228	Pharmaceutical policy in the Netherlands: from price regulation towards managed competition.	Boonen LH, van der Geest SA, Schut FT, Varkev	Adv Health Econ Health Serv Res. 2010;22:53-76. Review.	create date:2010/06/26 | fi	26.06.2010	2010
4	20160828	pubmed			y			y					n			26376457	Can Walmart make us healthier? Prescription drug prices and health care utilization.	Borrescio-Higa F.	J Health Econ. 2015 Dec;44:37-53. doi: 10.1016/j.jhealeco.2015.0	create date:2015/09/17 | fi	17.09.2015	2015
2	20160828	pubmed			y			y					n			26302139	On 1000-Fold Pharmaceutical Price Markups and Why Drugs Cost More in the United States than in Mexico.	Boyer LV.	Am J Med. 2015 Dec;128(12):1265-7. doi: 10.1016/j.amjmed.2015	create date:2015/08/25 | fi	25.08.2015	2015
2	20160828	pubmed			y								y	Policy > Behaviour	P5: Other theory-driven analysis	22280194	Creative compliance in pharmaceutical markets: the case of profit controls.	Bradley J, Vandoros S.	Expert Rev Pharmacoecon Outcomes Res. 2012 Feb;12(1):31-8. do	create date:2012/01/28 | fi	28.01.2012	2012
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9	20160911	pubmed			y			y					n			25204721	Valuing Trial Designs from a Pharmaceutical Perspective Using Value-Based Pricing.	Breeze P, Brennan A.	Health Econ. 2015 Nov;24(11):1468-82. doi: 10.1002/hec.3103. Ep	create date:2014/09/11 | fi	11.09.2014	2014
12	20160918	pubmed			y				y				n			27350294	Reference pricing with endogenous generic entry.	Brekke KR, Canta C, Straume OR.	J Health Econ. 2016 Jun 8. doi:pii: S0167-6296(16)30021-2. 10.10	create date:2016/06/29 | fi	29.06.2016	2016
99	20161222	sciencedirect.com			y				y				n				Regulation and pricing of pharmaceuticals: Reference pricing or price cap regulation?	Brekke KR, Grasdal A, Holma TH.		create date:2009/02	01.07.1905	2009
99	20161127	sciencedirect.com			y				y				n				Reference pricing, competition, and pharmaceutical expenditures: Theory and evidence from a natural experiment	Brekke KR, Holmas TH, Straume OR	jpube	create date:2011/08	03.07.1905	2011
12	20160918	pubmed			y			y					y	Policy > Behaviour	P4: Theory-driven economic analysis	17188769	Reference pricing of pharmaceuticals.	Brekke KR, KÃ¶nigbauer I, Straume OR.	J Health Econ. 2007 May 1;26(3):613-42. Epub 2006 Dec 22.	create date:2006/12/26 | fi	26.12.2006	2006
11	20160918	pubmed			y			y					n			16280182	Direct to consumer advertising in pharmaceutical markets.	Brekke KR, Kuhn M.	J Health Econ. 2006 Jan;25(1):102-30. Epub 2005 Nov 8.	create date:2005/11/11 | fi	11.11.2005	2005
2	20172131	Scopus			y	y							n				Pharmaceutical pricing in Croatia: a comparison of ordinances in 2013 versus 2009 and their potential savings to provide future guidance	Brkicic L.S. Godman B. Bogut M. Srlen M.	Galbi Journal			2015
12	20160918	pubmed			y		y						n			25903495	Reference Pricing with Endogenous or Exogenous Payment Limits: Impacts on Insurer and Consumer Spending.	Brown TT, Robinson JC.	Health Econ. 2016 Jun;25(6):740-9. doi: 10.1002/hec.3181. Epub 2	create date:2015/04/24 | fi	24.04.2015	2015
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2	20172131	Scopus			y				y				n				Impact of generic substitution on pharmaceutical prices and expenditures in OECD countries	Buzzelli C. Kangasharju A. Linnosmaa I. Valtone	Journal of Pharmaceutical Finance, Economics and Policy			2006

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5	20160828	pubmed	y			y			n			27393500	Characteristics, treatment patterns, and survival among ALK+ non-small cell lung cancer (NSCLC) patients treated with crizotinib: A chart review study.	Cadranel J, Park K, Arrieta O, Pless M, Bendaly	Lung Cancer. 2016 Aug;98:9-14. doi: 10.1016/j.lungcan.2016.05.0	create date:2016/07/10 | fi	10.07.2016	2016
2	20172131	Scopus	y	y					n				What role may pharmacoeconomics play in pharmaceutical pricing and reimbursement in China?	Cai Q. Salmon J.W.	Journal of Pharmaceutical Finance, Economics and Policy			2005
8	20160828	pubmed	y			y			n			22432967	Mapping the availability, price, and affordability of antiepileptic drugs in 46 countries.	Cameron A, Bansal A, Dua T, Hill SR, Moshe SL,	Epilepsia. 2012 Jun;53(6):962-9. doi: 10.1111/j.1528-1167.2012.0	create date:2012/03/22 | fi	22.03.2012	2012
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8	20160828	pubmed	y	y					n			23128254	[Doctors, lawyers and pharmaceutical industry on health lawsuits in Minas Gerais, Southeastern Brazil].	Campos Neto OH, Acurcio Fde A, Machado MA	Rev Saude Publica. 2012 Oct;46(5):784-90. Portuguese.	create date:2012/11/07 | fi	07.11.2012	2012
2	20160828	pubmed	y						y	Policy > Access*	P2: Qualitative analysis	26532742	What Makes A Pharmaceutical Pricing & Reimbursement Process Patient-Centric? A Comparative Analysis Of 11 Systems.	Candotti-Besson B, Cozzone J.	Value Health. 2015 Nov;18(7):A488. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
2	20160828	pubmed	y	y					n			26707161	Comment on the implications of external price referencing of pharmaceuticals in Middle East countries.	Carapinha JL.	Expert Rev Pharmacoecon Outcomes Res. 2016;16(1):11-4. doi: 1(	create date:2015/12/29 | fi	29.12.2015	2015
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4	20160828	pubmed	y			y			n			22478851	Regulators place spotlight on drug prices.	Carroll J.	Biotechnol Healthc. 2011 Summer;8(2):8-9. No abstract available.	create date:2012/04/06 | fi	06.04.2012	2012
2	20160828	pubmed	y			y			n			24215848	The cost effectiveness of bevacizumab when added to capecitabine, with or without mitomycin-C, in first line treatment of metastatic colorectal cance	Carter HE, Zannino D, John Simes R, Schofield D	Eur J Cancer. 2014 Feb;50(3):535-43. doi: 10.1016/j.ejca.2013.09.	create date:2013/11/13 | fi	13.11.2013	2013
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1	20160827	medline	y	y					n			24363923	Availability, prices and affordability of essential medicines in Haiti.	Chahal HS1, St Fort N2, Bero L3.		create date:2013	2013	2013
2	20172131	Scopus	y	y					n				Pharmaceutical prices in India	Chaudhuri S.	Pharmaceutical Prices in the 21st Century			2015
8	20160828	pubmed	y			y			n			17242758	A proposal for measuring the degree of public health-sensitivity of patent legislation in the context of the WTO TRIPS Agreement.	Chaves GC, Oliveira MA.	Bull World Health Organ. 2007 Jan;85(1):49-56.	create date:2007/01/24 | fi	24.01.2007	2007
8	20160828	pubmed	y	y					n			18405385	The influences of Taiwan's generic grouping price policy on drug prices and expenditures: evidence from analysing the consumption of the three most-u	Chen CL, Chen L, Yang WC.	BMC Public Health. 2008 Apr 12;8:118. doi: 10.1186/1471-2458-8	create date:2008/04/15 | fi	15.04.2008	2008
4	20160828	pubmed	y			y			n			20575235	Drug prices, out-of-pocket payments, and insurer costs: how do payers vary?	Chen J, Rizzo JA.	Adv Health Econ Health Serv Res. 2010;22:221-31.	create date:2010/06/26 | fi	26.06.2010	2010
7	20160828	pubmed	y	y					n			27123191	Drug pricing reform in China: analysis of piloted approaches and potential impact of the reform.	Chen Y, Hu S, Dong P, Kornfeld Ã…, Jaros P, Yar	J Mark Access Health Policy. 2016;4. doi: 10.3402/jmahp.v4.3045{	create date:2016/04/29 | fi	29.04.2016	2016
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4	20160828	pubmed	y						y	Policy > Invest (R&D)	P3: Essay, comment, synthesis	23861432	Higher drug prices will boost development of personalised medicine, says new report.	Chinthapalli K.	BMJ. 2013 Jul 16;347:f4549. doi: 10.1136/bmj.f4549. No abstract	create date:2013/07/19 | fi	19.07.2013	2013
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9	20160911	pubmed	y						y	Policy (descriptive)	P3: Essay, comment, synthesis	18244997	Value based pricing for NHS drugs: an opportunity not to be missed?	Claxton K, Briggs A, Buxton MJ, Culyer AJ, McCa	BMJ. 2008 Feb 2;336(7638):251-4. doi: 10.1136/bmj.39434.50018	create date:2008/02/05 | fi	05.02.2008	2008
2	20160828	pubmed	y					na	n			17535009	OFT, VBP: QED?	Claxton K.	Health Econ. 2007 Jun;16(6):545-58.	create date:2007/05/31 | fi	31.05.2007	2007
4	20160828	pubmed	y			y			n			24239942	US trade agreement threatens to increase drug prices and withhold safety data.	Cohen D.	BMJ. 2013 Nov 15;347:f6908. doi: 10.1136/bmj.f6908. No abstrac	create date:2013/11/19 | fi	19.11.2013	2013
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8	20160828	pubmed	y			y			n			18384907	Pharmaceutical companies and Italian Regional Governments: managing relationships in an increasing institutional complexity.	Compagni A, Cavalli L, Jommi C.	Health Policy. 2008 Sep;87(3):333-41. doi: 10.1016/j.healthpol.20	create date:2008/04/04 | fi	04.04.2008	2008
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11	20160918	pubmed	y				y		n			25200940	Price regulation and relative delays in generic drug adoption.	Costa-Font J, McGuire A, Varol N.	J Health Econ. 2014 Dec;38:1-9. doi: 10.1016/j.jhealeco.2014.04.(	create date:2014/09/10 | fi	10.09.2014	2014
2	20160828	pubmed	y	y					n			27358014	Negotiating Pharmaceutical Prices: A Change in Chinese Health Policy.	Costello MM.	World Health Popul. 2016;16(4):5-8.	create date:2016/07/01 | fi	01.07.2016	2016
4	20160828	pubmed	y			y			n			17491288	Do P&T committees have enough power? Plans and PBMs are divided about sharing drug prices with clinicians. Is it better to have an administrative co	Cross M.	Manag Care. 2007 Apr;16(4):39-42. No abstract available.	create date:2007/05/12 | fi	12.05.2007	2007
2	20160828	pubmed	y						y	Policy (descriptive)	P1: Quantitative retrospective analysis	26533024	Methodology of International Comparison of Pharmaceutical Prices.	Csanadi M, Fasseeh AN, Kalo Z.	Value Health. 2015 Nov;18(7):A539. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
2	20160828	pubmed	y						y	Policy (descriptive)	P4: Theory-driven economic analysis	20831294	Cost-effectiveness analysis in markets with high fixed costs.	Cutler DM, Ericson KM.	Pharmacoeconomics. 2010;28(10):867-75. doi: 10.2165/1153563(	create date:2010/09/14 | fi	14.09.2010	2010
2	20172131	Scopus	y	y					n				Equity in pharmaceutical pricing and reimbursement: Crossing the income divide in Asia Pacific	Daems R. Maes E. Glaetzer C.	Value in Health Regional Issues			2013
11	20160918	pubmed	y				y		n			16841230	Price regulation and generic competition in the pharmaceutical market.	Dalen DM, StrÃ¸m S, Haabeth T.	Eur J Health Econ. 2006 Sep;7(3):208-14.	create date:2006/07/15 | fi	15.07.2006	2006
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2	20160828	pubmed	y						y	*Prices (descriptive)*	P4: Theory-driven economic analysis	23156660	Effects of regulation on drug launch and pricing in interdependent markets.	Danzon PM, Epstein AJ.	Adv Health Econ Health Serv Res. 2012;23:35-71.	create date:2012/11/20 | fi	20.11.2012	2012
2	20160828	pubmed	y	y					n			24293058	Pharmaceutical pricing in emerging markets: effects of income, competition, and procurement.	Danzon PM, Mulcahy AW, Towse AK.	Health Econ. 2015 Feb;24(2):238-52. doi: 10.1002/hec.3013. Epub	create date:2013/12/03 | fi	03.12.2013	2013
4	20160828	pubmed	y						y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	21821570	Setting cost-effectiveness thresholds as a means to achieve appropriate drug prices in rich and poor countries.	Danzon PM, Towse A, Mulcahy AW.	Health Aff (Millwood). 2011 Aug;30(8):1529-38. doi: 10.1377/hlth	create date:2011/08/09 | fi	09.08.2011	2011
2	20172131	Scopus	y			y			n				Impact of direct-to-consumer advertising on pharmaceutical prices and demand	Dave D. Saffer H.	Southern Economic Journal			2012
4	20160828	pubmed	y						y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	26533082	A Comparison of on-Patent Medicine Prices Using An Eks Method.	Davey P.	Value Health. 2015 Nov;18(7):A549. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
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12	20160918	pubmed	y						y	Policy > Access*	P2: Qualitative analysis	25591547	Causes of drug shortages in the legal pharmaceutical framework.	De Weerdt E, Simoens S, Hombroeckx L, Castee	Regul Toxicol Pharmacol. 2015 Mar;71(2):251-8. doi: 10.1016/j.yr	create date:2015/01/17 | fi	17.01.2015	2015
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10	20160828	OECD iLibrary	y						y	Policy (descriptive)	P3: Essay, comment, synthesis		Achieving Better Value for Money in Health Care - Ensuring Efficiency in Pharmaceutical Expenditures	Docteur E, Paris V		create date:2009	01.07.1905	2009
12	20160918	pubmed	y						y	Policy (descriptive)	P3: Essay, comment, synthesis	18368023	Australian pharmaceutical policy: price control, equity, and drug innovation in Australia.	Doran E, Alexander Henry D.	J Public Health Policy. 2008 Apr;29(1):106-20. doi: 10.1057/palgra	create date:2008/03/28 | fi	28.03.2008	2008
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2	20172131	Scopus	y			y			n				The effect of medicare part D on pharmaceutical prices and utilization	Duggan M. Morton F.S.	American Economic Review			2010
2	20172131	Scopus	y			y			n				The medium-term impact of Medicare Part D on pharmaceutical prices	Duggan M.G. Morton F.S.	American Economic Review			2011
12	20160918	pubmed	y				y		n			23289757	A review of the differences and similarities between generic drugs and their originator counterparts, including economic benefits associated with usag	Dunne S, Shannon B, Dunne C, Cullen W.	BMC Pharmacol Toxicol. 2013 Jan 5;14:1. doi: 10.1186/2050-6511	create date:2013/01/08 | fi	08.01.2013	2013
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12	20160918	pubmed	y				y		n			22098289	The impact of reference-pricing systems in Europe: a literature review and case studies.	Dylst P, Vulto A, Simoens S.	Expert Rev Pharmacoecon Outcomes Res. 2011 Dec;11(6):729-37	create date:2011/11/22 | fi	22.11.2011	2011
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8	20160828	pubmed	y	y					n			23645920	Access to medicines in Latin America and the Caribbean (LAC): a scoping study.	Emmerick IC, Oliveira MA, Luiza VL, Azeredo TI	BMJ Open. 2013 May 3;3(5). doi:pii: e002224. 10.1136/bmjopen-	create date:2013/05/07 | fi	07.05.2013	2013
4	20160828	pubmed	y			y			n			27270771	Use the Bayh-Dole Act to lower drug prices for government healthcare programs.	Engelberg AB, Kesselheim AS.	Nat Med. 2016 Jun 7;22(6):576. doi: 10.1038/nm0616-576. No ab:	create date:2016/06/09 | fi	09.06.2016	2016
99	20161127	haiweb.org	y						y	Policy > Prices	P1: Quantitative retrospective analysis		Working Paper 1: External Reference Pricing (Review Series on Pharmaceutical Pricing Policies and Interventions)	Espin J, Joan Rovira and Antonio Olry de Labry		create date:2011/05	03.07.1905	2011
2	20172131	Scopus	y	y					n				Pharmaceutical pricing policies in China	Fang Y.	Pharmaceutical Prices in the 21st Century			2015
1	20160827	medline	y	y					n			25104348	Access to affordable medicines after health reform: evidence from two cross-sectional surveys in Shaanxi Province, western China.	Fang Y1, Wagner AK2, Yang S3, Jiang M3, Zhang	F2, Ross-Degnan D2.	create date:2013	2013	2013
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12	20160918	pubmed	y						y	Policy (descriptive)	P3: Essay, comment, synthesis	17543114	Challenges for Australia's Bio/Nanopharma Policies: trade deals, public goods and reference pricing in sustainable industrial renewal.	Faunce TA.	Aust New Zealand Health Policy. 2007 Jun 1;4:9.	create date:2007/06/05 | fi	05.06.2007	2007
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1	20160827	medline	y						y	*Prices > Behaviour*	P2: Qualitative analysis	25533549	Medicine price awareness in chronic patients in Belgium.	Fraeyman J, Symons L, De Loof H, De Meyer GR,	Remmen R, Beutels P, Van Hal G.	create date:2014/12/24 | fi	24.12.2014	2014
12	20160918	pubmed	y				y		n			22897063	Potential impact of policy regulation and generic competition on sales of cholesterol lowering medication, antidepressants and acid blocking agents in I	Fraeyman J, Van Hal G, De Loof H, Remmen R,	Acta Clin Belg. 2012 May-Jun;67(3):160-71.	create date:2012/08/18 | fi	18.08.2012	2012
12	20160918	pubmed	y						y	Policy > Usage** & Exp	P1: Quantitative retrospective analysis	23402454	The potential influence of various initiatives to improve rational prescribing for proton pump inhibitors and statins inÂ Belgium.	Fraeyman J, Van Hal G, Godman B, Beutels P.	Expert Rev Pharmacoecon Outcomes Res. 2013 Feb;13(1):141-51.	create date:2013/02/14 | fi	14.02.2013	2013
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12	20160918	pubmed	y					y	Policy (descriptive)	P4: Theory-driven economic analysis	23329589	Reference pricing and price negotiations for innovative new drugs : viable policies in the long term?	Gandjour A.	Pharmacoeconomics. 2013 Jan;31(1):11-4. doi: 10.1007/s40273-0	create date:2013/01/19 | fi	19.01.2013	2013
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8	20160828	pubmed	y	y				n			19082251	[Pharmaceutical policies in Mexico: 20 years is nothing].	Gasman N.	Salud Publica Mex. 2008;50 Suppl 4:S423-6. Spanish. No abstract	create date:2008/12/17 | fi	17.12.2008	2008
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4	20160828	pubmed	y		y			n			21682350	Cost-efficacy analysis of the MONET trial using UK antiretroviral drug prices.	Gazzard B, Hill A, Anceau A.	Appl Health Econ Health Policy. 2011 Jul 1;9(4):217-23. doi: 10.21	create date:2011/06/21 | fi	21.06.2011	2011
4	20160828	pubmed	y		y			n			19178584	Variation in drug prices at pharmacies: are prices higher in poorer areas?	Gellad WF, Choudhry NK, Friedberg MW, Brook	Health Serv Res. 2009 Apr;44(2 Pt 1):606-17. doi: 10.1111/j.1475-	create date:2009/01/31 | fi	31.01.2009	2009
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12	20160918	pubmed	y			y		n			15760698	Pharmaceutical policy in Italy: towards a structural change?	Ghislandi S, Krulichova I, Garattini L.	Health Policy. 2005 Apr;72(1):53-63.	create date:2005/03/12 | fi	12.03.2005	2005
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12	20160918	pubmed	y	y				n			24027849	[The reference pricing of pharmaceuticals in European countries].	Gildeyeva GN, Starykh DA.	Probl Sotsialnoi Gig Zdravookhranenniiai Istor Med. 2013 May-Jun	create date:2013/09/14 | fi	14.09.2013	2013
8	20160828	pubmed	y		y			n			21173660	Pharmaceutical policies: effects of restrictions on reimbursement.	Gilliam ML.	Obstet Gynecol. 2011 Jan;117(1):172-3. doi: 10.1097/AOG.0b013	create date:2010/12/22 | fi	22.12.2010	2010
4	20160828	pubmed	y		y			n			16927612	Oy Canada! Trade's non-solution to the problem" of U.S. drug prices."	Gilman D.	Am J Law Med. 2006;32(2-3):247-77. No abstract available.	create date:2006/08/25 | fi	25.08.2006	2006
2	20172131	WebOfScience	y					y	Policy (descriptive)	P3: Essay, comment, synthesis		COST-EFFECTIVENESS ANALYSIS IN GERMAN PHARMACEUTICAL PRICE REGULATION	Gissel, C	VALUE HEALTH. 2			2013
2	20172131	WebOfScience	y					y	Policy (descriptive)	P2: Qualitative analysis		LEGAL IMPACT OF PHARMACEUTICAL PRICING IN THE GERMAN STATUTORY HEALTH INSURANCE SYSTEM	Gissel, C	VALUE HEALTH. 2			2012
2	20172131	WebOfScience	y					y	Policy (descriptive)	P4: Theory-driven economic analysis		PHARMACEUTICAL PRICING BASED ON EARLY BENEFIT ASSESSMENTS	Gissel, C	VALUE HEALTH. 2			2012
8	20160828	pubmed	y		y			n			22025869	World Health Organization bids adieu to Hans Hogerzeil - The dynamic Director of Essential Medicines and Pharmaceutical Policies.	Gitanjali B.	J Pharmacol Pharmacother. 2011 Oct;2(4):308-9. doi: 10.4103/09	create date:2011/10/26 | fi	26.10.2011	2011
2	20160828	pubmed	y		y			n			17370319	Repackaged pharmaceuticals in the California workers' compensation system: from distribution and pricing options to physician and retail dispensing.	Gitlin M, Wilson L.	Am J Ind Med. 2007 Apr;50(4):303-15.	create date:2007/03/21 | fi	21.03.2007	2007
12	20160918	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	23992756	How the Trans Pacific Partnership Agreement could undermine PHARMAC and threaten access to affordable medicines and health equity in New Zeala	Gleeson D, Lopert R, Reid P.	Health Policy. 2013 Oct;112(3):227-33. doi: 10.1016/j.healthpol.2	create date:2013/09/03 | fi	03.09.2013	2013
2	20160828	pubmed	y		y			n			26968977	Eligibility for PCSK9 treatment in 734 Hypercholesterolemic patients referred to a regional cholesterol treatment center with LDL cholesterol â‰¥ 70	Glueck CJ, Shah P, Goldenberg N, Prince M, Lee	Lipids Health Dis. 2016 Mar 12;15:55. doi: 10.1186/s12944-016-0	create date:2016/03/13 | fi	13.03.2016	2016
5	20160828	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	23322546	A new reimbursement system for innovative pharmaceuticals combining value-based and free market pricing.	Godman B, Gustafsson LL.	Appl Health Econ Health Policy. 2013 Feb;11(1):79-82. doi: 10.100	create date:2013/01/17 | fi	17.01.2013	2013
7	20160828	pubmed	y			y		n			21351864	Combination of prescribing restrictions and policies to engineer low prices to reduce reimbursement costs.	Godman B, Sakshaug S, Berg C, Wettermark B,	Expert Rev Pharmacoecon Outcomes Res. 2011 Feb;11(1):121-9.	create date:2011/03/01 | fi	01.03.2011	2011
2	20160828	pubmed	y					y	Policy > Welfare***	P4: Theory-driven economic analysis	18180487	Drug licenses: a new model for pharmaceutical pricing.	Goldman DP, Jena AB, Philipson T, Sun E.	Health Aff (Millwood). 2008 Jan-Feb;27(1):122-9. doi: 10.1377/hlt	create date:2008/01/09 | fi	09.01.2008	2008
12	20160918	pubmed	y		y			n			17609491	Prescription drug cost sharing: associations with medication and medical utilization and spending and health.	Goldman DP, Joyce GF, Zheng Y.	JAMA. 2007 Jul 4;298(1):61-9. Review.	create date:2007/07/05 | fi	05.07.2007	2007
2	20160828	pubmed	y		y			n			19014202	Measuring US pharmaceutical industry R&D spending.	Golec J, Vernon JA.	Pharmacoeconomics. 2008;26(12):1005-17. doi: 10.2165/001905	create date:2008/11/19 | fi	19.11.2008	2008
2	20160828	pubmed	y					y	Policy > Invest (R&D)	P1: Quantitative retrospective analysis	20617857	Financial effects of pharmaceutical price regulation on R&D spending by EU versus US firms.	Golec J, Vernon JA.	Pharmacoeconomics. 2010;28(8):615-28. doi: 10.2165/11535580-	create date:2010/07/14 | fi	14.07.2010	2010
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4	20160828	pubmed	y	y				n			19301420	Concentration and drug prices in the retail market for malaria treatment in rural Tanzania.	Goodman C, Kachur SP, Abdulla S, Bloland P, M	Health Econ. 2009 Jun;18(6):727-42. doi: 10.1002/hec.1473.	create date:2009/03/21 | fi	21.03.2009	2009
4	20160828	pubmed	y			y		n			18774867	Differences in generic drug prices between the US and Canada.	Gooi M, Bell CM.	Appl Health Econ Health Policy. 2008;6(1):19-26.	create date:2008/09/09 | fi	09.09.2008	2008
4	20160828	pubmed	y		y			n			26875325	Why Congress must deal with drug prices.	Goozner M.	Mod Healthc. 2015 Dec 14;45(50):24. No abstract available.	create date:2016/02/16 | fi	16.02.2016	2016
12	20160918	pubmed	y		y			n			25404013	Parallel imports and a mandatory substitution reform: a kick or a muff for price competition in pharmaceuticals?	Granlund D, Koksal-Ayhan MY.	Eur J Health Econ. 2015 Dec;16(9):969-83. doi: 10.1007/s10198-0	create date:2014/11/19 | fi	19.11.2014	2014
2	20172131	Scopus	y		y			n				Consumer Information and Pharmaceutical Prices: Theory and Evidence	Granlund D. Rudholm N.	Oxford Bulletin of Economics and Statistics			2011
2	20172131	Scopus	y	y				n				Pharmaceutical pricing in South Africa	Gray A. Suleman F.	Pharmaceutical Prices in the 21st Century			2015
8	20160828	pubmed	y					y	Policy (descriptive)	P1: Quantitative retrospective analysis	26177819	The relevance of systematic reviews on pharmaceutical policy to low- and middle-income countries.	Gray AL, Suleman F.	Int J Clin Pharm. 2015 Oct;37(5):717-25. doi: 10.1007/s11096-015	create date:2015/07/17 | fi	17.07.2015	2015
8	20160828	pubmed	y					y	Policy > diverse	P1: Quantitative retrospective analysis	20687098	Pharmaceutical policies: effects of restrictions on reimbursement.	Green CJ, Maclure M, Fortin PM, Ramsay CR, A	Cochrane Database Syst Rev. 2010 Aug 4;(8):CD008654. doi: 10.1	create date:2010/08/06 | fi	06.08.2010	2010
8	20160828	pubmed	y		y			n			26365300	Pharmaceutical services cost analysis using time-driven activity-based costing: A contribution to improve community pharmacies' management.	GregÃ³rio J, Russo G, LapÃ£o LV.	Res Social Adm Pharm. 2016 May-Jun;12(3):475-85. doi: 10.1016/	create date:2015/09/15 | fi	15.09.2015	2015
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12	20160918	pubmed	y					y	Policy > Expenditures	P1: Quantitative retrospective analysis	16174135	The impact of reference pricing of nonsteroidal anti-inflammatory agents on the use and costs of analgesic drugs.	Grootendorst PV, Marshall JK, Holbrook AM, D	Health Serv Res. 2005 Oct;40(5 Pt 1):1297-317.	create date:2005/09/22 | fi	22.09.2005	2005
4	20160828	pubmed	y	y				n			15919632	[Why drug prices are high in sub-Saharan Africa. Analysis of price structure: the case of Senegal].	Guimier JM, Candau D, Garenne M, TeuliÃ¨res	Sante. 2005 Jan-Mar;15(1):41-52. French.	create date:2005/05/28 | fi	28.05.2005	2005
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2	20160828	pubmed	y		y			n			22286662	Impact of parallel trade on pharmaceutical firm's profits: rise or fall?	Guo S, Hu B, Zhong H.	Eur J Health Econ. 2013 Apr;14(2):345-55.	create date:2012/01/31 | fi	31.01.2012	2012
12	20160918	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	19042052	Price control as a strategy for pharmaceutical cost containment - what has been achieved in Norway in the period 1994-2004?	HÃ¥konsen H, Horn AM, Toverud EL.	Health Policy. 2009 May;90(2-3):277-85. doi: 10.1016/j.healthpol.	create date:2008/12/02 | fi	02.12.2008	2008
2	20160828	pubmed	y		y			n			24677184	Cost analysis of sofosbuvir/ribavirin versus sofosbuvir/simeprevir for genotype 1 hepatitis C virus in interferon-ineligible/intolerant individuals.	Hagan LM, Sulkowski MS, Schinazi RF.	Hepatology. 2014 Jul;60(1):37-45. doi: 10.1002/hep.27151. Epub	create date:2014/03/29 | fi	29.03.2014	2014
2	20172131	Scopus	y					y	Policy (descriptive)	P4: Theory-driven economic analysis		The impact of the pharmaceutical pricing system on cost-effectiveness results: Finnish analysis	Hallinen T. Soini E.J.	Open Pharmacoeconomics and Health Economics Journal			2011
2	20160828	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	27326322	High Drug Prices Hurt Everyone.	Halpenny GM.	ACS Med Chem Lett. 2016 Jun 9;7(6):544-6. doi: 10.1021/acsmed	create date:2016/06/22 | fi	22.06.2016	2016
2	20160828	pubmed	y		y			n			25889514	A comparison of estimated drug costs of potentially inappropriate medications between older patients receiving nurse home visit services and patients	Hamano J, Ozone S, Tokuda Y.	BMC Health Serv Res. 2015 Feb 21;15:73. doi: 10.1186/s12913-01	create date:2015/04/19 | fi	19.04.2015	2015
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2	20160828	pubmed	y		y			n			24029847	Price discrimination in essential medicines: evidence from International Drug Price Indicator Guide data.	Hanlon M, Zhang R.	Int Health. 2013 Mar;5(1):58-63. doi: 10.1093/inthealth/ihs006. E	create date:2013/09/14 | fi	14.09.2013	2013
2	20172131	Scopus	y				y	n				AMPreisV (Pharmaceutical Price Regulation): The silence of the lambs [AMPreisV: Das schweigen der lämmer]	Happ W.	Deutsche Apotheker Zeitung			2009
2	20172131	Scopus	y	y				n				Pharmaceutical pricing policies in the Gulf Countries' Council (GCC) and the United Arab Emirates (UAE)	Hasan R.S.I. Lessing C.	Pharmaceutical Prices in the 21st Century			2015
7	20160828	pubmed	y	y				n			25328898	From generic scheme to brand-generic scheme: Have new policy influenced the efficiency of Iranian pharmaceutical companies?	Hashemi-Meshkini A, Varmaghani M, Yousefi M	J Res Pharm Pract. 2014 Jul;3(3):88-93. doi: 10.4103/2279-042X.1	create date:2014/10/21 | fi	21.10.2014	2014
2	20172131	Scopus	y	y				n				A qualitative study exploring the impact of the pharmaceutical price war among community pharmacies in the state of Penang, Malaysia	Hassali M.A. Shafie A.A. Al-Haddad M. Balamu	Journal of Clinical and Diagnostic Research			2010
2	20172131	Scopus	y	y				n				A qualitative exploration of perceptions toward pharmaceutical price war among community pharmacists in the state of Penang, Malaysia	Hassali M.A. Siang T.C. Saleem F. Aljadhey H.	Journal of Medical Marketing			2013
2	20172131	Scopus	y	y				n				Pharmaceutical pricing in Malaysia	Hassali M.A. Tan C.S. Wong Z.Y. Saleem F.	Pharmaceutical Prices in the 21st Century			2015
4	20160828	pubmed	y		y			n			27200530	The Cost of Costing Treatments Incorrectly: Errors in the Application of Drug Prices in Economic Models Due to Differing Patient Weights.	Hatswell AJ, Porter J, Hertel N, Lee D.	Value Health. 2014 Nov;17(7):A323-4. doi: 10.1016/j.jval.2014.08	create date:2014/11/01 | fi	01.11.2014	2014
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2	20160828	pubmed	y		y			n			27346189	International trade and determinants of price differentials of insulin medicine.	Helble M, Aizawa T.	Health Policy Plan. 2016 Jun 26. doi:pii: czw085. [Epub ahead of pr	create date:2016/06/28 | fi	28.06.2016	2016
4	20160828	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	16304078	Drug prices and value for money: the Australian Pharmaceutical Benefits Scheme.	Henry DA, Hill SR, Harris A.	JAMA. 2005 Nov 23;294(20):2630-2. No abstract available.	create date:2005/11/24 | fi	24.11.2005	2005
2	20160828	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	23339876	Structural changes in the German pharmaceutical market: price setting mechanisms based on the early benefit evaluation.	Henschke C, Sundmacher L, Busse R.	Health Policy. 2013 Mar;109(3):263-9. doi: 10.1016/j.healthpol.2	create date:2013/01/24 | fi	24.01.2013	2013
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2	20160828	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	26532918	The Uk Pharmaceutical Price Regulation Scheme (Pprs) - Considerations of Voluntary Versus Statutory Regulations and How to Negotiate Pricing.	Hill CA, Harries M.	Value Health. 2015 Nov;18(7):A520. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
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12	20160918	pubmed	y					y	*Prices (descriptive)*	P4: Theory-driven economic analysis	25044582	Drug Launch Timing and International Reference Pricing.	Houy N, Jelovac I.	Health Econ. 2015 Aug;24(8):978-89. doi: 10.1002/hec.3078. Epu	create date:2014/07/22 | fi	22.07.2014	2014
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6	20160828	pubmed	y		y			n			27149298	Cost-effectiveness of ceritinib in patients previously treated with crizotinib in anaplastic lymphoma kinase positive (ALK+) non-small cell lung cancer in C	Hurry M, Zhou ZY, Zhang J, Zhang C, Fan L, Reb	J Med Econ. 2016 May 25:1-9. [Epub ahead of print]	create date:2016/05/06 | fi	06.05.2016	2016
2	20160828	pubmed	y		y			n			27202377	Differential Pharmaceutical Pricing: Are Prices Co-Related With GDP?	Iacobucci W, Mehta P, Marinoni G, Ando G, Da	Value Health. 2014 Nov;17(7):A656. doi: 10.1016/j.jval.2014.08.2	create date:2014/11/01 | fi	01.11.2014	2014
2	20172131	WebOfScience	y		y			n				DRUG DEVELOPMENT AND PHARMACEUTICAL PRICING IN THE UNITED STATES: THE INFLUENCE OF DRUG INTENDED OUTCOMES OF DRUG PRICING	Iaconi, A; Khalidi, N; Olanrewaju, O; Balkrishna	VALUE HEALTH. 2			2011
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4	20160828	pubmed	y						y	n			26882731	Healthcare leaders back feds stepping in to restrain drug prices.	Johnson SR.	Mod Healthc. 2015 Nov 16;45(46):8-9. No abstract available.	create date:2016/02/18 | fi	18.02.2016	2016
11	20160918	pubmed	y							y	Policy > Invest (R&D)	P2: Qualitative analysis	16824641	Public administration and R&D localisation by pharmaceutical and biotech companies: a theoretical framework and the Italian case-study.	Jommi C, Paruzzolo S.	Health Policy. 2007 Apr;81(1):117-30. Epub 2006 Jul 7.	create date:2006/07/11 | fi	11.07.2006	2006
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10	20160828	OECD iLibrary	y							y	Policy (descriptive)	P1: Quantitative retrospective analysis		Pharmaceutical Pricing and Reimbursement Policies in Slovakia	Kaló Z., E. Docteur and P. Moïse		create date:2008	2008	2008
9	20160911	pubmed	y							y	Policy (descriptive)	P4: Theory-driven economic analysis	26534098	Value-Based Pricing Scheme for new Technology in Consideration of Cost-Effectiveness Dominance to the Control.	Kamae I, Sugimoto T, Yamabe K.	Value Health. 2015 Nov;18(7):A732. doi: 10.1016/j.jval.2015.09.2	create date:2015/11/05 | fi	05.11.2015	2015
2	20172131	WebOfScience	y							y	*Prices (descriptive)*	P1: Quantitative retrospective analysis		THE SURVEY OF THE JAPAN-STYLE PREMIUM SCHEME IN PHARMACEUTICAL PRICING DECISIONS	Kamae, I; Murata, T; Suman, D; Yamabe, K; Su	VALUE HEALTH. 2			2013
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4	20160828	pubmed	y							y	Policy > Prices	P1: Quantitative retrospective analysis	21676345	Determinants of branded prescription medicine prices in OECD countries.	Kanavos PG, Vandoros S.	Health Econ Policy Law. 2011 Jul;6(3):337-67. doi: 10.1017/S1744	create date:2011/06/17 | fi	17.06.2011	2011
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8	20160828	pubmed	y	y						n			24098644	The market dynamics of generic medicines in the private sector of 19 low and middle income countries between 2001 and 2011: a descriptive time seri	Kaplan WA, Wirtz VJ, Stephens P.	PLoS One. 2013;8(9):e74399. doi: 10.1371/journal.pone.0074399.	create date:2013/10/08 | fi	08.10.2013	2013
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2	20172131	Scopus	y	y						n				Pharmaceutical Pricing Policies and Procedures in Saudi Arabia: A Narrative Review	Khan T.M. Emeka P. Suleiman A.K. Alnutafy F.S	Therapeutic Innovation and Regulatory Science			2016
8	20160828	pubmed	y							y	Policy > Access*	P2: Qualitative analysis	26312250	A review of pharmaceutical policies in response to economic crises and sanctions.	Kheirandish M, Rashidian A, Kebriaeezade A, C	J Res Pharm Pract. 2015 Jul-Sep;4(3):115-22. doi: 10.4103/2279-04	create date:2015/08/28 | fi	28.08.2015	2015
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4	20160828	pubmed	y							y	Other (non_Policy) > Prices	P2: Qualitative analysis	26531913	Determinants of Orphan Drug Prices in France: Regression Analysis.	Korchagina D, Vataire A, Toumi M, Falissard B,	Value Health. 2015 Nov;18(7):A337. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
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4	20160828	pubmed	y			y				n			26797230	Thirty Years of Media Coverage on High Drug Prices in the United States--A Never-Ending Story or a Time for Change?	Leopold C, Chambers JD, Wagner AK.	Value Health. 2016 Jan;19(1):14-6. doi: 10.1016/j.jval.2015.10.00	create date:2016/01/23 | fi	23.01.2016	2016
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2	20160828	pubmed	y							y	Policy > Expenditures	P1: Quantitative retrospective analysis	25378754	Effect of the economic recession on pharmaceutical policy and medicine sales in eight European countries.	Leopold C, Mantel-Teeuwisse AK, Vogler S, Vall	Bull World Health Organ. 2014 Sep 1;92(9):630-640D. doi: 10.247	create date:2014/11/08 | fi	08.11.2014	2014
2	20160828	pubmed	y							y	Policy > Prices	P2: Qualitative analysis	24409503	Personalised medicine as a challenge for public pricing and reimbursement authorities â€“ A survey among 27 European countries on the example of tr	Leopold C, Vogler S, Habl C, Mantel-Teeuwisse	Health Policy. 2013 Dec;113(3):313-22.	create date:2014/01/11 | fi	11.01.2014	2014
2	20160828	pubmed	y							y	Policy (descriptive)	P1: Quantitative retrospective analysis	22014843	Differences in external price referencing in Europe: a descriptive overview.	Leopold C, Vogler S, Mantel-Teeuwisse AK, de J	Health Policy. 2012 Jan;104(1):50-60. doi: 10.1016/j.healthpol.201	create date:2011/10/22 | fi	22.10.2011	2011
2	20160828	pubmed	y				y			n			26297093	An Evaluation of Health Service Impacts Consequent to Switching from Brand to Generic Venlafaxine in New Zealand under Conditions of Price Neutrali	Lessing C, Ashton T, Davis P.	Value Health. 2015 Jul;18(5):646-54. doi: 10.1016/j.jval.2015.02.0	create date:2015/08/25 | fi	25.08.2015	2015
12	20160918	pubmed	y				y			n			25005492	The impact on health outcomes and healthcare utilisation of switching to generic medicines consequent to reference pricing: the case of lamotrigine in	Lessing C, Ashton T, Davis P.	Appl Health Econ Health Policy. 2014 Oct;12(5):537-46. doi: 10.10	create date:2014/07/10 | fi	10.07.2014	2014
12	20160918	pubmed	y				y			n			25331449	Do users of risperidone who switch brands because of generic reference pricing fare better or worse than non-switchers? A New Zealand natural exper	Lessing C, Ashton T, Davis P.	Adm Policy Ment Health. 2015 Nov;42(6):695-703. doi: 10.1007/s1	create date:2014/10/22 | fi	22.10.2014	2014
12	20160918	pubmed	y			y				n			26363980	New Zealand patients' understanding of brand substitution and opinions on copayment options for choice of medicine brand.	Lessing C, Ashton T, Davis P.	Aust Health Rev. 2016 Jun;40(3):345-50. doi: 10.1071/AH15004.	create date:2015/09/14 | fi	14.09.2015	2015
12	20160918	pubmed	y				y			n			26125054	The impact on health outcome measures of switching to generic medicines consequent to reference pricing: the case of olanzapine in New Zealand.	Lessing C, Ashton T, Davis PB.	J Prim Health Care. 2015 Jun 1;7(2):94-101.	create date:2015/07/01 | fi	01.07.2015	2015
11	20160918	pubmed	y							y	Policy > Welfare***	P4: Theory-driven economic analysis	24565143	Pricing schemes for new drugs: a welfare analysis.	Levaggi R.	Soc Sci Med. 2014 Feb;102:69-73. doi: 10.1016/j.socscimed.2013.	create date:2014/02/26 | fi	26.02.2014	2014
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1	20160827	medline	y							y	Policy (descriptive)	P2: Qualitative analysis	27516183	The Trans Pacific Partnership Agreement and Pharmaceutical Regulation in Canada and Australia.	Lexchin J, Gleeson D.		create date:2016/08/16 | fi	16.08.2016	2016
1	20160827	medline	y							y	Policy > Prices	P1: Quantitative retrospective analysis	21687333	Marketing before patenting: implications for price controls in Canada.	Lexchin J.		create date:2010/01/01 | fi	01.01.2010	2010
1	20160827	medline	y			y				n			25967989	Health Canada's use of its priority review process for new drugs: a cohort study.	Lexchin J.		create date:2015/05/15 | fi	15.05.2015	2015
1	20160827	medline	y			y				n			24549164	Postmarket safety in Canada: are significant therapeutic advances and biologics less safe than other drugs? A cohort study.	Lexchin J1.		create date:2014	2014	2014
4	20160828	pubmed	y			y				n			24167098	Are physicians' prescribing decisions sensitive to drug prices? Evidence from a free-antibiotics program.	Li S, Laxminarayan R.	Health Econ. 2015 Feb;24(2):158-74. doi: 10.1002/hec.3008. Epub	create date:2013/10/30 | fi	30.10.2013	2013
2	20172131	Scopus	y			y				n				Pharmaceutical price discrimination and social welfare	Lichtenberg F.R.	Capitalism and Society			2010
4	20160828	pubmed	y							y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	21821571	Pharmaceutical companies' variation of drug prices within and among countries can improve long-term social well-being.	Lichtenberg FR.	Health Aff (Millwood). 2011 Aug;30(8):1539-44. doi: 10.1377/hlth	create date:2011/08/09 | fi	09.08.2011	2011
2	20160828	pubmed	y			y				n			19922890	Results of a Markov model analysis to assess the cost-effectiveness of a single tablet of fixed-dose amlodipine and atorvastatin for the primary preventi	Liew D, Park HJ, Ko SK.	Clin Ther. 2009 Oct;31(10):2189-203; discussion 2150-1. doi: 10.10	create date:2009/11/20 | fi	20.11.2009	2009
6	20160828	pubmed	y		y					n			19269055	A systematic review of the literature comparing the practices of dispensing and non-dispensing doctors.	Lim D, Emery J, Lewis J, Sunderland VB.	Health Policy. 2009 Sep;92(1):1-9. doi: 10.1016/j.healthpol.2009.0	create date:2009/03/10 | fi	10.03.2009	2009
9	20160911	pubmed	y							y	Policy (descriptive)	P3: Essay, comment, synthesis	24246840	Excluding NICE from early stages of value based pricing scheme was big win for pharma conference is told.	Limb M.	BMJ. 2013 Nov 18;347:f6906. doi: 10.1136/bmj.f6906. No abstrac	create date:2013/11/20 | fi	20.11.2013	2013
1	20160827	medline	y	y						n			25469870	Evolving trade policy and the Trans-Pacific Partnership Agreement: does it threaten Vietnam's access to medicine and its progress towards scaling up H	Linh NN1, Huong NT, Thuy HT.		create date:2015	2015	2015
9	20160911	pubmed	y					y		n			22961976	Societal views on NICE, cancer drugs fund and value-based pricing criteria for prioritising medicines: a cross-sectional survey of 4118 adults in Great Bri	Linley WG, Hughes DA.	Health Econ. 2013 Aug;22(8):948-64. doi: 10.1002/hec.2872. Epub	create date:2012/09/11 | fi	11.09.2012	2012
12	20160918	pubmed	y							y	Policy (descriptive)	P2: Qualitative analysis	27201159	The Evolution of International Reference Pricing: An Analysis of 39 Countries.	Lockwood C, Marinoni G, Ando G.	Value Health. 2014 Nov;17(7):A437. doi: 10.1016/j.jval.2014.08.1	create date:2014/11/01 | fi	01.11.2014	2014
8	20160828	pubmed	y			y				n			23093884	Essential medicines for reproductive health: developing evidence based interagency list.	Logez S, Jayasekar S, Moller H, Ahmed K, Patel	South Med Rev. 2011 Dec;4(2):62-8. doi: 10.5655/smr.v4i2.1003.	create date:2012/10/25 | fi	25.10.2012	2012
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12	20160918	pubmed	y	y						n			23953877	Applying rapid 'de-facto' HTA in resource-limited settings: experience from Romania.	Lopert R, Ruiz F, Chalkidou K.	Health Policy. 2013 Oct;112(3):202-8. doi: 10.1016/j.healthpol.20	create date:2013/08/21 | fi	21.08.2013	2013
4	20160828	pubmed	y			y				n			26875209	The U.S. Has the Highest Drug Prices in the World. And Hating Martin Shkreli Won't Be Enough to Change It.	Lorenzetti L.	Fortune. 2015 Nov 1;172(6):17-8. No abstract available.	create date:2016/02/16 | fi	16.02.2016	2016
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8	20160828	pubmed	y	y						n			25815201	Uptake of new antidiabetic medications in three emerging markets: a comparison between Brazil, China and Thailand.	Lu CY, Emmerick IC, Stephens P, Ross-Degnan D	J Pharm Policy Pract. 2015;8(1):7. doi: 10.1186/s40545-014-0020-	create date:2015/03/31 | fi	31.03.2015	2015
5	20160828	pubmed	y							y	Policy (descriptive)	P2: Qualitative analysis	25815200	Patient access schemes in Asia-pacific markets: current experience and future potential.	Lu CY, Lupton C, Rakowsky S, Babar ZU, Ross-D	J Pharm Policy Pract. 2015;8(1):6. doi: 10.1186/s40545-014-0019-	create date:2015/03/31 | fi	31.03.2015	2015
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5	20160828	pubmed	y	y						n			25300317	Impact of pharmacy worker training and deployment on access to essential medicines and health outcomes in Malawi: protocol for a cluster quasi-expe	Lubinga SJ, Jenny AM, Larsen-Cooper E, Crawfo	Implement Sci. 2014 Oct 11;9:156. doi: 10.1186/s13012-014-0156	create date:2014/10/11 | fi	11.10.2014	2014

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4	20160828	pubmed	y				y		n			23509514	BC to chart new path for generic drug prices after cancelling 2010 agreement with pharmacy.	Lynas K.	Can Pharm J (Ott). 2012 May;145(3):104. doi: 10.3821/145.3.cpj1	create date:2013/03/20 | fi	20.03.2013	2013
4	20160828	pubmed	y				y		n			23509540	PEI moves to lower generic drug prices.	Lynas K.	Can Pharm J (Ott). 2012 Jul;145(4):160. doi: 10.3821/1913-701X-1	create date:2013/03/20 | fi	20.03.2013	2013
4	20160828	pubmed	y				y		n			23795158	BC government reveals plans to lower generic drug prices to 20% of brand-name price by April 2014.	Lynas K.	Can Pharm J (Ott). 2013 Jan;146(1):13. doi: 10.1177/17151635124	create date:2013/06/26 | fi	26.06.2013	2013
4	20160828	pubmed	y				y		n			23795174	Provincial/territorial governments join forces to make further cuts to generic drug prices.	Lynas K.	Can Pharm J (Ott). 2013 Mar;146(2):68-70. doi: 10.1177/1715163	create date:2013/06/26 | fi	26.06.2013	2013
11	20160918	pubmed	y	y					n			20486360	[Mechanism and implication of regulation of the pricing of essential medicines in the private pharmaceutical sector in Mali].	MaÃ¯ga D, MaÃ¯ga S, MaÃ¯ga MD.	Med Trop (Mars). 2010 Apr;70(2):184-8. Review. French.	create date:2010/05/22 | fi	22.05.2010	2010
12	20160918	pubmed	y			y			n			16792443	Effect of a therapeutic maximum allowable cost (MAC) program on the cost and utilization of proton pump inhibitors in an employer-sponsored drug pl	Mabasa VH, Ma J.	J Manag Care Pharm. 2006 Jun;12(5):371-6.	create date:2006/06/24 | fi	24.06.2006	2006
6	20160828	pubmed	y			y			n			18515778	Media influence on Herceptin subsidization in Australia: application of the rule of rescue?	Mackenzie R, Chapman S, Salkeld G, Holding S.	J R Soc Med. 2008 Jun;101(6):305-12. doi: 10.1258/jrsm.2008.070	create date:2008/06/03 | fi	03.06.2008	2008
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2	20160828	pubmed	y						y	Policy (descriptive)	P4: Theory-driven economic analysis	20831292	The economics of comparative effectiveness studies: societal and private perspectives and their implications for prioritizing public investments in comp	Meltzer D, Basu A, Conti R.	Pharmacoeconomics. 2010;28(10):843-53. doi: 10.2165/1153940(	create date:2010/09/14 | fi	14.09.2010	2010
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9	20160911	pubmed	y						y	Policy (descriptive)	P3: Essay, comment, synthesis	27216427	Application of the Price-Volume Approach in Cases of Innovative Drugs Where Value-Based Pricing is Inadequate: Description of Real Experiences in Ita	Messori A.	Clin Drug Investig. 2016 Aug;36(8):599-603. doi: 10.1007/s40261-(	create date:2016/05/25 | fi	25.05.2016	2016
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2	20172131	Scopus	y	y					n				The impact of Ghana's National Health Insurance Scheme median pharmaceutical pricing methodology and reimbursement policy on the pharmaceuti	Mordi D.O. Eghan K. Rankin J.	Journal of Pharmaceutical Policy and Practice			2015
2	20160828	pubmed	y						y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	21821572	The level of income appears to have no consistent bearing on pharmaceutical prices across countries.	Morel CM, McGuire A, Mossialos E.	Health Aff (Millwood). 2011 Aug;30(8):1545-52. doi: 10.1377/hlth	create date:2011/08/09 | fi	09.08.2011	2011
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12	20160918	pubmed	y				y		n			20809092	The impact of repeated cost containment policies on pharmaceutical expenditure: experience in Spain.	Moreno-Torres I, Puig-Junoy J, Raya JM.	Eur J Health Econ. 2011 Dec;12(6):563-73. doi: 10.1007/s10198-0	create date:2010/09/03 | fi	03.09.2010	2010
12	20160918	pubmed	y						y	Policy > Invest (R&D)	P1: Quantitative retrospective analysis	19305760	The effect of evidence-based drug coverage policies on pharmaceutical r&d: a case study from british columbia.	Morgan S, Cunningham C.	Healthc Policy. 2008 Feb;3(3):e128-53.	create date:2009/03/24 | fi	24.03.2009	2009
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4	20160828	pubmed	y						y	Policy > Prices	P1: Quantitative retrospective analysis	19305747	Influencing Drug Prices through Formulary-Based Policies: Lessons from New Zealand.	Morgan S, Hanley G, McMahon M, Barer M.	Healthc Policy. 2007 Aug;3(1):e121-40.	create date:2007/08/01 | fi	01.08.2007	2007
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2	20160828	pubmed	y						y	Policy (descriptive)	P2: Qualitative analysis	23809914	Canadian policy makers' views on pharmaceutical reimbursement contracts involving confidential discounts from drug manufacturers.	Morgan SG, Thomson PA, Daw JR, Friesen MK.	Health Policy. 2013 Oct;112(3):248-54. doi: 10.1016/j.healthpol.2	create date:2013/07/03 | fi	03.07.2013	2013
4	20160828	pubmed	y						y	*Prices (descriptive)*	P3: Essay, comment, synthesis	27551037	Canada's high drug prices under review.	Moulton D.	CMAJ. 2016 Aug 22. doi:pii: cmaj.109-5311. [Epub ahead of print]	create date:2016/08/24 | fi	24.08.2016	2016
4	20160828	pubmed	y	y					n			23034857	India's capping of drug prices will leave drugs costing near the market price.	Mudur G.	BMJ. 2012 Oct 3;345:e6649. doi: 10.1136/bmj.e6649. No abstract	create date:2012/10/05 | fi	05.10.2012	2012
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9	20160911	pubmed	y						y	Policy > Invest (R&D)	P3: Essay, comment, synthesis	27197164	Toward Value-Based Pricing to Boost Cancer Research and Innovation.	Ocana A, Amir E, Tannock IF.	Cancer Res. 2016 Jun 1;76(11):3127-9. doi: 10.1158/0008-5472.CA	create date:2016/05/20 | fi	20.05.2016	2016
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2	20160828	pubmed	y						y	Policy (descriptive)	P3: Essay, comment, synthesis	27293051	Balancing access to medicines and sustainability in Europe: An analysis from the network of competent authorities on pricing and reimbursement (CAPI	Pani L, Montilla S, NÃ©meth G, Russo P, Vicec	Pharmacol Res. 2016 Jun 9;111:247-250. doi: 10.1016/j.phrs.2016	create date:2016/06/14 | fi	14.06.2016	2016
6	20160828	pubmed	y						y	Policy (descriptive)	P2: Qualitative analysis	26407728	From market access to patient access: overview of evidence-based approaches for the reimbursement and pricing of pharmaceuticals in 36 European c	Panteli D, Eckhardt H, Nolting A, Busse R, Kulig	Health Res Policy Syst. 2015 Sep 25;13:39. doi: 10.1186/s12961-0	create date:2015/09/27 | fi	27.09.2015	2015
10	20160828	OECD iLibrary	y						y	Policy (descriptive)	P2: Qualitative analysis		Value in Pharmaceutical Pricing	Paris V, Belloni A		create date:2013	2013	2013
10	20160828	OECD iLibrary	y						y	Policy (descriptive)	P3: Essay, comment, synthesis		Pharmaceutical Pricing and Reimbursement Policies in Canada	Paris V, Docteur E		create date:2006	2006	2006
10	20160828	OECD iLibrary	y						y	Policy (descriptive)	P3: Essay, comment, synthesis		Pharmaceutical Pricing and Reimbursement Policies in Germany	Paris V, Docteur E		create date:2008	2008	2008
10	20160828	OECD iLibrary	y	y					n				Pharmaceutical Pricing and Reimbursement Policies in Mexico	Paris V, Docteur E		create date:2007	2007	2007
10	20160828	OECD iLibrary	y						y	Policy (descriptive)	P3: Essay, comment, synthesis		Pharmaceutical Pricing and Reimbursement Policies in Sweden	Paris V, Docteur E		create date:2007	2007	2007
10	20160828	OECD iLibrary	y						y	Policy (descriptive)	P3: Essay, comment, synthesis		Pharmaceutical Pricing and Reimbursement Policies in Switzerland	Paris V, Docteur E		create date:2007	2007	2007
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12	20160918	pubmed	y						y	Policy > Prices	P3: Essay, comment, synthesis	26112982	The End of the International Reference Pricing System?	Persson U, JÃ¶nsson B.	Appl Health Econ Health Policy. 2016 Feb;14(1):1-8. doi: 10.1007/	create date:2015/06/27 | fi	27.06.2015	2015
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5	20160828	pubmed	y						y	Policy > Welfare***	P4: Theory-driven economic analysis	22676213	A new reimbursement system for innovative pharmaceuticals combining value-based and free market pricing.	Persson U, Svensson J, Pettersson B.	Appl Health Econ Health Policy. 2012 Jul 1;10(4):217-25. doi: 10.2	create date:2012/06/09 | fi	09.06.2012	2012
5	20160828	pubmed	y						y	Policy (descriptive)	P3: Essay, comment, synthesis	23359036	Authors' reply to Godman and Gustafsson: A new reimbursement system for innovative pharmaceuticals combining value-based and free market pricin	Persson U, Svensson J, Pettersson B.	Appl Health Econ Health Policy. 2013 Feb;11(1):83-4. doi: 10.1007	create date:2013/01/30 | fi	30.01.2013	2013
9	20160911	pubmed	y						y	Policy > diverse	P11: HTA, pharmacoeconomic analysis	24910539	A pilot study to assess feasibility of value based pricing in Cyprus through pharmacoeconomic modelling and assessment of its operational framework: s	Petrou P, Talias MA.	Cost Eff Resour Alloc. 2014;12:12. doi: 10.1186/1478-7547-12-12.	create date:2014/06/10 | fi	10.06.2014	2014
6	20160828	pubmed	y						y	*Prices > Access**	P1: Quantitative retrospective analysis	26981251	Navigating through the maze of pricing and affordability of branded pharmaceuticals in the midst of the financial crisis: a comparative study among five	Petrou P, Talias MA.	J Pharm Policy Pract. 2016;9:8. doi: 10.1186/s40545-016-0057-7.	create date:2016/03/17 | fi	17.03.2016	2016
8	20160828	pubmed	y	y					n			25837234	Cyprus in crisis: Recent changes in the pharmaceutical market and options for further reforms without sacrificing access to or quality of treatment.	Petrou P, Vandoros S.	Health Policy. 2015 May;119(5):563-8. doi: 10.1016/j.healthpol.2	create date:2015/04/04 | fi	04.04.2015	2015
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12	20160918	pubmed	y				y		n			19839066	Reference pricing system and competition: case study from Portugal.	Portela C.	Croat Med J. 2009 Oct;50(5):429-39.	create date:2009/10/20 | fi	20.10.2009	2009
5	20160828	pubmed	y						y	Policy (descriptive)	P1: Quantitative retrospective analysis	24641938	Launch prices for new pharmaceuticals in the heavily regulated and subsidized Spanish market, 1995-2007.	Puig-Junoy J, LÃ³pez-ValcÃ¡rcel BG.	Health Policy. 2014 Jun;116(2-3):170-81. doi: 10.1016/j.healthpol.	create date:2014/03/20 | fi	20.03.2014	2014
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2	20160828	pubmed	y				y		n			20515079	Impact of European pharmaceutical price regulation on generic price competition: a review.	Puig-Junoy J.	Pharmacoeconomics. 2010;28(8):649-63. doi: 10.2165/11535360-	create date:2010/06/03 | fi	03.06.2010	2010
12	20160918	pubmed	y						y	Policy > Welfare***	P1: Quantitative retrospective analysis	16162028	What is required to evaluate the impact of pharmaceutical reference pricing?	Puig-Junoy J.	Appl Health Econ Health Policy. 2005;4(2):87-98. Review.	create date:2005/09/16 | fi	16.09.2005	2005
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12	20160918	pubmed	y				y		n			22900924	Do higher-priced generic medicines enjoy a competitive advantage under reference pricing?	Puig-Junoy J.	Appl Health Econ Health Policy. 2012 Nov 1;10(6):441-51. doi: 10.	create date:2012/08/21 | fi	21.08.2012	2012
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9	20160911	pubmed	y						y	Policy (descriptive)	P3: Essay, comment, synthesis	24124158	Value based pricing: can it work?	Raftery J.	BMJ. 2013 Oct 11;347:f5941. doi: 10.1136/bmj.f5941. No abstract	create date:2013/10/15 | fi	15.10.2013	2013
2	20172131	Scopus	y						y	Policy (descriptive)	P3: Essay, comment, synthesis		Pharmaceutical pricing in New Zealand	Ragupathy R. Kilpatrick K. Babar Z.-U.-D.	Pharmaceutical Prices in the 21st Century			2015

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4	20160828	pubmed	y			y				n			26803088	Rising Drug Prices and PBM Practices in the Spotlight.	Rankin P, Baldwin P.	Consult Pharm. 2016 Jan;31(1):56. doi: 10.4140/TCP.n.2016.56. N	create date:2016/01/24 | fi	24.01.2016	2016
8	20160828	pubmed	y			y				n			26239041	Pharmaceutical policies: effects of financial incentives for prescribers.	Rashidian A, Omidvari AH, Vali Y, Sturm H, Oxn	Cochrane Database Syst Rev. 2015 Aug 4;(8):CD006731. doi: 10.1(	create date:2015/08/05 | fi	05.08.2015	2015
1	20160827	medline	y	y						n			17244978	Antimicrobial price variation: conundrum of medical profession!	Rataboli PV, Dang A.		create date:2007/01/25 | fi	25.01.2007	2007
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2	20160828	pubmed	y							y	**Policy (descriptive)**	P11: HTA, pharmacoeconomic analysis	22433771	Antihypertensive drugs: a perspective on pharmaceutical price erosion and its impact on cost-effectiveness.	Refoios Camejo R, McGrath C, Herings R, Meer	Value Health. 2012 Mar-Apr;15(2):381-8. doi: 10.1016/j.jval.2011	create date:2012/03/22 | fi	22.03.2012	2012
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2	20172131	WebOfScience	y							y	**Policy > diverse**	P1: Quantitative retrospective analysis		SYSTEMATIC REVIEW ON THE IMPACTS OF STRICT PHARMACEUTICAL PRICE CONTROLS	Relakis, J; Maniadakis, N; Kourlaba, G; Shen, J;	VALUE HEALTH. 2			2013
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4	20160828	pubmed	y						y	n			26510275	Pressure mounts for measures to control drug prices.	Rice S.	Mod Healthc. 2015 Jul 27;45(30):12. No abstract available.	create date:2015/10/30 | fi	30.10.2015	2015
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12	20160918	pubmed	y			y				n			22949452	Payers test reference pricing and centers of excellence to steer patients to low-price and high-quality providers.	Robinson JC, MacPherson K.	Health Aff (Millwood). 2012 Sep;31(9):2028-36. doi: 10.1377/hltha	create date:2012/09/06 | fi	06.09.2012	2012
12	20160918	pubmed	y		Y					n			27454826	Association of Reference Pricing for Diagnostic Laboratory Testing With Changes in Patient Choices, Prices, and Total Spending for Diagnostic Tests.	Robinson JC, Whaley C, Brown TT.	JAMA Intern Med. 2016 Sep 1;176(9):1353-9. doi: 10.1001/jamain	create date:2016/07/28 | fi	28.07.2016	2016
12	20160918	pubmed	y		Y					n			27479594	Reference Pricing, Consumer Cost-Sharing, and Insurer Spending for Advanced Imaging Tests.	Robinson JC, Whaley C, Brown TT.	Med Care. 2016 Jul 29. [Epub ahead of print]	create date:2016/08/02 | fi	02.08.2016	2016
2	20172131	WebOfScience	y							y	**Policy (descriptive)**	P4: Theory-driven economic analysis		PHARMACEUTICAL PRICING UNDER UNCERTAINTY: RISK-SHARING CONTRACTS	Rodriguez-Ibeas, R; Arizti, I; Antonanzas, F	VALUE HEALTH. 2			2011
6	20160828	pubmed	y	y						n			24750542	Asserting the primacy of health over patent rights: a comparative study of the processes that led to the use of compulsory licensing in Thailand and Bra	Rosenberg ST.	Dev World Bioeth. 2014 Aug;14(2):83-91. doi: 10.1111/dewb.120!	create date:2014/04/23 | fi	23.04.2014	2014
2	20160828	pubmed	y			y				n			27186235	Price and affordability of direct-acting antiviral regimens for hepatitis C virus in the United States.	Rosenthal ES, Graham CS.	Infect Agent Cancer. 2016;11:24. doi: 10.1186/s13027-016-0071-:	create date:2016/05/18 | fi	18.05.2016	2016
5	20160828	pubmed	y							y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	17970935	Prices for innovative pharmaceutical products that provide health gain: a comparison between Australia and the United States.	Roughead EE, Lopert R, Sansom LN.	Value Health. 2007 Nov-Dec;10(6):514-20.	create date:2007/11/01 | fi	01.11.2007	2007
4	20160828	pubmed	y						y	n			25853829	[Drug prices: how they are established and existing price control systems].	Rovira Forns J.	Salud Colect. 2015 Mar;11(1):35-48. doi: 10.1590/S1851-8265201	create date:2015/04/09 | fi	09.04.2015	2015
2	20160828	pubmed	y	y						n			24603082	Pharmaceutical policy reform in the Russian Federation.	Rudisill C, Vandoros S, Antoun JG.	J Health Polit Policy Law. 2014 Jun;39(3):691-705. doi: 10.1215/03	create date:2014/03/08 | fi	08.03.2014	2014
2	20160828	pubmed	y			y				n			24796330	Economic Evaluation of a Steroid-Eluting Sinus Implant following Endoscopic Sinus Surgery for Chronic Rhinosinusitis.	Rudmik L, Smith TL.	Otolaryngol Head Neck Surg. 2014 May 5;151(2):359-366. [Epub a	create date:2014/05/07 | fi	07.05.2014	2014
2	20160828	pubmed	y		y					n			24938934	Cost-effectiveness of the endoscopic versus microscopic approach for pituitary adenoma resection.	Rudmik L, Starreveld YP, Vandergrift WA, Bang	Laryngoscope. 2015 Jan;125(1):16-24. doi: 10.1002/lary.24780. E	create date:2014/06/19 | fi	19.06.2014	2014
12	20160918	pubmed	y			y				n			18705530	Public health value of fixed-dose combinations in hypertension.	Ruilope LM, Burnier M, Muszbek N, Brown RE,	Blood Press Suppl. 2008 Jun;1:5-14.	create date:2008/08/19 | fi	19.08.2008	2008
2	20160828	pubmed	y	y						n			19843636	Medicine prices in urban Mozambique: a public health and economic study of pharmaceutical markets and price determinants in low-income settings.	Russo G, McPake B.	Health Policy Plan. 2010 Jan;25(1):70-84. doi: 10.1093/heapol/czp	create date:2009/10/22 | fi	22.10.2009	2009
6	20160828	pubmed	y	y						n			25324322	Low utilisation of diabetes medicines in Iran, despite their affordability (2000-2012): a time-series and benchmarking study.	Sarayani A, Rashidian A, Gholami K.	BMJ Open. 2014 Oct 16;4(10):e005859. doi: 10.1136/bmjopen-20	create date:2014/10/18 | fi	18.10.2014	2014
4	20160828	pubmed	y	y						n			18577784	Towards equitable health care: drug prices, and beyond.	Satyanarayana K.	Indian J Med Res. 2008 Apr;127(4):301-4. Review. No abstract ava	create date:2008/06/26 | fi	26.06.2008	2008
8	20160828	pubmed	y							y	**Policy > Access***	P3: Essay, comment, synthesis	20575229	Impact of pharmaceutical regulation and policies on health system performance goals in Israel.	Sax P, Shmueli A.	Adv Health Econ Health Serv Res. 2010;22:77-101.	create date:2010/06/26 | fi	26.06.2010	2010
4	20160828	pubmed	y						y	n			25980086	Lifesavers or kickbacks? Critics say patient-assistance programs help keep drug prices high.	Schencker L.	Mod Healthc. 2015 Mar 9;45(10):20-2. No abstract available.	create date:2015/05/20 | fi	20.05.2015	2015
12	20160918	pubmed	y					y		n			15968483	[Drug utilization and pharmaceutical cost-containment in germany-perspectives 1 year after enactment of the GMG].	Schlander M.	Med Klin (Munich). 2005 Jun 15;100(6):314-24. German.	create date:2005/06/22 | fi	22.06.2005	2005
5	20160828	pubmed	y							y	**Policy (descriptive)**	P3: Essay, comment, synthesis	24171232	Early benefit assessment for pharmaceuticals in Germany: lessons for policymakers.	Schlette S, Hess R.	Issue Brief (Commonw Fund). 2013 Oct;29:1-9.	create date:2013/11/01 | fi	01.11.2013	2013
2	20172131	Scopus	y			y				n				Comment on "pharmaceutical price discrimination and social welfare" (by Frank R. Lichtenberg)	Schmalensee R.L.	Capitalism and Society			2010
2	20160828	pubmed	y			y				n			16435758	The Balanced Scorecard versus Total Quality Management: which is better for your organization?	Schwartz J.	Mil Med. 2005 Oct;170(10):855-8.	create date:2006/01/27 | fi	27.01.2006	2006
2	20160828	pubmed	y							y	**Policy (descriptive)**	P3: Essay, comment, synthesis	22961148	Straight talk with... Mark Sculpher. Interview by Kate Ravilious.	Sculpher M.	Nat Med. 2012 Sep;18(9):1315. doi: 10.1038/nm0912-1315.	create date:2012/09/11 | fi	11.09.2012	2012
12	20160918	pubmed	y				y			n			17564580	Reference pricing, generic drugs and proposed changes to the Pharmaceutical Benefits Scheme.	Searles A, Jefferys S, Doran E, Henry DA.	Med J Aust. 2007 Aug 20;187(4):236-9. Epub 2007 Jun 13. Review.	create date:2007/06/15 | fi	15.06.2007	2007
12	20160918	pubmed	y				y			n			19563307	The PBS in a globalised world: free trade and reference pricing.	Searles A.	Aust Health Rev. 2009 May;33(2):186-91.	create date:2009/07/01 | fi	01.07.2009	2009
2	20172131	Scopus	y	y						n				Pharmaceutical Pricing Policy: A critique	Selvaraj S. Hasan H. Chokshi M. Sengupta A.	Economic and Political Weekly			2012
4	20160828	pubmed	y	y						n			21455424	Medicine prices, availability and affordability in Sri Lanka.	Senarathna SM, Mannapperuma U, Fernandop	Indian J Pharmacol. 2011 Feb;43(1):60-3. doi: 10.4103/0253-7613	create date:2011/04/02 | fi	02.04.2011	2011
4	20160828	pubmed	y	y						n			17299024	Negotiating antiretroviral drug prices: the experience of the Andean countries.	Seoane-Vazquez E, Rodriguez-Monguio R.	Health Policy Plan. 2007 Mar;22(2):63-72. Epub 2007 Feb 13.	create date:2007/02/15 | fi	15.02.2007	2007
2	20160828	pubmed	y							y	**Policy (descriptive)**	P4: Theory-driven economic analysis	24990225	Price-cap Regulation, Uncertainty and the Price Evolution of New Pharmaceuticals.	Shajarizadeh A, Hollis A.	Health Econ. 2015 Aug;24(8):966-77. doi: 10.1002/hec.3075. Epul	create date:2014/07/06 | fi	06.07.2014	2014
2	20172131	WebOfScience	y							y	**Policy (descriptive)**	P3: Essay, comment, synthesis		IMPLICATIONS OF LATIN AMERICAN PHARMACEUTICAL PRICING REFORM FOR THE UK NHS	Shankland, BDT; Kirpekar, S	VALUE HEALTH. 2			2011
1	20160827	medline	y			y				n			27054040	Evaluating availability and price of essential medicines in Boston area (Massachusetts, USA) using WHO/HAI methodology.	Sharma A, Rorden L, Ewen M, Laing R.		create date:2016/04/08 | fi	08.04.2016	2016
2	20172131	WebOfScience	y			y				n				A NOVEL METHOD FOR COMBINING THREE CURRENT ESTIMATION APPROACHES TO PHARMACEUTICAL PRICING	Sheng, J; Malhotra, M; Vincent, L; Hoschander,	VALUE HEALTH. 2			2010
5	20160828	pubmed	y			y				n			17578879	Drug importation and safety of drugs obtained from Canada.	Shepherd M.	Ann Pharmacother. 2007 Jul;41(7):1288-91. Epub 2007 Jun 19. Rev	create date:2007/06/21 | fi	21.06.2007	2007
12	20160918	pubmed	y							y	**Policy (descriptive)**	P4: Theory-driven economic analysis	23389487	The impact of therapeutic reference pricing on innovation in cardiovascular medicine.	Sheridan D, Attridge J.	Pharmacoeconomics. 2006 Dec;24 Suppl 2:35-54. doi: 10.2165/00	create date:2006/01/01 | fi	01.01.2006	2006
6	20160828	pubmed	y	y						n			23827980	Time trends and determinants of pharmaceutical expenditure in China (1990-2009).	Shi L, Yang HY, Cheng G, Meng Q.	Pharmacoeconomics. 2014 Mar;32(3):257-64. doi: 10.1007/s4027	create date:2013/07/06 | fi	06.07.2013	2013
12	20160918	pubmed	y			y				n			25321603	Is reference pricing the next big thing in payment reform?	Shih T, Dimick JB.	JAMA Surg. 2014 Dec;149(12):1219-20. doi: 10.1001/jamasurg.20	create date:2014/10/17 | fi	17.10.2014	2014
8	20160828	pubmed	y	y						n			25007076	Hospital preparedness in advance of the 2014 FIFA World Cup in Brazil.	Shoaf K, Osorio de Castro CG, Miranda ES.	Prehosp Disaster Med. 2014 Aug;29(4):409-12. doi: 10.1017/S104	create date:2014/07/10 | fi	10.07.2014	2014
2	20172131	Scopus	y	y						n				Perceptions of general practitioners towards pharmaceutical price war and assessment medicines price variation among general practitioners' clinics ii	Siang T.C. Hassali M.A. Alrasheedy A.A. Saleem	Journal of Medical Marketing			2014
12	20160918	pubmed	y				y			n			16097838	Pharmaceutical policy regarding generic drugs in Belgium.	Simoens S, De Bruyn K, Bogaert M, Laekeman (	Pharmacoeconomics. 2005;23(8):755-66.	create date:2005/08/16 | fi	16.08.2005	2005
4	20160828	pubmed	y				y			n			17877848	International comparison of generic medicine prices.	Simoens S.	Curr Med Res Opin. 2007 Nov;23(11):2647-54.	create date:2007/09/20 | fi	20.09.2007	2007
2	20160828	pubmed	y			y				n			21812796	What is the value for money of medicines? A registry study.	Simoens S.	J Clin Pharm Ther. 2012 Apr;37(2):182-6. doi: 10.1111/j.1365-271(	create date:2011/08/05 | fi	05.08.2011	2011
12	20160918	pubmed	y				y			n			19450118	Generic medicine pricing in Europe: current issues and future perspective.	Simoens S.	J Med Econ. 2008;11(1):171-5. doi: 10.3111/13696990801939716	create date:2008/01/01 | fi	01.01.2008	2008
12	20160918	pubmed	y				y			n			24410552	Trends in generic prescribing and dispensing in Europe.	Simoens S.	Expert Rev Clin Pharmacol. 2008 Jul;1(4):497-503. doi: 10.1586/17	create date:2008/07/01 | fi	01.07.2008	2008
12	20160918	pubmed	y				y			n			25152781	The Portuguese generic medicines market: a policy analysis.	Simoens S.	Pharm Pract (Granada). 2009 Apr;7(2):74-80. Epub 2009 Mar 15.	create date:2009/04/01 | fi	01.04.2009	2009
1	20160827	medline	y				y			n			19839067	Developing competitive and sustainable Polish generic medicines market.	Simoens S.		create date:2009/10/20 | fi	20.10.2009	2009
4	20160828	pubmed	y			y				n			17260839	Federally negotiated drug prices anticipated for Medicare Part D.	Sipkoff M.	Manag Care. 2006 Dec;15(12):19-20. No abstract available.	create date:2007/01/31 | fi	31.01.2007	2007
2	20172131	Scopus	y						y	n				A footnote on pharmaceutical pricing	Smith M.C.	Journal of Pharmaceutical Marketing and Management			2008
4	20160828	pubmed	y	y						n			25317336	Effects of the National Essential Medicine System in reducing drug prices: an empirical study in four Chinese provinces.	Song Y, Bian Y, Petzold M, Li L, Yin A.	J Pharm Policy Pract. 2014;7(1):12. doi: 10.1186/2052-3211-7-12.	create date:2014/10/16 | fi	16.10.2014	2014
12	20160918	pubmed	y							y	**Policy (descriptive)**	P4: Theory-driven economic analysis	27630983	Pharmaceutical Pricing Policy in Greece: Toward a Different Path.	Souliotis K, Papageorgiou M, Politi A, Athanasia	Front Public Health. 2016;4:185. doi: 10.3389/fpubh.2016.00185.	create date:2016/09/16 | fi	16.09.2016	2016
12	20160918	pubmed	y				Y			n			26532909	Compliance with the Recently Introduced System of Generic Substitution and Reference Pricing in Ireland; Implications for Further Policy Rollout.	Spillane S, Bennett K, Usher C, Adams R, Barry	Value Health. 2015 Nov;18(7):A519-20. doi: 10.1016/j.jval.2015.0	create date:2015/11/05 | fi	05.11.2015	2015
2	20160828	pubmed	y				y			n			24160374	Does generic entry lower the prices paid for pharmaceuticals in Australia? A comparison before and after the introduction of the mandatory price-redu	Spinks J, Chen G, Donovan L.	Aust Health Rev. 2013 Nov;37(5):675-81. doi: 10.1071/AH13024.	create date:2013/10/29 | fi	29.10.2013	2013
2	20160828	pubmed	y			y				n			18592374	Why U.S. health care expenditure and ranking on health care indicators are so different from Canada's.	Spithoven AH.	Int J Health Care Finance Econ. 2009 Mar;9(1):1-24. doi: 10.1007/	create date:2008/07/02 | fi	02.07.2008	2008
2	20160828	pubmed	y			y				n			27529526	[Costs of a guideline-based treatment of patients with chronic hepatitis C in the era of interferon-free treatment].	Stahmeyer JT, Rossol S, Bert F, Liersch S, Krautl	Z Gastroenterol. 2016 Aug;54(8):760-9. doi: 10.1055/s-0042-1056	create date:2016/08/17 | fi	17.08.2016	2016
4	20160828	pubmed	y						na	n			27039485	A Call for Fairness in Drug Prices.	Stanley JO.	Mo Med. 2016 Jan-Feb;113(1):26-9. No abstract available.	create date:2016/04/05 | fi	05.04.2016	2016
2	20160828	pubmed	y					y		n			16103970	[Pharmaceutical reference pricing in Germany: definition of therapeutic groups, price setting through regression procedure and effects].	Stargardt T, SchreyÃ¶gg J, Busse R.	Gesundheitswesen. 2005 Jul;67(7):468-77. German.	create date:2005/08/17 | fi	17.08.2005	2005
2	20160828	pubmed	y							y	**Policy > Prices**	P4: Theory-driven economic analysis	17249840	Impact of cross-reference pricing on pharmaceutical prices: manufacturers' pricing strategies and price regulation.	Stargardt T, SchreyÃ¶gg J.	Appl Health Econ Health Policy. 2006;5(4):235-47.	create date:2007/01/26 | fi	26.01.2007	2007
12	20160918	pubmed	y							y	**Policy > Usage****	P1: Quantitative retrospective analysis	19639351	The impact of reference pricing on switching behaviour and healthcare utilisation: the case of statins in Germany.	Stargardt T.	Eur J Health Econ. 2010 Jun;11(3):267-77. doi: 10.1007/s10198-00	create date:2009/07/30 | fi	30.07.2009	2009
2	20172131	Scopus	y							y	**Policy > Prices**	P1: Quantitative retrospective analysis		Modelling pharmaceutical price changes in Germany: A function of competition and regulation	Stargardt T.	Applied Economics			2011
4	20160828	pubmed	y			y				n			20465379	Cancer drug prices in the era of healthcare reform.	Steene AJ.	Future Oncol. 2010 May;6(5):647-50. doi: 10.2217/fon.10.44. Rev	create date:2010/05/15 | fi	15.05.2010	2010
2	20160828	pubmed	y			y				n			25348640	Pharmaceutical pricing, cost containment and new treatments for rare diseases in children.	Stella P, Gold-von Simson G.	Orphanet J Rare Dis. 2014 Oct 28;9:152. doi: 10.1186/s13023-014	create date:2014/10/29 | fi	29.10.2014	2014
6	20160828	pubmed	y				y			n			20649394	Addressing the health technology assessment of biosimilar pharmaceuticals.	Stewart A, Aubrey P, Belsey J.	Curr Med Res Opin. 2010 Sep;26(9):2119-26. doi: 10.1185/030079	create date:2010/07/24 | fi	24.07.2010	2010
8	20160828	pubmed	y			y				n			17636851	Pharmaceutical policies: effects of financial incentives for prescribers.	Sturm H, Austvoll-Dahlgren A, Aaserud M, Oxm	Cochrane Database Syst Rev. 2007 Jul 18;(3):CD006731. Review. l	create date:2007/07/20 | fi	20.07.2007	2007
4	20160828	pubmed	y	y						n			21532479	High medicine prices and poor affordability.	Suh GH.	Curr Opin Psychiatry. 2011 Jul;24(4):341-5. doi: 10.1097/YCO.0b01	create date:2011/05/03 | fi	03.05.2011	2011
6	20160828	pubmed	y	y						n			18607039	Pharmaceutical policy in China.	Sun Q, Santoro MA, Meng Q, Liu C, Eggleston K	Health Aff (Millwood). 2008 Jul-Aug;27(4):1042-50. doi: 10.1377/h	create date:2008/07/09 | fi	09.07.2008	2008
9	20160911	pubmed	y					y		n			23329588	Operationalizing value-based pricing of medicines : a taxonomy of approaches.	Sussex J, Towse A, Devlin N.	Pharmacoeconomics. 2013 Jan;31(1):1-10. doi: 10.1007/s40273-0	create date:2013/01/19 | fi	19.01.2013	2013
12	20160918	pubmed	y							y	**Policy (descriptive)**	P3: Essay, comment, synthesis	21540135	Slovakia health system review.	Szalay T, PazitnÃ½ P, SzalayovÃ¡ A, FrisovÃ¡ S,	Health Syst Transit. 2011;13(2):v-xxiii, 1-174.	create date:2011/05/05 | fi	05.05.2011	2011
2	20172131	Scopus	y							y	**Policy > Access***	P1: Quantitative retrospective analysis		Pharmaceutical Pricing and Reimbursement in Japan: For Faster, More Complete Access to New Drugs	Takayama A. Narukawa M.	Therapeutic Innovation and Regulatory Science			2015
5	20160828	pubmed	y			y				n			22991870	[The implementation of innovative medical technologies: biological pharmaceuticals for the treatment of psoriasis--a case study].	Tal O, Lomnicky Y.	Harefuah. 2012 Jun;151(6):368-71, 376. Hebrew.	create date:2012/09/21 | fi	21.09.2012	2012
5	20160828	pubmed	y			y				n			25848223	A perspective on the benefit-risk assessment for new and emerging pharmaceuticals in Japan.	Tanimoto T.	Drug Des Devel Ther. 2015;9:1877-88. doi: 10.2147/DDDT.S6263(	create date:2015/04/08 | fi	08.04.2015	2015
9	20160911	pubmed	y							y	**Policy (descriptive)**	P3: Essay, comment, synthesis	19715634	Value based pricing for NHS medicines: magic bullet, counterfeit treatment or the mixture as before?	Taylor D, Craig T.	Health Econ Policy Law. 2009 Oct;4(Pt 4):515-26. doi: 10.1017/S1:	create date:2009/09/01 | fi	01.09.2009	2009
2	20160828	pubmed	y			y				n			26747790	Cost-effectiveness of Corticosteroid Nasal Spray vs Surgical Therapy in Patients With Severe to Extreme Anatomical Nasal Obstruction.	Teti VP, Akdagli S, Most SP.	JAMA Facial Plast Surg. 2016 May 1;18(3):165-70. doi: 10.1001/jai	create date:2016/01/10 | fi	10.01.2016	2016
2	20160828	pubmed	y	y						n			20586975	Evidence-based decision on medical technologies in Asia Pacific: experiences from India, Malaysia, Philippines, and Pakistan.	Thatte U, Hussain S, de Rosas-Valera M, Malik	Value Health. 2009 Nov-Dec;12 Suppl 3:S18-25. doi: 10.1111/j.152	create date:2010/07/10 | fi	10.07.2010	2010
1	20160827	medline	y			y				n			25097282	Impact of medicine-related information on medicine purchase and use by literate consumers.	Thawani VR1, Gharpure KJ1, Sontakke SD1.		create date:2014	2014	2014
12	20160918	pubmed	y			y				n			27201081	External Reference Pricing Impact of the Integration of the Amnog Discount In The List Price.	Thivolet M, Cetinsoy L, Vataire AL, RÃ©muzat	Value Health. 2014 Nov;17(7):A423. doi: 10.1016/j.jval.2014.08.1	create date:2014/11/01 | fi	01.11.2014	2014
9	20160911	pubmed	y				y			n			26953277	Companies use value-based pricing for single-source off-patent drugs.	Thompson CA.	Am J Health Syst Pharm. 2016 Mar 15;73(6):350, 352, 355. doi: 10	create date:2016/03/10 | fi	10.03.2016	2016
2	20160828	pubmed	y							y	**Policy (descriptive)**	P3: Essay, comment, synthesis	17853505	Drug price reform in the UK: debunking the myths.	Thornton S.	Health Econ. 2007 Oct;16(10):981-92.	create date:2007/09/14 | fi	14.09.2007	2007
2	20160828	pubmed	y							y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	19527097	Pharmaceutical price differences in the EU: investigation from cardiovascular disease drugs.	Timur A, Picone G.	Expert Rev Pharmacoecon Outcomes Res. 2009 Jun;9(3):251-6. dc	create date:2009/06/17 | fi	17.06.2009	2009
2	20160828	pubmed	y			y				n			21443147	Pharmaceutical pricing: a review of proposals to improve access and affordability of prescription drugs.	Tironi P.	Ann Health Law. 2010 Winter;19(2):311-65, preceding i.	create date:2010/01/01 | fi	01.01.2010	2010
7	20160828	pubmed	y					y		n			19075387	Allied against reform: pharmaceutical industry-academic physician relations in the United States, 1945-1970.	Tobbell DA.	Bull Hist Med. 2008 Winter;82(4):878-912. doi: 10.1353/bhm.0.01	create date:2008/12/17 | fi	17.12.2008	2008
12	20160918	pubmed	y			Y				n			27430975	Turning waste medicines to cost savings: A pilot study on the feasibility of medication recycling as a solution to drug wastage.	Toh MR, Chew L.	Palliat Med. 2016 Jul 18. doi:pii: 0269216316639798. [Epub ahead	create date:2016/07/20 | fi	20.07.2016	2016
5	20160828	pubmed	y							y	**Policy (descriptive)**	P3: Essay, comment, synthesis	20085386	Can't get no satisfaction? Will pay for performance help?: toward an economic framework for understanding performance-based risk-sharing agreeme	Towse A, Garrison LP Jr.	Pharmacoeconomics. 2010;28(2):93-102. doi: 10.2165/11314080-	create date:2010/01/21 | fi	21.01.2010	2010
2	20160828	pubmed	y						na	n			17595047	If it ain't broke, don't price fix it: the OFT and the PPRS.	Towse A.	Health Econ. 2007 Jul;16(7):653-65.	create date:2007/06/28 | fi	28.06.2007	2007
2	20160828	pubmed	y							y	**Policy > Invest (R&D)**	P3: Essay, comment, synthesis	20716236	Value based pricing, research and development, and patient access schemes. Will the United Kingdom get it right or wrong?	Towse A.	Br J Clin Pharmacol. 2010 Sep;70(3):360-6. doi: 10.1111/j.1365-21	create date:2010/08/19 | fi	19.08.2010	2010
4	20160828	pubmed	y			y				n			26843491	Hospital pharmacies cope with surge in drug prices.	Traynor K.	Am J Health Syst Pharm. 2016 Feb 15;73(4):182-4. doi: 10.2146/ne	create date:2016/02/05 | fi	05.02.2016	2016
2	20160828	pubmed	y			y				n			26270682	Access to Costly New Hepatitis C Drugs: Medicine, Money, and Advocacy.	Trooskin SB, Reynolds H, Kostman JR.	Clin Infect Dis. 2015 Dec 15;61(12):1825-30. doi: 10.1093/cid/civ6	create date:2015/08/14 | fi	14.08.2015	2015
5	20160828	pubmed	y			y				n			21791636	The National Institute for Health and Clinical Excellence and its role in assessing the value of new cancer treatments in England and Wales.	Trowman R, Chung H, Longson C, Littlejohns P,	Clin Cancer Res. 2011 Aug 1;17(15):4930-5. doi: 10.1158/1078-04:	create date:2011/07/28 | fi	28.07.2011	2011

INCL_1: included for abstract screening; INCL_2: included for research categorization

Adapted from Wettstein Boes 2019, https://doi.org/10.1007/s40258-018-0437-z

5	20160828	pubmed	y			y					n			20059784	Coverage with Evidence Development: applications and issues.	Trueman P, Grainger DL, Downs KE.	Int J Technol Assess Health Care. 2010 Jan;26(1):79-85. doi: 10.10	create date:2010/01/12 | fi	12.01.2010	2010
4	20160828	pubmed	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis	22374907	Drug firms call for changes to German law that limits drug prices.	Tuffs A.	BMJ. 2012 Feb 28;344:e1489. doi: 10.1136/bmj.e1489. No abstra	create date:2012/03/01 | fi	01.03.2012	2012
6	20160828	pubmed	y			y					n			24667748	The impact of parenteral nutrition preparation on bloodstream infection risk and costs.	Turpin RS, Solem C, Pontes-Arruda A, Sanon M,	Eur J Clin Nutr. 2014 Aug;68(8):953-8. doi: 10.1038/ejcn.2014.34.	create date:2014/03/29 | fi	29.03.2014	2014
4	20160828	pubmed	y						y		n			27363104	'Drug prices are the wrong target'.	Ubi S, Goozner M.	Mod Healthc. 2016 May 2;46(18):30-1. No abstract available.	create date:2016/07/02 | fi	02.07.2016	2016
4	20160828	pubmed	y						y		n			16832148	Differences in medical expenditure according to drug prices.	Ueshima H.	Hypertens Res. 2006 May;29(5):301-2. No abstract available.	create date:2006/07/13 | fi	13.07.2006	2006
2	20160828	pubmed	y								y	**Policy (descriptive)**	P1: Quantitative retrospective analysis	24238023	[The costs of new drugs compared to current standard treatment].	Ujeyl M, Schlegel C, Gundert-Remy U.	Z Evid Fortbild Qual Gesundhwes. 2013;107(7):461-7. doi: 10.1016	create date:2013/11/19 | fi	19.11.2013	2013
8	20160828	pubmed	y			y					n			19807576	Health insurance, access to prescription medicines and health outcomes in children.	Ungar WJ, Ariely R.	Expert Rev Pharmacoeconomics Outcomes Res. 2005 Apr;5(2):215-25.	create date:2005/04/01 | fi	01.04.2005	2005
12	20160918	pubmed	y				y				n			23225750	A reference pricing system for Ireland.	Usher C, Barry M.	Expert Rev Pharmacoeconomics Outcomes Res. 2012 Dec;12(6):675-7.	create date:2012/12/21 | fi	21.12.2012	2012
2	20160828	pubmed	y	y							n			21839891	[International reference prices and cost minimization analysis for the regulation of medicine prices in Colombia].	Vacca C, Acosta A, Rodriguez I.	Value Health. 2011 Jul-Aug;14(5 Suppl 1):516-9. doi: 10.1016/j.iva	create date:2011/08/24 | fi	24.08.2011	2011
4	20160930	pubmed	y			y					n			15870428	When will the U.S. flinch at cancer drug prices?	Vanchieri C.	J Natl Cancer Inst. 2005 May 4;97(9):624-6. No abstract available.	create date:2005/05/05 | fi	05.05.2005	2005
2	20172131	Scopus	y			y					n				Parallel trade and pharmaceutical prices: A game-theoretic approach and empirical evidence from the European Union	Vandoros S. Kanavos P.	World Economy			2014
2	20172131	WebOfScience	y				y				n				DOES PHARMACEUTICAL PRICE REGULATION AFFECT THE ADOPTION OF GENERIC COMPETITION IN THE OECD?	Varol, N; Costa-i-Font, J; McGuire, AJ	VALUE HEALTH. 2			2011
12	20160918	pubmed	y	Y							n			26532995	External And Internal Reference Pricing As Cost Containment Measures In Bulgaria.	Vasileva M, Manova M, Marik V, Zidarova B, A	Value Health. 2015 Nov;18(7):A534. doi: 10.1016/j.jval.2015.09.1	create date:2015/11/05 | fi	05.11.2015	2015
5	20160828	pubmed	y			y					n			27226843	Novel methodology for pharmaceutical expenditure forecast.	Vataire AL, Cetinsoy L, AballÃ©a S, RÃ©muzat	J Mark Access Health Policy. 2014;2. doi: 10.3402/jmahp.v2.24082	create date:2014/01/01 | fi	01.01.2014	2014
2	20160828	pubmed	y					y			n			16927609	The economics of pharmaceutical price regulation and importation: refocusing the debate.	Vernon JA, Golec JH, Hughen WK.	Am J Law Med. 2006;32(2-3):175-92. No abstract available.	create date:2006/08/25 | fi	25.08.2006	2006
2	20160828	pubmed	y			y					n			15952613	Mathematical modeling and pharmaceutical pricing: analyses used to inform in-licensing and developmental go/No-Go decisions.	Vernon JA, Hughen WK, Johnson SJ.	Health Care Manag Sci. 2005 May;8(2):167-79.	create date:2005/06/15 | fi	15.06.2005	2005
2	20160828	pubmed	y								y	**Policy > Invest (R&D)**	P4: Theory-driven economic analysis	15386673	Examining the link between price regulation and pharmaceutical R&D investment.	Vernon JA.	Health Econ. 2005 Jan;14(1):1-16.	create date:2004/09/24 | fi	24.09.2004	2005
1	20160827	medline	y	Y							n			26260324	Barriers to universal health coverage in Republic of Moldova: a policy analysis of formal and informal out-of-pocket payments.	Vian T, Feeley FG, Domente S, Negruta A, Matei	A, Habicht J.	create date:2015/08/12 | fi	12.08.2015	2015
6	20160828	pubmed	y			y					n			27123170	A review of the value of innovation in inhalers for COPD and asthma.	Virchow JC, Akdis CA, Darba J, Dekhuijzen R, Ha	J Mark Access Health Policy. 2015;3. doi: 10.3402/jmahp.v3.28766	create date:2015/01/01 | fi	01.01.2015	2015
2	20172131	Scopus	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis		Pharmaceutical pricing policies in Australia	Vitry A.I. Thai L. Roughead E.E.	Pharmaceutical Prices in the 21st Century			2015
8	20160828	pubmed	y								y	**Other (non_Policy) > Usage**	P1: Quantitative retrospective analysis	26541292	Inequalities in medicine use in Central Eastern Europe: an empirical investigation of socioeconomic determinants in eight countries.	Vogler S, Ã¬sterle A, Mayer S.	Int J Equity Health. 2015 Nov 5;14:124. doi: 10.1186/s12939-015-(	create date:2015/11/07 | fi	07.11.2015	2015
2	20160828	pubmed	y		y						n			24962537	Does deregulation in community pharmacy impact accessibility of medicines, quality of pharmacy services and costs? Evidence from nine European cou	Vogler S, Habimana K, Arts D.	Health Policy. 2014 Sep;117(3):311-27. doi: 10.1016/j.healthpol.2(	create date:2014/06/26 | fi	26.06.2014	2014
2	20160828	pubmed	y	Y							n			21495202	Comparing pharmaceutical pricing and reimbursement policies in Croatia to the European Union Member States.	Vogler S, Habl C, Bogut M, Voncina L.	Croat Med J. 2011 Apr 15;52(2):183-97. Review.	create date:2011/04/16 | fi	16.04.2011	2011
2	20160828	pubmed	y								y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	26091603	Analysis of Medicine Prices in New Zealand and 16 European Countries.	Vogler S, Kilpatrick K, Babar ZU.	Value Health. 2015 Jun;18(4):484-92. doi: 10.1016/j.jval.2015.01.(	create date:2015/06/21 | fi	21.06.2015	2015
2	20160828	pubmed	y			y					n			25848546	Medicines discarded in household garbage: analysis of a pharmaceutical waste sample in Vienna.	Vogler S, Leopold C, Zuidberg C, Habl C.	J Pharm Policy Pract. 2014;7:6. doi: 10.1186/2052-3211-7-6.	create date:2014/01/01 | fi	01.01.2014	2014
2	20160828	pubmed	y								y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	26670089	Cancer drugs in 16 European countries, Australia, and New Zealand: a cross-country price comparison study.	Vogler S, Vitry A, Babar ZU.	Lancet Oncol. 2016 Jan;17(1):39-47. doi: 10.1016/S1470-2045(15)	create date:2015/12/17 | fi	17.12.2015	2015
1	20160827	medline	y			y					n			26468397	The Pharmaceutical Pricing and Reimbursement Information (PPRI) network - a decade of exchange of information and policy research?	Vogler S, Zimmermann N, De Joncheere K		create date:2015/10/05	05.10.2015	2015
2	20160828	pubmed	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis	26981252	Pharmaceutical policies in a crisis? Challenges and solutions identified at the PPRI Conference.	Vogler S, Zimmermann N, Ferrario A, Wirtz VJ,	J Pharm Policy Pract. 2016;9:9. doi: 10.1186/s40545-016-0056-8.	create date:2016/03/17 | fi	17.03.2016	2016
2	20160828	pubmed	y								y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	23826758	The role of discounts and loss leaders in medicine procurement in Austrian hospitals - a primary survey of official and actual medicine prices.	Vogler S, Zimmermann N, Habl C, Mazag J.	Cost Eff Resour Alloc. 2013 Jul 4;11(1):15. doi: 10.1186/1478-7547	create date:2013/07/06 | fi	06.07.2013	2013
2	20160828	pubmed	y								y	*Prices (descriptive)*	P2: Qualitative analysis	23093898	Discounts and rebates granted to public payers for medicines in European countries.	Vogler S, Zimmermann N, Habl C, Piessnegger	South Med Rev. 2012 Jul;5(1):38-46. Epub 2012 Jul 23.	create date:2012/10/25 | fi	25.10.2012	2012
2	20160828	pubmed	y								y	**Policy (descriptive)**	P2: Qualitative analysis	23093885	Pharmaceutical policies in European countries in response to the global financial crisis.	Vogler S, Zimmermann N, Leopold C, de Joncho	South Med Rev. 2011 Dec;4(2):69-79. doi: 10.5655/smr.v4i2.1004	create date:2012/10/25 | fi	25.10.2012	2012
2	20172131	Scopus	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis		Pharmaceutical pricing and reimbursement information (PPRI)-new PPRI analysis including Spain	Vogler S. Espin J. Habl C.	Pharmaceuticals Policy and Law			2009
2	20172131	Scopus	y			y					n				The Pharmaceutical Pricing and Reimbursement Information (PPRI) initiative-Experiences from engaging with pharmaceutical policy makers	Vogler S. Leopold C. Zimmermann N. Habl C.	Health Policy and Technology			2014
2	20172131	Scopus	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis		Pharmaceutical pricing in Europe	Vogler S. Martikainen J.E.	Pharmaceutical Prices in the 21st Century			2015
2	20160828	pubmed	y								y	**Policy > Prices**	P1: Quantitative retrospective analysis	22828053	The effects of drug market regulation on pharmaceutical prices in Europe: overview and evidence from the market of ACE inhibitors.	von der Schulenburg F, Vandoros S, Kanavos P.	Health Econ Rev. 2011 Nov 21;1(1):18. doi: 10.1186/2191-1991-1-	create date:2011/01/01 | fi	01.01.2011	2011
12	20160918	pubmed	y					y			n			22139141	Patient socioeconomic determinants for the choice of the cheapest molecule within a cluster: evidence from Belgian prescription data.	Vrijens F, Van de Voorde C, Farfan-Portet MI, V	Eur J Health Econ. 2012 Jun;13(3):315-25. doi: 10.1007/s10198-01	create date:2011/12/06 | fi	06.12.2011	2011
12	20160918	pubmed	y					y			n			20677618	[Reimbursement of generics in Croatia: should more have been done?].	VukusiÃ‡ M.	Lijec Vjesn. 2010 May-Jun;132(5-6):134-43. Croatian.	create date:2010/08/04 | fi	04.08.2010	2010
4	20160828	pubmed	y	Y							n			26600644	Short-term differences in drug prices after implementation of the national essential medicines system: A case study in rural Jiangxi Province, China.	Wang J, Liu X, Wang S, Chen H, Wang X, Zhou V	Indian J Pharmacol. 2015 Sep-Oct;47(5):535-9. doi: 10.4103/0253-	create date:2015/11/26 | fi	26.11.2015	2015
2	20160828	pubmed	y	Y							n			16783505	Price competition in the pharmaceutical market.	Wang YR.	Int J Health Care Finance Econ. 2006 Jun;62(2):119-29.	create date:2006/06/20 | fi	20.06.2006	2006
6	20160828	pubmed	y	Y							n			16309331	The Chinese pharmaceutical market at the crossroads: pro-competition solutions to improve access, quality and affordability.	Wang YR.	Appl Health Econ Health Policy. 2005;4(3):147-51.	create date:2005/11/29 | fi	29.11.2005	2005
4	20160828	pubmed	y	Y							n			20626904	Balancing medicine prices and business sustainability: analyses of pharmacy costs, revenues and profit shed light on retail medicine mark-ups in rural Ky	Waning B, Maddix J, Soucy L.	BMC Health Serv Res. 2010 Jul 13;10:205. doi: 10.1186/1472-6963	create date:2010/07/16 | fi	16.07.2010	2010
1	20160827	medline	y	Y							n			20003422	Towards equitable access to medicines for the rural poor: analyses of insurance claims reveal rural pharmacy initiative triggers price competition in Kyr	Waning B, Maddix J, Tripodis Y, Laing R, Leufkens HG, Gokhale M.		create date:2009/12/17 | fi	17.12.2009	2009
2	20172131	Scopus	y	Y							n				Pharmaceutical pricing in Egypt	Wanis H.	Pharmaceutical Prices in the 21st Century			2015
2	20172131	WebOfScience	y	Y							n				COMPULSORY LICENSES FOR NON-COMMUNICABLE DISEASES: IMPLICATIONS FOR PHARMACEUTICAL PRICING IN LOW-INCOME COUNTRIES	Wasserman, M; Priest, VL	VALUE HEALTH. 2			2012
4	20160828	pubmed	y						y		n			25294842	Campaigners warn that EU trade deal with US could threaten drug prices.	Watson R.	BMJ. 2014 Oct 7;349:g6098. doi: 10.1136/bmj.g6098. No abstract	create date:2014/10/09 | fi	09.10.2014	2014
9	20160911	pubmed	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis	17467498	Value-based pricing of drugs in the UK.	Webb DJ, Walker A.	Lancet. 2007 Apr 28;369(9571):1415-6. No abstract available.	create date:2007/05/01 | fi	01.05.2007	2007
2	20160828	pubmed	y			y					n			26533926	Impact of Grexit on Pharmaceutical Pricing: An International Reference Pricing Analysis.	Weiss J, Hakim P, Kjeldgaard-Pedersen J, Degu	Value Health. 2015 Nov;18(7):A701. doi: 10.1016/j.jval.2015.09.2	create date:2015/11/05 | fi	05.11.2015	2015
11	20160918	pubmed	y			y					n			20036435	The US Orphan Drug Act: rare disease research stimulator or commercial opportunity?	Wellman-Labadie O, Zhou Y.	Health Policy. 2010 May;95(2-3):216-28. doi: 10.1016/j.healthpol.	create date:2009/12/29 | fi	29.12.2009	2009
4	20160828	pubmed	y	Y							n			24931232	Exploration of approaches to adjusting brand-name drug prices in Mainland of China: based on comparison and analysis of some brand-name drug price	Weng G, Han S, Pu R, Pan WH, Shi L.	Chin Med J (Engl). 2014;127(12):2222-8.	create date:2014/06/17 | fi	17.06.2014	2014
2	20172131	Scopus	y								y	*Prices (descriptive)*	P3: Essay, comment, synthesis		Pharmaceutical prices	Wertheimer A.	Journal of Pharmaceutical Health Services Research			2015
2	20172131	Scopus	y			y					n				The healthcare system and pharmaceutical prices in United States	Wertheimer A.I. Huang M.-Y.	Pharmaceutical Prices in the 21st Century			2015
2	20160828	pubmed	y			y					n			25099307	Chronic conditions, financial burden and pharmaceutical pricing: insights from Australian consumers.	Whitty JA, Sav A, Kelly F, King MA, McMillan SS,	Aust Health Rev. 2014 Nov;38(5):589-95. doi: 10.1071/AH13190.	create date:2014/08/08 | fi	08.08.2014	2014
4	20160828	pubmed	y			y					n			18607059	Should drug prices be negotiated under part D?	Wickersham P.	Health Aff (Millwood). 2008 Jul-Aug;27(4):1197-8; author reply 11	create date:2008/07/09 | fi	09.07.2008	2008
5	20160828	pubmed	y							na	n			23926705	[Increases in pharmaceutical expenditures of PHI by monoclonal antibodies].	Wild F.	Versicherungsmedizin. 2013 Jun 1;65(2):91-3. German.	create date:2013/08/10 | fi	10.08.2013	2013
4	20160828	pubmed	y			y					n			27183755	'Negotiating' drug prices for Medicare.	Wilensky GR.	Healthc Financ Manage. 2016 Mar;70(3):32-3. No abstract availal	create date:2016/05/18 | fi	18.05.2016	2016
2	20172131	WebOfScience	y	Y							n				Pharmaceutical price regulation	Williams, K	SOUTH AFRICAN JOURNAL ON HUMAN RIGHTS			2007
9	20160911	pubmed	y								y	**Policy (descriptive)**	P2: Qualitative analysis	21043539	Reducing uncertainty in value-based pricing using evidence development agreements: the case of continuous intraduodenal infusion of levodopa/carbi	Willis M, Persson U, Zoellner Y, Gradl B.	Appl Health Econ Health Policy. 2010;8(6):377-86. doi: 10.2165/11	create date:2010/11/04 | fi	04.11.2010	2010
2	20160828	pubmed	y			y					n			15945041	Pharmaceutical promotion and GP prescription behaviour.	Windmeijer F, de Laat E, Douven R, Mot E.	Health Econ. 2006 Jan;15(1):5-18.	create date:2005/06/10 | fi	10.06.2005	2005
8	20160828	pubmed	y							y	n			19082252	[Research to support pharmaceutical policies].	Wirtz VJ, Reich MR, HernÃ¡ndez-Avila M.	Salud Publica Mex. 2008;50 Suppl 4:S427-8. Spanish. No abstract	create date:2008/12/17 | fi	17.12.2008	2008
1	20160827	medline	y								y	*Prices > Access**	P2: Qualitative analysis	26232055	Human rights and access to hepatitis C treatment for people who inject drugs.	Wolfe D, Luhmann N, Harris M, Momenghalibaf	A, Albers E, Byrne J, Swan T.	create date:2015/08/02 | fi	02.08.2015	2015
7	20160828	pubmed	y	Y							n			26478624	Transitioning to a national health system in Cyprus: a stakeholder analysis of pharmaceutical policy reform.	Wouters OJ, Kanavos PG.	Bull World Health Organ. 2015 Sep 1;93(9):606-13. doi: 10.2471/B	create date:2015/10/20 | fi	20.10.2015	2015
2	20172131	Scopus	y	Y							n				Effects of pharmaceutical price regulation: China's evidence between 1997 and 2008	Wu B. Zhang Q. Qiao X.	Journal of the Asia Pacific Economy			2015
2	20160828	pubmed	y	Y							n			24190661	Pharmaceutical pricing: an empirical study of market competition in Chinese hospitals.	Wu J, Xu J, Liu G, Wu J.	Pharmacoeconomics. 2014 Mar;32(3):293-303. doi: 10.1007/s402	create date:2013/11/06 | fi	06.11.2013	2013
2	20172131	Scopus	y	Y							n				To what extent are pharmaceutical prices determined by patents? A case study of oncology medicines in Thailand	Yamabhai I. Smith R.D.	Journal of Intellectual Property Rights			2015
1	20160827	medline	y	Y							n			24754184	[Prudent use price controls in Chinese medicines market: based on statistical data analysis].	Yang G, Wang N, Huang LQ, Qiu HY, Guo LP.		create date:2014	2014	2014
1	20160827	medline	y	Y							n			19955093	Prices, availability and affordability of essential medicines in rural areas of Hubei Province, China.	Yang H, Dib HH, Zhu M, Qi G, Zhang X.		create date:2009/12/04 | fi	04.12.2009	2009
2	20172131	Scopus	y				y				n				Study of the pharmaceutical pricing and reimbursement policies in Sweden	Yao L-X. Ma L. Zheng Q.	Chinese Journal of New Drugs			2013
8	20160828	pubmed	y			y					n			26664669	The case of pharmacist prescribing policy in Israel.	Yariv H.	Isr J Health Policy Res. 2015;4:49. doi: 10.1186/s13584-015-0045-	create date:2015/12/15 | fi	15.12.2015	2015
2	20160828	pubmed	y								y	**Policy > Prices**	P1: Quantitative retrospective analysis	17619920	Pharmaceutical pricing and reimbursement reforms in Greece.	Yfantopoulos J.	Eur J Health Econ. 2008 Feb;9(1):87-97.	create date:2007/07/11 | fi	11.07.2007	2007
1	20160827	medline	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis	26689782	Pharmaceutical Prices in the 21st Century : Springer International Publishing Switzerland 2015.	Zaheer-Ud-Din Babar (ed)		create date:2015	2015	2015
7	20160828	pubmed	y	Y							n			23717442	Access to essential medicines in Pakistan: policy and health systems research concerns.	Zaidi S, Bigdeli M, Aleem N, Rashidian A.	PLoS One. 2013 May 22;8(5):e63515. doi: 10.1371/journal.pone.0	create date:2013/05/30 | fi	30.05.2013	2013
9	20160911	pubmed	y								y	**Policy > Expenditures**	P4: Theory-driven economic analysis	26899833	Cost Implications of Value-Based Pricing for Companion Diagnostic Tests in Precision Medicine.	Zaric GS.	Pharmacoeconomics. 2016 Jul;34(7):635-44. doi: 10.1007/s40273-	create date:2016/02/24 | fi	24.02.2016	2016
5	20160828	pubmed	y								y	**Policy (descriptive)**	P2: Qualitative analysis	21289930	Methods for the comparative evaluation of pharmaceuticals.	Zentner A, Velasco-Garrido M, Busse R.	GMS Health Technol Assess. 2005 Nov 15;1:Doc09.	create date:2005/01/01 | fi	01.01.2005	2005
2	20172131	Scopus	y			y					n				Promotion and leakage under a pharmaceutical price-volume agreement	Zhang H. Zaric G.S.	INFOR			2011
2	20172131	Scopus	y								y	**Policy (descriptive)**	P4: Theory-driven economic analysis		Optimal design of a pharmaceutical price-volume agreement under asymmetric information about expected market size	Zhang H. Zaric G.S. Huang T.	Production and Operations Management			2011
2	20160828	pubmed	y	Y							n			27202926	Pharmaceutical Pricing and Market Competition: An Empirical Study Based on Anti-Infective Drugs In Tianjin, China.	Zhao MY, Wu J, Ma FF.	Value Health. 2014 Nov;17(7):A786. doi: 10.1016/j.jval.2014.08.4	create date:2014/11/01 | fi	01.11.2014	2014
12	20160918	pubmed	y								y	**Policy > Expenditures**	P1: Quantitative retrospective analysis	27202931	Review Of Reference Pricing Effects On Pharmaceuticals.	Zhou W, Cui X, Qian Y.	Value Health. 2014 Nov;17(7):A787. doi: 10.1016/j.jval.2014.08.4	create date:2014/11/01 | fi	01.11.2014	2014
2	20160828	pubmed	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis	25473702	WHO Guideline on Country Pharmaceutical Pricing Policies.		Geneva: World Health Organization; 2013.	create date:2014/12/05	05.12.2014	2014
10	20160828	OECD iLibrary	y			y					n				Health at a Glance 2015: OECD Indicators - Pharmaceutical spending trends and future challenges			create date:2015/11/04	04.11.2015	2015
10	20160828	OECD iLibrary	y			y					n				OECD Economic Surveys: Israel 2009			create date:2010/01/20	20.01.2010	2010
10	20160828	OECD iLibrary	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis		Value for Money in Health Spending - Drawing all benefits from pharmaceutical spending			create date:2010/10/07	07.10.2010	2010
4	20180827	pubmed	y			y					n			28520697	Prescription drug prices in the US.	[No authors listed]	Med Lett Drugs Ther. 2017 May 22;59(1521):81-83. No abstract a	create date:2017/05/19		2017
2	20180827	pubmed	y								y	*Prices (descriptive)*	P3: Essay, comment, synthesis	29093000	Pandora's Prescription: The Pharmaceutical Pricing vs. Cost Conundrum.	[No authors listed]	FASEB J. 2017 Nov;31(11):4661-4662. doi: 10.1096/fj.171101ufm.	create date:2017/11/03		2017
4	20180827	pubmed	y			y					n			29536096	Prescription Drug Prices in the US.	[No authors listed]	JAMA. 2018 Mar 13;319(10):1042-1043. doi: 10.1001/jama.2018.	create date:2018/03/15		2018
4	20180827	pubmed	y			y					n			29913506	Correction: Pharmacy Benefit Managers, Brand-Name Drug Prices, and Patient Cost Sharing.	[No authors listed]	Ann Intern Med. 2018 Jun 19;168(12):904. doi: 10.7326/L18-0287	create date:2018/06/19		2018
2	20180828	scopus	y	Y							n				A systematic review of pharmaceutical pricing policies in developing countries	Abdel Rida N., Mohamed Ibrahim M.I., Babar Z	Journal of Pharmaceutical Health Services Research			2017
2	20180828	WebOfScience	y	Y							n				CHALLENGES FACING PHARMACEUTICAL PRICING IN EGYPT AFTER CURRENCY DEVALUATION HOW TO REACH EQUILIBRIUM	Abotaleb, A; El Shobaky, AS; Ashraf, RM	VALUE HEALTH. 2			2017
4	20180827	pubmed	y			y					n			28336677	The ongoing threat of rising drug prices: ASHP's work goes on.	Abramowitz PW.	Am J Health Syst Pharm. 2017 Apr 15;74(8):551-552. doi: 10.2146	create date:2017/03/25 | first author:Abra		2017
2	20180828	scopus	y								y	**Policy > Prices**	P3: Essay, comment, synthesis		The Italian pharmaceutical antitrust (r)evolution and its most recent example: the Aspen case	Actis Perinetto P.	European Competition Journal			2017
4	20180827	pubmed	y	Y							n			30038489	Affordability of essential medicine prices in Malaysia's private health sector.	Ahmad NS, Islahudin F.	Patient Prefer Adherence. 2018 Jul 16;12:1231-1237. doi: 10.2147	create date:2018/07/25 | first author:Ahm		2018
2	20180827	pubmed	y			y					n			29442301	Authors' Reply to Holko: "Forecasting Pharmaceutical Prices for Economic Evaluations When There Is No Market: A Review".	Akpinar I, Jacobs P, Tran DT.	Pharmacoecon Open. 2017 Mar;1(1):71. doi: 10.1007/s41669-017	create date:2018/02/15 | first author:Akpir		2018
2	20180827	pubmed	y			y					n			29442299	Forecasting Pharmaceutical Prices for Economic Evaluations When There Is No Market: A Review.	Akpinar I, Jacobs P, Tran TD.	Pharmacoecon Open. 2017 Mar;1(1):65-68. doi: 10.1007/s41669-	create date:2018/02/15 | first author:Akpir		2018
5	20180827	pubmed	y	n										28805961	Reducing Branded Prescription Drug Prices: A Review of Policy Options.	Alexander GC, Ballreich J, Socal MP, Karmarkar	Pharmacotherapy. 2017 Nov;37(11):1469-1478. doi: 10.1002/pha	create date:2017/08/15 | first author:Alexa		2017
4	20180827	pubmed	y			y					n			28805961	Reducing Branded Prescription Drug Prices: A Review of Policy Options.	Alexander GC, Ballreich J, Socal MP, Karmarkar	Pharmacotherapy. 2017 Nov;37(11):1469-1478. doi: 10.1002/pha	create date:2017/08/15 | first author:Alexa		2017
6	20180827	pubmed	y			y					n			28636648	Cost-effectiveness of pazopanib versus sunitinib for metastatic renal cell carcinoma in the United Kingdom.	Amdahl J, Diaz J, Sharma A, Park J, Chandiwana	PLoS One. 2017 Jun 21;12(6):e0175920. doi: 10.1371/journal.pone	create date:2017/06/22 | first author:Amd		2017
8	20180828	pubmed	y	Y							n			30069165	Catastrophic expenditures and impoverishment due to out-of-pocket health payments in Kosovo.	Arenliu Qosaj F, Froeschl G, Berisha M, Bellaqa	Cost Eff Resour Alloc. 2018 Jul 28;16:26. doi: 10.1186/s12962-018-	create date:2018/08/03 | first author:Aren		2018
8	20180828	pubmed	y	n										26507643	The simultaneous effects of pharmaceutical policies from payers' and patients' perspectives: Italy as a case study.	Armeni P, Jommi C, Otto M.	Eur J Health Econ. 2016 Nov;17(8):963-977. Epub 2015 Oct 27.	create date:2015/10/29 | first author:Arme		2015
12	20180828	pubmed	y	n										26507643	The simultaneous effects of pharmaceutical policies from payers' and patients' perspectives: Italy as a case study.	Armeni P, Jommi C, Otto M.	Eur J Health Econ. 2016 Nov;17(8):963-977. Epub 2015 Oct 27.	create date:2015/10/29 | first author:Arme		2015
5	20180827	pubmed	y			y					n			27541729	Assessing the overall benefit of a medication: cumulative benefit of secukinumab over time in patients with moderate-to-severe plaque psoriasis.	Armstrong AW, Feldman SR, Korman NJ, Meng	J Dermatolog Treat. 2017 May;28(3):200-205. doi: 10.1080/0954	create date:2016/08/20 | first author:Arms		2016
2	20180828	scopus	y	Y							n				Impact of TRIPS on providing easy access to affordable medicines in India	Arora S., Chaturvedi R.	Journal of Intellectual Property Rights			2017
8	20180828	pubmed	y	n										27833835	Comparison of pharmaceutical pricing and reimbursement systems in Turkey and certain EU countries.	Atikeler EK, Ã¬zÃ§elikay G.	Springerplus. 2016 Oct 26;5(1):1876. eCollection 2016.	create date:2016/11/12 | first author:Atike		2016
12	20180828	pubmed	y	n										27833835	Comparison of pharmaceutical pricing and reimbursement systems in Turkey and certain EU countries.	Atikeler EK, Ã¬zÃ§elikay G.	Springerplus. 2016 Oct 26;5(1):1876. eCollection 2016.	create date:2016/11/12 | first author:Atike		2016
2	20180827	pubmed	y								y	**Policy (descriptive)**	P3: Essay, comment, synthesis	27833835	Comparison of pharmaceutical pricing and reimbursement systems in Turkey and certain EU countries.	Atikeler EK, Ã¬zÃ§elikay G.	Springerplus. 2016 Oct 26;5(1):1876. eCollection 2016.	create date:2016/11/12 | first author:Atike		2016
4	20180827	pubmed	y			y					n			29435565	Pharmaceutical Benefit Managers, Brand-Name Drug Prices, and Patient Cost Sharing.	Bai G, Sen AP, Anderson GF.	Ann Intern Med. 2018 Mar 20;168(6):436-437. doi: 10.7326/M17-	create date:2018/02/13 | first author:Bai G		2018
4	20180827	pubmed	y			y					n			28179734	High Drug Prices: So Who Is to Blame?	Baker DE.	Hosp Pharm. 2017 Jan;52(1):5-6. doi: 10.1310/hpj5201-5. No abst	create date:2017/02/10 | first author:Bake		2017
2	20180827	pubmed	y								y	**Policy > diverse**	P2: Qualitative analysis	29026611	Branded prescription drug spending: a framework to evaluate policy options.	Ballreich J, Alexander GC, Socal M, Karmarkar	J Pharm Policy Pract. 2017 Oct 2;10:31. doi: 10.1186/s40545-017-	create date:2017/10/14 | first author:Ballr		2017

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4	20180827	pubmed		y		y	n			28381916	Republicans Resolve to Address High Drug Prices: Rhetoric Meets Reality With PPACA Replacement.	Barlas S.	P T. 2017 Apr;42(4):242-273.	create date:2017/04/07 | first author:Barla	2017
4	20180827	pubmed		y		y	n			28479840	New User Fee Agreements Aim at Ensuring Relief From High Drug Prices: But Trump's Budget Proposal Threatens to Upend Completed Negotiations.	Barlas S.	P T. 2017 May;42(5):312-329.	create date:2017/05/10 | first author:Barla	2017
4	20180827	pubmed		y		y	n			29719363	White House Report on Drug Prices Is a Detailed Road Map: Price-Lowering Ideas Generated, Some Already in Motion.	Barlas S.	P T. 2018 May;43(5):259-286.	create date:2018/05/03 | first author:Barla	2018
5	20180827	pubmed	y	n						27549327	Misoprostol Vaginal Insert in Labor Induction: A Cost-Consequences Model for 5 European Countries-An Economic Evaluation Supported with Literature	Bierut A, DowgiÅ‚Å‚o-Smolarczyk J, PieniÄ…Å	Adv Ther. 2016 Oct;33(10):1755-1770. Epub 2016 Aug 22.	create date:2016/08/24 | first author:Bieru	2016
2	20180827	pubmed		y		y	n			29403372	Systemic Measures and Legislative and Organizational Frameworks Aimed at Preventing or Mitigating Drug Shortages in 28 European and Western Asi	Bochenek T, Abilova V, Alkan A, Asanin B, de M	Front Pharmacol. 2018 Jan 18;8:942. doi: 10.3389/fphar.2017.005	create date:2018/02/07 | first author:Boch	2018
2	20180828	scopus	y	n							Systemic measures and legislative and organizational frameworks aimed at preventing or mitigating drug shortages in 28 European and Western Asian	Bochenek T., Abilova V., Alkan A., Asanin B., Be	Frontiers in Pharmacology		2018
2	20180828	WebOfScier	y	n							Systemic Measures and Legislative and Organizational Frameworks Aimed at Preventing or Mitigating Drug Shortages in 28 European and Western Asi	Bochenek, T; Abilova, V; Alkan, A; Asanin, B; Be	FRONTIERS IN PHARMACOLOGY		2018
4	20180827	pubmed		y		y	n			28224469	The Medicaid Rebate: Changes in Oncology Drug Prices After the Affordable Care Act.	Bonakdar Tehrani A, Carroll NV.	Appl Health Econ Health Policy. 2017 Aug;15(4):513-520. doi: 10.1	create date:2017/02/23 | first author:Bona	2017
6	20180827	pubmed		y	y	Policy (descriptive)	P2: Qualitative analysis			29636692	Managed Entry Agreements for Pharmaceuticals in the Context of Adaptive Pathways in Europe.	Bouvy JC, Sapede C, Garner S.	Front Pharmacol. 2018 Mar 27;9:280. doi: 10.3389/fphar.2018.00	create date:2018/04/11 | first author:Bouv	2018
11	20180828	pubmed	y	n						27350294	Reference pricing with endogenous generic entry.	Brekke KR, Canta C, Straume OR.	J Health Econ. 2016 Dec;50:312-329. doi: 10.1016/j.jhealeco.2016	create date:2016/06/29 | first author:Brekl	2016
12	20180828	pubmed	y	n						27350294	Reference pricing with endogenous generic entry.	Brekke KR, Canta C, Straume OR.	J Health Econ. 2016 Dec;50:312-329. doi: 10.1016/j.jhealeco.2016	create date:2016/06/29 | first author:Brekl	2016
8	20180828	pubmed		y		y	n			29493050	The impact of permissive and restrictive pharmaceutical policies on quetiapine dispensing: Evaluating a policy pendulum using interrupted time series a	Brett J, Schaffer A, Dobbins T, Buckley NA, Pea	Pharmacoepidemiol Drug Saf. 2018 Apr;27(4):439-446. doi: 10.10	create date:2018/03/02 | first author:Brett	2018
2	20180827	pubmed		y		y	n			29073981	Applying Multi-Criteria Decision Analysis (MCDA) Simple Scoring as an Evidence-based HTA Methodology for Evaluating Off-Patent Pharmaceuticals (OF	Brixner D, Maniadakis N, KalÃ³ Z, Hu S, Shen J,	Value Health Reg Issues. 2017 Sep;13:1-6. doi: 10.1016/j.vhri.201	create date:2017/10/28 | first author:Brixn	2017
2	20180828	scopus	y	y			n				Considering Multicriteria Decision Analysis (MCDA) Simple Scoring as an Evidence-Based HTA Methodology for Evaluating Off-Patent Pharmaceuticals (	Brixner D., Maniadakis N., Kaló Z., Hu S., Shen	Value in Health Regional Issues		2017
4	20180827	pubmed		y		y	n			29779693	A new strategy to reduce US drug prices.	Burki TK.	Lancet Oncol. 2018 May 17. pii: S1470-2045(18)30374-7. doi: 10.1	create date:2018/05/22 | first author:Burki	2018
4	20180827	pubmed		y		y	n			29695851	Cap drug prices with policy - here's how.	Cairns L.	Nature. 2018 Apr;556(7702):436. doi: 10.1038/d41586-018-04900	create date:2018/04/27 | first author:Cairn	2018
2	20180828	scopus	y	n						27564849	A comparative review of the pharmacoeconomic guidelines in South Africa	Carapinha J.L.	Journal of Medical Economics		2017
2	20180827	pubmed	y	n						27564849	A comparative review of the pharmacoeconomic guidelines in South Africa.	Carapinha JL.	J Med Econ. 2017 Jan;20(1):37-44. Epub 2016 Aug 26.	create date:2016/08/27 | first author:Carap	2016
2	20180828	WebOfScier	y	n						27564849	A comparative review of the pharmacoeconomic guidelines in South Africa	Carapinha, JL	JOURNAL OF MEDICAL ECONOMICS		2017
2	20180828	scopus		y	y	Policy > Prices	P1: Quantitative retrospective analysis				Value Based Pricing of Pharmaceuticals in the US and UK: Does Centralized Cost Effectiveness Analysis Matter?	Comanor W.S., Schweitzer S.O., Riddle J.M., Sc	Review of Industrial Organization		2018
2	20180828	WebOfScier	y	n							Value Based Pricing of Pharmaceuticals in the US and UK: Does Centralized Cost Effectiveness Analysis Matter?	Comanor, WS; Schweitzer, SO; Riddle, JM; Sche	REVIEW OF INDUSTRIAL ORGANIZATION		2018
12	20180828	pubmed	y	n						27025848	Factors influencing the variation in GMS prescribing expenditure in Ireland.	ConwayLenihan A, Ahern S, Moore S, Cronin J, |	Health Econ Rev. 2016 Dec;6(1):13. doi: 10.1186/s13561-016-009	create date:2016/03/31 | first author:Conw	2016
8	20180828	pubmed		y		y	n			28793075	[Coordination between pharmaceutical services for integrated pharmacotherapy: the case of Catalonia].	Costa KS, Goldbaum M, Guayta-Escolies R, Moc	Cien Saude Colet. 2017 Aug;22(8):2595-2608. doi: 10.1590/1413-8	create date:2017/08/10 | first author:Costa	2017
8	20180828	pubmed		y		y	n			29160466	Pharmaceutical services in the primary health care of the Brazilian Unified Health System: advances and challenges.	Costa KS, Tavares NUL, Nascimento JMD JÃºnic	Rev Saude Publica. 2017 Nov 13;51(suppl 2):3s. doi: 10.11606/S15	create date:2017/11/22 | first author:Costa	2017
8	20180828	pubmed		y		y	n			29160467	Pharmaceutical services in primary health care: interfederative agreement in the development of pharmaceutical policies in the Brazilian Unified Healt	Costa KS, Tavares NUL, Nascimento JMD JÃºnic	Rev Saude Publica. 2017 Nov 13;51(suppl 2):2s. doi: 10.11606/S15	create date:2017/11/22 | first author:Costa	2017
8	20180828	pubmed		y		y	n			28444005	Promoting and regulating generic medicines: Brazil in comparative perspective.	da Fonseca EM, Shadlen KC.	Rev Panam Salud Publica. 2017 Apr 20;41:e5.	create date:2017/04/27 | first author:da Fo	2017
9	20180827	pubmed		y			n			29566830	Affordability Challenges to Value-Based Pricing: Mass Diseases, Orphan Diseases, and Cures.	Danzon PM.	Value Health. 2018 Mar;21(3):252-257. doi: 10.1016/j.jval.2017.1	create date:2018/03/24 | first author:Danz	2018
4	20180827	pubmed		y		y	n			28672324	High Generic Drug Prices and Market Competition: A Retrospective Cohort Study.	Dave CV, Kesselheim AS, Fox ER, Qiu P, Hartzer	Ann Intern Med. 2017 Aug 1;167(3):145-151. doi: 10.7326/M16-1	create date:2017/07/04 | first author:Dave	2017
6	20180827	pubmed		y	y		n			28261487	Drug pricing and reimbursement decision making systems in Mongolia.	Dorj G, Sunderland B, Sanjiav T, Dorj G, Gender	J Pharm Policy Pract. 2017 Feb 27;10:11. doi: 10.1186/s40545-017	create date:2017/03/07 | first author:Dorj	2017
2	20180827	pubmed		y		y	n			29033595	Drug tendering: drug supply and shortage implications for the uptake of biosimilars.	Dranitsaris G, Jacobs I, Kirchhoff C, Popovian R,	Clinicoeco Outcomes Res. 2017 Sep 29;9:573-584. doi: 10.2147/C	create date:2017/10/17 | first author:Dran	2017
2	20180828	scopus	y	n							Drug tendering: Drug supply and shortage implications for the uptake of biosimilars	Dranitsaris G., Jacobs I., Kirchhoff C., Popovian	ClinicoEconomics and Outcomes Research		2017
2	20180828	WebOfScier	y	n						29033595	Drug tendering: drug supply and shortage implications for the uptake of biosimilars	Dranitsaris, G; Jacobs, I; Kirchhoff, C; Popovian,	CLINICOECONOMICS AND OUTCOMES RESEARCH		2017
2	20180828	scopus	y	n							Innovative pharmaceutical pricing agreements in five European markets: A survey of stakeholder attitudes and experience	Dunlop W.C.N., Staufer A., Levy P., Edwards G.	Health Policy.		2018
2	20180827	pubmed		y	y	Policy (descriptive)	P2: Qualitative analysis			29567205	Innovative pharmaceutical pricing agreements in five European markets: A survey of stakeholder attitudes and experience.	Dunlop WCN, Staufer A, Levy P, Edwards GJ.	Health Policy. 2018 May;122(5):528-532. doi: 10.1016/j.healthpol	create date:2018/03/24 | first author:Dunl	2018
2	20180828	WebOfScier	y	n						29567205	Innovative pharmaceutical pricing agreements in five European markets: A survey of stakeholder attitudes and experience	Dunlop, WCN; Staufer, A; Levy, P; Edwards, GJ	HEALTH POLICY.		2018
4	20180827	pubmed		y		y	n			29444870	Canada makes deal to reduce generic drug prices.	Dyer O.	BMJ. 2018 Feb 14;360:k723. doi: 10.1136/bmj.k723. No abstract a	create date:2018/02/16 | first author:Dyer	2018
8	20180828	pubmed		y		y	n			28343810	Policy objective of generic medicines from the investment perspective: The case of clopidogrel.	Elek P, HarsÃ¡nyi A, Zelei T, Csetneki K, KalÃ³ Z	Health Policy. 2017 May;121(5):558-565. doi: 10.1016/j.healthpol	create date:2017/03/28 | first author:Elek I	2017
2	20180827	pubmed	y	y			n			27697777	Implication of external price referencing and parallel trade on pharmaceutical expenditure: indirect evidence from lower-income European countries	Elek P, TakÃ¡cs E, MerÃ©sz G, KalÃ³ Z.	Health Policy Plan. 2017 Apr 1;32(3):349-358. doi: 10.1093/heapo	create date:2016/10/05 | first author:Elek I	2016
2	20180828	scopus	y	n						27697777	Implication of external price referencing and parallel trade on pharmaceutical expenditure: indirect evidence from lower-income European countries	Elek P., Takács E., Merész G., Kaló Z.	Health Policy and Planning		2017
2	20180828	WebOfScier	y	n						27697777	Implication of external price referencing and parallel trade on pharmaceutical expenditure: indirect evidence from lower-income European countries	Elek, P; Takacs, E; Meresz, G; Kalo, Z	HEALTH POLICY AND PLANNING		2017
8	20180828	pubmed		y	y		n			28793073	Rational use of medicines, pharmaceutalization and uses of methylphenidate.	Esher A, Coutinho T.	Cien Saude Colet. 2017 Aug;22(8):2571-2580. doi: 10.1590/1413-8	create date:2017/08/10 | first author:Eshe	2017
2	20180828	scopus	y	n						27995636	Managing the Rising Costs and High Drug Expenditures in Critical Care Pharmacy Practice	Flannery A.H., Pandya K., Laine M.E., Almeter	Pharmacotherapy		2017
2	20180827	pubmed		y		y	n			27995636	Managing the Rising Costs and High Drug Expenditures in Critical Care Pharmacy Practice.	Flannery AH, Pandya K, Laine ME, Almeter PJ, F	Pharmacotherapy. 2017 Jan;37(1):54-64. doi: 10.1002/phar.1862.	create date:2016/12/21 | first author:Flanr	2016
2	20180828	WebOfScier	y	n						27995636	Managing the Rising Costs and High Drug Expenditures in Critical Care Pharmacy Practice	Flannery, AH; Pandya, K; Laine, ME; Almeter, P	PHARMACOTHERAPY		2017
2	20180827	pubmed		y	y	Policy (descriptive)	P3: Essay, comment, synthesis			30030646	Pharmaceutical pricing conundrum: time to get rid of it?	Garattini L, Padula A.	Eur J Health Econ. 2018 Jul 20. doi: 10.1007/s10198-018-0995-x. [E	create date:2018/07/22 | first author:Gara	2018
9	20180827	pubmed		y	y	Policy (descriptive)	P3: Essay, comment, synthesis			29270834	Value-Based Pricing : L'Enfant Terrible?	Garner S, Rintoul A, Hill SR.	Pharmacoeconomics. 2018 Jan;36(1):5-6. doi: 10.1007/s40273-01	create date:2017/12/23 | first author:Garn	2017
9	20180827	pubmed		y		y	n			28869571	Value-Based Pricing and Reimbursement in Personalised Healthcare: Introduction to the Basic Health Economics.	Garrison LP, Towse A.	J Pers Med. 2017 Sep 4;7(3). pii: E10. doi: 10.3390/jpm7030010. R	create date:2017/09/05 | first author:Garri	2017
5	20180827	pubmed		y	y	Policy (descriptive)	P3: Essay, comment, synthesis			28721607	Access to High Cost Cancer Medicines Through the Lens of an Australian Senate Inquiry-Defining the "Goods" at Stake.	Ghinea N, Little M, Lipworth W.	J Bioeth Inq. 2017 Sep;14(3):401-410. doi: 10.1007/s11673-017-98	create date:2017/07/20 | first author:Ghin	2017
11	20180828	pubmed		y	y	Policy (descriptive)	P3: Essay, comment, synthesis			28522031	[The French medecine pricing committee and the medicine economic policy: Rules and competences].	Giorgi D.	Ann Pharm Fr. 2017 Sep;75(5):359-372. doi: 10.1016/j.pharma.20	create date:2017/05/20 | first author:Giorg	2017
4	20180827	pubmed		y		y	n			29789291	Is Ontario adding drug prices to EMRs?	Glauser W.	CMAJ. 2018 May 22;190(20):E628-E629. doi: 10.1503/cmaj.109-5	create date:2018/05/24 | first author:Glau	2018
2	20180828	WebOfScience	y	y			n				Strategies for pricing of pharmaceuticals and generics in developing countries	Godman, B; Hassali, MA	GABI JOURNAL-GENERICS AND BIOSIMILARS INITIATIVE JOURNAL		2017
2	20180828	scopus	y		y	Policy > Expenditures	P4: Theory-driven economic analysis				Reference Pricing with Elastic Demand for Pharmaceuticals	Gonçalves R., Rodrigues V.	Scandinavian Journal of Economics		2018
2	20180828	WebOfScier	y	n							Reference Pricing with Elastic Demand for Pharmaceuticals	Goncalves, R; Rodrigues, V	SCANDINAVIAN JOURNAL OF ECONOMICS		2018
5	20180827	pubmed	y	n						26944633	Private versus social incentives for pharmaceutical innovation.	GonzÃ¡lez P, Macho-Stadler I, PÃ©rez-Castrillo	J Health Econ. 2016 Dec;50:286-297. doi: 10.1016/j.jhealeco.2015	create date:2016/03/06 | first author:Gonz	2016
4	20180827	pubmed		y		y	n			28591520	Targeting Unconscionable Prescription-Drug Prices - Maryland's Anti-Price-Gouging Law.	Greene JA, Padula WV.	N Engl J Med. 2017 Jul 13;377(2):101-103. doi: 10.1056/NEJMp1700	create date:2017/06/08 | first author:Gree	2017
5	20180827	pubmed		y	y	Policy > diverse	P1: Quantitative retrospective analysis			28813502	Addressing the challenge of high-priced prescription drugs in the era of precision medicine: A systematic review of drug life cycles, therapeutic drug ma	Gronde TV, Uyl-de Groot CA, Pieters T.	PLoS One. 2017 Aug 16;12(8):e0182613. doi: 10.1371/journal.pon	create date:2017/08/17 | first author:Gron	2017
2	20180828	WebOfScience	y		y		n			29465214	Delivering Public Health Insurance Through Private Plan Choice in the United States	Gruber, J	JOURNAL OF ECONOMIC PERSPECTIVES		2017
4	20180827	pubmed		y	y		n			28944731	The FDA Unapproved Drugs Initiative: An Observational Study of the Consequences for Drug Prices and Shortages in the United States.	Gupta R, Dhruva SS, Fox ER, Ross JS.	J Manag Care Spec Pharm. 2017 Oct;23(10):1066-1076. doi: 10.18	create date:2017/09/26 | first author:Gupt	2017
7	20180828	pubmed		y	y		n			27862695	Pan-genotypic treatment regimens for hepatitis C virus: Advantages and disadvantages in high- and low-income regions.	HÃ©zode C.	J Viral Hepat. 2017 Feb;24(2):92-101. doi: 10.1111/jvh.12635. Epu	create date:2016/11/20 | first author:HÃ©	2016
8	20180828	pubmed	y	n						27311827	Public health interventions to protect against falsified medicines: a systematic review of international, national and local policies.	Hamilton WL, Doyle C, Halliwell-Ewen M, Lamb	Health Policy Plan. 2016 Dec;31(10):1448-1466. Epub 2016 Jun 16	create date:2016/11/02 | first author:Ham	2016
4	20180827	pubmed		y	y		n			27987632	The Cost of Quality Treatment Inactivity: Errors in the Application of Drug Prices in Economic Evaluation Due to Failing to Account for the Distributio	Hatwell AJ, Porter J, Lee D, Hertel N, Latimer	Value Health. 2016 Dec;19(8):1055-1058. doi: 10.1016/j.jval.2016	create date:2016/12/19 | first author:Hatw	2016
2	20180827	pubmed	y	n						27346189	International trade and determinants of price differentials of insulin medicine.	Helble M, Aizawa T.	Health Policy Plan. 2017 Feb;32(1):1-10. doi: 10.1093/heapol/czw	create date:2016/06/28 | first author:Helbl	2016
2	20180828	scopus	y	n						27346189	International trade and determinants of price differentials of insulin medicine	Helble M., Aizawa T.	Health Policy and Planning		2017
2	20180828	WebOfScier	y	n						27346189	International trade and determinants of price differentials of insulin medicine	Helble, M; Aizawa, T	HEALTH POLICY AND PLANNING		2017
6	20180827	pubmed		y	y		n			28871025	The economic impact of childhood acute gastroenteritis on Malawian families and the healthcare system.	Hendrix N, Bar-Zeev N, Atherly D, Chikafa J, Mv	BMJ Open. 2017 Sep 3;7(9):e017347. doi: 10.1136/bmjopen-2017-	create date:2017/09/06 | first author:Henc	2017
5	20180827	pubmed		y	y	Policy (descriptive)	P3: Essay, comment, synthesis			29186996	An assessment of innovative pricing schemes for the communication of value: is price discrimination and two-part pricing a way forward?	Hertzman P, Miller P, Tolley K.	Expert Rev Pharmacoecon Outcomes Res. 2018 Feb;18(1):5-12. do	create date:2017/12/01 | first author:Hert	2017
2	20180827	pubmed		y	y		n			29442302	Comment on: "Forecasting Pharmaceutical Prices for Economic Evaluations When There is No Market: A Review".	Holko P.	Pharmacoecon Open. 2017 Mar;1(1):69-70. doi: 10.1007/s41669-0	create date:2018/02/15 | first author:Holk	2018
2	20180827	pubmed		y	y		n			29760170	Trump promises to reduce drug prices but drops campaign promises.	Hopkins Tanne J.	BMJ. 2018 May 14;361:k2133. doi: 10.1136/bmj.k2133. No abstra	create date:2018/05/16 | first author:Hopk	2018
2	20180828	WebOfScience		y	y		n				The impact of health insurance expansion on physician treatment choice: Medicare Part D and physician prescribing	Hu, TY; Decker, SL; Chou, SY	INTERNATIONAL JOURNAL OF HEALTH ECONOMICS AND MANAGEMENT		2017
6	20180827	pubmed	y	n						27149298	Cost-effectiveness of ceritinib in patients previously treated with crizotinib in anaplastic lymphoma kinase positive (ALK+) non-small cell lung cancer in C	Hurry M, Zhou ZY, Zhang J, Zhang C, Fan L, Reb	J Med Econ. 2016 Oct;19(10):936-44. doi: 10.1080/13696998.2016	create date:2016/05/06 | first author:Hurr	2016
2	20180828	scopus	y	n						27796725	Restoring a reputation: invoking the UNESCO Universal Declaration on Bioethics and Human Rights to bear on pharmaceutical pricing	Hurst D.J.	Medicine, Health Care and Philosophy		2017
2	20180827	pubmed		y	y		n			27796725	Restoring a reputation: invoking the UNESCO Universal Declaration on Bioethics and Human Rights to bear on pharmaceutical pricing.	Hurst DJ.	Med Health Care Philos. 2017 Mar;20(1):105-117. doi: 10.1007/s1	create date:2016/11/01 | first author:Hurst	2016
2	20180828	WebOfScier	y	n						27796725	Restoring a reputation: invoking the UNESCO Universal Declaration on Bioethics and Human Rights to bear on pharmaceutical pricing	Hurst, DJ	MEDICINE HEALTH CARE AND PHILOSOPHY		2017
9	20180827	pubmed		y	y		n			28692713	Value-Based Pricing and State Reform of Prescription Drug Costs.	Hwang TJ, Kesselheim AS, Sarpatwari A.	JAMA. 2017 Aug 15;318(7):609-610. doi: 10.1001/jama.2017.8259	create date:2017/07/12 | first author:Hwa	2017
4	20180827	pubmed		y	y		n			27799143	Public referendum on drug prices in the US: will it bring relief?	Hwang TJ, Kesselheim AS.	BMJ. 2016 Oct 31;355:i5657. doi: 10.1136/bmj.i5657. No abstract	create date:2016/11/02 | first author:Hwa	2016
5	20180827	pubmed		y	y	Policy (descriptive)	P3: Essay, comment, synthesis			29073982	Drug Policy in Hungary.	Inotai A, CsanÃ¡di M, HarsÃ¡nyi A, NÃ©meth B	Value Health Reg Issues. 2017 Sep;13:16-22. doi: 10.1016/j.vhri.2	create date:2017/10/28 | first author:Inota	2017
6	20180827	pubmed		y		y	n			28650704	Is there a reason for concern or is it just hype? - A systematic literature review of the clinical consequences of switching from originator biologics to bio	Inotai A, Prins CPJ, CsanÃ¡di M, Vitezic D, Codr	Expert Opin Biol Ther. 2017 Aug;17(8):915-926. doi: 10.1080/1471	create date:2017/06/27 | first author:Inota	2017
8	20180828	pubmed		y	y		n			29438504	Potentially inappropriate medication and hospitalization/emergency department visits among the elderly in Korea.	Jeon HL, Park J, Han E, Kim DS.	Int J Qual Health Care. 2018 Feb 1;30(1):50-56. doi: 10.1093/intqh	create date:2018/02/14 | first author:Jeon	2018
2	20180827	pubmed		y	y		n			28740397	Eligibility for alirocumab or evolocumab treatment in 1090 hypercholesterolemic patients referred to a regional cholesterol treatment center with LDL	Jetty V, Glueck CJ, Lee K, Goldenberg N, Prince	Vasc Health Risk Manag. 2017 Jul 6;13:247-253. doi: 10.2147/VHR	create date:2017/07/26 | first author:Jetty	2017
2	20180828	scopus	y	n						28740397	Eligibility for alirocumab or evolocumab treatment in 1090 hypercholesterolemic patients referred to a regional cholesterol treatment center with LDL	Jetty V., Glueck C.J., Lee K., Goldenberg N., Pri	Vascular Health and Risk Management		2017
2	20180828	WebOfScier	y	n						28740397	Eligibility for alirocumab or evolocumab treatment in 1090 hypercholesterolemic patients referred to a regional cholesterol treatment center with LDL	Jetty, V; Glueck, CJ; Lee, K; Goldenberg, N; Prin	VASCULAR HEALTH AND RISK MANAGEMENT		2017
7	20180828	pubmed	y	n						27776744	Late-stage pharmaceutical R&D and pricing policies under two-stage regulation.	JobjÃ¶mnsson S, Forster M, Pertile P, Burman CF	J Health Econ. 2016 Dec;50:298-311. doi: 10.1016/j.jhealeco.2016	create date:2016/10/26 | first author:JobjÃ	2016
2	20180827	pubmed		y	y	Policy > Invest (R&D)	P4: Theory-driven economic analysis			27776744	Late-stage pharmaceutical R&D and pricing policies under two-stage regulation.	JobjÃ¶mnsson S, Forster M, Pertile P, Burman CF	J Health Econ. 2016 Dec;50:298-311. doi: 10.1016/j.jhealeco.2016	create date:2016/10/26 | first author:JobjÃ	2016
9	20180827	pubmed		y	y		n			29710320	Value-Based Pricing for Drugs: Theme and Variations.	Kaltenboeck A, Bach PB.	JAMA. 2018 Jun 5;319(21):2165-2166. doi: 10.1001/jama.2018.48	create date:2018/05/02 | first author:Kalte	2018
4	20180827	pubmed		y	y		n			28182263	High cancer drug prices 4 years later-Progress and prospects.	Kantarjian H, Patel Y.	Cancer. 2017 Apr 15;123(8):1292-1297. doi: 10.1002/cncr.30545.	create date:2017/02/10 | first author:Kant	2017
4	20180827	pubmed		y	y	*Prices (descriptive)*	P3: Essay, comment, synthesis			29486061	Hepatitis C: When high drug prices preclude patient benefit.	Kantarjian HM, Paul S.	Cancer. 2018 Apr 15;124(8):1644-1646. doi: 10.1002/cncr.31292.	create date:2018/02/28 | first author:Kant	2018
4	20180827	pubmed		y	y		n			29927900	Strategies for Improving Hepatitis C Treatment Access in the United States: State Officials Address High Drug Prices, Stigma, and Building Treatment C	Kapadia SN, Johnston CD, Marks KM, Schackma	J Public Health Manag Pract. 2018 Jun 20. doi: 10.1097/PHH.0000	create date:2018/06/22 | first author:Kapa	2018
8	20180828	pubmed		y		y	n			28679940	Generics Pricing: The Greek Paradox.	Karafyllis I, Variti L.	Stud Health Technol Inform. 2017;238:265-268.	create date:2017/07/07 | first author:Karal	2017
6	20180827	pubmed		y	y		n			27928875	Is it all about price? Why requests for government subsidy of anticancer drugs were rejected in Australia.	Karikios DJ, Chim L, Martin A, Nagrial A, Howar	Intern Med J. 2017 Apr;47(4):400-407. doi: 10.1111/imj.13350.	create date:2016/12/09 | first author:Karik	2016
2	20180827	pubmed		y	y		n			27757069	What are we paying for? A cost-effectiveness analysis of patented denosumab and generic alendronate for postmenopausal osteoporotic women in Au	Karnon J, Shafie AS, Orji N, Usman SK.	Cost Eff Resour Alloc. 2016 Oct 13;14:11. eCollection 2016.	create date:2016/10/21 | first author:Karn	2016
6	20180827	pubmed		y	y		n			28642700	Pricing and Reimbursement of Biosimilars in Central and Eastern European Countries.	Kawalec P, Stawowczyk E, Tesar T, Skoupa J, Tu	Front Pharmacol. 2017 Jun 8;8:288. doi: 10.3389/fphar.2017.0028	create date:2017/06/24 | first author:Kawa	2017
4	20180827	pubmed		y	y		n			29272231	Drug Prices: Why So High and Why So #&*! Complicated.	Kelley T.	Manag Care. 2017 Dec;26(12):14-16.	create date:2017/12/23 | first author:Kelle	2017
8	20180828	pubmed		y	y		n			28090718	An analysis of policies for cotrimoxazole, amoxicillin and azithromycin use in Namibia's public sector: Findings and therapeutic implications.	Kibuule D, Mubita M, Naikaku E, Kalemeera F,	Int J Clin Pract. 2017 Feb;71(2). doi: 10.1111/ijcp.12918. Epub 201	create date:2017/01/17 | first author:Kibu	2017
2	20180828	scopus	y		y		n				Value-Based Pharmaceutical Pricing From the Patient Perspective Could Incentivize Innovation	Koh C.Y.C., Seager T.P.	Pharmaceutical Medicine		2017
2	20180828	WebOfScier	y	n							Value-Based Pharmaceutical Pricing From the Patient Perspective Could Incentivize Innovation	Koh, CYC; Seager, TP	PHARMACEUTICAL MEDICINE		2017
2	20180827	pubmed		y	y		n			29428166	Direct healthcare cost of schizophrenia - European overview.	KovÃ¡cs G, AlmÃ¡si T, Millier A, Toumi M, Horvi	Eur Psychiatry. 2018 Feb;48:79-92. doi: 10.1016/j.eurpsy.2017.10	create date:2018/02/13 | first author:KovÃ	2018
2	20180828	WebOfScier	y	n						29428166	Direct healthcare cost of schizophrenia - European overview	Kovacs, G; Almasi, T; Millier, A; Toumi, M; Horv	EUROPEAN PSYCHIATRY		2018
4	20180827	pubmed		y	y		n			28817781	Availability and variation of publicly reported prescription drug prices.	Kullgren JT, Segel JE, Peterson TA, Fendrick AM	Am J Manag Care. 2017 Jul;23(7):444-448.	create date:2017/08/18 | first author:Kullg	2017
2	20180828	scopus	y	y			n				Pricing and reimbursement of generic pharmaceuticals in Turkey: Evaluation of hypertension drugs from 2007 to 2013	Kumru S., Top M.	Health Policy and Technology		2018
2	20180828	WebOfScier	y	n							Pricing and reimbursement of generic pharmaceuticals in Turkey: Evaluation of hypertension drugs from 2007 to 2013	Kumru, S; Top, M	HEALTH POLICY AND TECHNOLOGY		2018
2	20180828	scopus		y		y	n				Economics of the pharmaceutical industry	Lakdawalla D.N.	Journal of Economic Literature		2018
2	20180828	WebOfScier	y	n							Economics of the Pharmaceutical Industry	Lakdawalla, DN	JOURNAL OF ECONOMIC LITERATURE		2018
2	20180828	scopus	y	n						28712622	Pharmaceutical Pricing in Germany: How Is Value Determined within the Scope of AMNOG?	Lauenroth V.D., Stargardt T.	VALUE HEALTH. 2		2017
2	20180827	pubmed		y	y	Policy (descriptive)	P1: Quantitative retrospective analysis			28712622	Pharmaceutical Pricing in Germany: How Is Value Determined within the Scope of AMNOG?	Lauenroth VD, Stargardt T.	Value Health. 2017 Jul - Aug;20(7):927-935. doi: 10.1016/j.jval.20	create date:2017/07/18 | first author:Laue	2017
2	20180828	WebOfScier	y	n						28712622	Pharmaceutical Pricing in Germany: How Is Value Determined within the Scope of AMNOG?	Lauenroth, VD; Stargardt, T	VALUE HEALTH. 2		2017

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4	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	28606974	Drug prices: How do we get to a better place?	Lexchin J.	CMAJ. 2017 Jun 12;189(23):E792-E793. doi: 10.1503/cmaj.170440	create date:2017/06/14 | first author:Lexch	2017
4	20180827	pubmed		y			y		n			29549108	Trump blames free riding foreign states for high US drug prices.	Light DW, Caplan AL.	BMJ. 2018 Mar 16;360:k1088. doi: 10.1136/bmj.k1088. No abstra	create date:2018/03/20 | first author:Light	2018
2	20180827	pubmed		y	y				n			28207060	Do national drug policies influence antiretroviral drug prices? Evidence from the Southern African Development community.	Liu Y, GalÃ¡rraga O.	Health Policy Plan. 2017 Mar 1;32(2):170-177. doi: 10.1093/heapc	create date:2017/02/17 | first author:Liu Y	2017
2	20180828	scopus	y	n								28207060	Do national drug policies influence antiretroviral drug prices? Evidence from the Southern African Development community	Liu Y., Galárraga O.	Health Policy and Planning		2017
2	20180828	WebOfScier	y	n								28207060	Do national drug policies influence antiretroviral drug prices? Evidence from the Southern African Development community	Liu, Y; Galarraga, O	HEALTH POLICY AND PLANNING		2017
8	20180828	pubmed		y	y				n			29527335	Applying a health system perspective to the evolving FarmÃ¡cia Popular medicines access programme in Brazil.	Luiza VL, Chaves LA, Campos MR, Bertoldi AD,	BMJ Glob Health. 2018 Feb 7;2(Suppl 3):e000547. doi: 10.1136/bn	create date:2018/03/13 | first author:Luiza	2018
2	20180827	pubmed		y					y	Prices (descriptive)	P1: Quantitative retrospective analysis	29039214	Pharmaceutical pricing in Japan: market evidence for rheumatoid arthritis treatment.	Mahlich J, Kamae I, Sruamsiri R.	Expert Rev Pharmacoecon Outcomes Res. 2018 Jun;18(3):339-348	create date:2017/10/19 | first author:Mahl	2017
2	20180828	scopus	y	n								29039214	Pharmaceutical pricing in Japan: market evidence for rheumatoid arthritis treatment	Mahlich J., Kamae I., Sruamsiri R.	Expert Review of Pharmacoeconomics and Outcomes Research		2018
2	20180828	WebOfScier	y	n								29039214	Pharmaceutical pricing in Japan: market evidence for rheumatoid arthritis treatment	Mahlich, J; Kamae, I; Sruamsiri, R	EXPERT REVIEW OF PHARMACOECONOMICS & OUTCOMES RESEARCH		2018
2	20180827	pubmed		y			y		n			27673622	Pharmaceutical Pricing: How Much for The Risk Of Non-Cure?	Mance D, Mance D, Vitezic D.	Clin Ther. 2016 Oct 6;38(10S):e17-e18. doi: 10.1016/j.clinthera.20	create date:2016/09/28 | first author:Manc	2016
2	20180828	scopus		y	y				n				Access to high cost medicines in low and middle income countries – examples from India	Mandal S.C., Mandal M.	Pharma Times		2017
8	20180828	pubmed		y					y	Policy > diverse	P2: Qualitative analysis	28545440	Comprehensive taxonomy and worldwide trends in pharmaceutical policies in relation to country income status.	Maniadakis N, Kourlaba G, Shen J, Holtorf A.	BMC Health Serv Res. 2017 May 25;17(1):371. doi: 10.1186/s1291	create date:2017/05/27 | first author:Mani	2017
12	20180828	pubmed	y	n								27503281	Patients' knowledge and attitude towards therapeutic reference pricing system in Slovenia.	MarÄ'etko N, Kos M.	Int J Clin Pharm. 2016 Oct;38(5):1301-10. doi: 10.1007/s11096-01	create date:2016/08/10 | first author:MarÄ	2016
2	20180827	pubmed		y			y		n			28661288	The Prescription Drug Pricing Moment: Using Public Health Analysis to Clarify the Fair Competition Debate on Prescription Drug Pricing and Consumer \	Marciarille AM.	J Law Med Ethics. 2017 Mar;45(1_suppl):45-49. doi: 10.1177/1073	create date:2017/07/01 | first author:Marc	2017
2	20180828	WebOfScier	y	n								28661288	The Prescription Drug Pricing Moment: Using Public Health Analysis to Clarify the Fair Competition Debate on Prescription Drug Pricing and Consumer \	Marciarille, AM	JOURNAL OF LAW MEDICINE & ETHICS		2017
5	20180827	pubmed		y	y				n			29936067	Managed Entry Agreements for Pharmaceutical Products in Middle East and North African countries: Payer and Manufacturer Experience and Outlook	Maskineh C, Nasser SC.	Value Health Reg Issues. 2018 Jun 21;16:33-38. doi: 10.1016/j.vhr	create date:2018/06/25 | first author:Mask	2018
4	20180827	pubmed		y			y		n			27793813	Popular measure in California ballot targets drug prices.	McCarthy M.	BMJ. 2016 Oct 28;355:i5830. doi: 10.1136/bmj.i5830. No abstract	create date:2016/10/30 | first author:McCa	2016
6	20180827	pubmed		y			y		n			28660496	Role of Cost on Failure to Access Prescribed Pharmaceuticals: The Case of Statins.	McRae I, van Gool K, Hall J, Yen L.	Appl Health Econ Health Policy. 2017 Oct;15(5):625-634. doi: 10.1	create date:2017/07/01 | first author:McRa	2017
4	20180827	pubmed		y					y	Policy > Prices	P1: Quantitative retrospective analysis	28473888	Do payers value rarity? An analysis of the relationship between disease rarity and orphan drug prices in Europe.	Medic G, Korchagina D, Young KE, Toumi M, Pc	J Mark Access Health Policy. 2017 Apr 10;5(1):1299665. doi: 10.10	create date:2017/05/06 | first author:Medi	2017
9	20180827	pubmed		y		y			n			29714590	Incremental Cost-Effectiveness Ratio and Net Monetary Benefit: Promoting the Application of Value-Based Pricing to Medical Devices-A European Pers	Messori A, Trippoli S.	Ther Innov Regul Sci. 2018 Jan 1:2168479018769300. doi: 10.1177	create date:2018/05/02 | first author:Mess	2018
6	20180827	pubmed	y	n								28359063	Reimbursed Price of Orphan Drugs: Current Strategies and Potential Improvements.	Mincarone P, Leo CG, Sabina S, SarriÃ¡-Santam	Public Health Genomics. 2017;20(1):1-8. doi: 10.1159/000464100	create date:2017/03/31 | first author:Minc	2017
5	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	28359063	Reimbursed Price of Orphan Drugs: Current Strategies and Potential Improvements.	Mincarone P, Leo CG, Sabina S, SarriÃ¡-Santam	Public Health Genomics. 2017;20(1):1-8. doi: 10.1159/000464100	create date:2017/03/31 | first author:Minc	2017
6	20180827	pubmed		y				y	n			29284064	Policies for biosimilar uptake in Europe: An overview.	Moorkens E, Vulto AG, Huys I, Dylst P, Godman	PLoS One. 2017 Dec 28;12(12):e0190147. doi: 10.1371/journal.po	create date:2017/12/29 | first author:Moor	2017
2	20180828	scopus	y	n								28238340	Payers' experiences with confidential pharmaceutical price discounts: A survey of public and statutory health systems in North America, Europe, and Au	Morgan S.G., Vogler S., Wagner A.K.	Health Policy.		2017
2	20180827	pubmed		y			y		n			30041827	An analysis of expenditures on primary care prescription drugs in the United States versus ten comparable countries.	Morgan SG, Good CB, Leopold C, Kaltenboeck A	Health Policy. 2018 Jul 21. pii: S0168-8510(18)30246-X. doi: 10.10	create date:2018/07/26 | first author:Morg	2018
2	20180827	pubmed		y					y	Policy > diverse	P2: Qualitative analysis	28238340	Payers' experiences with confidential pharmaceutical price discounts: A survey of public and statutory health systems in North America, Europe, and Au	Morgan SG, Vogler S, Wagner AK.	Health Policy. 2017 Apr;121(4):354-362. doi: 10.1016/j.healthpol.	create date:2017/02/28 | first author:Morg	2017
2	20180828	WebOfScier	y	n								28238340	Payers' experiences with confidential pharmaceutical price discounts: A survey of public and statutory health systems in North America, Europe, and Au	Morgan, SG; Vogler, S; Wagner, AK	HEALTH POLICY.		2017
6	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	29753344	Challenges in Research and Health Technology Assessment of Rare Disease Technologies: Report of the ISPOR Rare Disease Special Interest Group.	Nestler-Parr S, Korchagina D, Toumi M, Pashos	Value Health. 2018 May;21(5):493-500. doi: 10.1016/j.jval.2018.0	create date:2018/05/14 | first author:Nestl	2018
9	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	28975551	Value-Based Pricing: Do Not Throw Away the Baby with the Bath Water.	Neyt M.	Pharmacoeconomics. 2018 Jan;36(1):1-3. doi: 10.1007/s40273-01	create date:2017/10/05 | first author:Neyt	2017
9	20180827	pubmed		y			y		n			29991102	Value-Based Pricing of Disease-Modifying Therapies for Multiple Sclerosis: Is This Mission Possible?	Ngorsuraches S.	S D Med. 2018 Mar;71(3):134-135. No abstract available.	create date:2018/07/11 | first author:Ngor	2018
4	20180827	pubmed		y	y				n			28453716	Inflated medicine prices in Vietnam: a qualitative study.	Nguyen TA, Knight R, Mant A, Razee H, Brooks	Health Policy Plan. 2017 Jun 1;32(5):647-656. doi: 10.1093/heapol	create date:2017/04/30 | first author:Nguy	2017
5	20180827	pubmed		y			y		n			27882835	Health Care Costs for Patients with Heart Failure Escalate Nearly 3-Fold in Final Months of Life.	Obi EN, Swindle JP, Turner SJ, Russo PA, Altan A	J Manag Care Spec Pharm. 2016 Dec;22(12):1446-1456.	create date:2016/11/25 | first author:Obi E	2016
8	20180828	pubmed		y					y	Policy > Expenditures	P1: Quantitative retrospective analysis	29478875	Variations in non-prescription drug consumption and expenditure: Determinants and policy implications.	Otto M, Armeni P, Jommi C.	Health Policy. 2018 Jun;122(6):614-620. doi: 10.1016/j.healthpol.2	create date:2018/02/27 | first author:Otto	2018
4	20180827	pubmed		y			y		n			28852564	Fee-for-value in the pharmaceutical industry: a policy framework applying data science to negotiate drug prices.	Patel NA.	J Law Biosci. 2017 Apr 3;4(1):205-215. doi: 10.1093/jlb/lsx002. eCo	create date:2017/08/31 | first author:Patel	2017
4	20180827	pubmed		y				y	n			28259587	Justifying high drug prices within the context of value: Biologics versus generics.	Patterson ME, Rosenfelt DJ.	Res Social Adm Pharm. 2018 Feb;14(2):121-123. doi: 10.1016/j.sap	create date:2017/03/06 | first author:Patte	2017
7	20180828	pubmed	y	n								28699779	Indication-specific pricing of pharmaceuticals in the US healthcare system.	Pearson SD, Dreitlein WB, Henshall C, Towse A	J Comp Eff Res. 2017 Jul;6(5):397-404. doi: 10.2217/cer-2017-0018	create date:2017/07/13 | first author:Pears	2017
6	20180827	pubmed		y			y		n			28699779	Indication-specific pricing of pharmaceuticals in the US healthcare system.	Pearson SD, Dreitlein WB, Henshall C, Towse A	J Comp Eff Res. 2017 Jul;6(5):397-404. doi: 10.2217/cer-2017-0018	create date:2017/07/13 | first author:Pears	2017
2	20180828	WebOfScier	y	n								29093000	Pandora's Prescription: The Pharmaceutical Pricing vs. Cost Conundrum	Pederson, T	FASEB JOURNAL		2017
6	20180827	pubmed		y					y	Policy (descriptive)	P1: Quantitative retrospective analysis	29470774	Multi-indication and Combination Pricing and Reimbursement of Pharmaceuticals: Opportunities for Improved Health Care through Faster Uptake of N	Persson U, Norlin JM.	Appl Health Econ Health Policy. 2018 Apr;16(2):157-165. doi: 10.1	create date:2018/02/23 | first author:Perss	2018
6	20180827	pubmed		y	y				n			27881280	Global Budget for Cyprus' National Health System: The Promised Land or a No Man's Land?	Petrou P.	Value Health Reg Issues. 2016 Sep;10:67-72. doi: 10.1016/j.vhri.20	create date:2016/11/25 | first author:Petro	2016
2	20180827	pubmed		y					y	Policy (descriptive)	P11: HTA, pharmacoeconomic analysis	28579443	Value-Based pricing and the end of pharmaceutical pricing as we know it? A case study on sorafenib and axitinib.	Petrou P.	Pharmacol Res. 2017 Oct;124:160-163. doi: 10.1016/j.phrs.2017.0	create date:2017/06/06 | first author:Petro	2017
9	20180827	pubmed	y	n								28579443	Value-Based pricing and the end of pharmaceutical pricing as we know it? A case study on sorafenib and axitinib.	Petrou P.	Pharmacol Res. 2017 Oct;124:160-163. doi: 10.1016/j.phrs.2017.0	create date:2017/06/06 | first author:Petro	2017
2	20180828	WebOfScier	y	n								28579443	Value-Based pricing and the end of pharmaceutical pricing as we know it? A case study on sorafenib and axitinib	Petrou, P	PHARMACOLOGICAL RESEARCH		2017
2	20180828	scopus	y	n									Higher pharmaceutical public expenditure after direct price control: Improved access or induced demand? The Colombian case	Prada S.I., Soto V.E., Andia T.S., Vaca C.P., Mo	Cost Effectiveness and Resource Allocation		2018
2	20180827	pubmed		y	y				n			29507533	Higher pharmaceutical public expenditure after direct price control: improved access or induced demand? The Colombian case.	Prada SI, Soto VE, Andia TS, Vaca CP, Morales A	Cost Eff Resour Alloc. 2018 Mar 2;16:8. doi: 10.1186/s12962-018-(	create date:2018/03/07 | first author:Prada	2018
2	20180828	WebOfScier	y	n								29507533	Higher pharmaceutical public expenditure after direct price control: improved access or induced demand? The Colombian case	Prada, SI; Soto, VE; Andia, TS; Vaca, CP; Morale	COST EFFECTIVENESS AND RESOURCE ALLOCATION		2018
2	20180828	scopus		y			y		n				R&D Spending & success: Key trends, issues & solutions	Rao S.K.	Journal of Commercial Biotechnology		2017
2	20180828	WebOfScience		y			y		n				PHARMACEUTICAL PRICES IN THE UNITED STATES VERSUS EUROPE: HOW DO DIFFERENT TYPES OF US PRICES COMPARE?	Reinaud, F; Ando, G; Lockwood, C	VALUE HEALTH. 2		2017
4	20180827	pubmed		y			y		n			27832870	Drug prices threaten the NHS.	Ress M, Levi J, McDonald D, Piears J, Gotham D	Lancet. 2016 Nov 26;388(10060):2603-2604. doi: 10.1016/S0140-(	create date:2016/11/12 | first author:Ress	2016
6	20180827	pubmed	y	n								27516088	Cost Effectiveness of the Long-Acting Î²2-Adrenergic Agonist (LABA)/Long-Acting Muscarinic Antagonist Dual Bronchodilator Indacaterol/Glycopyrroniu	Reza Maleki-Yazdi M, Molimard M, Keininger D	Appl Health Econ Health Policy. 2016 Oct;14(5):579-94. doi: 10.10	create date:2016/08/16 | first author:Reza	2016
2	20180828	WebOfScier	y	n									A systematic review of pharmaceutical pricing policies in developing countries	Rida, NA; Ibrahim, MIM; Babar, ZUD; Owusu, Y	JOURNAL OF PHARMACEUTICAL HEALTH SERVICES RESEARCH		2017
4	20180827	pubmed		y			y		n			30088965	Will Courts Allow States to Regulate Drug Prices?	Robertson C.	N Engl J Med. 2018 Aug 8. doi: 10.1056/NEJMp1805432. [Epub ah	create date:2018/08/09 | first author:Robe	2018
9	20180827	pubmed		y			y		n			29801023	Value-Based Pricing and Patient Access for Specialty Drugs.	Robinson JC, Howell S, Pearson SD.	JAMA. 2018 Jun 5;319(21):2169-2170. doi: 10.1001/jama.2018.53	create date:2018/05/26 | first author:Robir	2018
4	20180827	pubmed		y			y		n			29203462	Ban evergreening and restricting generics to reduce drug prices, says US academy.	Roehr B.	BMJ. 2017 Dec 4;359:j5624. doi: 10.1136/bmj.j5624. No abstract	create date:2017/12/06 | first author:Roeh	2017
2	20180827	pubmed		y			y		n			28972020	Innovative Contracting for Pharmaceuticals and Medicaid's Best-Price Rule.	Sachs R, Bagley N, Lakdawalla DN.	J Health Polit Policy Law. 2018 Feb 1;43(1):5-18. doi: 10.1215/036	create date:2017/10/04 | first author:Sachs	2017
2	20180828	scopus		y			y		n				Innovative contracting for pharmaceuticals and medicaid's best-price rule	Sachs R., Bagley N., Lakdawalla D.N.	Journal of Health Politics, Policy and Law		2018
2	20180828	WebOfScier	y	n								28972020	Innovative Contracting for Pharmaceuticals and Medicaid's Best-Price Rule	Sachs, R; Bagley, N; Lakdawalla, DN	JOURNAL OF HEALTH POLITICS POLICY AND LAW		2018
4	20180827	pubmed		y	y				n			27832869	Uncontrollable medicine prices in Pakistan.	Saleem F, Hassali MA, Iqbal Q, Baloch M, Shanl	Lancet. 2016 Nov 26;388(10060):2602. doi: 10.1016/S0140-6736(	create date:2016/11/12 | first author:Salee	2016
2	20180827	pubmed		y					y	Prices > Access*	P2: Qualitative analysis	29632962	Policies and availability of orphan medicines in outpatient care in 24 European countries.	Sarnola K, Ahonen R, Martikainen JE, Timonen	Eur J Clin Pharmacol. 2018 Jul;74(7):895-902. doi: 10.1007/s00228	create date:2018/04/11 | first author:Sarnc	2018
2	20180828	scopus	y	n									Policies and availability of orphan medicines in outpatient care in 24 European countries	Sarnola K., Ahonen R., Martikainen J.E., Timon	European Journal of Clinical Pharmacology		2018
2	20180828	WebOfScier	y	n								29632962	Policies and availability of orphan medicines in outpatient care in 24 European countries	Sarnola, K; Ahonen, R; Martikainen, JE; Timone	EUROPEAN JOURNAL OF CLINICAL PHARMACOLOGY		2018
4	20180827	pubmed		y			y		n			29800027	An Incomplete Prescription: President Trump's Plan to Address High Drug Prices.	Sarpatwari A, Avorn J, Kesselheim AS.	JAMA. 2018 Jun 19;319(23):2373-2374. doi: 10.1001/jama.2018.7	create date:2018/05/26 | first author:Sarpa	2018
11	20180828	pubmed	y	n								28605615	Cancer Drugs: An International Comparison of Postlicensing Price Inflation.	Savage P, Mahmoud S, Patel Y, Kantarjian H.	J Oncol Pract. 2017 Jun;13(6):e538-e542. doi: 10.1200/JOP.2016.0	create date:2017/06/13 | first author:Savag	2017
2	20180827	pubmed		y			y		n			28605615	Cancer Drugs: An International Comparison of Postlicensing Price Inflation.	Savage P, Mahmoud S, Patel Y, Kantarjian H.	J Oncol Pract. 2017 Jun;13(6):e538-e542. doi: 10.1200/JOP.2016.0	create date:2017/06/13 | first author:Savag	2017
2	20180828	scopus	y	n								28605615	Cancer drugs: An international comparison of postlicensing price inflation	Savage P., Mahmoud S., Patel Y., Kantarjian H.	Journal of Oncology Practice		2017
2	20180828	WebOfScier	y	n								28605615	Cancer Drugs: An International Comparison of Postlicensing Price Inflation	Savage, P; Mahmoud, S; Patel, Y; Kantarjian, H	JOURNAL OF ONCOLOGY PRACTICE		2017
9	20180827	pubmed		y	y				n			28205150	The Potential Cost Effectiveness of Different Dengue Vaccination Programmes in Malaysia: A Value-Based Pricing Assessment Using Dynamic Transmiss	Shafie AA, Yeo HY, Coudeville L, Steinberg L, Gi	Pharmacoeconomics. 2017 May;35(5):575-589. doi: 10.1007/s402	create date:2017/02/17 | first author:Shafi	2017
4	20180827	pubmed		y				y	n			28671371	Problematic Jumps in Drug Prices and What You Can Do.	Shaughnessy AF.	Am Fam Physician. 2017 Jul 1;96(1):16-18. No abstract available.	create date:2017/07/04 | first author:Shau	2017
5	20180827	pubmed		y			y		n			28982809	Understanding the health economic burden of patients with tuberous sclerosis complex (TSC) with epilepsy: a retrospective cohort study in the UK Clinic	Shepherd C, Koepp M, Myland M, Patel K, Migl	BMJ Open. 2017 Oct 5;7(10):e015236. doi: 10.1136/bmjopen-201	create date:2017/10/07 | first author:Shep	2017
4	20180827	pubmed		y			y		n			29989905	Nevada Pushes For Transparency On Diabetes Drug Prices.	Silverman E.	Manag Care. 2018 Jun;27(6):18.	create date:2018/07/11 | first author:Silver	2018
2	20180828	scopus	y	n									Drug Policy—The Czech Republic	Skoupá J.	Value in Health Regional Issues		2017
2	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	29073989	Drug Policy in the Czech Republic.	SkoupÃ¡ J.	Value Health Reg Issues. 2017 Sep;13:55-58. doi: 10.1016/j.vhri.20	create date:2017/10/28 | first author:Skou	2017
2	20180828	WebOfScience		y			y		n				Public Health Insurance with Monopolistically Competitive Providers and Optional Spot Sales	Sorek, G; Beard, TR	B E JOURNAL OF ECONOMIC ANALYSIS & POLICY		2018
2	20180828	scopus	y	n								28046099	Cost-effectiveness of treating hepatitis c with sofosbuvir/ledipasvir in Germany	Stahmeyer J.T., Rossol S., Liersch S., Guerra I.,	PLoS ONE		2017
2	20180827	pubmed		y			y		n			28046099	Cost-Effectiveness of Treating Hepatitis C with Sofosbuvir/Ledipasvir in Germany.	Stahmeyer JT, Rossol S, Liersch S, Guerra I, Kra	PLoS One. 2017 Jan 3;12(1):e0169401. doi: 10.1371/journal.pone.	create date:2017/01/04 | first author:Stahr	2017
2	20180828	WebOfScier	y	n								28046099	Cost-Effectiveness of Treating Hepatitis C with Sofosbuvir/Ledipasvir in Germany	Stahmeyer, JT; Rossol, S; Liersch, S; Guerra, I; K	PLOS ONE		2017
9	20180827	pubmed		y					y	Prices (descriptive)	P3: Essay, comment, synthesis	28982741	Serving "a la CAR-T": Value-Based Pricing and Gene Therapy.	Tempero M.	J Natl Compr Canc Netw. 2017 Oct;15(10):1179. doi: 10.6004/jncc	create date:2017/10/07 | first author:Temp	2017
7	20180828	pubmed		y					y	Policy > Prices	P1: Quantitative retrospective analysis	28800399	Price and utilisation differences for statins between four countries.	Thai LP, Vitry AI, Moss JR.	Expert Rev Pharmacoecon Outcomes Res. 2018 Feb;18(1):71-81. c	create date:2017/08/12 | first author:Thai	2017
4	20180827	pubmed		y			y		n			28687544	Congressional action on rising drug prices remains a possibility.	Thompson CA.	Am J Health Syst Pharm. 2017 Jul 15;74(14):1034-1035. doi: 10.21	create date:2017/07/09 | first author:Thom	2017
12	20180828	pubmed	y	n								27430975	Turning waste medicines to cost savings: A pilot study on the feasibility of medication recycling as a solution to drug wastage.	Toh MR, Chew L.	Palliat Med. 2017 Jan;31(1):35-41. doi: 10.1177/02692163166397	create date:2016/07/20 | first author:Toh M	2016
7	20180828	pubmed		y					y	Policy > Prices	P2: Qualitative analysis	28265347	Value added medicines: what value repurposed medicines might bring to society?	Toumi M, RÃ©muzat C.	J Mark Access Health Policy. 2016 Dec 23;5(1):1264717. doi: 10.10	create date:2017/03/08 | first author:Toum	2017
4	20180827	pubmed		y			y		n			29317388	Consensus report calls for action on high drug prices.	Traynor K.	Am J Health Syst Pharm. 2018 Jan 15;75(2):6-9. doi: 10.2146/news	create date:2018/01/11 | first author:Trayr	2018
5	20180827	pubmed		y				y	n			28929342	Perception of Originator Biologics and Biosimilars: A Survey Among Belgian Rheumatoid Arthritis Patients and Rheumatologists.	van Overbeeke E, De Beleyr B, de Hoon J, West	BioDrugs. 2017 Oct;31(5):447-459. doi: 10.1007/s40259-017-0244	create date:2017/09/21 | first author:van C	2017
2	20180827	pubmed		y	y				n			28063134	How Can Pricing and Reimbursement Policies Improve Affordable Access to Medicines? Lessons Learned from European Countries.	Vogler S, Paris V, Ferrario A, Wirtz VJ, de Jonch	Appl Health Econ Health Policy. 2017 Jun;15(3):307-321. doi: 10.1	create date:2017/01/08 | first author:Vogle	2017
2	20180827	pubmed		y			y		n			27658050	Price comparison of high-cost originator medicines in European countries.	Vogler S, Zimmermann N, Babar ZU.	Expert Rev Pharmacoecon Outcomes Res. 2017 Apr;17(2):221-23(	create date:2016/09/24 | first author:Vogle	2016
2	20180827	pubmed		y					y	Policy (descriptive)	P2: Qualitative analysis	27720165	Policy interventions related to medicines: Survey of measures taken in European countries during 2010-2015.	Vogler S, Zimmermann N, de Joncheere K.	Health Policy. 2016 Dec;120(12):1363-1377. doi: 10.1016/j.health	create date:2016/10/11 | first author:Vogle	2016
2	20180828	scopus	y	n								28063134	How Can Pricing and Reimbursement Policies Improve Affordable Access to Medicines? Lessons Learned from European Countries	Vogler S., Paris V., Ferrario A., Wirtz V.J., de Jo	Applied Health Economics and Health Policy		2017
2	20180828	scopus		y				y	n				Do pricing and usage-enhancing policies differ between biosimilars and generics? Findings from an international survey	Vogler S., Schneider P.	GaBI Journal		2017
2	20180828	scopus	y	n								27658050	Price comparison of high-cost originator medicines in European countries	Vogler S., Zimmermann N., Babar Z.-U.-D.	Expert Review of Pharmacoeconomics and Outcomes Research		2017
2	20180828	WebOfScier	y	n								28063134	How Can Pricing and Reimbursement Policies Improve Affordable Access to Medicines? Lessons Learned from European Countries	Vogler, S; Paris, V; Ferrario, A; Wirtz, VJ; de Jor	APPLIED HEALTH ECONOMICS AND HEALTH POLICY		2017
2	20180828	WebOfScier	y	n									Do pricing and usage-enhancing policies differ between biosimilars and generics? Findings from an international survey	Vogler, S; Schneider, P	GABI JOURNAL-GENERICS AND BIOSIMILARS INITIATIVE JOURNAL		2017
2	20180828	WebOfScier	y	n								27658050	Price comparison of high-cost originator medicines in European countries	Vogler, S; Zimmermann, N; Babar, ZUD	EXPERT REVIEW OF PHARMACOECONOMICS & OUTCOMES RESEARCH		2017
4	20180827	pubmed		y				y	n			30019138	The Impact of Patent Expiry on Drug Prices: A Systematic Literature Review.	Vondeling GT, Cao Q, Postma MJ, Rozenbaum I	Appl Health Econ Health Policy. 2018 Jul 17. doi: 10.1007/s40258-(	create date:2018/07/19 | first author:Vond	2018
5	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	28438231	HEALTH TECHNOLOGY ASSESSMENT IN EVALUATION OF PHARMACEUTICALS IN THE CZECH REPUBLIC.	VostalovÃ¡ L, MazelovÃ¡ J, Samek J, Vocelka M	Int J Technol Assess Health Care. 2017 Jan;33(3):339-344. doi: 10.1	create date:2017/04/26 | first author:Vosta	2017
2	20180828	scopus		y			y		n				I get by with a little help from my 750-dollar-per-tablet friends: A model act for states to prevent dramatic pharmaceutical price increases	Walsdorf A.	Minnesota Law Review		2018
4	20180827	pubmed		y			y		n			28700190	Getting to the Root of High Prescription Drug Prices.	Waxman H, Corr B, Martin K, Duong S.	Issue Brief (Commonw Fund). 2017 Jul;2017:1-10.	create date:2017/07/13 | first author:Waxr	2017
4	20180827	pubmed		y			y		n			29992802	What Commissioner Gottlieb's FDA Is Doing to Lower Prescription Drug Prices and Steps Congress Can Take to Help.	Waxman H, Corr B, Martin K, Duong S.	Issue Brief (Commonw Fund). 2018 Apr 1;2018:1-10.	create date:2018/07/12 | first author:Waxr	2018
4	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	29311107	Considering transparency and value for fairer drug prices.	Webster P.	CMAJ. 2018 Jan 8;190(1):E30-E31. doi: 10.1503/cmaj.109-5538. N	create date:2018/01/10 | first author:Webs	2018
4	20180827	pubmed		y			y		n			29140658	Killing U.S. Slowly: Curing the Epidemic Rise of Cancer Drug Prices.	White EK.	Food Drug Law J. 2017;72(1):189-224.	create date:2017/11/16 | first author:White	2017
8	20180828	pubmed		y				y	n			28895227	Comparing Generic Drug Markets in Europe and the United States: Prices, Volumes, and Spending.	Wouters OJ, Kanavos PG, McKEE M.	Milbank Q. 2017 Sep;95(3):554-601. doi: 10.1111/1468-0009.1227	create date:2017/09/13 | first author:Wout	2017
4	20180827	pubmed		y				y	n			28359273	A comparison of generic drug prices in seven European countries: a methodological analysis.	Wouters OJ, Kanavos PG.	BMC Health Serv Res. 2017 Mar 31;17(1):242. doi: 10.1186/s1291	create date:2017/04/01 | first author:Wout	2017
4	20180827	pubmed		y					y	Prices (descriptive)	P1: Quantitative retrospective analysis	28473887	A comparative study of orphan drug prices in Europe.	Young KE, Soussi I, Hemels M, Toumi M.	J Mark Access Health Policy. 2017 Mar 29;5(1):1297886. doi: 10.1	create date:2017/05/06 | first author:Youn	2017
6	20180827	pubmed		y			y		n			29081920	The perverse impact of external reference pricing (ERP): a comparison of orphan drugs affordability in 12 European countries. A call for policy change.	Young KE, Soussi I, Toumi M.	J Mark Access Health Policy. 2017 Sep 3;5(1):1369817. doi: 10.108	create date:2017/10/31 | first author:Youn	2017
4	20180827	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	28396326	Regulator or regulatory shield? The case for reforming Canada's Patented Medicine Prices Review Board.	Zhang R, Martin D, Naylor CD.	CMAJ. 2017 Apr 10;189(14):E515-E516. doi: 10.1503/cmaj.161355	create date:2017/04/12 | first author:Zhan	2017
4	20180827	pubmed		y			y		n			29019779	Can the FDA Help Reduce Drug Prices or the Cost of Medical Care?	Zuckerman DM.	Am J Public Health. 2017 Nov;107(11):1752-1754. doi: 10.2105/AJ	create date:2017/10/12 | first author:Zucke	2017

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13	20210621	pubmed	y	y				n			31011430	Stakeholder driven development of a multi-criteria decision analysis tool for purchasing off-patent pharmaceuticals in Kuwait	Abdullah AH, Holtorf AP, Al-Hussaini M, Lemay	J Pharm Policy Pract. 2019 Apr 16;12:9. doi: 10.1186/s40545-019-0171-4. eCollection 2019.	2019
13	20210621	pubmed	y	y				n			32981532	Assessing the capacity of Ghana to introduce health technology assessment: a systematic review of economic evaluations conducted in Ghana	Addo R, Goodall S, Hall J, Haas M.	Int J Technol Assess Health Care. 2020 Oct;36(5):500-507. doi: 10.1017/S0266462320000689. Epub 2020 Sep 2	2020
13	20210621	pubmed	y			y		n			34007565	Immuno-Oncology Medicines: Policy Implications and Economic Considerations	Adunlin G, Ferreri SP, Dong J, Freeman MK.	Innov Pharm. 2019 Aug 8;10(3):10.24926/iip.v10i3.1799. doi: 10.24926/iip.v10i3.1799. eCollection 2019.	2019
13	20210621	pubmed	y			y		n			33356641	Drug development post COVID-19 pandemic: toward a better system to meet current and future global health challenges	Aghila Rani KG, Hamad MA, Zaher DM, Sieburt	Expert Opin Drug Discov. 2021 Apr;16(4):365-371. doi: 10.1080/17460441.2021.1854221. Epub 2020 Dec 28.	2021
13	20210621	pubmed	y	y				n			31304021	Association between medicine Price declaration by pharmaceutical industries and retail prices in Malaysia's private healthcare sector	Ahmad NS, Hatah E, Makmor-Bakry M.	J Pharm Policy Pract. 2019 Jul 3;12:15. doi: 10.1186/s40545-019-0176-z. eCollection 2019.	2019
13	20210621	pubmed	y					y	Other (non_Policy) > Prices	P2: Qualitative analysis	31987771	Drug price transparency initiative: A scoping review	Ahmad NS, Makmor-Bakry M, Hatah E.	Res Social Adm Pharm. 2020 Oct;16(10):1359-1369. doi: 10.1016/j.sapharm.2020.01.002. Epub 2020 Jan 20.	2020
13	20210621	pubmed	y			y		n			33628348	Policy and vision for community pharmacies in Finland: A roadmap towards enhanced integration and reduced costs	Airaksinen M, Toivo T, Jokinen L, Savela E, Park	Pharm Pract (Granada). 2021 Jan-Mar;19(1):2288. doi: 10.18549/PharmPract.2021.1.2288. Epub 2021 Feb 4.	2021
13	20210621	pubmed	y	y				n			34015521	Implementation Road Map of Health Technology Assessment in Middle-Income Countries: The Case of Jordan	Almomani E, Alabbadi I, Fasseeh A, Al-Qutob R,	Value Health Reg Issues. 2021 May 17;25:126-134. doi: 10.1016/j.vhri.2021.01.003. Online ahead of print.	2021
13	20210621	pubmed	y			y		n			33064278	The health scare of COVID-19 amidst pandemics and the immune-related pharmaceutical products spillovers in the USA	Alola AA, Olowu FB.	Environ Sci Pollut Res Int. 2020 Dec;27(36):45949-45956. doi: 10.1007/s11356-020-11195-z. Epub 2020 Oct 16	2020
13	20210621	pubmed	y	y				n			29869896	Immunosuppressants in Brazil: underlying drivers of spending trends, 2010-2015	Alves JC, Osorio-de-Castro CGS, Wettermark B,	Expert Rev Pharmacoecon Outcomes Res. 2018 Oct;18(5):565-572. doi: 10.1080/14737167.2018.1485098. Ep	2018
13	20210621	pubmed	y	y				n			33832487	A review of prospective pathways and impacts of COVID-19 on the accessibility, safety, quality, and affordability of essential medicines and vaccines for	Amimo F, Lambert B, Magit A, Hashizume M.	Global Health. 2021 Apr 8;17(1):42. doi: 10.1186/s12992-021-00666-8.	2021
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	32093981	Risk sharing in managed entry agreements-A review of the Swedish experience	Andersson E, Svensson J, Persson U, Lindgren P.	Health Policy. 2020 Apr;124(4):404-410. doi: 10.1016/j.healthpol.2020.02.002. Epub 2020 Feb 18.	2020
13	20210621	pubmed	y	y				n			31155005	Is the judicialization of health care bad for equity? A scoping review	Andia TS, Lamprea E.	Int J Equity Health. 2019 Jun 3;18(1):61. doi: 10.1186/s12939-019-0961-y.	2019
13	20210621	pubmed	y			y		n			30334843	Advocacy Training for Residents: Insights From Tulane's Internal Medicine Residency Program	Andrews J, Jones C, Tetrault J, Coontz K.	Acad Med. 2019 Feb;94(2):204-207. doi: 10.1097/ACM.0000000000002500.	2019
13	20210621	pubmed	y					y	Policy > Invest (R&D)	P4: Theory-driven economic analysis	31664604	Pre-approval incentives to promote adoption of personalized medicine: a theoretical approach	Antoñanzas F, Juárez-Castelló CA, Rodríguez-Ib	Health Econ Rev. 2019 Oct 29;9(1):28. doi: 10.1186/s13561-019-0244-8.	2019
13	20210621	pubmed	y			y		n			31147206	Drug rebates in Medicare Part D: Excess patient costs in the case of hepatitis C treatments	Arambadjis Y, Butler M, Huckfeldt P, Schondelr	Res Social Adm Pharm. 2020 Sep;16(9):1290-1293. doi: 10.1016/j.sapharm.2019.05.017. Epub 2019 May 24.	2020
13	20210621	pubmed	y	y				n			32016159	Estimated cost for cardiovascular disease risk-based management at a primary healthcare center in Nepal	Aryal A, Citrin D, Halliday S, Kumar A, Nepal P,	Glob Health Res Policy. 2020 Jan 29;5:2. doi: 10.1186/s41256-020-0130-2. eCollection 2020.	2020
13	20210621	pubmed	y	y				n			32414824	Availability and prices of medicines for non-communicable diseases at health facilities and retail drug outlets in Kenya: a cross-sectional survey in eight (	Ashigbie PG, Rockers PC, Laing RO, Cabral HJ, C	BMJ Open. 2020 May 15;10(5):e035132. doi: 10.1136/bmjopen-2019-035132.	2020
13	20210621	pubmed	y	y				n			33724372	Phone-based monitoring to evaluate health policy and program implementation in Kenya	Ashigbie PG, Rockers PC, Laing RO, Cabral HJ, C	Health Policy Plan. 2021 May 17;36(4):444-453. doi: 10.1093/heapol/czab029.	2021
13	20210621	pubmed	y	y				n			31488466	Medicines shortages in Pakistan: a qualitative study to explore current situation, reasons and possible solutions to overcome the barriers	Atif M, Malik I, Mushtaq I, Asghar S.	BMJ Open. 2019 Sep 4;9(9):e027028. doi: 10.1136/bmjopen-2018-027028.	2019
13	20210621	pubmed	y			y		n			31465659	[The marketing of anti-aging services in aesthetic medicine]	Bajenova SA, Danilova LG, Chetoshnikova LA.	Probl Sotsialnoi Gig Zdravookhranenniiai Istor Med. 2019 Jul;27(4):424-428. doi: 10.32687/0869-866X-2019-27	2019
13	20210621	pubmed	y					y	Policy > Equity	P4: Theory-driven economic analysis	32232611	When are Pharmaceuticals Priced Fairly? An Alternative Risk-Sharing Model for Pharmaceutical Pricing	Balderrama F, Schwartz LJ, Longo CJ.	Health Care Anal. 2020 Jun;28(2):121-136. doi: 10.1007/s10728-020-00394-x.	2020
13	20210621	pubmed	y	y				n			31565414	Insulin price components: case studies in six low/middle-income countries	Ball D, Ewen M, Laing R, Beran D.	BMJ Glob Health. 2019 Sep 11;4(5):e001705. doi: 10.1136/bmjgh-2019-001705. eCollection 2019.	2019
13	20210621	pubmed	y					y	*Prices > Access**	P3: Essay, comment, synthesis	32749801	[Orphan drugs and drug pirates]	Bannenberg WJ, 't Hoen EFM.	Ned Tijdschr Geneeskd. 2020 Jun 18;164:D4776.	2020
13	20210621	pubmed	y			y		n			32537861	Research funding and price negotiation for new drugs	Barigozzi F, Jelovac I.	Health Econ. 2020 Oct;29 Suppl 1:83-96. doi: 10.1002/hec.4113. Epub 2020 Jun 14.	2020
13	20210621	pubmed	y			y		n			31953647	Pharmaceutical Ethics and Grassroots Activism in the United States: A Social History Perspective	Batt S, Butler J, Shannon O, Fugh-Berman A.	J Bioeth Inq. 2020 Mar;17(1):49-60. doi: 10.1007/s11673-019-09956-8. Epub 2020 Jan 17.	2020
13	20210621	pubmed	y			y		n			31533850	A multidisciplinary review of the policy, intellectual property rights, and international trade environment for access and affordability to essential cance	Baxi SM, Beall R, Yang J, Mackey TK.	Global Health. 2019 Sep 18;15(1):57. doi: 10.1186/s12992-019-0497-3.	2019
13	20210621	pubmed	y		y			n			30616838	[Monitoring and tackling smoking and other addictions: Current situation and perspectives]	Beck F, Lermenier-Jeannet A, Nguyen-Thanh V.	Bull Cancer. 2019 Jul-Aug;106(7-8):656-664. doi: 10.1016/j.bulcan.2018.11.008. Epub 2019 Jan 4.	2019
13	20210621	pubmed	y				y	n			33483763	A global perspective on the issue of access to insulin	Beran D, Lazo-Porras M, Mba CM, Mbanya JC.	Diabetologia. 2021 May;64(5):954-962. doi: 10.1007/s00125-020-05375-2. Epub 2021 Jan 23.	2021
13	20210621	pubmed	y			y		n			31573421	Noncommunicable diseases, access to essential medicines and universal health coverage	Beran D, Pedersen HB, Robertson J.	Glob Health Action. 2019;12(1):1670014. doi: 10.1080/16549716.2019.1670014.	2019
13	20210621	pubmed	y		y			n			33819100	Medical Device Firm Payments To Physicians Exceed What Drug Companies Pay Physicians, Target Surgical Specialists	Bergman A, Grennan M, Swanson A.	Health Aff (Millwood). 2021 Apr;40(4):603-612. doi: 10.1377/hlthaff.2020.01785.	2021
13	20210621	pubmed	y					y	Policy > Prices	P1: Quantitative retrospective analysis	31778624	Increasing Divergence in Drug Prices Between the United States and Germany After Implementation of Comparative Effectiveness Analysis and Collect	Berkemeier F, Whaley C, Robinson JC.	J Manag Care Spec Pharm. 2019 Dec;25(12):1310-1317. doi: 10.18553/jmcp.2019.25.12.1310.	2019
13	20210621	pubmed	y		y			n			33590417	From predictions to prescriptions: A data-driven response to COVID-19	Bertsimas D, Boussioux L, Cory-Wright R, Delar	Health Care Manag Sci. 2021 Feb 15:1-20. doi: 10.1007/s10729-020-09542-0. Online ahead of print.	2021
13	20210621	pubmed	y	y				n			33405998	Institutional overlap and access to medicines in MERCOSUR and UNASUR (2008-2018). Cooperation before the collapse?	Bianculli AC, Ribeiro Hoffmann A, Nascimento E	Glob Public Health. 2021 Jan 6:1-14. doi: 10.1080/17441692.2020.1867879. Online ahead of print.	2021
13	20210621	pubmed	y	y				n			32967979	Health system determinants of access to essential medicines for children with cancer in Ghana	Boateng R, Renner L, Petricca K, Gupta S, Denl	BMJ Glob Health. 2020 Sep;5(9):e002906. doi: 10.1136/bmjgh-2020-002906.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	31391943	Factors influencing pharmaceutical pricing - a scoping review of academic literature in health science	Borges Dos Santos MA, Dos Santos Dias LL, San	J Pharm Policy Pract. 2019 Jun 27;12:24. doi: 10.1186/s40545-019-0183-0. eCollection 2019.	2019
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	31882226	Measuring Value in Health Care: A Comparative Analysis of Value-based Frameworks	Boscolo PR, Callea G, Ciani O, Tarricone R.	Clin Ther. 2020 Jan;42(1):34-43. doi: 10.1016/j.clinthera.2019.11.017. Epub 2019 Dec 24.	2020
13	20210621	pubmed	y	y				n			30390701	Health financing strategies to reduce out-of-pocket burden in India: a comparative study of three states	Bose M, Dutta A.	BMC Health Serv Res. 2018 Nov 3;18(1):830. doi: 10.1186/s12913-018-3633-5.	2018
13	20210621	pubmed	y			y		n			33723958	[Advocating for equitable access to new health technologies: The case of Kymriah®]	Brigand T, Maguet O, Veras J, Durisch P.	Sante Publique. 2020 September-December;32(5):525-529. doi: 10.3917/spub.205.0525.	2020
13	20210621	pubmed	y			y		n			31778613	Understanding Payer Perspectives on Value in the Use of Pharmaceuticals in the United States	Brogan AP, Hogue SL, Vekaria RM, Reynolds I,	J Manag Care Spec Pharm. 2019 Dec;25(12):1319-1327. doi: 10.18553/jmcp.2019.25.12.1319.	2019
13	20210621	pubmed	y			y		n			31623464	The moral economy of the pharmaceutical industry: Legitimising prices	Busfield J.	Health (London). 2021 May;25(3):271-287. doi: 10.1177/1363459319879474. Epub 2019 Oct 17.	2021
13	20210621	pubmed	y	y				n			32130309	The case of eculizumab: litigation and purchases by the Brazilian Ministry of Health	Caetano R, Rodrigues PHA, Corrêa MCV, Villarc	Rev Saude Publica. 2020 Mar 2;54:22. doi: 10.11606/s1518-8787.2020054001693. eCollection 2020.	2020
13	20210621	pubmed	y			y		n			33198882	Evaluation of the nature, severity, likelihood and preventability of medication-related hospital-acquired complications	Canning M, Lee CH, Bolitho R, Dunn E.	Aust Health Rev. 2020 Dec;44(6):935-940. doi: 10.1071/AH19215.	2020
13	20210621	pubmed	y			y		n			33456494	Value regimes and pricing in the pharmaceutical industry: financial capital inflation (hepatitis C) versus innovation and production capital savings for ma	Cassier M.	Biosocieties. 2021 Jan 13:1-19. doi: 10.1057/s41292-020-00214-4. Online ahead of print.	2021
13	20210621	pubmed	y					y	Policy (descriptive)	P4: Theory-driven economic analysis	32185365	Value-based tiered pricing for universal health coverage: an idea worth revisiting	Chalkidou K, Claxton K, Silverman R, Yadav P.	Gates Open Res. 2020 Apr 24;4:16. doi: 10.12688/gatesopenres.13110.3. eCollection 2020.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	32495405	Managing access to advanced therapy medicinal products: Challenges for NHS Wales	Champion AR, Lewis S, Davies S, Hughes DA.	Br J Clin Pharmacol. 2021 Jun;87(6):2444-2449. doi: 10.1111/bcp.14286. Epub 2020 Jun 3.	2021
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	33248513	Access and Unmet Needs of Orphan Drugs in 194 Countries and 6 Areas: A Global Policy Review With Content Analysis	Chan AYL, Chan VKY, Olsson S, Fan M, Jit M, Go	Value Health. 2020 Dec;23(12):1580-1591. doi: 10.1016/j.jval.2020.06.020. Epub 2020 Oct 31.	2020
13	20210621	pubmed	y	y				n			33736697	Online marketing practices of regenerative medicine clinics in US-Mexico border region: a web surveillance study	Chavez J, Shah NA, Ruoss S, Cuomo RE, Ward Sl	Stem Cell Res Ther. 2021 Mar 18;12(1):189. doi: 10.1186/s13287-021-02254-4.	2021
13	20210621	pubmed	y				y	n			30842244	Regulatory and Clinical Experiences with Biosimilar Filgrastim in the U.S., the European Union, Japan, and Canada	Chen B, Nagai S, Armitage JO, Witherspoon B,	Oncologist. 2019 Apr;24(4):537-548. doi: 10.1634/theoncologist.2018-0341. Epub 2019 Mar 6.	2019
13	20210621	pubmed	y					y	Policy (descriptive)	P1: Quantitative retrospective analysis	33616607	Assessment of Coverage in England of Cancer Drugs Qualifying for US Food and Drug Administration Accelerated Approval	Cherla A, Naci H, Kesselheim AS, Gyawali B, Mc	JAMA Intern Med. 2021 Apr 1;181(4):490-498. doi: 10.1001/jamainternmed.2020.8441.	2021
13	20210621	pubmed	y	y				n			30136662	Approaches to improving access to essential cancer medicines in the WHO South-East Asia Region	Chivukula MV, Tisocki K.	WHO South East Asia J Public Health. 2018 Sep;7(2):62-66. doi: 10.4103/2224-3151.239415.	2018
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	32356480	Reimbursement and pricing of regenerative medicine in South Korea: key factors for achieving reimbursement	Cho E, Yoo SL, Kang Y, Lee JH.	Regen Med. 2020 Apr;15(4):1550-1560. doi: 10.2217/rme-2020-0035. Epub 2020 May 1.	2020
13	20210621	pubmed	y	y				n			32500785	Is Dual Policy an Overarching Strategy for Medicine Price Controls in Malaysia?	Choon WY, Lee K.	Asia Pac J Public Health. 2020 May;32(4):215-216. doi: 10.1177/1010539520920526. Epub 2020 Jun 5.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	30711067	Was It Worth Introducing Health Economic Evaluation of Innovative Drugs in the French Regulatory Setting? The Case of New Hepatitis C Drugs	Clément V, Raimond V.	Value Health. 2019 Feb;22(2):220-224. doi: 10.1016/j.jval.2018.08.009. Epub 2018 Oct 9.	2019
13	20210621	pubmed	y			y		n			32119622	How The ACA Reframed The Prescription Drug Market And Set The Stage For Current Reform Efforts	Conti R, Dusetzina SB, Sachs R.	Health Aff (Millwood). 2020 Mar;39(3):445-452. doi: 10.1377/hlthaff.2019.01432.	2020
13	20210621	pubmed	y			y		n			32068901	Enhancing global access to cancer medicines	Cortes J, Perez-García JM, Llombart-Cussac A, C	CA Cancer J Clin. 2020 Mar;70(2):105-124. doi: 10.3322/caac.21597. Epub 2020 Feb 18.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	31140454	[Drugs for rare diseases: the blessing of being orphans.]	Costa E, Schieppati A, Luzzatto L, Remuzzi G.	Recenti Prog Med. 2019 May;110(5):221-229. doi: 10.1701/3163.31444.	2019
13	20210621	pubmed	y			y		n			30528252	The pharmacist's role in shaping the future of value-based payment models in state Medicaid programs	Cothran T, Holderread B, Abbott M, Nesser N,	J Am Pharm Assoc (2003). 2019 Jan-Feb;59(1):121-124. doi: 10.1016/j.japh.2018.10.015. Epub 2018 Dec 4.	2019
13	20210621	pubmed	y			y		n			33188346	The impact of Brexit on oral health	Coughlan J, Shah S.	Br Dent J. 2020 Nov;229(9):622-626. doi: 10.1038/s41415-020-2278-z. Epub 2020 Nov 13.	2020
13	20210621	pubmed	y					y	Policy > Welfare***	P4: Theory-driven economic analysis	31310424	The impact of pharmaceutical marketing on market access, treatment coverage, pricing, and social welfare	Critchley GJ, Zaric GS.	Health Econ. 2019 Aug;28(8):1035-1051. doi: 10.1002/hec.3903.	2019
13	20210621	pubmed	y			y		n			30326261	Introduction to the special issue: Saving plants, saving lives: Trade, sustainable harvest and conservation of traditional medicinals in Asia	Cunningham AB, Brinckmann JA, Yang X, He J.	J Ethnopharmacol. 2019 Jan 30;229:288-292. doi: 10.1016/j.jep.2018.10.006. Epub 2018 Oct 13.	2019
13	20210621	pubmed	y			y		n			30339980	Linking resource supplies and price drivers: Lessons from Traditional Chinese Medicine (TCM) price volatility and change, 2002-2017	Cunningham AB, Long X.	J Ethnopharmacol. 2019 Jan 30;229:205-214. doi: 10.1016/j.jep.2018.10.010. Epub 2018 Oct 17.	2019
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	32327159	Managed Entry Agreements: Policy Analysis From the European Perspective	Dabbous M, Chachoua L, Caban A, Toumi M.	Value Health. 2020 Apr;23(4):425-433. doi: 10.1016/j.jval.2019.12.008.	2020
13	20210621	pubmed	y			y		n			31489151	Why "American Patients First" is likely to raise drug prices outside of the United States	Dabbous M, Milea C, Simoens S, François C, Du	J Mark Access Health Policy. 2019 Aug 9;7(1):1650596. doi: 10.1080/20016689.2019.1650596. eCollection 201	2019
13	20210621	pubmed	y			y		n			33966604	Breaking Bad Patents: Learning from HIV/AIDS to make COVID-19 treatments accessible	D'Angelo AB, Grov C, Johnson J, Freudenberg N	Glob Public Health. 2021 May 8:1-14. doi: 10.1080/17441692.2021.1924223. Online ahead of print.	2021
13	20210621	pubmed	y	y				n			33439882	Medical abortion kit dispensing practices of community pharmacies in Pokhara Metropolitan, Nepal	Dangi NB, Subedi S, Gyawali M, Bhattarai A, Bl	PLoS One. 2021 Jan 13;16(1):e0244969. doi: 10.1371/journal.pone.0244969. eCollection 2021.	2021
13	20210621	pubmed	y			y		n			32434612	Excessive pricing in the pharmaceutical industry: adding another string to the bow of EU competition law	Danieli D.	Health Econ Policy Law. 2021 Jan;16(1):64-75. doi: 10.1017/S1744133120000109. Epub 2020 May 21.	2021
13	20210621	pubmed	y					y	Policy > Expenditures	P2: Qualitative analysis	31337514	Challenges in the value assessment, pricing and funding of targeted combination therapies in oncology	Dankó D, Blay JY, Garrison LP.	Health Policy. 2019 Dec;123(12):1230-1236. doi: 10.1016/j.healthpol.2019.07.009. Epub 2019 Jul 17.	2019
13	20210621	pubmed	y			y		n			32836770	Government royalties on sales of biomedical products developed with substantial public funding	Danziger RS, Scott JT.	J Technol Transf. 2020 Aug 19:1-23. doi: 10.1007/s10961-020-09821-6. Online ahead of print.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	30821532	The current performance-linked and risk sharing agreement scene in the Spanish region of Catalonia	Darbà J, Ascanio M.	Expert Rev Pharmacoecon Outcomes Res. 2019 Dec;19(6):743-748. doi: 10.1080/14737167.2019.1587296. Ep	2019
13	20210621	pubmed	y			y		n			33523733	Beyond The High Prices Of Prescription Drugs: A Framework To Assess Costs, Resource Allocation, And Public Funding	Darrow JJ, Light DW.	Health Aff (Millwood). 2021 Feb;40(2):281-288. doi: 10.1377/hlthaff.2020.00328.	2021
13	20210621	pubmed	y	y				n			33079967	Purchase and use of antimicrobials in the hospital sector of Vietnam, a lower middle-income country with an emerging pharmaceuticals market	Dat VQ, Toan PK, van Doorn HR, Thwaites CL, I	PLoS One. 2020 Oct 20;15(10):e0240830. doi: 10.1371/journal.pone.0240830. eCollection 2020.	2020
13	20210621	pubmed	y		y			n			30384333	Policy and advocacy for the HIV practitioner	Del Rio C, Armstrong WS.	Top Antivir Med. 2018 Sep;26(3):94-95.	2018
13	20210621	pubmed	y	y				n			31093228	[Concept Map on Health and Intellectual Property in Central America and the Dominican RepublicMapa conceitual de saúde e propriedade intelectual	Delgado BMG, Silva AP, de Rodriguez JM.	Rev Panam Salud Publica. 2019 Jan 4;43:e4. doi: 10.26633/RPSP.2019.4. eCollection 2019.	2019
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	33652404	Fighting Excessive Pharmaceutical Prices: Evaluating the Options	den Exter A.	Eur J Health Law. 2020 Apr 29;28(1):68-80. doi: 10.1163/15718093-BJA10004.	2020
13	20210621	pubmed	y	y				n			29989204	A retrospective and prospective assessment of the zero-markup drug reform in China from the perspective of policy diffusion	Deng J, Tian H, Guo Y, Ma T, Sun Y, Zhang S, Ya	Int J Health Plann Manage. 2018 Oct;33(4):e918-e929. doi: 10.1002/hpm.2562. Epub 2018 Jul 10.	2018
13	20210621	pubmed	y			y		n			31276176	Estimated Changes in Manufacturer and Health Care Organization Revenue Following List Price Reductions for Hepatitis C Treatments	Dickson S, Reynolds I.	JAMA Netw Open. 2019 Jul 3;2(7):e196541. doi: 10.1001/jamanetworkopen.2019.6541.	2019
13	20210621	pubmed	y					y	Other (non_Policy) > Prices	P1: Quantitative retrospective analysis	32172494	The impact of additive or substitutive clinical study design on the negotiated reimbursement for oncology pharmaceuticals after early benefit assessme	Dintsios CM, Beinhauer I.	Health Econ Rev. 2020 Mar 14;10(1):7. doi: 10.1186/s13561-020-00263-2.	2020
13	20210621	pubmed	y					y	Policy > Prices	P2: Qualitative analysis	33999735	A decade of early benefit assessment of ophthalmic drugs in Germany: success story or not	Dintsios CM.	Expert Rev Pharmacoecon Outcomes Res. 2021 May 17. doi: 10.1080/14737167.2021.1930532. Online ahead	2021
13	20210621	pubmed	y					y	*Prices (descriptive)*	P3: Essay, comment, synthesis	30296935	Pathways to ensure universal and affordable access to hepatitis C treatment	Douglass CH, Pedrana A, Lazarus JV, 't Hoen EF	BMC Med. 2018 Oct 9;16(1):175. doi: 10.1186/s12916-018-1162-z.	2018
13	20210621	pubmed	y	y				n			31937338	A survey of retail prices of antimicrobial products used in small-scale chicken farms in the Mekong Delta of Vietnam	Dung NTT, Truong BD, Cuong NV, Van NTB, Ph	Global Health. 2020 Jan 14;16(1):8. doi: 10.1186/s12992-019-0539-x.	2020
13	20210621	pubmed	y	y				n			30238525	Policy intervention for access to medicine: Does it work similarly for poor and non-poor?	Dutta A, Bandyopadhyay S.	Int J Health Plann Manage. 2019 Jan;34(1):e557-e568. doi: 10.1002/hpm.2671. Epub 2018 Sep 20.	2019
13	20210621	pubmed	y			y		n			33684255	Do pharmaceutical prices rise anticipating branded competition?	Ellyson AM, Basu A.	Health Econ. 2021 May;30(5):1070-1081. doi: 10.1002/hec.4248. Epub 2021 Mar 8.	2021
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	32986082	Drug Reimbursement Regulation in 6 Peer Countries	Emanuel EJ, Zhang C, Glickman A, Gudbranson	JAMA Intern Med. 2020 Nov 1;180(11):1510-1517. doi: 10.1001/jamainternmed.2020.4793.	2020
13	20210621	pubmed	y	y				n			31914972	Hypertension and diabetes treatment affordability and government expenditures following changes in patient cost sharing in the "Farmácia popular" p	Emmerick ICM, Campos MR, da Silva RM, Chav	BMC Public Health. 2020 Jan 8;20(1):24. doi: 10.1186/s12889-019-8095-0.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	31027840	Evaluation of new medicines in Spain and comparison with other European countries	Epstein D, Espín J.	Gac Sanit. 2020 Mar-Apr;34(2):133-140. doi: 10.1016/j.gaceta.2019.02.009. Epub 2019 Apr 23.	2020
13	20210621	pubmed	y					y	*Prices (descriptive)*	P2: Qualitative analysis	30088251	Projecting Pharmaceutical Expenditure in EU5 to 2021: Adjusting for the Impact of Discounts and Rebates	Espin J, Schlander M, Godman B, Anderson P, N	Appl Health Econ Health Policy. 2018 Dec;16(6):803-817. doi: 10.1007/s40258-018-0419-1.	2018
13	20210621	pubmed	y				y	n			30782693	Cross-sectional study on medicinal products without commercial interest (MPWCI) in the Spanish market	Esteve Sala E, Montes Barroso F, Bel Prieto E, S	BMJ Open. 2019 Jan 17;9(1):e023054. doi: 10.1136/bmjopen-2018-023054.	2019
13	20210621	pubmed	y			y		n			30207218	The Value of Biomarkers in Optimizing the Use of Immuno-oncologic Therapy	Ferreira CG, Nicolini A, Dalurzo L, Stefani S, Tei	Curr Drug Targets. 2019;20(1):81-86. doi: 10.2174/1389450119666180911093143.	2019
13	20210621	pubmed	y			y		n			31521428	[The development of vaccination policy]	Floret D.	Rev Mal Respir. 2019 Nov;36(9):1038-1046. doi: 10.1016/j.rmr.2019.07.007. Epub 2019 Sep 11.	2019
13	20210621	pubmed	y					y	*Prices (descriptive)*	P2: Qualitative analysis	33460356	Framing access to medicines during COVID-19: A qualitative content analysis of Gilead's Remdesivir	Flynn MB, Silva EO.	Glob Public Health. 2021 Jan 18:1-13. doi: 10.1080/17441692.2020.1871498. Online ahead of print.	2021
13	20210621	pubmed	y					y	Policy > Prices	P1: Quantitative retrospective analysis	31289948	International impact of external reference pricing: should national policy-makers care?	Fontrier AM, Gill J, Kanavos P.	Eur J Health Econ. 2019 Nov;20(8):1147-1164. doi: 10.1007/s10198-019-01083-w. Epub 2019 Jul 9.	2019
13	20210621	pubmed	y					y	Policy > Prices	P1: Quantitative retrospective analysis	32215592	Evidence Underlying Policy Proposals for Sustainable Anticancer Drug Prices: A Systematic Review	Franzen N, Retèl VP, Schats W, van Harten WH	JAMA Oncol. 2020 Jun 1;6(6):909-916. doi: 10.1001/jamaoncol.2019.6846.	2020
13	20210621	pubmed	y	y				n			32113622	Supporting the Development of Evidence-Informed Policy Options: An Economic Evaluation of Hypertension Management in Ghana	Gad M, Lord J, Chalkidou K, Asare B, Lutterodt	Value Health. 2020 Feb;23(2):171-179. doi: 10.1016/j.jval.2019.09.2749. Epub 2019 Dec 4.	2020
13	20210621	pubmed	y					y	Policy > Prices	P4: Theory-driven economic analysis	32628324	The impact of managed entry agreements on pharmaceutical prices	Gamba S, Pertile P, Vogler S.	Health Econ. 2020 Oct;29 Suppl 1:47-62. doi: 10.1002/hec.4112. Epub 2020 Jul 6.	2020
13	20210621	pubmed	y					y	Policy > Prices	P1: Quantitative retrospective analysis	32451745	Predictors of negotiated prices for new drugs in Germany	Gandjour A, Schüßler S, Hammerschmidt T, Dir	Eur J Health Econ. 2020 Sep;21(7):1049-1057. doi: 10.1007/s10198-020-01201-z. Epub 2020 May 25.	2020
13	20210621	pubmed	y	y				n			32351382	Funding and Service Organization to Achieve Universal Health Coverage for Medicines: An Economic Evaluation of the Best Investment and Service Org	Garcia MM, Azevedo PS, Mirelman A, Safatle L	Front Pharmacol. 2020 Apr 14;11:370. doi: 10.3389/fphar.2020.00370. eCollection 2020.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	31556828	A Strategy to Support Efficient Development and Use of Innovations in Personalized Medicine and Precision Medicine	Garrison LP Jr, Towse A.	J Manag Care Spec Pharm. 2019 Oct;25(10):1082-1087. doi: 10.18553/jmcp.2019.25.10.1082.	2019
13	20210621	pubmed	y					y	Policy (descriptive)	P3: Essay, comment, synthesis	33527904	Belgium: Health System Review	Gerkens S, Merkur S.	Health Syst Transit. 2020 Dec;22(5):1-237.	2020
13	20210621	pubmed	y		y			n			31850949	A Crisis of Trust Between U.S. Medical Education and the National Board of Medical Examiners	Gesundheit N.	Acad Med. 2020 Sep;95(9):1300-1304. doi: 10.1097/ACM.0000000000003131.	2020
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	33402264	A survey of Australian public attitudes towards funding of high cost cancer medicines	Ghinea N, Critchley C, Morrell B, Kerridge I, Ca	Health Policy. 2021 Mar;125(3):327-334. doi: 10.1016/j.healthpol.2020.12.002. Epub 2020 Dec 10.	2021
13	20210621	pubmed	y			y		n			30221755	Nusinersen treatment of spinal muscular atrophy: current knowledge and existing gaps	Gidaro T, Servais L.	Dev Med Child Neurol. 2019 Jan;61(1):19-24. doi: 10.1111/dmcn.14027. Epub 2018 Sep 17.	2019
13	20210621	pubmed	y					y	Policy (descriptive)	P2: Qualitative analysis	31444673	Variations in external reference pricing implementation: does it matter for public policy?	Gill J, Fontrier AM, Kyriopoulos D, Kanavos P.	Eur J Health Econ. 2019 Dec;20(9):1375-1397. doi: 10.1007/s10198-019-01100-y. Epub 2019 Aug 23.	2019
13	20210621	pubmed	y		y			n			32514215	A survey of nongovernmental organizations on their use of WHO's prequalification programme	Giralt AN, Ronse M, Ravinetto R.	Bull World Health Organ. 2020 Jun 1;98(6):413-419. doi: 10.2471/BLT.19.233882. Epub 2020 Apr 7.	2020
13	20210701	pubmed	y		y			n			34195067	How is Information from ABC-VED-FNS Matrix Analysis Used to Improve Operational Efficiency of Pharmaceuticals Inventory Management? A Cross-Sec	Gizaw T, Jemal A.	Integr Pharm Res Pract. 2021 Jun 24;10:65-73. doi: 10.2147/IPRP.S310716. eCollection 2021.	2021

13	20210621	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	30568938	Barriers for Access to New Medicines: Searching for the Balance Between Rising Costs and Limited Budgets	Godman B, Bucsics A, Vella Bonanno P, Oortwij	Front Public Health. 2018 Dec 5;6:328. doi: 10.3389/fpubh.2018.00328. eCollection 2018.	2018
13	20210621	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	33535841	Potential approaches for the pricing of cancer medicines across Europe to enhance the sustainability of healthcare systems and the implications	Godman B, Hill A, Simoens S, Selke G, Selke Kru	Expert Rev Pharmacoecon Outcomes Res. 2021 Mar 11:1-14. doi: 10.1080/14737167.2021.1884546. Online al	2021
13	20210621	pubmed		y	y				n			32641322	Mixed-methods study on pharmacies as contraception providers to Kenyan young people: who uses them and why?	Gonsalves L, Wyss K, Cresswell JA, Waithaka M,	BMJ Open. 2020 Jul 8;10(7):e034769. doi: 10.1136/bmjopen-2019-034769.	2020
13	20210621	pubmed		y	y				n			30587231	Affordability of commonly prescribed antibiotics in a large tertiary teaching hospital in Ethiopia: a challenge for the national drug policy objective	Gutema G, Engidawork E.	BMC Res Notes. 2018 Dec 27;11(1):925. doi: 10.1186/s13104-018-4021-2.	2018
13	20210621	pubmed		y	y				n			30936797	Rare Diseases and Orphan Drugs Accessibility in Bosnia and Herzegovina	Guzvic V, Stojakovic N, Jusufovic R, Catic T.	Mater Sociomed. 2018 Dec;30(4):297-303. doi: 10.5455/msm.2018.30.297-303.	2018
13	20210621	pubmed		y	y				n			33413248	Influence of pharmaceutical marketing mix strategies on physicians' prescribing behaviors in public and private hospitals, Dessie, Ethiopia: a mixed stud	Hailu AD, Workneh BD, Kahissay MH.	BMC Public Health. 2021 Jan 7;21(1):65. doi: 10.1186/s12889-020-10063-2.	2021
13	20210621	pubmed		y			y		n			31687800	T-Cell Activation by Low Molecular Weight Drugs and Factors That Influence Susceptibility to Drug Hypersensitivity	Hammond S, Thomson PJ, Ogese MO, Naisbitt I	Chem Res Toxicol. 2020 Jan 21;33(1):77-94. doi: 10.1021/acs.chemrestox.9b00327. Epub 2019 Nov 20.	2020
13	20210621	pubmed		y				y	n			31510811	Influence of biosimilar infliximab launch on the utilization pattern of biological medicines: the case of Hungary	Harsányi A, Csanádi M, Márky K, Vinczizki ÁZ,	Expert Rev Pharmacoecon Outcomes Res. 2020 Dec;20(6):653-659. doi: 10.1080/14737167.2019.1667232. Ep	2020
13	20210621	pubmed		y	y				n			30414506	Pharmaceutical Policy Reforms to Regulate Drug Prices in the Asia Pacific Region: The Case of Australia, China, India, Malaysia, New Zealand, and Sout	Hasan SS, Kow CS, Dawoud D, Mohamed O, Ba	Value Health Reg Issues. 2019 May;18:18-23. doi: 10.1016/j.vhri.2018.08.007. Epub 2018 Nov 7.	2019
13	20210621	pubmed		y	y				n			34049935	Challenges in maintaining medicine quality while aiming for universal health coverage: a qualitative analysis from Indonesia	Hasnida A, Kok MO, Pisani E.	BMJ Glob Health. 2021 May;6(Suppl 3):e003663. doi: 10.1136/bmjgh-2020-003663.	2021
13	20210621	pubmed		y	y				n			30578195	Using an Internet-Based Hospital to Address Maldistribution of Health Care Resources in Rural Areas of Guangdong Province, China: Retrospective and	He C, Zhou Q, Chen W, Tian J, Zhou L, Peng H, L	JMIR Med Inform. 2018 Dec 21;6(4):e51. doi: 10.2196/medinform.9495.	2018
13	20210621	pubmed		y			y		n			30917142	The effect of a change in co-payment on prescription drug demand in a National Health System: The case of 15 drug families by price elasticity of dema	Hernández-Izquierdo C, González López-Valcár	PLoS One. 2019 Mar 27;14(3):e0213403. doi: 10.1371/journal.pone.0213403. eCollection 2019.	2019
13	20210621	pubmed		y					y	Other (non_Policy) > Prices	P1: Quantitative retrospective analysis	32405423	Minimum costs to manufacture new treatments for COVID-19	Hill A, Wang J, Levi J, Heath K, Fortunak J.	J Virus Erad. 2020 Apr 30;6(2):61-69. doi: 10.1016/S2055-6640(20)30018-2.	2020
13	20210621	pubmed		y			y		n			31699746	Applying a whole systems lens to the general practice crisis: cross-sectional survey looking at usage of community pharmacy services in England by patie	Hindi AMK, Schafheutle EI, Jacobs S.	BMJ Open. 2019 Nov 7;9(11):e032310. doi: 10.1136/bmjopen-2019-032310.	2019
13	20210621	pubmed		y					y	Policy (descriptive)	P4: Theory-driven economic analysis	33725260	The economics of alternative payment models for pharmaceuticals	Hlávka JP, Yu JC, Goldman DP, Lakdawalla DN.	Eur J Health Econ. 2021 Jun;22(4):559-569. doi: 10.1007/s10198-021-01274-4. Epub 2021 Mar 16.	2021
13	20210621	pubmed		y					y	Policy > Expenditures	P4: Theory-driven economic analysis	30832970	Determining the Comparative Value of Pharmaceutical Risk-Sharing Policies in Non-Small Cell Lung Cancer Using Real-World Data	Holleman MS, Uyl-de Groot CA, Goodall S, van	Value Health. 2019 Mar;22(3):322-331. doi: 10.1016/j.jval.2018.08.007. Epub 2018 Oct 26.	2019
13	20210621	pubmed		y	y				n			30327255	Drug Policy in the Russian Federation	Holownia-Voloskova M, Vorobiev PA, Grinin M,	Value Health Reg Issues. 2018 Sep;16:106-111. doi: 10.1016/j.vhri.2018.09.001. Epub 2018 Oct 14.	2018
13	20210621	pubmed		y	y				n			31416014	External Reference Pricing for Pharmaceuticals-A Survey and Literature Review to Describe Best Practices for Countries With Expanding Healthcare Co	Holtorf AP, Gialama F, Wijaya KE, Kaló Z.	Value Health Reg Issues. 2019 Sep;19:122-131. doi: 10.1016/j.vhri.2019.04.003. Epub 2019 Aug 12.	2019
13	20210621	pubmed		y					y	Other (non_Policy) > Other	P3: Essay, comment, synthesis	33987187	Propelling Healthcare with Advanced Therapy Medicinal Products: A Policy Discussion	Horgan D, Metspalu A, Ouillade MC, Athanasio	Biomed Hub. 2020 Dec 3;5(3):130-152. doi: 10.1159/000511678. eCollection 2020 Sep-Dec.	2020
13	20210621	pubmed		y					y	Policy > diverse	P4: Theory-driven economic analysis	31426930	Implications of Nonmarginal Budgetary Impacts in Health Technology Assessment: A Conceptual Model	Howdon DDH, Lomas JRS, Paulden M.	Value Health. 2019 Aug;22(8):891-897. doi: 10.1016/j.jval.2019.04.001. Epub 2019 May 25.	2019
13	20210621	pubmed		y	y				n			31555135	The Effects of a New Public Medicine Procurement Policy on Medicine Price in Shaanxi Province, Western China: An Interrupted Time Series Analysis	Hu S, Chen C, Yuan S, Xue F, Shi L, Fang Y, Yang	Front Pharmacol. 2019 Aug 29;10:950. doi: 10.3389/fphar.2019.00950. eCollection 2019.	2019
13	20210621	pubmed		y			y		n			31841773	The price and mark up of pharmaceutical drugs supplied on the black market	Hulme S, Hughes CE, Nielsen S.	Int J Drug Policy. 2020 Feb;76:102626. doi: 10.1016/j.drugpo.2019.102626. Epub 2019 Dec 13.	2020
13	20210621	pubmed		y					y	Other (non_Policy) > Other	P2: Qualitative analysis	31133089	Use of Real-World Data Sources for Canadian Drug Pricing and Reimbursement Decisions: Stakeholder Views and Lessons for Other Countries	Husereau D, Nason E, Ahuja T, Nikaï E, Tsakona	Int J Technol Assess Health Care. 2019 Jan;35(3):181-188. doi: 10.1017/S0266462319000291. Epub 2019 May 2	2019
13	20210621	pubmed		y			y		n			32280074	Global value chains and international pharmaceutical policy	Huttin CC.	Technol Health Care. 2020;28(3):337-344. doi: 10.3233/THC-192103.	2020
13	20210621	pubmed		y			y		n			32634350	Abandoning List Prices In Medicaid Drug Reimbursement Did Not Affect Spending	Ippolito B, Levy JF, Anderson GF.	Health Aff (Millwood). 2020 Jul;39(7):1202-1209. doi: 10.1377/hlthaff.2019.01354.	2020
13	20210621	pubmed		y			y		n			31888688	Impacts of intellectual property provisions in trade treaties on access to medicine in low and middle income countries: a systematic review	Islam MD, Kaplan WA, Trachtenberg D, Thrash	Global Health. 2019 Dec 30;15(1):88. doi: 10.1186/s12992-019-0528-0.	2019
13	20210621	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	31155003	Confidentiality agreements: a challenge in market regulation	Iunes RF, Uribe MV, Torres JB, Garcia MM, Dia	Int J Equity Health. 2019 Jun 3;18(1):11. doi: 10.1186/s12939-019-0916-3.	2019
13	20210621	pubmed		y					y	Other (non_Policy) > Prices	P1: Quantitative retrospective analysis	30630499	Estimating the clinical cost of drug development for orphan versus non-orphan drugs	Jayasundara K, Hollis A, Krahn M, Mamdani M,	Orphanet J Rare Dis. 2019 Jan 10;14(1):12. doi: 10.1186/s13023-018-0990-4.	2019
13	20210621	pubmed		y	y				n			32423447	Preferences heterogeneity of health care utilization of community residents in China: a stated preference discrete choice experiment	Jiang MZ, Fu Q, Xiong JY, Li XL, Jia EP, Peng YY,	BMC Health Serv Res. 2020 May 18;20(1):430. doi: 10.1186/s12913-020-05134-4.	2020
13	20210621	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	31882225	Implementation of Value-based Pricing for Medicines	Jommi C, Armeni P, Costa F, Bertolani A, Otto M	Clin Ther. 2020 Jan;42(1):15-24. doi: 10.1016/j.clinthera.2019.11.006. Epub 2019 Dec 24.	2020
13	20210621	pubmed		y					y	Policy > Invest (R&D)	P3: Essay, comment, synthesis	33435784	Pharmaceutical price regulation and its impact on drug innovation: mitigating the trade-offs	Kakkar AK.	Expert Opin Ther Pat. 2021 Mar;31(3):189-192. doi: 10.1080/13543776.2021.1876029. Epub 2021 Feb 10.	2021
13	20210621	pubmed		y					y	Policy > diverse	P2: Qualitative analysis	31583483	Does external reference pricing deliver what it promises? Evidence on its impact at national level	Kanavos P, Fontrier AM, Gill J, Efthymiadou O.	Eur J Health Econ. 2020 Feb;21(1):129-151. doi: 10.1007/s10198-019-01116-4. Epub 2019 Oct 3.	2020
13	20210621	pubmed		y	y				n			32962876	Pricing of in-patent pharmaceuticals in the Middle East and North Africa: Is external reference pricing implemented optimally?	Kanavos P, Kamphuis BW, Fontrier AM, Colville	Health Policy. 2020 Dec;124(12):1297-1309. doi: 10.1016/j.healthpol.2020.07.017. Epub 2020 Aug 14.	2020
13	20210621	pubmed		y					y	Policy > Access*	P1: Quantitative retrospective analysis	30388700	Access to innovative medicines for metastatic melanoma worldwide: Melanoma World Society and European Association of Dermato-oncology survey i	Kandolf Sekulovic L, Guo J, Agarwala S, Hauschi	Eur J Cancer. 2018 Nov;104:201-209. doi: 10.1016/j.ejca.2018.09.013. Epub 2018 Oct 31.	2018
13	20210621	pubmed		y			y		n			29788203	Do cost containment policies save money and influence physicians' prescribing behavior? Lessons from South Korea's drug policy for diabetes medicatio	Kang SO, Kim SJ, Park S, Jang SI, Park EC.	Int J Qual Health Care. 2019 Mar 1;31(2):96-102. doi: 10.1093/intqhc/mzy114.	2019
13	20210621	pubmed		y			y		n			31874070	Comparative Approaches to Drug Pricing	Kang SY, Bai G, DiStefano MJ, Socal MP, Yehia	Annu Rev Public Health. 2020 Apr 2;41:499-512. doi: 10.1146/annurev-publhealth-040119-094305. Epub 2019	2020
13	20210621	pubmed		y			y		n			31059372	Using External Reference Pricing In Medicare Part D To Reduce Drug Price Differentials With Other Countries	Kang SY, DiStefano MJ, Socal MP, Anderson GF	Health Aff (Millwood). 2019 May;38(5):804-811. doi: 10.1377/hlthaff.2018.05207.	2019
13	20210621	pubmed		y			y		n			31103566	The impact of the Orphan Drug Act on Food and Drug Administration-approved therapies for rare skin diseases and skin-related cancers	Karas L, Lu CY, Agrawal PB, Asgari MM.	J Am Acad Dermatol. 2019 Sep;81(3):867-877. doi: 10.1016/j.jaad.2019.05.025. Epub 2019 May 16.	2019
13	20210621	pubmed		y			y		n			32188362	Policy and Practice Innovations to Improve Prescribing of Psychoactive Medications for Children	Kelleher KJ, Rubin D, Hoagwood K.	Psychiatr Serv. 2020 Jul 1;71(7):706-712. doi: 10.1176/appi.ps.201900417. Epub 2020 Mar 19.	2020
13	20210621	pubmed		y			y		n			30362070	Using Post-market Utilisation Analysis to Support Medicines Pricing Policy: An Australian Case Study of Aflibercept and Ranibizumab Use	Kemp-Casey A, Pratt N, Ramsay E, Roughead E	Appl Health Econ Health Policy. 2019 Jun;17(3):411-417. doi: 10.1007/s40258-018-0440-4.	2019
13	20210621	pubmed		y					y	Other (non_Policy) > Equity	P3: Essay, comment, synthesis	33425952	Development and Use of Gene Therapy Orphan Drugs-Ethical Needs for a Broader Cooperation Between the Pharmaceutical Industry and Society	Kerpel-Fronius S, Baroutsou V, Becker S, Carlesi	Front Med (Lausanne). 2020 Dec 23;7:608249. doi: 10.3389/fmed.2020.608249. eCollection 2020.	2020
13	20210621	pubmed		y	y				n			31823665	Availability, Price, and Affordability of Essential Medicines to Manage Noncommunicable Diseases: A National Survey From Nepal	Khanal S, Veerman L, Ewen M, Nissen L, Holling	Inquiry. 2019 Jan-Dec;56:46958019887572. doi: 10.1177/0046958019887572.	2019
13	20210621	pubmed		y	y				n			29542834	Exploring strategies to overcome extra-organisational challenges faced by community pharmacies in Sarawak, Malaysia	Kho BP, Hassali MA, Lim CJ, Saleem F.	Int J Pharm Pract. 2018 Dec;26(6):494-500. doi: 10.1111/ijpp.12438. Epub 2018 Mar 15.	2018
13	20210621	pubmed		y	y				n			30753219	The availability, prices and affordability of essential medicines in Malawi: A cross-sectional study	Khuluza F, Haefele-Abah C.	PLoS One. 2019 Feb 12;14(2):e0212125. doi: 10.1371/journal.pone.0212125. eCollection 2019.	2019
13	20210621	pubmed		y	y				n			33414148	Access to oxytocin and misoprostol for management of postpartum haemorrhage in Kenya, Uganda and Zambia: a cross-sectional assessment of availa	Kibira D, Ooms GI, van den Ham HA, Namugam	BMJ Open. 2021 Jan 7;11(1):e042948. doi: 10.1136/bmjopen-2020-042948.	2021
13	20210621	pubmed		y	y				n			33691704	Trends in access to anti-malarial treatment in the formal private sector in Uganda: an assessment of availability and affordability of first-line anti-malar	Kibira D, Ssebagereka A, van den Ham HA, Opig	Malar J. 2021 Mar 10;20(1):142. doi: 10.1186/s12936-021-03680-8.	2021
13	20210621	pubmed		y					y	Policy (descriptive)	P2: Qualitative analysis	30157674	Health Technology Assessment in Japan: A Pharmaceutical Industry Perspective	Kido K, Matsumaru N, Tsukamoto K.	Ther Innov Regul Sci. 2019 Jul;53(4):472-480. doi: 10.1177/2168479018791136. Epub 2018 Aug 29.	2019
13	20210621	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	33037566	Performance-Based Risk-Sharing Arrangements (PBRSA): Is it a Solution to Increase Bang for the Buck for Pharmaceutical Reimbursement Strategy for	Kim AE, Choi DH, Chang J, Kim SH.	Clin Drug Investig. 2020 Dec;40(12):1107-1113. doi: 10.1007/s40261-020-00972-w. Epub 2020 Oct 9.	2020
13	20210621	pubmed		y				y	n			32733238	Uptake of Biosimilar Infliximab in the UK, France, Japan, and Korea: Budget Savings or Market Expansion Across Countries?	Kim Y, Kwon HY, Godman B, Moorkens E, Simo	Front Pharmacol. 2020 Jul 9;11:970. doi: 10.3389/fphar.2020.00970. eCollection 2020.	2020
13	20210621	pubmed		y	y				n			33172498	Prices of medicines for the management of pain, diabetes and cardiovascular diseases in private pharmacies and the national health insurance in Tanza	Kirua RB, Temu MJ, Mori AT.	Int J Equity Health. 2020 Nov 10;19(1):203. doi: 10.1186/s12939-020-01319-9.	2020
13	20210621	pubmed		y			y		n			31699701	Current Policy Challenges in Genomic Medicine	Klein RD.	Clin Chem. 2020 Jan 1;66(1):61-67. doi: 10.1373/clinchem.2019.308775.	2020
13	20210621	pubmed		y	y				n			33549137	Analysis of patient access to orphan drugs in Turkey	Koçkaya G, Atalay S, Oğuzhan G, Kurnaz M, Ök	Orphanet J Rare Dis. 2021 Feb 6;16(1):68. doi: 10.1186/s13023-021-01718-3.	2021
13	20210621	pubmed		y					y	Policy (descriptive)	P2: Qualitative analysis	30661627	Identifying the Need for Good Practices in Health Technology Assessment: Summary of the ISPOR HTA Council Working Group Report on Good Practice	Kristensen FB, Husereau D, Huić M, Drummonc	Value Health. 2019 Jan;22(1):13-20. doi: 10.1016/j.jval.2018.08.010. Epub 2018 Dec 13.	2019
13	20210621	pubmed		y	y				n			31365401	Academic Medicine and Science Diplomacy: Medical Education in Iraq	Kron M, Roenius M, Alqortasi MAM, Alhaidari T	Acad Med. 2019 Dec;94(12):1884-1890. doi: 10.1097/ACM.0000000000002918.	2019
13	20210621	pubmed		y			y		n			31294382	The Impact of Inflammatory Bowel Disease in Canada 2018: Direct Costs and Health Services Utilization	Kuenzig ME, Benchimol EI, Lee L, Targownik LE	J Can Assoc Gastroenterol. 2019 Feb;2(Suppl 1):S17-S33. doi: 10.1093/jcag/gwy055. Epub 2018 Nov 2.	2019
13	20210621	pubmed		y					y	Policy > Prices	P1: Quantitative retrospective analysis	30503763	Easy cuts, easy rebound: Drug expenditures with massive price cuts in Korea	Kwon HY, Bae S, Choi SE, Park S, Lee EK, Park S,	Health Policy. 2019 Apr;123(4):388-392. doi: 10.1016/j.healthpol.2018.11.002. Epub 2018 Nov 20.	2019
13	20210621	pubmed		y					y	Policy > Access*	P1: Quantitative retrospective analysis	30233363	Availability and Affordability of Drugs With a Conditional Approval by the European Medicines Agency; Comparison of Korea With Other Countries and t	Kwon HY, Kim H, Godman B.	Front Pharmacol. 2018 Sep 3;9:938. doi: 10.3389/fphar.2018.00938. eCollection 2018.	2018
13	20210621	pubmed		y			y		n			29701846	Brexit poses serious threats to the availability and affordability of food in the United Kingdom	Lang T, McKee M.	J Public Health (Oxf). 2018 Dec 1;40(4):e608-e610. doi: 10.1093/pubmed/fdy073.	2018
13	20210621	pubmed		y			y		n			34007677	Medicaid Formulary Decisions and the Institute for Clinical and Economic Review: Abandoning Pseudoscience in Imaginary Pharmaceutical Pricing Clain	Langley PC.	Innov Pharm. 2021 Feb 16;12(1):10.24926/iip.v12i1.3702. doi: 10.24926/iip.v12i1.3702. eCollection 2021.	2021
13	20210621	pubmed		y					y	Policy > Prices	P1: Quantitative retrospective analysis	32634355	Lessons From The Impact Of Price Regulation On The Pricing Of Anticancer Drugs In Germany	Lauenroth VD, Kesselheim AS, Sarpatwari A, St	Health Aff (Millwood). 2020 Jul;39(7):1185-1193. doi: 10.1377/hlthaff.2019.01122.	2020
13	20210621	pubmed		y					y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	34135760	Determinants of Growth in Prescription Drug Spending Using 2010-2019 Health Insurance Claims Data	Lee H, Park D, Kim DS.	Front Pharmacol. 2021 May 31;12:681492. doi: 10.3389/fphar.2021.681492. eCollection 2021.	2021
13	20210621	pubmed		y					y	Policy > Usage** & Exp	P1: Quantitative retrospective analysis	33409682	Post-market utilization patterns of Alzheimer's disease treatments in South Korea: comparison with countries with universal health coverage	Lee HJ, Roughead EE, Han E, Lee J, Kalisch Ellet	Eur J Clin Pharmacol. 2021 Jun;77(6):921-929. doi: 10.1007/s00228-020-03065-x. Epub 2021 Jan 6.	2021
13	20210621	pubmed		y			y		n			33495253	Message framing to inform cancer prevention pricing interventions in the UK and USA: a factorial experiment, 2019	Lee JGL, Cristello JV, Buckton CH, Carey RN, Tru	BMJ Open. 2021 Jan 25;11(1):e041324. doi: 10.1136/bmjopen-2020-041324.	2021
13	20210621	pubmed		y					y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	33800373	Pricing and Reimbursement Pathways of New Orphan Drugs in South Korea: A Longitudinal Comparison	Lee JH.	Healthcare (Basel). 2021 Mar 8;9(3):296. doi: 10.3390/healthcare9030296.	2021
13	20210621	pubmed		y			y		n			33374493	Factors Impacting Pharmaceutical Prices and Affordability: Narrative Review	Lee KS, Kassab YW, Taha NA, Zainal ZA.	Pharmacy (Basel). 2020 Dec 23;9(1):1. doi: 10.3390/pharmacy9010001.	2020
13	20210621	pubmed		y					y	Policy > Prices	P4: Theory-driven economic analysis	31788763	Value-Based Pricing Alternatives for Personalised Drugs: Implications of Asymmetric Information and Competition	Levaggi R, Pertile P.	Appl Health Econ Health Policy. 2020 Jun;18(3):357-362. doi: 10.1007/s40258-019-00541-z.	2020
13	20210621	pubmed		y					y	Policy > Welfare***	P4: Theory-driven economic analysis	32537816	Which valued-based price when patients are heterogeneous?	Levaggi R, Pertile P.	Health Econ. 2020 Aug;29(8):923-935. doi: 10.1002/hec.4033. Epub 2020 Jun 14.	2020
13	20210621	pubmed		y			y		n			30166310	Health Canada's use of expedited review pathways and therapeutic innovation, 1995-2016: cross-sectional analysis	Lexchin J.	BMJ Open. 2018 Aug 30;8(8):e023605. doi: 10.1136/bmjopen-2018-023605.	2018
13	20210621	pubmed		y		y			n			30388999	An assessment of the economic costs to the U.S. dairy market of antimicrobial use restrictions	Lhermie G, Tauer LW, Gröhn YT.	Prev Vet Med. 2018 Nov 15;160:63-67. doi: 10.1016/j.prevetmed.2018.09.028. Epub 2018 Sep 29.	2018
13	20210621	pubmed		y	y				n			31162129	Provision of Paid Web-Based Medical Consultation in China: Cross-Sectional Analysis of Data From a Medical Consultation Website	Li Y, Yan X, Song X.	J Med Internet Res. 2019 Jun 3;21(6):e12126. doi: 10.2196/12126.	2019
13	20210621	pubmed		y	y				n			30307681	Prices, availability and affordability of insulin products: a cross-sectional survey in Shaanxi Province, western China	Li Z, Feng Q, Kabba JA, Yang C, Chang J, Jiang M	Trop Med Int Health. 2019 Jan;24(1):43-52. doi: 10.1111/tmi.13167. Epub 2018 Nov 13.	2019
13	20210621	pubmed		y			y		n			30483357	From science to real-life oncology-the ECCO 2018 European Cancer Summit, 7-9 September 2018, Vienna, Austria	Liptrott S.	Ecancermedicalscience. 2018 Oct 15;12:877. doi: 10.3332/ecancer.2018.877. eCollection 2018.	2018
13	20210621	pubmed		y					y	Other (non_Policy) > Access	P3: Essay, comment, synthesis	31130319	Alternative access schemes for pharmaceuticals in Europe: Towards an emerging typology	Löblová O, Csanádi M, Ozierański P, Kaló Z, King	Health Policy. 2019 Jul;123(7):630-634. doi: 10.1016/j.healthpol.2019.05.012. Epub 2019 May 20.	2019
13	20210621	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	31277882	Patterns of alternative access: Unpacking the Slovak extraordinary drug reimbursement regime 2012-2016	Löblová O, Csanádi M, Ozierański P, Kaló Z, King	Health Policy. 2019 Aug;123(8):713-720. doi: 10.1016/j.healthpol.2019.05.021. Epub 2019 Jun 8.	2019
13	20210621	pubmed		y			y		n			32479217	Paying For Value From Costly Medical Technologies: A Framework For Applying Value-Based Payment Reforms	Lopez MH, Daniel GW, Fiore NC, Higgins A, Mc	Health Aff (Millwood). 2020 Jun;39(6):1018-1025. doi: 10.1377/hlthaff.2019.00771.	2020
13	20210621	pubmed		y			y		n			31317339	Implementation of risk-sharing contracts as perceived by Spanish hospital pharmacists	Lorente R, Antonanzas F, Rodriguez-Ibeas R.	Health Econ Rev. 2019 Jul 17;9(1):25. doi: 10.1186/s13561-019-0242-x.	2019
13	20210621	pubmed		y	y				n			33875231	Can locally developed me-too drugs aid price negotiation? An example of cancer therapies from China	Luo Z, Gyawali B, Han S, Shi L, Guan X, Wagner	Semin Oncol. 2021 Apr 6:S0093-7754(21)00012-9. doi: 10.1053/j.seminoncol.2021.03.001. Online ahead of prir	2021
13	20210621	pubmed		y					y	Policy (descriptive)	P3: Essay, comment, synthesis	29529444	Drug Policy in Estonia	Mägi K, Lepaste M, Szkultecka-Dębek M.	Value Health Reg Issues. 2018 Sep;16:1-4. doi: 10.1016/j.vhri.2017.10.001. Epub 2018 Mar 12.	2018
13	20210621	pubmed		y					y	Policy > Prices	P4: Theory-driven economic analysis	30273062	Cross-national drug price comparisons with economic weights in external reference pricing in Germany	Mahlich J, Sindern J, Suppliet M.	Expert Rev Pharmacoecon Outcomes Res. 2019 Feb;19(1):37-43. doi: 10.1080/14737167.2019.1527221. Epub	2019
13	20210621	pubmed		y					y	Policy (descriptive)	P2: Qualitative analysis	29987759	Shaping Pharmaceutical Tenders for Effectiveness and Sustainability in Countries with Expanding Healthcare Coverage	Maniadakis N, Holtorf AP, Otávio Corrêa J, Gial	Appl Health Econ Health Policy. 2018 Oct;16(5):591-607. doi: 10.1007/s40258-018-0405-7.	2018
13	20210621	pubmed		y					y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	30468097	Review of studies reporting actual prices for medicines	Mardetko N, Kos M, Vogler S.	Expert Rev Pharmacoecon Outcomes Res. 2019 Apr;19(2):159-179. doi: 10.1080/14737167.2019.1552137. Ep	2019
13	20210621	pubmed		y	y				n			30241244	Methodology to Forecast Volume and Cost of Cancer Drugs in Low- and Middle-Income Countries	Martei YM, Chiyapo S, Grover S, Hanna C, Dryd	J Glob Oncol. 2018 Sep;4:1-8. doi: 10.1200/JGO.17.00114.	2018
13	20210621	pubmed		y				y	n			33806543	The Effect of Changes in Cost Sharing on the Consumption of Prescription and Over-the-Counter Medicines in Catalonia	Martínez-Jiménez M, García-Gómez P, Puig-Jur	Int J Environ Res Public Health. 2021 Mar 4;18(5):2562. doi: 10.3390/ijerph18052562.	2021
13	20210621	pubmed		y	y				n			32922575	Primary health care pharmacists and vision for community pharmacy and pharmacists in Chile	Martínez-Mardones F, Ahumada-Canale A, Gor	Pharm Pract (Granada). 2020 Jul-Sep;18(3):2142. doi: 10.18549/PharmPract.2020.3.2142. Epub 2020 Aug 28.	2020
13	20210621	pubmed	y									29936067	Managed Entry Agreements for Pharmaceutical Products in Middle East and North African Countries: Payer and Manufacturer Experience and Outlook	Maskineh C, Nasser SC.	Value Health Reg Issues. 2018 Sep;16:33-38. doi: 10.1016/j.vhri.2018.04.003. Epub 2018 Jun 22.	2018
13	20210621	pubmed		y			y		n			30316230	An Investigation of Prescription Indicators and Trends Among General Practitioners and Specialists From 2005 to 2015 in Kerman, Iran	Masoud A, Noori Hekmat S, Dehnavieh R, Haj-A	Int J Health Policy Manag. 2018 Sep 1;7(9):818-827. doi: 10.15171/ijhpm.2018.28.	2018
13	20210621	pubmed		y			y		n			31502202	Sphingolipids as Biomarkers of Disease	Matanes F, Twal WO, Hammad SM.	Adv Exp Med Biol. 2019;1159:109-138. doi: 10.1007/978-3-030-21162-2_7.	2019
13	20210621	pubmed		y			y		n			32839684	Cross-sectional Study on the Impact of Discount Pricing and Price Competition on Community Pharmacy Practice	Mathews A, Ming LC, Che Rose FZ, Abbas SA.	Cureus. 2020 Aug 20;12(8):e9903. doi: 10.7759/cureus.9903.	2020
13	20210621	pubmed		y			y		n			32329404	Pharmacy's Call for Authorities to Aggressively Enforce Laws Addressing Price Gouging	Mattingly TJ 2nd, Hogue MD.	J Manag Care Spec Pharm. 2020 Aug;26(8):952-955. doi: 10.18553/jmcp.2020.20166. Epub 2020 Apr 24.	2020
13	20210621	pubmed		y			y		n			33945199	The influence of price and funding source disclosure on medication labels: Implications for intended adherence, perceived value and efficacy, and feelin	McCabe S, Wollbrant C, Delaney L.	Br J Health Psychol. 2021 May 4. doi: 10.1111/bjhp.12528. Online ahead of print.	2021
13	20210621	pubmed		y		y			n			34099351	The Near-Term Ramifications of Long-Term Trends in Orthopedic Surgical Reimbursement	McIntyre LF, Beach WS, Stiefel E, Pearson SE.	J Arthroplasty. 2021 May 19:S0883-5403(21)00498-8. doi: 10.1016/j.arth.2021.05.016. Online ahead of print.	2021
13	20210621	pubmed		y		y			n			32442709	Editorial Commentary: A Rigged Game-Surgeon Reimbursement Under the Resource-Based Relative Value Scale, Current Procedural Terminology, anc	McIntyre LF, Beach WS.	Arthroscopy. 2020 Sep;36(9):2364-2366. doi: 10.1016/j.arthro.2020.05.010. Epub 2020 May 19.	2020
13	20210621	pubmed		y			y		n			31933270	Biosimilars in the USA: Will New Efforts to Spur Approvals and Access Spur Uptake and Cost Savings?	Mehr SR, Brook RA.	Pharmaceut Med. 2019 Feb;33(1):1-8. doi: 10.1007/s40290-018-00262-z.	2019
13	20210621	pubmed		y			y		n			31136248	Barriers to Ensuring Access to Affordable Prescription Drugs	Mello MM.	Annu Rev Pharmacol Toxicol. 2020 Jan 6;60:275-289. doi: 10.1146/annurev-pharmtox-010919-023518. Epub 2(	2020
13	20210621	pubmed		y			y		n			33941029	Continuity and change in the drug supply chain: actors, actions, and aversions	Mendoza RL.	J Med Econ. 2021 Jan-Dec;24(1):689-697. doi: 10.1080/13696998.2021.1925123.	2021
13	20210621	pubmed		y	y				n			34112117	Evaluating essential medicines for treating childhood cancers: availability, price and affordability study in Ghana	Mensah KB, Mensah ABB, Bangalee V, Padayac	BMC Cancer. 2021 Jun 10;21(1):683. doi: 10.1186/s12885-021-08435-x.	2021
13	20210621	pubmed		y					y	Access (descriptive)	P2: Qualitative analysis	31014554	[Analysis of the evolution in the access to orphan medicines in Spain]	Mestre-Ferrándiz J, Iniesta M, Trapero-Bertrar	Gac Sanit. 2020 Mar-Apr;34(2):141-149. doi: 10.1016/j.gaceta.2019.02.008. Epub 2019 Apr 20.	2020
13	20210621	pubmed		y			y		n			31384102	Orphans in the Market: The History of Orphan Drug Policy	Mikami K.	Soc Hist Med. 2019 Aug;32(3):609-630. doi: 10.1093/shm/hkx098. Epub 2017 Nov 27.	2019
13	20210621	pubmed		y			y		n			32471816	Results of EAHP's 2019 Medicines Shortages Survey	Miljković N, Batista A, Polidori P, Kohl S, Horák	Eur J Hosp Pharm. 2020 Jul;27(4):202-208. doi: 10.1136/ejhpharm-2020-002341. Epub 2020 May 29.	2020
13	20210621	pubmed		y			y		n			33569676	Time to Revisit a Voluntary FDA Comparative Effectiveness Pathway	Miller BJ, Gowda V, Segal JB.	Ther Innov Regul Sci. 2021 Feb 10. doi: 10.1007/s43441-021-00261-4. Online ahead of print.	2021
13	20210621	pubmed		y	y				n			33622951	Implementation of medicines pricing policies in sub-Saharan Africa: protocol for a systematic review	Mirzoev T, Koduah A, Cronin de Chavez A, Baat	BMJ Open. 2021 Feb 23;11(2):e044293. doi: 10.1136/bmjopen-2020-044293.	2021
13	20210621	pubmed		y					y	Other (non_Policy) > Prices	P3: Essay, comment, synthesis	32019396	A Critical Discourse Analysis of Intellectual Property Rights Within NAFTA 1.0: Implications for NAFTA 2.0 and for Democratic (Health) Governance in Ca	Mohamed FA, Chaufan C.	Int J Health Serv. 2020 Jul;50(3):278-291. doi: 10.1177/0020731420902600. Epub 2020 Feb 4.	2020
13	20210621	pubmed		y	y				n			31419977	Evaluating the impact of the single exit price policy on a basket of originator medicines in South Africa from 1999 to 2014 using a time series analysis	Moodley R, Suleman F.	BMC Health Serv Res. 2019 Aug 16;19(1):576. doi: 10.1186/s12913-019-4403-8.	2019
13	20210621	pubmed		y				y	n			33519450	The Expiry of Humira(®) Market Exclusivity and the Entry of Adalimumab Biosimilars in Europe: An Overview of Pricing and National Policy Measures	Moorkens E, Godman B, Huys I, Hoxha I, Malaj	Front Pharmacol. 2021 Jan 8;11:591134. doi: 10.3389/fphar.2020.591134. eCollection 2020.	2021
13	20210621	pubmed		y				y	n			32400319	Biosimilars in Belgium: a proposal for a more competitive market	Moorkens E, Vulto AG, Huys I.	Acta Clin Belg. 2020 May 13:1-12. doi: 10.1080/17843286.2020.1761690. Online ahead of print.	2020
13	20210621	pubmed		y					y	Policy > Invest (R&D)	P3: Essay, comment, synthesis	30956782	The price of innovation - the role of drug pricing in financing pharmaceutical innovation. A conceptual framework	Moreno SG, Epstein D.	J Mark Access Health Policy. 2019 Mar 20;7(1):1583536. doi: 10.1080/20016689.2019.1583536. eCollection 2C	2019

13	20210621	pubmed	y										30041827	An analysis of expenditures on primary care prescription drugs in the United States versus ten comparable countries	Morgan SG, Good CB, Leopold C, Kaltenboeck A	Health Policy. 2018 Sep;122(9):1012-1017. doi: 10.1016/j.healthpol.2018.07.005. Epub 2018 Jul 21.	2018
13	20210621	pubmed		y			y			n			33993811	Comprehensive study on the administrative, economic, regional, and regulatory prospects of complementary and alternative medicine (CAM) in inflam	Mousavi T, Nikfar S, Abdollahi M.	Expert Rev Clin Pharmacol. 2021 May 15. doi: 10.1080/17512433.2021.1925108. Online ahead of print.	2021
13	20210621	pubmed		y	y					n			32410676	Availability, prices, and affordability of selected essential cancer medicines in a middle-income country - the case of Mexico	Moye-Holz D, Ewen M, Dreser A, Bautista-Arre	BMC Health Serv Res. 2020 May 14;20(1):424. doi: 10.1186/s12913-020-05167-9.	2020
13	20210621	pubmed		y	y					n			31374426	The Impact of Price Negotiations on Public Procurement Prices and Access to 8 Innovative Cancer Medicines in a Middle-Income Country: The Case of M	Moye-Holz D, van Dijk JP, Reijneveld SA, Hoger	Value Health Reg Issues. 2019 Dec;20:129-135. doi: 10.1016/j.vhri.2019.04.006. Epub 2019 Jul 30.	2019
13	20210621	pubmed		y						y	Policy > Access*	P1: Quantitative retrospective analysis	30975388	To HTA or Not to HTA: Identifying the Factors Influencing the Rapid Review Outcome in Ireland	Murphy A, Redmond S.	Value Health. 2019 Apr;22(4):385-390. doi: 10.1016/j.jval.2018.10.011. Epub 2019 Mar 6.	2019
13	20210621	pubmed		y			y			n			32092455	New regulatory strategies to manage medicines shortages in Europe	Musazzi UM, Di Giorgio D, Minghetti P.	Int J Pharm. 2020 Apr 15;579:119171. doi: 10.1016/j.ijpharm.2020.119171. Epub 2020 Feb 21.	2020
13	20210621	pubmed		y						y	Policy > other	P3: Essay, comment, synthesis	32199486	Generating comparative evidence on new drugs and devices before approval	Naci H, Salcher-Konrad M, Kesselheim AS, Wies	Lancet. 2020 Mar 21;395(10228):986-997. doi: 10.1016/S0140-6736(19)33178-2.	2020
13	20210621	pubmed		y	y					n			32184887	The Study of Effective Factors on Iran's Pharmaceutical Export Supply and Demand	Najafi B, Mahboub-Ahari A, Nouraei Motlagh S	Iran J Pharm Res. 2019 Fall;18(4):2226-2232. doi: 10.22037/ijpr.2019.1100841.	2019
13	20210621	pubmed		y						y	Policy > Invest (R&D)	P4: Theory-driven economic analysis	32475740	Reducing Reimbursement Drug Price Risk to Enhance R&D Incentives without Raising Drug Prices/Expenditures: Implications of Simulations Based on C	Nakamura H, Wakutsu N.	Health Policy. 2020 Jul;124(7):714-720. doi: 10.1016/j.healthpol.2020.03.010. Epub 2020 Apr 27.	2020
13	20210621	pubmed		y						y	Policy > diverse	P1: Quantitative retrospective analysis	32616313	An evaluation of managed entry agreements in Belgium: A system with threats and (high) potential if properly applied	Neyt M, Gerkens S, San Miguel L, Vinck I, Thiry	Health Policy. 2020 Sep;124(9):959-964. doi: 10.1016/j.healthpol.2020.06.007. Epub 2020 Jun 18.	2020
13	20210621	pubmed		y			y			n			32330637	Dissecting drug pricing: Supply chain, market, and nonmarket trends impacting clinical dermatology	Nguyen HP, Go JA, Barbieri JS, Stough D, Stoff E	J Am Acad Dermatol. 2020 Aug;83(2):691-699. doi: 10.1016/j.jaad.2020.04.063. Epub 2020 Apr 21.	2020
13	20210621	pubmed		y						y	Policy > Prices	P4: Theory-driven economic analysis	33711994	The impact of early phase price agreements on prices of orphan drugs	Nuijten M, Van Wilder P.	BMC Health Serv Res. 2021 Mar 12;21(1):222. doi: 10.1186/s12913-021-06208-7.	2021
13	20210621	pubmed		y				y		n			33039996	Trends in national pharmaceutical expenditure on diabetes in Ireland 2011-2015: a repeated cross-sectional study	O Neill KN, Bennett KE, Mc Hugh SM, Fitzgeral	BMJ Open. 2020 Oct 10;10(10):e037382. doi: 10.1136/bmjopen-2020-037382.	2020
13	20210621	pubmed		y	y					n			32856280	Informing a Cost-Effectiveness Threshold for Health Technology Assessment in China: A Marginal Productivity Approach	Ochalek J, Wang H, Gu Y, Lomas J, Cutler H, Jin	Pharmacoeconomics. 2020 Dec;38(12):1319-1331. doi: 10.1007/s40273-020-00954-y.	2020
13	20210621	pubmed		y	y					n			33996712	Availability, Affordability, Access, and Pricing of Anti-cancer Medicines in Low- and Middle-Income Countries: A Systematic Review of Literature	Ocran Mattila P, Ahmad R, Hasan SS, Babar ZU	Front Public Health. 2021 Apr 30;9:628744. doi: 10.3389/fpubh.2021.628744. eCollection 2021.	2021
13	20210621	pubmed		y			y			n			31134194	Beyond the Present Constraints That Prevent a Wide Spread of Tissue Engineering and Regenerative Medicine Approaches	O'Donnell BT, Ives CJ, Mohiuddin OA, Bunnell B	Front Bioeng Biotechnol. 2019 May 7;7:95. doi: 10.3389/fbioe.2019.00095. eCollection 2019.	2019
13	20210621	pubmed		y						y	Policy > Prices	P4: Theory-driven economic analysis	32009545	The Interaction between Price Negotiations and Heterogeneity: Implications for Economic Evaluations	O'Donnell H, McCullagh L, Barry M, Walsh C.	Med Decis Making. 2020 Feb;40(2):144-155. doi: 10.1177/0272989X19900179. Epub 2020 Feb 2.	2020
13	20210621	pubmed		y						y	Policy (descriptive)	P3: Essay, comment, synthesis	31952669	Economic Evaluation for Pricing and Reimbursement of New Drugs in Spain: Fable or Desideratum?	Oliva-Moreno J, Puig-Junoy J, Trapero-Bertran I	Value Health. 2020 Jan;23(1):25-31. doi: 10.1016/j.jval.2019.06.012. Epub 2019 Oct 4.	2020
13	20210621	pubmed		y	y					n			31375358	Qualitative formative implementation research to inform introduction of a new essential medicine	Oliver VL, Tolera M, Teklu AM, Minaye A, Lamb	Res Social Adm Pharm. 2020 Apr;16(4):535-543. doi: 10.1016/j.sapharm.2019.07.011. Epub 2019 Jul 20.	2020
13	20210621	pubmed		y	y					n			33895715	Economic costs of terminal care for selected non-communicable diseases from a healthcare perspective: a review of mortality records from a tertiary h	Olumide AO, Shmueli A, Omotade OO, Adebayo	BMJ Open. 2021 Apr 24;11(4):e044969. doi: 10.1136/bmjopen-2020-044969.	2021
13	20210621	pubmed		y	y					n			34014837	Exceptional Prices of Medical and Other Supplies during the COVID-19 Pandemic in Ecuador	Ortiz-Prado E, Fernandez-Naranjo R, Torres-Be	Am J Trop Med Hyg. 2021 May 20:tpmd210221. doi: 10.4269/ajtmh.21-0221. Online ahead of print.	2021
13	20210621	pubmed		y			y			n			30386233	The Economic Impact of a Switch From Prescription-Only to Non-prescription Drugs in Italy	Otto MH, Pillarella C, Jommi C.	Front Pharmacol. 2018 Oct 17;9:1069. doi: 10.3389/fphar.2018.01069. eCollection 2018.	2018
13	20210621	pubmed		y			y			n			30058011	Paying for Drugs After the Medicare Part D Beneficiary Reaches the Catastrophic Limit: Lessons on Cost Sharing from Other US Policy Partnerships Betv	Padula WV, Ballreich J, Anderson GF.	Appl Health Econ Health Policy. 2018 Dec;16(6):753-763. doi: 10.1007/s40258-018-0417-3.	2018
13	20210621	pubmed		y			y			n			33127281	Supplying synthetic opioids during a pandemic: An early look at North America	Pardo B.	Int J Drug Policy. 2020 Oct 27:102833. doi: 10.1016/j.drugpo.2020.102833. Online ahead of print.	2020
13	20210621	pubmed		y			y			n			30846513	From Diagnostic-Therapeutic Pathways to Real-World Data: A Multicenter Prospective Study on Upfront Treatment for EGFR-Positive Non-Small Cell Lu	Pasello G, Vicario G, Zustovich F, Oniga F, Gori S	Oncologist. 2019 Jun;24(6):e318-e326. doi: 10.1634/theoncologist.2018-0712. Epub 2019 Mar 7.	2019
13	20210621	pubmed		y	y					n			31248779	Should the United States government regulate prescription prices? A critical review	Patterson JA, Carroll NV.	Res Social Adm Pharm. 2020 May;16(5):717-723. doi: 10.1016/j.sapharm.2019.06.010. Epub 2019 Jun 20.	2020
13	20210621	pubmed		y			y			n			31559850	Policy perspectives on alternative models for pharmaceutical rebates: a report from the Institute for Clinical and Economic Review Policy Summit	Pearson SD, Segel C, Cole A, Henshall C, Towse	J Comp Eff Res. 2019 Oct;8(13):1045-1054. doi: 10.2217/cer-2019-0094. Epub 2019 Sep 27.	2019
13	20210621	pubmed		y	y					n			33353250	Essential Medicines in Universal Health Coverage: A Scoping Review of Public Health Law Interventions and How They Are Measured in Five Middle-Inc	Perehudoff K, Demchenko I, Alexandrov NV, Br	Int J Environ Res Public Health. 2020 Dec 18;17(24):9524. doi: 10.3390/ijerph17249524.	2020
13	20210621	pubmed		y	y					n			31251737	The right to health as the basis for universal health coverage: A cross-national analysis of national medicines policies of 71 countries	Perehudoff SK, Alexandrov NV, Hogerzeil HV.	PLoS One. 2019 Jun 28;14(6):e0215577. doi: 10.1371/journal.pone.0215577. eCollection 2019.	2019
13	20210621	pubmed		y	y					n			31733406	Challenges in the Regulation of High-Cost Treatments: An Overview From Brazil	Pereira LC, Sturzenegger DVR, Ortiz J, Ayad NN	Value Health Reg Issues. 2019 Dec;20:191-195. doi: 10.1016/j.vhri.2019.07.006. Epub 2019 Nov 13.	2019
13	20210621	pubmed		y	y					n			33111797	[Regulation of drug prices in nineteenth-century Bazilian pharmacy]	Peruchi A.	Hist Cienc Saude Manguinhos. 2020 Jul-Sep;27(3):933-965. doi: 10.1590/S0104-59702020000400013.	2020
13	20210621	pubmed		y			y			n			33032760	Effect of state regulatory environments on advanced psychiatric nursing practice	Phoenix BJ, Chapman SA.	Arch Psychiatr Nurs. 2020 Oct;34(5):370-376. doi: 10.1016/j.apnu.2020.07.001. Epub 2020 Jul 9.	2020
13	20210621	pubmed		y	y					n			31131333	Identifying market risk for substandard and falsified medicines: an analytic framework based on qualitative research in China, Indonesia, Turkey and Ro	Pisani E, Nistor AL, Hasnida A, Parmaksiz K, Xu J	Wellcome Open Res. 2019 Apr 16;4:70. doi: 10.12688/wellcomeopenres.15236.1. eCollection 2019.	2019
13	20210621	pubmed		y						y	Policy (descriptive)	P2: Qualitative analysis	32688214	International Experience in Therapeutic Value and Value-Based Pricing: A Rapid Review of the Literature	Prieto-Pinto L, Garzón-Orjuela N, Lasalvia P, Ca	Value Health Reg Issues. 2020 Dec;23:37-48. doi: 10.1016/j.vhri.2019.11.008. Epub 2020 Jul 17.	2020
13	20210621	pubmed		y	y					n			31078969	Requirements for a Successful Drug Launch in Small Markets: A Pilot Study in Lebanon	Ramadan B, Metni M, Hamadeh G, Kurdi M, Ka	Value Health Reg Issues. 2019 Sep;19:59-64. doi: 10.1016/j.vhri.2019.01.006. Epub 2019 May 9.	2019
13	20210621	pubmed		y			y			n			33840424	International Reference Pricing for Prescription Drugs in the United States: Administrative Limitations and Collateral Effects	Rand LZ, Kesselheim AS.	Value Health. 2021 Apr;24(4):473-476. doi: 10.1016/j.jval.2020.11.009. Epub 2020 Dec 31.	2021
13	20210621	pubmed		y						y	Policy > Access*	P1: Quantitative retrospective analysis	32124580	Alignment of health technology assessments and price negotiations for new drugs for rare disorders in Canada: Does it lead to improved patient access	Rawson NSB.	J Popul Ther Clin Pharmacol. 2020 Feb 13;27(1):e48-e64. doi: 10.15586/jptcp.v27i1.658.	2020
13	20210621	pubmed		y						y	Policy (descriptive)	P3: Essay, comment, synthesis	32543163	Regulatory approval and public drug plan listing of new drugs for rare disorders in Canada and New Zealand	Rawson NSB.	J Popul Ther Clin Pharmacol. 2020 Jun 1;27(2):e58-e67. doi: 10.15586/jptcp.v27i2.673.	2020
13	20210621	pubmed		y						y	Policy (descriptive)	P3: Essay, comment, synthesis	32610769	National Pharmacare in Canada: Equality or Equity, Accessibility or Affordability Comment on "Universal Pharmacare in Canada: A Prescription for Equi	Rawson NSB.	Int J Health Policy Manag. 2020 Dec 1;9(12):524-527. doi: 10.15171/ijhpm.2019.146.	2020
13	20210621	pubmed		y			y			n			31202122	Parallel imports, price controls, and innovation	Reisinger M, Saurí L, Zenger H.	J Health Econ. 2019 Jul;66:163-179. doi: 10.1016/j.jhealeco.2019.05.002. Epub 2019 Jun 12.	2019
13	20210621	pubmed		y						y	Policy (descriptive)	P2: Qualitative analysis	34109568	Characterization of the Pharmaceutical Risk-Sharing Arrangement Process in Catalonia	Reyes-Travé A, Guarga-Solé L, Roig-Izquierdo M	Pharmacoeconomics. 2021 Jun 10. doi: 10.1007/s40273-021-01046-1. Online ahead of print.	2021
13	20210621	pubmed		y			y			n			33527901	United States: Health System Review	Rice T, Rosenau P, Unruh LY, Barnes AJ.	Health Syst Transit. 2020 Dec;22(4):1-441.	2020
13	20210621	pubmed		y				y		n			31313222	Biosimilar Drugs for Multiple Sclerosis: An Unmet International Need or a Regulatory Risk?	Rivera VM.	Neurol Ther. 2019 Dec;8(2):177-184. doi: 10.1007/s40120-019-0145-0. Epub 2019 Jul 16.	2019
13	20210621	pubmed		y			y			n			30883061	Reference Pricing in Germany: Implications for U.S. Pharmaceutical Purchasing	Robinson JC, Panteli D, Ex P.	Issue Brief (Commonw Fund). 2019 Feb 1;2019:1-8.	2019
13	20210621	pubmed		y			y			n			32070242	Access to innovative medicines by pharma companies: Sustainable initiatives for global health or useful advertisement?	Rocha MM, de Andrade EP, Alves ER, Cândido J	Glob Public Health. 2020 Jun;15(6):777-789. doi: 10.1080/17441692.2020.1729391. Epub 2020 Feb 18.	2020
13	20210621	pubmed		y			y			n			33686883	Common Pharmaceutical Price and Cost Controls in the United Kingdom, France, and Germany: Lessons for the United States	Rodwin MA.	Int J Health Serv. 2021 Jul;51(3):379-391. doi: 10.1177/0020731421996168. Epub 2021 Mar 9.	2021
13	20210621	pubmed		y			y			n			31176459	Competition between on-patent medicines in Europe	Roediger A, Wilsdon T, Haderi A, Pendleton K, A	Health Policy. 2019 Jul;123(7):652-660. doi: 10.1016/j.healthpol.2019.05.009. Epub 2019 May 18.	2019
13	20210621	pubmed		y				y		n			31329476	Effects of economic and health policies on the consumption of antibiotics in a Spanish region	Rojas García P, Antoñanzas Villar F.	Expert Rev Pharmacoecon Outcomes Res. 2020 Aug;20(4):379-386. doi: 10.1080/14737167.2019.1647105. Ep	2020
13	20210621	pubmed		y		y				n			30946699	Nonphysician Practice of Cosmetic Dermatology: A Patient and Physician Perspective of Outcomes and Adverse Events	Rossi AM, Wilson B, Hibler BP, Drake LA.	Dermatol Surg. 2019 Apr;45(4):588-597. doi: 10.1097/DSS.0000000000001829.	2019
13	20210621	pubmed		y			y			n			32732669	Price, Cost, and Value of Cancer Medicines: A Pharmaceutical Industry Perspective	Rothenberg ML, McCarthy J, Holmes P.	Cancer J. 2020 Jul/Aug;26(4):281-286. doi: 10.1097/PPO.0000000000000455.	2020
13	20210621	pubmed		y			y			n			34075411	The Rhetorical Transformations and Policy Failures of Prescription Drug Pricing Reform under the Trump Administration	Sachs RE.	J Health Polit Policy Law. 2021 May 21:9349156. doi: 10.1215/03616878-9349156. Online ahead of print.	2021
13	20210621	pubmed		y		y				n			32493425	"It's business as usual": adolescents perspectives on the ban of alcohol sachets towards reduction in under age alcohol use in Malawi	Salimu S, Nyondo-Mipando AL.	Subst Abuse Treat Prev Policy. 2020 Jun 3;15(1):38. doi: 10.1186/s13011-020-00280-8.	2020
13	20210621	pubmed		y			y			n			33908276	A decade of increases in Medicare Part B pharmaceutical spending: what are the drivers?	San-Juan-Rodriguez A, Gellad WF, Shrank WH, (	J Manag Care Spec Pharm. 2021 May;27(5):565-573. doi: 10.18553/jmcp.2021.27.5.565.	2021
13	20210621	pubmed		y						y	Policy > Prices	P4: Theory-driven economic analysis	31561148	The Price of Substitute Technologies	Santos AS, Guerra-Junior AA, Noronha KVMS, A	Value Health Reg Issues. 2019 Dec;20:154-158. doi: 10.1016/j.vhri.2019.08.474. Epub 2019 Sep 25.	2019
13	20210621	pubmed		y	y					n			30233018	Cost analysis study of neuropsychiatric drugs: Role of National List of Essential Medicines, India	Sarangi SC, Kaur N, Tripathi M, Gupta YK.	Neurol India. 2018 Sep-Oct;66(5):1427-1433. doi: 10.4103/0028-3886.241345.	2018
13	20210621	pubmed		y	y					n			34100395	Questionnaire-based Pan-India survey for impact assessment of National Formulary of India	Sarangi SC, Medhi B, Prakash A, Prakash J, Gup	Indian J Pharmacol. 2021 Mar-Apr;53(2):115-124. doi: 10.4103/ijp.ijp_353_21.	2021
13	20210621	pubmed		y	y					n			31334167	Implementation of principles of pharmacoeconomics and pharmacovigilance to achieve optimal financial and therapeutic benefits through WHO - Esse	Saravdekar S, Shukla VK, Upadhya OP, Rai M, G	J Family Med Prim Care. 2019 Jun;8(6):1987-1993. doi: 10.4103/jfmpc.jfmpc_287_19.	2019
13	20210621	pubmed		y			y			n			31361747	Competition and price among brand-name drugs in the same class: A systematic review of the evidence	Sarpatwari A, DiBello J, Zakarian M, Najafzade	PLoS Med. 2019 Jul 30;16(7):e1002872. doi: 10.1371/journal.pmed.1002872. eCollection 2019 Jul.	2019
13	20210621	pubmed		y						y	Policy (descriptive)	P3: Essay, comment, synthesis	30458933	On the Policy of the Italian Government in the Discovery, Development, and Access to Medicines	Scavone C, Carnovale C, Ruggiero R, Radice S, S	Clin Ther. 2018 Nov;40(11):1931-1940. doi: 10.1016/j.clinthera.2018.09.015. Epub 2018 Oct 27.	2018
13	20210621	pubmed		y						y	Invest (R&D) > Prices	P2: Qualitative analysis	33910624	EU FP7 research funding for an orphan drug (Orfadin®) and vaccine (Hep C) development: a success and a failure?	Schmidt L, Sehic O, Wild C.	J Pharm Policy Pract. 2021 Apr 28;14(1):37. doi: 10.1186/s40545-021-00317-8.	2021
13	20210621	pubmed		y			y			n			30447542	The relationship between pharmacy benefit managers (PBMs) and the cost of therapies in the US pharmaceutical market: A policy primer for clinicians	Schulman KA, Dabora M.	Am Heart J. 2018 Dec;206:113-122. doi: 10.1016/j.ahj.2018.08.006. Epub 2018 Aug 23.	2018
13	20210621	pubmed		y		y				n			33762248	Association between telehealth use and general practitioner characteristics during COVID-19: findings from a nationally representative survey of Austr	Scott A, Bai T, Zhang Y.	BMJ Open. 2021 Mar 24;11(3):e046857. doi: 10.1136/bmjopen-2020-046857.	2021
13	20210621	pubmed		y	y					n			30679294	Does price regulation affect atorvastatin sales in India? An impact assessment through interrupted time series analysis	Selvaraj S, Farooqui HH, Mehta A.	BMJ Open. 2019 Jan 24;9(1):e024200. doi: 10.1136/bmjopen-2018-024200.	2019
13	20210621	pubmed		y	y					n			34101380	Availability, affordability, and quality of essential anti-seizure medication in Cambodia	Sengxeu N, Aon C, Dufat H, Boumediene F, San	Epilepsia Open. 2021 Jun 7. doi: 10.1002/epi4.12514. Online ahead of print.	2021
13	20210621	pubmed		y	y					n			33336126	Availability, affordability, and quality of essential antiepileptic drugs in Lao PDR	Sengxeu N, Dufat H, Boumediene F, Vorachit S,	Epilepsia Open. 2020 Sep 17;5(4):550-561. doi: 10.1002/epi4.12432. eCollection 2020 Dec.	2020
13	20210621	pubmed		y	y					n			31082794	Health Technology Assessment and Its Use in Drug Policy in Malaysia	Shafie AA, Chandriah H, Yong YV, Wan Puteh SI	Value Health Reg Issues. 2019 May;18:145-150. doi: 10.1016/j.vhri.2019.03.003. Epub 2019 May 10.	2019
13	20210621	pubmed		y						y	Policy > Invest (R&D)	P1: Quantitative retrospective analysis	32666383	Revisiting the Relationship Between Price Regulation and Pharmaceutical R&D Investment	Shaikh M, Del Giudice P, Kourouklis D.	Appl Health Econ Health Policy. 2021 Mar;19(2):217-229. doi: 10.1007/s40258-020-00601-9.	2021
13	20210621	pubmed		y	y					n			30989902	[Application of active components from traditional Chinese medicine in treatment of inflammatory bowel disease]	Shao MJ, Yan YX, Qi Q, Tang W, Zuo JP.	Zhongguo Zhong Yao Za Zhi. 2019 Feb;44(3):415-421. doi: 10.19540/j.cnki.cjcmm.20180907.001.	2019
13	20210621	pubmed		y						y	Policy (descriptive)	P3: Essay, comment, synthesis	31956967	Talkin' About a Resolution: Issues in the Push for Greater Transparency of Medicine Prices	Shaw B, Mestre-Ferrandiz J.	Pharmacoeconomics. 2020 Feb;38(2):125-134. doi: 10.1007/s40273-019-00877-3.	2020
13	20210621	pubmed		y	y					n			32799026	Association between provincial income levels and drug prices in China over the period 2010-2017	Shi W, Wouters OJ, Liu G, Mossialos E, Yang X.	Soc Sci Med. 2020 Oct;263:113247. doi: 10.1016/j.socscimed.2020.113247. Epub 2020 Aug 5.	2020
13	20210621	pubmed		y						y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	31311310	Analyzing Upward Deviation of Actual vs Predicted Drug Sales in Japan for a Reasonable Drug-Pricing Policy	Shibata S, Fukumoto D, Suzuki T, Ozaki K.	Ther Innov Regul Sci. 2019 Jul 16:2168479019860123. doi: 10.1177/2168479019860123. Online ahead of print	2019
13	20210621	pubmed		y						y	*Prices (descriptive)*	P1: Quantitative retrospective analysis	31989539	A Comparative Study of the Market Configuration of the Japanese Pharmaceutical Market Using the Gini Coefficient and Herfindahl-Hirschman Index	Shibata S, Fukumoto D, Suzuki T, Ozaki K.	Ther Innov Regul Sci. 2020 Sep;54(5):1047-1055. doi: 10.1007/s43441-020-00122-6. Epub 2020 Jan 27.	2020
13	20210621	pubmed	y										33301139	Analyzing Upward Deviation of Actual vs Predicted Drug Sales in Japan for a Reasonable Drug-Pricing Policy	Shibata S, Fukumoto D, Suzuki T, Ozaki K.	Ther Innov Regul Sci. 2020 May;54(3):544-551. doi: 10.1007/s43441-019-00086-2. Epub 2020 Jan 6.	2020
13	20210621	pubmed		y	y					n			32166908	Reimbursement Lag of New Drugs Under Taiwan's National Health Insurance System Compared With United Kingdom, Canada, Australia, Japan, and S	Shih YR, Liao KH, Chen YH, Lin FJ, Hsiao FY.	Clin Transl Sci. 2020 Sep;13(5):916-922. doi: 10.1111/cts.12778. Epub 2020 Apr 13.	2020
13	20210621	pubmed		y		y				n			30870053	Six policy lessons relevant to cannabis legalization	Shover CL, Humphreys K.	Am J Drug Alcohol Abuse. 2019;45(6):698-706. doi: 10.1080/00952990.2019.1569669. Epub 2019 Mar 14.	2019
13	20210621	pubmed		y	y					n			31077223	Ethnoherpetological notes regarding the paha frogs and conservation implication in Manaslu Conservation Area, Gorkha District, Nepal	Shrestha B, Gurung MB.	J Ethnobiol Ethnomed. 2019 May 10;15(1):23. doi: 10.1186/s13002-019-0304-5.	2019
13	20210621	pubmed		y	y					n			32133184	Using strategic price negotiations to contain costs and expand access to medicines in China	Si L, Xu L, Chen M, Jan S.	BMJ Glob Health. 2020 Jan 31;5(1):e002256. doi: 10.1136/bmjgh-2019-002256. eCollection 2020.	2020
13	20210621	pubmed		y			y			n			31427963	Application of Economic Evaluation to Assess Feasibility for Reimbursement of Genomic Testing as Part of Personalized Medicine Interventions	Simeonidis S, Koutsilieri S, Vozikis A, Cooper DN	Front Pharmacol. 2019 Aug 2;10:830. doi: 10.3389/fphar.2019.00830. eCollection 2019.	2019
13	20210621	pubmed		y				y		n			33206021	A health economic guide to market access of biosimilars	Simoens S, Vulto AG.	Expert Opin Biol Ther. 2021 Jan;21(1):9-17. doi: 10.1080/14712598.2021.1849132.	2021
13	20210621	pubmed		y	y					n			31030465	Availability of Essential Medicines for Pediatric Oncology in Armenia	Simonyan T, Papyan R, Danielyan S, Sargsyan L,	Asian Pac J Cancer Prev. 2019 Apr 29;20(4):991-994. doi: 10.31557/APJCP.2019.20.4.991.	2019
13	20210621	pubmed		y		y				n			32504675	Molecular Pathology Economics 101: An Overview of Molecular Diagnostics Coding, Coverage, and Reimbursement: A Report of the Association for Mo	Sireci AN, Patel JL, Joseph L, Hiemenz MC, Rosc	J Mol Diagn. 2020 Aug;22(8):975-993. doi: 10.1016/j.jmoldx.2020.05.008. Epub 2020 Jun 3.	2020
13	20210621	pubmed		y			y			n			30871324	Wastage of medicines and its financial impact on the healthcare system in the Czech Republic	Smejkalová JKJKJKTAL.	Ceska Slov Farm. 2018 Dec 18;67(5-6):192-199.	2018
13	20210621	pubmed		y						y	Policy > Expenditures	P1: Quantitative retrospective analysis	30832971	Challenges with Forecasting Budget Impact: A Case Study of Six ICER Reports	Snider JT, Sussell J, Tebeka MG, Gonzalez A, Co	Value Health. 2019 Mar;22(3):332-339. doi: 10.1016/j.jval.2018.10.005. Epub 2018 Dec 14.	2019
13	20210621	pubmed		y			y			n			32701395	Designing Pull Funding For A COVID-19 Vaccine	Snyder CM, Hoyt K, Gouglas D, Johnston T, Rob	Health Aff (Millwood). 2020 Sep;39(9):1633-1642. doi: 10.1377/hlthaff.2020.00646. Epub 2020 Jul 23.	2020
13	20210621	pubmed		y						y	Other (non_Policy) > Other	P3: Essay, comment, synthesis	33054820	Understanding the trends in international agreements on pricing and reimbursement for newly marketed medicines and their implications for access to	Son KB.	Global Health. 2020 Oct 14;16(1):98. doi: 10.1186/s12992-020-00633-9.	2020
13	20210621	pubmed		y			y			n			32479236	Out-Of-Network Spending Mostly Declined In Privately Insured Populations With A Few Notable Exceptions From 2008 To 2016	Song Z, Johnson W, Kennedy K, Biniek JF, Walla	Health Aff (Millwood). 2020 Jun;39(6):1032-1041. doi: 10.1377/hlthaff.2019.01776.	2020
13	20210621	pubmed		y						y	Invest (R&D) > Other	P1: Quantitative retrospective analysis	33394339	Do companies in the pharmaceutical supply chain earn excess returns?	Sood N, Mulligan K, Zhong K.	Int J Health Econ Manag. 2021 Mar;21(1):99-114. doi: 10.1007/s10754-020-09291-1. Epub 2021 Jan 4.	2021
13	20210621	pubmed		y						y	Policy > Access*	P1: Quantitative retrospective analysis	30229501	"Market withdrawals" of medicines in Germany after AMNOG: a comparison of HTA ratings and clinical guideline recommendations	Staab TR, Walter M, Mariotti Nesurini S, Dintsi	Health Econ Rev. 2018 Sep 18;8(1):23. doi: 10.1186/s13561-018-0209-3.	2018
13	20210621	pubmed		y						y	Policy (descriptive)	P3: Essay, comment, synthesis	32391989	[40 years of medicines policy in the Netherlands: from financial constraints to medicines shortages?]	Steenhoek A, Koopmanschap M, Piepenbrink JF	Ned Tijdschr Geneeskd. 2020 Mar 12;164:D4568.	2020
13	20210621	pubmed		y			y			n			31663466	Budget Impact of Dabrafenib and Trametinib in Combination as Adjuvant Treatment of BRAF V600E/K Mutation-Positive Melanoma from a U.S. Comm	Stellato D, Gerbasi ME, Ndife B, Ghate SR, Moy	J Manag Care Spec Pharm. 2019 Nov;25(11):1227-1237. doi: 10.18553/jmcp.2019.25.11.1227.	2019
13	20210621	pubmed		y						y	Policy (descriptive)	P1: Quantitative retrospective analysis	31260362	The Impact Of Price Regulation On The Availability Of New Drugs In Germany	Stern AD, Pietrulla F, Herr A, Kesselheim AS, Sa	Health Aff (Millwood). 2019 Jul;38(7):1182-1187. doi: 10.1377/hlthaff.2018.05142.	2019
13	20210621	pubmed		y	y					n			32758073	A situation analysis of the state of supply of in vitro diagnostics in Low-Income Countries	Stevenson M.	Glob Public Health. 2020 Dec;15(12):1836-1846. doi: 10.1080/17441692.2020.1801791. Epub 2020 Aug 6.	2020
13	20210621	pubmed		y		y				n			32835427	The burden of alcohol on health care during COVID-19	Stockwell T, Andreasson S, Cherpitel C, Chikritz	Drug Alcohol Rev. 2021 Jan;40(1):3-7. doi: 10.1111/dar.13143. Epub 2020 Aug 24.	2021
13	20210621	pubmed		y	y					n			32647487	Multi stakeholders of health and industries perspectives on medicine price transparency initiative in private health care settings in Malaysia	Sufiza Ahmad N, Makmor-Bakry M, Hatah E.	Saudi Pharm J. 2020 Jul;28(7):850-858. doi: 10.1016/j.jsps.2020.06.003. Epub 2020 Jun 18.	2020
13	20210621	pubmed		y				y		n			32903431	Traceability of Pediatric Antibiotic Purchasing Pathways in Italy: A Nationwide Real-World Drug Utilization Analysis	Sultana J, Trifirò G, Ientile V, Fontana A, Rossi F	Front Pharmacol. 2020 Aug 12;11:1232. doi: 10.3389/fphar.2020.01232. eCollection 2020.	2020
13	20210621	pubmed		y			y			n			31211554	Understanding price growth in the market for targeted oncology therapies	Sussell J, Vanderpuye-Orgle J, Vania D, Goertz I	Am J Manag Care. 2019 Jun;25(6):273-277.	2019
13	20210621	pubmed		y	y					n			32145002	Pharmaceutical cost analysis of dental diseases: An Indian scenario	Talreja P, Kalra R.	Int J Risk Saf Med. 2020;31(3):165-177. doi: 10.3233/JRS-191033.	2020
13	20210621	pubmed		y	y					n			32031441	Access to WHO Essential Medicines for Childhood Cancer Care in Trinidad and Tobago: A Health System Analysis of Barriers and Enablers	Tang B, Bodkyn C, Gupta S, Denburg A.	JCO Glob Oncol. 2020 Feb;6:67-79. doi: 10.1200/JGO.19.00300.	2020
13	20210621	pubmed		y	y					n			31875587	Progress on drug pricing negotiations in China	Tang M, Song P, He J.	Biosci Trends. 2020 Jan 20;13(6):464-468. doi: 10.5582/bst.2019.01339. Epub 2019 Dec 26.	2020
13	20210621	pubmed		y			y			n			31099632	Value-Added Decisions in Oncology	Tannock I, Presley CJ, Saltz LB.	Am Soc Clin Oncol Educ Book. 2019 Jan;39:122-131. doi: 10.1200/EDBK_238831. Epub 2019 May 17.	2019
13	20210621	pubmed		y	y					n			30641410	Revisiting Roles of Health Technology Assessment on Drug Policy in Universal Health Coverage in Thailand: Where Are We? And What Is Next?	Tanvejsilp P, Taychakhoonavudh S, Chaikledkae	Value Health Reg Issues. 2019 May;18:78-82. doi: 10.1016/j.vhri.2018.11.004. Epub 2019 Jan 12.	2019
13	20210621	pubmed		y	y					n			31055562	Organizational and legal determinants of implementing international experience in the health care sector of Ukraine	Teremetskyi VI, Knysh SV, Stratonov VM, Khrar	Wiad Lek. 2019;72(4):711-715.	2019
13	20210621	pubmed		y				y		n			32974261	Potential Cost-Savings From the Use of the Biosimilars in Slovakia	Tesar T, Golias P, Kobliskova Z, Wawruch M, Ka	Front Public Health. 2020 Aug 21;8:431. doi: 10.3389/fpubh.2020.00431. eCollection 2020.	2020
13	20210621	pubmed		y	y					n			32412055	National trends in prescription drug expenditures and projections for 2020	Tichy EM, Schumock GT, Hoffman JM, Suda KJ,	Am J Health Syst Pharm. 2020 Jul 23;77(15):1213-1230. doi: 10.1093/ajhp/zxaa116.	2020
13	20210621	pubmed		y					y	n			32695425	Systematic reviews of ten pharmaceutical pricing policies - a research protocol	Tordrup D, van den Ham HA, Glanville J, Mante	J Pharm Policy Pract. 2020 Jul 16;13:22. doi: 10.1186/s40545-020-00228-0. eCollection 2020.	2020
13	20210621	pubmed		y						y	Policy > Prices	P1: Quantitative retrospective analysis	31826897	Anticancer drug prices and clinical outcomes: a cross-sectional study in Italy	Trotta F, Mayer F, Barone-Adesi F, Esposito I, P	BMJ Open. 2019 Dec 10;9(12):e033728. doi: 10.1136/bmjopen-2019-033728.	2019

INCL_1: included for abstract screening; INCL_2: included for research categorization

Adapted from Wettstein Boes 2019, https://doi.org/10.1007/s40258-018-0437-z

13	20210621	pubmed	y					y	*Prices > Equity*	P2: Qualitative analysis	30509337	Fairness in drug prices: do economists think differently from the public?	Trujillo AJ, Karmarkar T, Alexander C, Padula W	Health Econ Policy Law. 2020 Jan;15(1):18-29. doi: 10.1017/S1744133118000427. Epub 2018 Dec 4.	2020
13	20210621	pubmed	y	y				n			30556215	Editorial: Medicines pricing, access and safety in Morocco	Tuck C, Maamri A, Chan AHY, Babar ZU.	Trop Med Int Health. 2019 Mar;24(3):260-263. doi: 10.1111/tmi.13191. Epub 2019 Jan 11.	2019
13	20210621	pubmed	y		y			n			32364864	Physician Prices And The Cost And Quality Of Care For Commercially Insured Patients	Unruh MA, Zhang Y, Jung HY, Zhang M, Li J, O'I	Health Aff (Millwood). 2020 May;39(5):800-808. doi: 10.1377/hlthaff.2019.00237.	2020
13	20210621	pubmed	y	y				n			32191682	[The social determinants of child malnutrition in Colombia from a family medicine perspective]	Vargas M, Hernández E.	Medwave. 2020 Mar 10;20(2):e7839. doi: 10.5867/medwave.2020.02.7839.	2020
13	20210621	pubmed	y	y				n			31154999	Judicialization of access to medicines in four Latin American countries: a comparative qualitative analysis	Vargas-Pelaez CM, Rover MRM, Soares L, Blatt	Int J Equity Health. 2019 Jun 3;18(1):68. doi: 10.1186/s12939-019-0960-z.	2019
13	20210621	pubmed	y	y				n			30900482	Historical overview of regulatory framework development on pricing and reimbursement of medicines in Bulgaria	Vassileva M, Kamusheva M, Manova M, Savova	Expert Rev Pharmacoecon Outcomes Res. 2019 Dec;19(6):733-742. doi: 10.1080/14737167.2019.1592680. Ep	2019
13	20210621	pubmed	y					y	**Policy (descriptive)**	P2: Qualitative analysis	31007877	Government pharmaceutical pricing strategies in the Asia-Pacific region: an overview	Verghese NR, Barrenetxea J, Bhargava Y, Agra	J Mark Access Health Policy. 2019 Apr 11;7(1):1601060. doi: 10.1080/20016689.2019.1601060. eCollection 20	2019
13	20210621	pubmed	y					y	**Policy > Prices**	P1: Quantitative retrospective analysis	32089554	[Establishing the value of new drugs in Italy.]	Villa F, Jommi C, Altamura G, Antignani S, Cang	Recenti Prog Med. 2020 Feb;111(2):65-69. doi: 10.1701/3309.32795.	2020
13	20210621	pubmed	y					y	**Policy > Prices**	P1: Quantitative retrospective analysis	31097207	Determinants of price negotiations for new drugs. The experience of the Italian Medicines Agency	Villa F, Tutone M, Altamura G, Antignani S, Car	Health Policy. 2019 Jun;123(6):595-600. doi: 10.1016/j.healthpol.2019.03.009. Epub 2019 Apr 13.	2019
13	20210621	pubmed	y	y				n			31196109	Affordable and equitable access to subsidised outpatient medicines? Analysis of co-payments under the Additional Drug Package in Kyrgyzstan	Vogler S, Schneider P, Dedet G, Bak Pedersen H	Int J Equity Health. 2019 Jun 13;18(1):89. doi: 10.1186/s12939-019-0990-6.	2019
13	20210621	pubmed	y					y	**Policy > Prices**	P4: Theory-driven economic analysis	33292293	Impact of changes in the methodology of external price referencing on medicine prices: discrete-event simulation	Vogler S, Schneider P, Lepuschütz L.	Cost Eff Resour Alloc. 2020 Nov 16;18(1):51. doi: 10.1186/s12962-020-00247-3.	2020
13	20210621	pubmed	y					y	**Policy > Prices**	P1: Quantitative retrospective analysis	30721410	Evolution of Average European Medicine Prices: Implications for the Methodology of External Price Referencing	Vogler S, Schneider P, Zimmermann N.	Pharmacoecon Open. 2019 Sep;3(3):303-309. doi: 10.1007/s41669-019-0120-9.	2019
13	20210621	pubmed	y					y	**Policy (descriptive)**	P3: Essay, comment, synthesis	33494798	Addressing the medicines access challenge through balance, evidence, collaboration and transparency: key take-away lessons of the 4th PPRI Conferen	Vogler S, Zimmermann N, Babar ZU, Busse R, E	J Pharm Policy Pract. 2021 Jan 25;14(1):18. doi: 10.1186/s40545-021-00300-3.	2021
13	20210701	pubmed	y					y	**Benefit > Prices**	P1: Quantitative retrospective analysis	34196656	Analysis of Launch and Postapproval Cancer Drug Pricing, Clinical Benefit, and Policy Implications in the US and Europe	Vokinger KN, Hwang TJ, Daniore P, Lee CC, Tibi	JAMA Oncol. 2021 Jul 1. doi: 10.1001/jamaoncol.2021.2026. Online ahead of print.	2021
13	20210621	pubmed	y					y	**Benefit > Prices**	P1: Quantitative retrospective analysis	32359489	Prices and clinical benefit of cancer drugs in the USA and Europe: a cost-benefit analysis	Vokinger KN, Hwang TJ, Grischott T, Reichert S	Lancet Oncol. 2020 May;21(5):664-670. doi: 10.1016/S1470-2045(20)30139-X.	2020
13	20210621	pubmed	y	y				n			32923337	Impact of China's Low Centralized Medicine Procurement Prices on the Cost-Effectiveness of Statins for the Primary Prevention of Atherosclerotic Cardi	Wang M, Liu J, Bellows BK, Qi Y, Sun J, Liu J, Mo	Glob Heart. 2020 Jun 25;15(1):43. doi: 10.5334/gh.830.	2020
13	20210621	pubmed	y	y				n			32092747	Effects of different mark-up drug policies on drug-related expenditures in tertiary public hospitals: an interrupted time series study in Shanghai, China,	Wang X, Li F, Wang X, Zhang X, Liu C, Wang D,	Biosci Trends. 2020 Mar 16;14(1):16-22. doi: 10.5582/bst.2019.01350. Epub 2020 Feb 25.	2020
13	20210621	pubmed	y		y			n			31397661	Should a Law Governing the Pharmaceutical Market Be Ethically Examined Based on Its Intent or Its Practical Applications?	Warchol JM.	AMA J Ethics. 2019 Aug 1;21(8):E661-667. doi: 10.1001/amajethics.2019.661.	2019
13	20210621	pubmed	y	y				n			30779809	Use of medicine pricing and reimbursement policies for universal health coverage in Indonesia	Wasir R, Irawati S, Makady A, Postma M, Goet	PLoS One. 2019 Feb 19;14(2):e0212328. doi: 10.1371/journal.pone.0212328. eCollection 2019.	2019
13	20210621	pubmed	y	y				n			31774854	The implementation of HTA in medicine pricing and reimbursement policies in Indonesia: Insights from multiple stakeholders	Wasir R, Irawati S, Makady A, Postma M, Goet	PLoS One. 2019 Nov 27;14(11):e0225626. doi: 10.1371/journal.pone.0225626. eCollection 2019.	2019
13	20210621	pubmed	y		y			n			29577766	Cost of Prescription Drug-Related Morbidity and Mortality	Watanabe JH, McInnis T, Hirsch JD.	Ann Pharmacother. 2018 Sep;52(9):829-837. doi: 10.1177/1060028018765159. Epub 2018 Mar 26.	2018
13	20210621	pubmed	y					y	**Policy > diverse**	P1: Quantitative retrospective analysis	30367350	Effectiveness of National Pricing Policies for Patent-Protected Pharmaceuticals in the OECD: A Systematic Literature Review	Wettstein DJ, Boes S.	Appl Health Econ Health Policy. 2019 Apr;17(2):143-162. doi: 10.1007/s40258-018-0437-z.	2019
13	20210621	pubmed	y					y	**Policy > Behaviour**	P6: Prospective, controlled analysis	32440753	The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: evidence from an online experiment	Wettstein DJ, Boes S.	Health Econ Rev. 2020 May 21;10(1):13. doi: 10.1186/s13561-020-00267-y.	2020
13	20210621	pubmed	y					y	**Policy > Behaviour**	P6: Prospective, controlled analysis	33726735	Assessing social preferences in reimbursement negotiations for new Pharmaceuticals in Oncology: an experimental design to analyse willingness to pay	Wettstein DJ, Boes S.	BMC Health Serv Res. 2021 Mar 16;21(1):234. doi: 10.1186/s12913-021-06231-8.	2021
13	20210621	pubmed	y		y			n			31723211	A rare disease patient/caregiver perspective on fair pricing and access to gene-based therapies	White W.	Gene Ther. 2019 Nov;27(10-11):474-481. doi: 10.1038/s41434-019-0110-7. Epub 2019 Nov 13.	2019
13	20210621	pubmed	y		y			n			30589626	Assessing the Value of Sarilumab Monotherapy for Adults with Moderately to Severely Active Rheumatoid Arthritis: A Cost-Effectiveness Analysis	Whittington MD, McQueen RB, Ollendorf DA, C	J Manag Care Spec Pharm. 2019 Jan;25(1):80-87. doi: 10.18553/jmcp.2019.25.1.080.	2019
13	20210621	pubmed	y					y	**Policy > diverse**	P1: Quantitative retrospective analysis	33950613	WHO guideline on country pharmaceutical pricing policies	WHO	Geneva: World Health Organization; 2020.	2020
13	20210621	pubmed	y	y				n			30891247	Jazia prime vendor system- a public-private partnership to improve medicine availability in Tanzania: from pilot to scale	Wiedenmayer K, Mbwasi R, Mfuko W, Mpuya E	J Pharm Policy Pract. 2019 Feb 25;12:4. doi: 10.1186/s40545-019-0163-4. eCollection 2019.	2019
13	20210621	pubmed	y		y			n			31150077	Trends in Prices of Popular Brand-Name Prescription Drugs in the United States	Wineinger NE, Zhang Y, Topol EJ.	JAMA Netw Open. 2019 May 3;2(5):e194791. doi: 10.1001/jamanetworkopen.2019.4791.	2019
13	20210621	pubmed	y					y	**Policy > Prices**	P1: Quantitative retrospective analysis	31903523	Determinants of Orphan Drug Prices in Germany	Worm F, Dintsios CM.	Pharmacoeconomics. 2020 Apr;38(4):397-411. doi: 10.1007/s40273-019-00872-8.	2020
13	20210621	pubmed	y					y	**Policy process (other)**	P1: Quantitative retrospective analysis	32125357	Lobbying Expenditures and Campaign Contributions by the Pharmaceutical and Health Product Industry in the United States, 1999-2018	Wouters OJ.	JAMA Intern Med. 2020 May 1;180(5):688-697. doi: 10.1001/jamainternmed.2020.0146.	2020
13	20210621	pubmed	y					y	**Policy (descriptive)**	P3: Essay, comment, synthesis	32583755	Challenges to sovereign ambitions: forces of convergence and divergence within the global pharmaceutical sector and the UK's withdrawal from the Eu	Wright JSF, Doukas D.	Health Econ Policy Law. 2021 Jul;16(3):256-272. doi: 10.1017/S1744133120000016X. Epub 2020 Jun 25.	2021
13	20210621	pubmed	y	y				n			32702801	Influence of Government Price Regulation on the Price, Volume and Spending of Antibiotics in China: A Controlled Interrupted Time Series Study	Wushouer H, Luo Z, Guan X, Shi L.	Int J Health Policy Manag. 2020 Jul 18. doi: 10.34172/ijhpm.2020.113. Online ahead of print.	2020
13	20210621	pubmed	y	y				n			34028086	Does price deregulation increase drug price in China? An interrupted time series analysis	Xiong Y, Xu J, Gao Y.	Int J Health Plann Manage. 2021 May 24. doi: 10.1002/hpm.3244. Online ahead of print.	2021
13	20210621	pubmed	y		y			n			33513961	On Conflicts between Pharmaceutical Patent Protection and the Right to Life and Health Based on a Stackelberg Game	Xu C, Zhu D.	Int J Environ Res Public Health. 2021 Jan 27;18(3):1119. doi: 10.3390/ijerph18031119.	2021
13	20210621	pubmed	y			y		n			33404857	Micro-costing in health and medicine: a critical appraisal	Xu X, Lazar CM, Ruger JP.	Health Econ Rev. 2021 Jan 6;11(1):1. doi: 10.1186/s13561-020-00298-5.	2021
13	20210621	pubmed	y	y				n			31218157	Accessibility of drugs for rare diseases in China: Policies and current situation	Yang Y, Kang Q, Hu J, Kong F, Tang M, He J, Jin	Intractable Rare Dis Res. 2019 May;8(2):80-88. doi: 10.5582/irdr.2019.01068.	2019
13	20210621	pubmed	y		y			n			32027436	How protected classes in Medicare Part D influence U.S. drug sales, utilization, and price	Yarbrough CR.	Health Econ. 2020 May;29(5):608-623. doi: 10.1002/hec.4006. Epub 2020 Feb 6.	2020
13	20210621	pubmed	y					y	**Policy > Access***	P3: Essay, comment, synthesis	30669602	Improving Patient Access to New Drugs in South Korea: Evaluation of the National Drug Formulary System	Yoo SL, Kim DI, Lee SM, Kang WG, Kim SY, Lee	Int J Environ Res Public Health. 2019 Jan 21;16(2):288. doi: 10.3390/ijerph16020288.	2019
13	20210621	pubmed	y	y				n			30903556	Policies to improve access to pharmaceutical products in shortage: the experience of Iran food and drug administration	Yousefi N, Moradi N, Dinarvand R, Ghiasi G, Ina	Daru. 2019 Jun;27(1):169-177. doi: 10.1007/s40199-019-00259-2. Epub 2019 Mar 23.	2019
13	20210621	pubmed	y	y				n			32901994	Evaluation of efficiency enhancement in Iran Health Insurance Organization: a policy brief for pharmaceutical cost containment	Yousefi N, Polroudi Moghaddam M, Afsharman	Int J Health Plann Manage. 2020 Nov;35(6):1503-1511. doi: 10.1002/hpm.3028. Epub 2020 Sep 9.	2020
13	20210621	pubmed	y					y	*Prices (descriptive)*	P3: Essay, comment, synthesis	30298129	Recent Progress in European Advanced Therapy Medicinal Products and Beyond	Yu TTL, Gupta P, Ronfard V, Vertès AA, Bayon Y	Front Bioeng Biotechnol. 2018 Sep 21;6:130. doi: 10.3389/fbioe.2018.00130. eCollection 2018.	2018
13	20210621	pubmed	y	y				n			33349598	Current Development and Practice of Pharmacoeconomic Evaluation Guidelines for Universal Health Coverage in China	Yue X, Li Y, Wu J, Guo JJ.	Value Health Reg Issues. 2021 May;24:1-5. doi: 10.1016/j.vhri.2020.07.580. Epub 2020 Dec 19.	2021
13	20210621	pubmed	y					y	**Policy > Access***	P1: Quantitative retrospective analysis	31053154	Comparing access to orphan medicinal products in Europe	Zamora B, Maignen F, O'Neill P, Mestre-Ferran	Orphanet J Rare Dis. 2019 May 3;14(1):95. doi: 10.1186/s13023-019-1078-5.	2019
13	20210621	pubmed	y					y	**Policy > diverse**	P4: Theory-driven economic analysis	33623819	How Risky Is That Risk Sharing Agreement? Mean-Variance Tradeoffs and Unintended Consequences of Six Common Risk Sharing Agreements	Zaric GS.	MDM Policy Pract. 2021 Feb 9;6(1):23814683211990404. doi: 10.1177/23814683211990404. eCollection 2021 Ja	2021
13	20210621	pubmed	y		y			n			34056986	Incentives to promote the US pharmaceutical innovation: empirical research based on the case of Epogen	Zhang L, Wang J.	Drug Dev Ind Pharm. 2021 Jun 7:1-5. doi: 10.1080/03639045.2021.1935997. Online ahead of print.	2021
13	20210621	pubmed	y	y				n			32346522	Unblocking Barriers of Access to Hepatitis C Treatment in China: Lessons Learned from Tianjin	Zhang P, Guo R, Lian J, Zhi M, Lu C, Wu W, War	Ann Glob Health. 2020 Apr 6;86(1):36. doi: 10.5334/aogh.2763.	2020
13	20210621	pubmed	y	y				n			30716575	Wastewater-based epidemiology in Beijing, China: Prevalence of antibiotic use in flu season and association of pharmaceuticals and personal care prod	Zhang Y, Duan L, Wang B, Du Y, Cagnetta G, H	Environ Int. 2019 Apr;125:152-160. doi: 10.1016/j.envint.2019.01.061. Epub 2019 Feb 1.	2019
13	20210621	pubmed	y	y				n			33613293	Impact of the Low-Price Medicine Policy on Medicine Supply in China: An Interrupted Time-Series Analysis	Zhao M, Gillani AH, Ji D, Feng Z, Fang Y, Yang C	Front Pharmacol. 2021 Feb 5;12:621307. doi: 10.3389/fphar.2021.621307. eCollection 2021.	2021
13	20210621	pubmed	y		y			n			33277220	Cost-effectiveness and pricing of caffeine	Zupancic JAF.	Semin Fetal Neonatal Med. 2020 Dec;25(6):101179. doi: 10.1016/j.siny.2020.101179. Epub 2020 Nov 14.	2020

b) Abstract **screening** | c) Research **categorization**

	Records found	Duplicates	INCL_1	EXCL_non_OECD_hi-inc	EXCL_non_Pharma	EXCL_non_public_PRB_Policy	EXCL_off-Pat_Ga	EXCL_outdated	EXCL_evidence	EXCL_other	Included	Excluded
First searches	**1028**	*222*	**706**	147	21	210	70	9	0	36	**213**	*493*
Updates	**605**	*77*	**528**	134	20	187	29	0	0	1	**157**	*371*
Overall	**1633**	*399*	**1234**	**281**	**41**	**397**	**99**	**9**	**0**	**37**	**370**	*864*

Sequential test (no double entries)

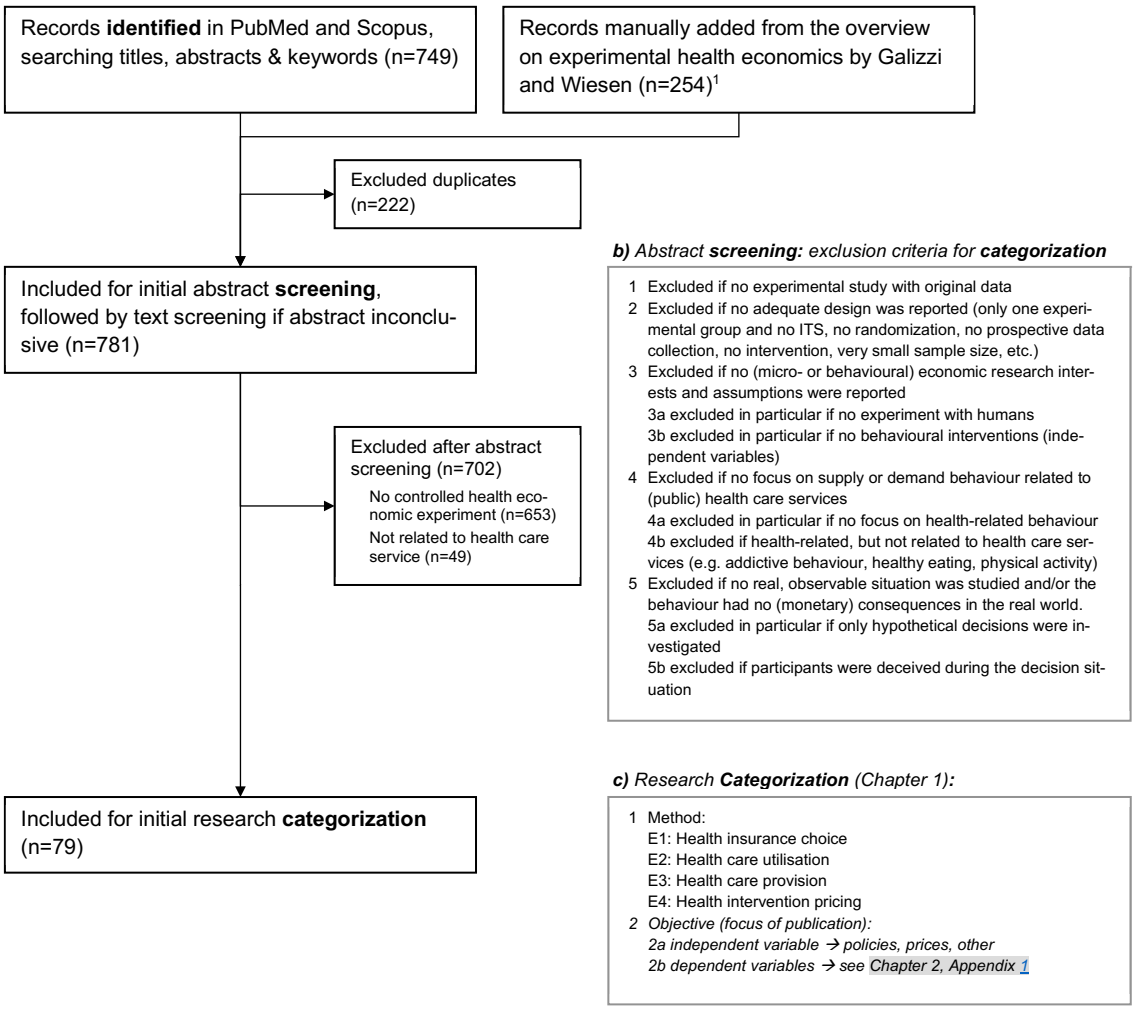
INCL_1: included for abstract screening; INCL_2: included for research categorization

Adapted from Wettstein Boes 2019, https://doi.org/10.1007/s40258-018-0437-z

CHAPTER 1: Appendix 2 – overview literature review on controlled health economic experiments

The literature review for the studies described in Chapter 3, 4 and 5 performed in 2018/2019 was updated for Chapter 1 in July 2021 as follows: a) identification (electronic database and keywords: see Table A5), b) abstract screening (see Table A6), c) research categorization (based on abstract, full text if abstract inconclusive, see Table A7). Since no studies with the outcomes of interest were found (except our own in the update), no assessment of risk of bias and no qualitative synthesis was conducted. Figure A3 shows the PRISMA study flow [325].

Figure A3: Literature review on health economic experiments, study flow (PRISMA diagram)



1: In addition to the entries found on the basis of the selected search strategy, further studies were found in the categorized publications and in the overview "Behavioral Experiments in Health Economics" by Galizzi and Wiesen (2018) [144]. The full bibliography from the latter was manually included in the study flow and for research categorisation. No systematic literature reviews matching our research interest were found.
ITS: Interrupted time series study (with repeated measures in same individual)

Table A5: Literature review on health economic experiments, search strategy (as per 1 July 2021)

Database	Time frame and key words	Results
PubMed	("health"[Title/Abstract] OR "medical"[Title/Abstract] OR "medicine"[Title/Abstract] OR "medicines"[Title/Abstract] OR "pharmaceutical"[Title/Abstract] OR "physician"[Title/Abstract] OR "physicians"[Title/Abstract] OR "doctor"[Title/Abstract] OR "doctors"[Title/Abstract]) AND ("experiment"[Title/Abstract] OR "experimental"[Title/Abstract] NOT "quasi-experimental"[Title/Abstract] NOT "trial"[Title/Abstract]) AND ("controlled"[Title/Abstract] OR "random"[Title/Abstract] OR "randomly"[Title/Abstract] OR "randomized"[Title/Abstract] OR "prospective"[Title/Abstract] OR "laboratory"[Title/Abstract]) AND ("incentivized"[Title/Abstract] OR "incentive"[Title/Abstract] OR "incentives"[Title/Abstract] OR "payoff"[Title/Abstract] OR "payoffs"[Title/Abstract] OR "payment"[Title/Abstract] OR "payments"[Title/Abstract] OR "fee"[Title/Abstract] OR "fees"[Title/Abstract] OR "reward"[Title/Abstract] OR "rewards"[Title/Abstract] OR "monetary"[Title/Abstract] OR "consequence"[Title/Abstract] OR "consequences"[Title/Abstract]) AND ("behavior"[Title/Abstract] OR "behaviour"[Title/Abstract] OR "behavioral"[Title/Abstract] OR "behavioural"[Title/Abstract] OR "choice"[Title/Abstract] OR "decision"[Title/Abstract] OR "preferences"[Title/Abstract] OR "economic"[Title/Abstract])	289
Scopus	ABS ((health OR medical OR medicine OR medicines OR pharmaceutical OR physician OR physicians OR doctor OR doctors) AND (experiment OR experimental AND NOT quasi-experimental AND NOT trial) AND (controlled OR random OR randomly OR randomized OR prospective OR laboratory) AND (incentivized OR incentive OR incentives OR payoff OR payoffs OR payment OR payments OR fee OR fees OR reward OR rewards OR monetary OR consequence OR consequences) AND (behavior OR behaviour OR behavioral OR behavioural OR choice OR decision OR preferences OR economic))	460

Table A6: Literature review on health economic experiments, results abstract screening

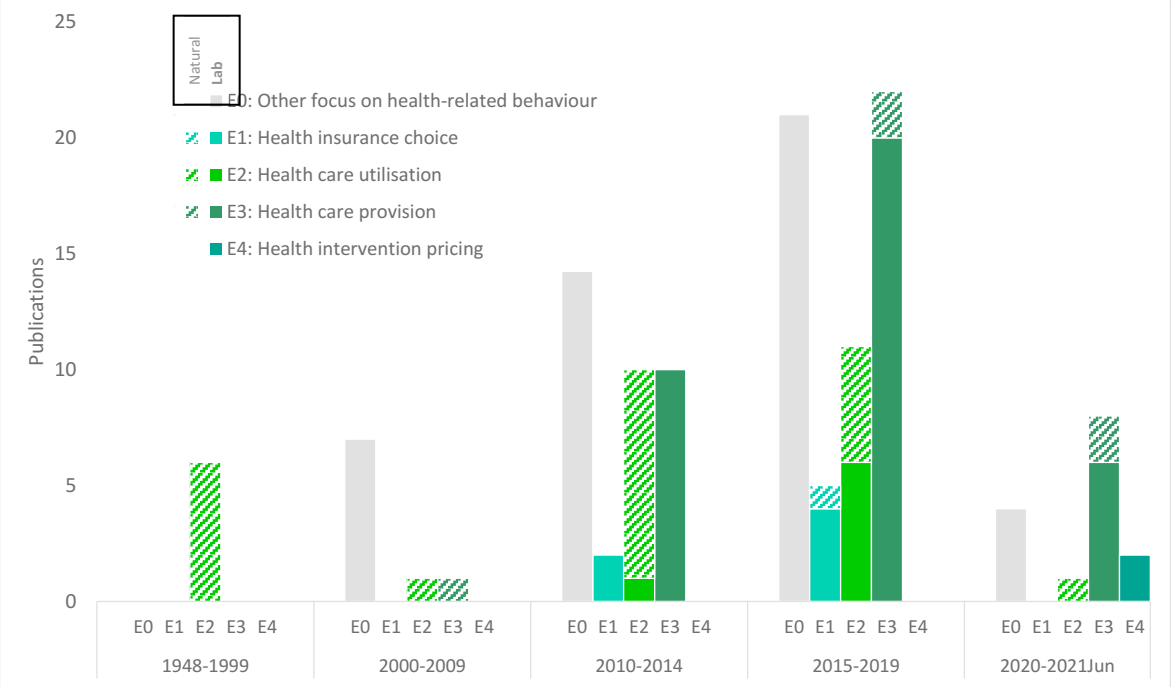
	Records found	Duplicates	**Included for abstract screening**	1: Experiment (original data)	2: Randomized, controlled, prospective, (sample size)	3: Micro economic principles (& human behaviour)	4: Supply/demand behaviour related to (public) health care	5: Real, observable situation and/or real consequences, no deception	Not conclusively assessable	***Excluded in abstract screening***	**Included for research categorization**	**Research objective of interest**
Included (DBs)	**749**		**539**								**39**	2[1]
Excluded		*210*		*149*	*26*	*251*	*325*	*128*	*0*	***501***		*38*
Included (GW)	**254**		**242**								**40**	0
Excluded		*12*		*89*	*11*	*1*	*92*	*42*	*9*	***201***		*41*
Total	**1003**	*222*	**781**	*238*	*37*	*252*	*417*	*170*	*9*	***702***	**79**	2
				Parallel test (several criteria possible)								

DBs: databases (PubMed, Scopus); GW: Galizzi and Wiesen 2018 [144].
1: The two studies with outcomes of interest (see Table A7) found in the last update (July 2021) are the already published own studies described in chapters 3 and 4.

Table A7: Literature review on health economic experiments, results research categorization

	Method category						
	E0: Other focus on health-related behaviour(excluded)	E1: Health insurance choice	E2: Health care utilisation	E3: Health care provision	E4: Health intervention pricing	**Included for research categorization**	*Controlled health economic experiments*
Systematic literature search (DBs)	*21*	3	13	21	2	**39**	*60*
Manually added from GW	*28*	4	16	20	0	**40**	*68*
Total	*49*	7	29	41	2	**79**	*128*
in percent		*9%*	*37%*	*52%*	*3%*	*100%*	
	38%	*5%*	*23%*	*32%*	*2%*	*62%*	*100%*

Figure A4: Historical development of published controlled health economic experiments



Shaded area: studies with natural setting; filled area: studies with laboratory setting; for E0 (other health-related) no differentiation between settings; for E4 (health intervention pricing) no natural settings found.
The actual share of natural settings might be higher, since the chosen search strategy was focused on laboratory experiments.

Table A8: Types of controlled (health) economic experiments described in the reviewed literature

		Experimental setting				
	General setting	**constructed, standardised, "tightly controlled", instructed[1]**				**natural situation (reduced control)[2]**
	Framing	neutral (abstract)	health / healthcare related		*neutral (naturalistic), health-related[3]*	neutral (natural), health-related
Study population	specifically selected **target** [CGK, EL], non-student [HL, CGK, Vi, GI], non-traditional [Dr] **population** (subject pool)	Lab-in-the-field experiment [EL 2021, Dr 2022][4] Lab-field experiments (online/virtual as "bridge") [GW 2018] Lab-like field experiments [Vi 2016][4] Extra-laboratory experiments (incl. online) [CGK 2013]				
		Lab experiment [GI 2017][4] Artefactual field experiments [HL 2004][4]	Framed field experiments [HL 2004][4]		*Lab-in-the-field experiment [GI 2017][4]*	Natural field experiments [HL 2004]
	standard [HL, Vi], student [HL, Vi], convenient [GI], non-representative [GI] **population** (subject pool)	Conventional [HL], traditional [GI 2017, Dr 2022] lab experiments				
		Experimental infrastructure				
	Recruitment	Online platform / other channels, pre-existing pool / specific advertisement, active recruitment / self-registration				
	Execution platform	face-to-face / virtual (electr. device, online)	virtual (electronic device, online)	face-to-face / virtual (electr. device, online)	virtual (electronic device, online)	*face-to-face*	face-to-face
	Location of access / execution	Standardised physical location	remote (online)	Standardised physical location	remote (online), control of device	*Non-standardised physical location[3]*	physical location
	Data collection	physical / digital					
	Payment	on-site / after, cash / cashless	after, cashless	on-site / after, cash / cashless	after, cashless		none / before / on-site / after, cash/cashless

Own illustration, based in the upper part (setting, population) on the contributions of Harrison & List (2004, HL) [166], Charness et al. (2013, CGK), Viceisza (2016, Vi) [181], Gneezy & Imas (2017, GI) [182], Galizzi & Wiesen (2018, GW) [144], Eckel & Londono (2021, EL) [183], Druckman (2022, Dr) [186], and in the lower part (infrastructure) on [196,197,203,205,206,209-218], as well as on the reviewed literature in general described in this Appendix 2.

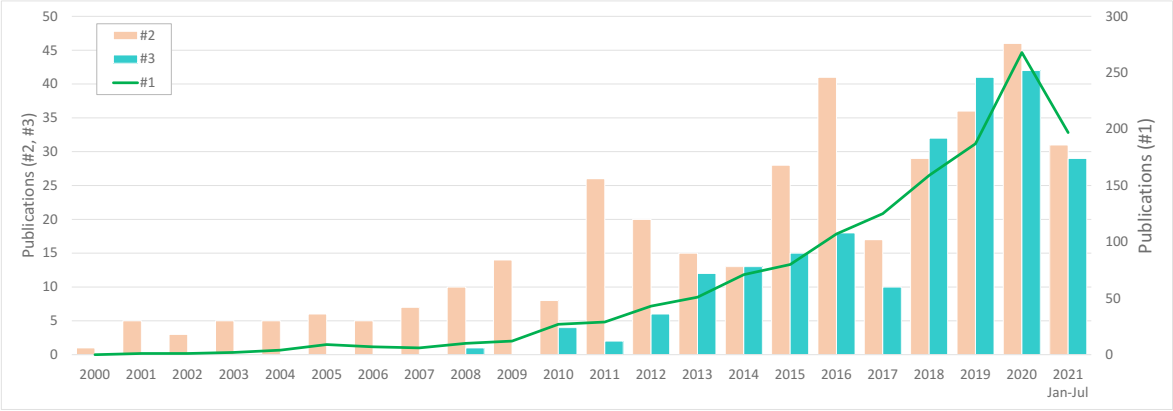
1: experimental control of independent/dependent variables; limited and uniform instructions for each group and intervention; participants are fully aware that an experiment is being conducted

2: During decision-making, there may be reduced or no awareness among participants that an experiment is being conducted.

3: The type "lab-in-the-field" is defined by Gneezy (2017) by designs using the same "standardized, validated, lab paradigm", but a "naturalistic" instead of a "standard laboratory environment". However, no detailed, conclusive definition neither of "lab paradigm" nor "environment" is provided [182].

4: infrastructure inconclusive and/or not commented

Figure A5: Historical development of publications on online behavioural and laboratory experiments



Search in Scopus as per 6 August 2021 in title, abstract and keywords (no abstract screening to remove irrelevant entries) for:

#1: "online experiment" OR "online survey experiment" OR "internet-based experiment" OR "web-based experiment" OR ("mechanical turk" AND experiment) AND ("behaviour" OR "behavior" OR "bevarioural" OR "behavioral" OR "choice")
#2: "online experiment" OR "online survey experiment" OR "internet-based experiment" OR "web-based experiment" OR ("mechanical turk" AND experiment) AND ("lab" OR "laboratory")
#3: #1 AND "health"

Table A9: Literature review on health economic experiments, retrieved records

See following pages.

				b) Abstract screening						c) Research categorization									
Search_Date	DB	Duplicates	Included for abstract screening	1: Experiment (original data)	2: Randomized, controlled, prospective, (sample size)	3: Micro economic principles (& human behaviour)	4: Supply/demand behaviour related to (public) health care	5: Real, observable situation and/or real consequences, no deception	Not conclusively assessable	Included for research categorization	Method category	Research objective of interest	Type of setting	PMID	Authors (sorted, GW separate)	Title	Citation	Journal/Book	PublYear
20210704	Scopus		y	n			n			n		n			[No author name available]	Evaluation of environmental health programmes. Report of a WHO scientific group			1973
20210704	Scopus		y	n						n		n			[No author name available]	A private sector perspective on the problems of health care costs			1977
20210704	Scopus		y		n					n		n			[No author name available]	Analysis of prospective reimbursement systems: western Pennsylvania-executive summary			1977
20210704	Scopus		y	n		n	n			n		n			[No author name available]	Space 2000 Conference and Exposition			2000
20210704	Scopus		y	n						n		n			[No author name available]	5th International Conference on Safety and Security Engineering, SAFE 2013			2013
20210704	Scopus		y	n						n		n			[No author name available]	2014 International Conference on Sensors Instrument and Information Technology, ICSIIT 2014			2014
20210704	Scopus		y	n		n	n			n		n			[No author name available]	International Conference on Computers and Information Processing Technologies, ICCIPT 2014			2014
20210704	Scopus	x	*n*							n		n		8528688	Aber J.L., Brooks-Gunn J., Maynard R.A.	Effects of welfare reform on teenage parents and their children.			1995
20210704	PubMed		y	n						n		n		8528688	Aber JL, Brooks-Gunn J, Maynard RA.	Effects of welfare reform on teenage parents and their children	Future Child. 1995 Summer-Fall;5(2):53-71.	Future Child	1995
20210704	Scopus	x	*n*							n		n		27175032	Abiiro G.A., Torbica A., Kwalamasa K., De Allegri M.	What factors drive heterogeneity of preferences for micro-health insurance in rural Malawi?			2016
20210704	PubMed		y					n		n		n		27175032	Abiiro GA, Torbica A, Kwalamasa K, De Allegri M.	What factors drive heterogeneity of preferences for micro-health insurance in rural Malawi?	Health Policy Plan. 2016 Nov;31(9):1172-83. doi: 10.1093/h	Health Policy Plan	2016
20210704	Scopus		y				n	n		n		n			Adaramaja S.R., Adenubi O.S., Nnbueze U.	Gender as a determinant of individual lifestyle for sustainable development in Africa			2010
20210704	Scopus		y							y	E3: Health care provision	n	lab		Ahlert M., Felder S., Vogt B.	Which patients do i treat? An experimental study with economists and physicians			2012
20210704	PubMed		y				n	n		n		n		28837820	Ahn WK, Lebowitz MS.	An experiment assessing effects of personalized feedback about genetic susceptibility to obesity on attitudes towards diet and exercise	Appetite. 2018 Jan 1;120:23-31. doi: 10.1016/j.appet.2017	Appetite	2018
20210704	Scopus		y				n			n		n			Aimone J.A., Pan X.	Blameable and imperfect: A study of risk-taking and accountability			2020
20210704	Scopus		y			n	n			n		n			Alavi A., Askari M., Nejad E.D., Bagheri P.	Study the effect of massage with jasmine oil in comparison to aromatherapy with jasmine oil on childbirth process in hospitals of Abadan city in 2013			2017
20210704	Scopus		y			n	n			n		n			Albuja A.F., Gaither S.E., Sanchez D.T., Straka B., Cipollina R.	Psychophysiological Stress Responses to Bicultural and Biracial Identity Denial			2019
20210704	Scopus		y				n			n		n			Alen N.V., Deer L.K., Karimi M., Feyzieva E., Hastings P.D., Hostinar C.	Children's altruism following acute stress: The role of autonomic nervous system activity and social support			2021
20210704	PubMed		y			n	n			n		n		33550679	Alen NV, Deer LK, Karimi M, Feyzieva E, Hastings PD, Hostinar CE.	Children's altruism following acute stress: The role of autonomic nervous system activity and social support	Dev Sci. 2021 Feb 7:e13099. doi: 10.1111/desc.13099. Onli	Dev Sci	2021
20210704	Scopus		y		n		n			n		n			Alexander B., Karakas K., Kohout C., Sakarya H., Singh N., Stachtiaris J.	A behavioral sensing system that promotes positive lifestyle changes and improves metabolic control among adults with type 2 diabetes			2017
20210704	Scopus		y	n		n	n			n		n			Allen M.R., Krohn K.	Skeletal Imaging			2013
20210704	PubMed		y			n		n		n		n		26873163	Alsaffar H, Wilson L, Kamdar DP, Sultanov F, Enepekides D, Higgins KM	Informed consent: do information pamphlets improve post-operative risk-recall in patients undergoing total thyroidectomy: prospective randomized	J Otolaryngol Head Neck Surg. 2016 Feb 13;45:14. doi: 10.1	J Otolaryngol Head Neck Surg	2016
20210704	Scopus	x	*n*							n		n		26873163	Alsaffar H., Wilson L., Kamdar D.P., Sultanov F., Enepekides D., Higgins	Informed consent: Do information pamphlets improve post-operative riskrecall in patients undergoing total thyroidectomy: Prospective randomized control study			2016
20210704	Scopus		y	n			n	n		n		n			Althnian A., Elwafa A.A., Aloboud N., Alrasheed H., Kurdi H.	Prediction of COVID-19 individual susceptibility using demographic data: A case study on Saudi Arabia			2020
20210704	Scopus		y			n	n			n		n		24034938	Alvarenga T.A., Aguiar M.F.P., Mazaro-Costa R., Tufik S., Andersen M.	Effects of sleep deprivation during pregnancy on the reproductive capability of the offspring			2013
20210704	Scopus		y		n	n	n			n		n			Alves V., Cury A., Cremona C.	On the use of symbolic vibration data for robust structural health monitoring			2016
20210704	Scopus		y			n	n			n		n			Amo L., López P., Martín J.	Habitat deterioration affects body condition of lizards: A behavioral approach with Iberolacerta cyreni lizards inhabiting ski resorts			2007
20210704	Scopus		y	n						n		n			Ando B., Baglio S., Marletta V., Pistorio A., Dibilio V., Mostile G., Nicol	A multisensor architecture for the assessment of postural sway in elderly and people with neurological disease			2017
20210704	Scopus	x	*n*							n		n		11035502	André P.A., Braga A.L., Lin C.A., Conceição G.M., Pereira L.A., Miraglia	Environmental epidemiology applied to urban atmospheric pollution: a contribution from the Experimental Air Pollution Laboratory (LPAE).			2000
20210704	PubMed		y	n		n	n			n		n		11035502	André PA, Braga AL, Lin CA, Conceição GM, Pereira LA, Miraglia SG, Bö	Environmental epidemiology applied to urban atmospheric pollution: a contribution from the Experimental Air Pollution Laboratory (LPAE)	Cad Saude Publica. 2000 Jul-Sep;16(3):619-28. doi: 10.1590	Cad Saude Publica	2000
20210704	Scopus		y			n	n			n		n			Andreeva A.A., Nikolaev A.V., Lobanov A.I.	Analysis of point model of fibrin polymerization			2017
20210704	PubMed		y				n	n		n		n		33843315	Ares G, Vidal L, Otterbring T, Aschemann-Witzel J, Curutchet MR, Gim	Communication Campaigns to Support the Use of Nutritional Warnings: Different Messages for Different People?	Health Educ Behav. 2021 Apr 10:10901981211003510. doi:	Health Educ Behav	2021
20210704	Scopus	x	*n*							n		n			Ares G., Vidal L., Otterbring T., Aschemann-Witzel J., Curutchet M.R., (	Communication Campaigns to Support the Use of Nutritional Warnings: Different Messages for Different People?			2021
20210704	PubMed		y							y	E3: Health care provision	n	lab	29285873	Arrieta A, García-Prado A, González P, Pinto-Prades JL.	Risk attitudes in medical decisions for others: An experimental approach	Health Econ. 2017 Dec;26 Suppl 3:97-113. doi: 10.1002/hec	Health Econ	2017
20210704	Scopus	x	*n*							n		n		33373631	Asbridge S.C.M., Pechey E., Marteau T.M., Hollands G.J.	Effects of pairing health warning labels with energy-dense snack foods on food choice and attitudes: Online experimental study			2021
20210704	PubMed		y				n	n		n		n		33373631	Asbridge SCM, Pechey E, Marteau TM, Hollands GJ.	Effects of pairing health warning labels with energy-dense snack foods on food choice and attitudes: Online experimental study	Appetite. 2021 May 1;160:105090. doi: 10.1016/j.appet.2(	Appetite	2021
20210704	Scopus		y			n	n			n		n			Baddor I.M., Abdel-Magid I.M.	Contribution towards improvement of getting rid of heavy metals and toxic substances in wastewater operations: The case of soba/Khartoum treatment plant			2015
20210704	Scopus		y	n		n	n			n		n		14527039	Bailey M.R., Ansoborlo E., Cammer P., Chazel V., Fritsch P., Hodgson A	RBDATA-EULEP: Providing information to improve internal dosimetry			2003
20210704	Scopus		y	n		n	n			n		n			Bakhtyari N.G., Baderna D., Boriani E., Schuhmacher M., Heise S., Ben	Toxicological and ecotoxicological studies for additives			2013
20210704	Scopus		y					n		n		n			Balcioğlu H., Çulhaci A., Tirpan K., Turan S.	Algorithmic approach to upper respiratory tract infections in primary care			2017
20210704	Scopus	x	*n*							n		n		28531265	Banks M.L., Czoty P.W., Negus S.S.	Utility of nonhuman primates in substance use disorders research			2017
20210704	PubMed		y	n		n				n		n		28531265	Banks ML, Czoty PW, Negus SS.	Utility of Nonhuman Primates in Substance Use Disorders Research	ILAR J. 2017 Dec 1;58(2):202-215. doi: 10.1093/ilar/ilx014.	ILAR J	2017
20210704	PubMed		y			n				n		n		29973200	Bao Z, Ji C, Hu J, Luo C, Fang W.	Clinical and economic impact of pharmacist interventions on sampled outpatient prescriptions in a Chinese teaching hospital	BMC Health Serv Res. 2018 Jul 4;18(1):519. doi: 10.1186/s1	BMC Health Serv Res	2018
20210704	PubMed		y							y	E3: Health care provision	n	natural	33506858	Barbaroux A, Benoit L, Raymondie RA, Milhabet I.	Nudging health care workers towards a flu shot: reminders are accepted but not necessarily effective. A randomized controlled study among residen	Fam Pract. 2021 Jan 28:cmab001. doi: 10.1093/fampra/cm	Fam Pract	2021
20210704	Scopus	x	*n*							n		n		27028008	Barnes A.J., Hanoch Y., Rice T.	Can plan recommendations improve the coverage decisions of vulnerable populations in health insurance marketplaces?			2016
20210704	PubMed		y							y	E1: Health insurance choice	n	lab	27028008	Barnes AJ, Hanoch Y, Rice T.	Can Plan Recommendations Improve the Coverage Decisions of Vulnerable Populations in Health Insurance Marketplaces?	PLoS One. 2016 Mar 30;11(3):e0151095. doi: 10.1371/journ	PLoS One	2016
20210704	PubMed		y			n				n		n		24706369	Barth J, Ahrens R, Schaufelberger M.	Consequences of insecurity in emergency telephone consultations: an experimental study in medical students	Swiss Med Wkly. 2014 Mar 28;144:w13919. doi: 10.4414/sı	Swiss Med Wkly	2014
20210704	Scopus		y	n						n		n		17631736	Baumann M., Euller-Ziegler L., Guillemin F.	Evaluation of the expectations osteoarthritis patients have concerning healthcare, and their implications for practitioners			2007
20210704	Scopus		y			n	n			n		n		15661502	Baumgartner S., Lahajnar G., Sepe A., Kristl J.	Quantitative evaluation of polymer concentration profile during swelling of hydrophilic matrix tablets using 1H NMR and MRI methods			2005
20210704	PubMed		y	n		n				n		n		29286493	Bazyka D.	Twenty five years of the National Academy of Medical Sciences of Ukraine - progress and priorities for future of radiation medicine and biology	Probl Radiac Med Radiobiol. 2017 Dec;22:10-14.	Probl Radiac Med Radiobiol	2017
20210704	Scopus		y	n			n			n		n			Becker A., Deckers T., Dohmen T., Falk A., Kosse F.	The relationship between economic preferences and psychological personality measures			2012
20210704	PubMed		y					n		n		n		22272755	Becker K, Zweifel P.	Age and choice in health insurance: evidence from a discrete choice experiment	Patient. 2008 Jan 1;1(1):27-40. doi: 10.2165/01312067-200	Patient	2008
20210704	Scopus		y				n			n		n			Beeson M., Chilton S., Jones-Lee M., Metcalf H., Nielsen J.S.	Can a 'veil of ignorance' reduce the impact of distortionary taxation on public good valuations?			2019
20210704	Scopus	x	*n*							n		n			Bejarano H.D., Kaplan H., Rassenti S.	Dynamic optimization and conformity in health behavior and life enjoyment over the life cycle			2015
20210704	PubMed		y				n			n	E0: Other focus on health-related behaviour	n		26136666	Bejarano HD, Kaplan H, Rassenti S.	Dynamic optimization and conformity in health behavior and life enjoyment over the life cycle	Front Behav Neurosci. 2015 Jun 16;9:137. doi: 10.3389/fnb	Front Behav Neurosci	2015
20210704	PubMed		y	n		n				n		n		31273699	Benmhammed H, El Hayek S, Berkik I, Elmostafi H, Bousalham R, Mesfi	Animal Models of Early-Life Adversity	Methods Mol Biol. 2019;2011:143-161. doi: 10.1007/978-1	Methods Mol Biol	2019
20210704	Scopus	x	*n*							n		n		31273699	Benmhammed H., El Hayek S., Berkik I., Elmostafi H., Bousalham R., M	Animal models of early-life adversity			2019
20210704	Scopus		y				n			n		n			Berg E., Ghatak M., Manjula R., Rajasekhar D., Roy S.	Motivating knowledge agents: Can incentive pay overcome social distance?			2019
20210704	Scopus		y	n		n	n			n		n			Bernabò N., Mattioli M., Barboni B.	Computational modeling in male reproduction			2013
20210704	PubMed		y				n	n		n		n		3688597	Bernstein E, Woodall WG.	Changing perceptions of riskiness in drinking, drugs, and driving: an emergency department-based alcohol and substance abuse prevention program	Ann Emerg Med. 1987 Dec;16(12):1350-4. doi: 10.1016/s0	Ann Emerg Med	1987
20210704	Scopus	x	*n*							n		n		3688597	Bernstein E., Woodall W.G.	Changing perceptions of riskiness in drinking, drugs, and driving: An emergency department-based alcohol and substance abuse prevention program			1987
20210704	Scopus	x	*n*							n		n		26558610	Berry M.S., Repke M.A., Nickerson N.P., Conway L.G., III, Odum A.L., J	Making time for nature: Visual exposure to natural environments lengthens subjective time perception and reduces impulsivity			2015
20210704	PubMed		y				n			n		n		26558610	Berry MS, Repke MA, Nickerson NP, Conway LG 3rd, Odum AL, Jordan	Making Time for Nature: Visual Exposure to Natural Environments Lengthens Subjective Time Perception and Reduces Impulsivity	PLoS One. 2015 Nov 11;10(11):e0141030. doi: 10.1371/jour	PLoS One	2015
20210704	PubMed		y							y	E2: Health care utilisation	n	lab	26297722	Betsch C, Böhm R.	Detrimental effects of introducing partial compulsory vaccination: experimental evidence	Eur J Public Health. 2016 Jun;26(3):378-81. doi: 10.1093/eu	Eur J Public Health	2016
20210704	Scopus	x	*n*							n		n		26297722	Betsch C., Böhm R.	Detrimental effects of introducing partial compulsory vaccination: Experimental evidence			2016
20210704	Scopus		y					n		n		n		32940243	Bilger M., Özdemir S., Finkelstein E.A.	Demand for Cancer Screening Services: Results From Randomized Controlled Discrete Choice Experiments			2020
20210704	PubMed		y					n		n		n		34214136	Birkeland S, Bismark M, Barry MJ, Möller S.	Does greater patient involvement in healthcare decision-making affect malpractice complaints? A large case vignette survey	PLoS One. 2021 Jul 2;16(7):e0254052. doi: 10.1371/journal.	PLoS One	2021
20210704	Scopus	x	*n*							n		n		14609538	Blanchard R.J., Wall P.M., Blanchard D.C.	Problems in the study of rodent aggression			2003
20210704	PubMed		y	n		n	n			n		n		14609538	Blanchard RJ, Wall PM, Blanchard DC.	Problems in the study of rodent aggression	Horm Behav. 2003 Sep;44(3):161-70. doi: 10.1016/s0018-5	Horm Behav	2003
20210704	Scopus		y			n	n			n		n			Bloom H.S.	Randomizing groups to evaluate place-based programs			2006
20210704	PubMed		y			n				n		n		8269131	Bodnar E, Reul H, Schmitz B.	Prosthetic valve function under simulated low cardiac output conditions: preliminary observations	J Heart Valve Dis. 1993 May;2(3):348-51.	J Heart Valve Dis	1993
20210704	Scopus	x	*n*							n		n		8269131	Bodnar E., Reul H., Schmitz B.	Prosthetic valve function under simulated low cardiac output conditions: preliminary observations.			1993
20210704	Scopus		y				n			n		n			Bogliacino F., Charris R., Gómez C., Montealegre F., Codagnone C.	Expert endorsement and the legitimacy of public policy. Evidence from Covid19 mitigation strategies			2021
20210704	PubMed		y							y	E2: Health care utilisation	n	lab	29285869	Böhm R, Meier NW, Korn L, Betsch C.	Behavioural consequences of vaccination recommendations: An experimental analysis	Health Econ. 2017 Dec;26 Suppl 3:66-75. doi: 10.1002/hec.	Health Econ	2017
20210704	Scopus		y		n		n			n		n			Bolton G.E., Ockenfels A.	The limits of trust in economic transactions: Investigations of perfect reputation systems			2009
20210704	Scopus		y			n	n			n		n			Bonato C.M., Rigon B., de Souza A.F., Pereira C.B., Reis B.	High dilutions of Magonia pubescens hydrogel affect germination variables in Sorghum bicolor L. Moench			2011
20210704	PubMed		y				n	n		n		n		22069401	Boroumandfar K, Javaheri S, Ehsanpour S, Abedi A.	Reviewing the effect of two methods of educational package and social inoculation on changing the attitudes towards domestic violence against wor	Iran J Nurs Midwifery Res. 2010 Dec;15(Suppl 1):283-91.	Iran J Nurs Midwifery Res	2010
20210704	PubMed		y			n	n			n		n		27100175	Bosch-Belmar M, M'Rabet C, Dhaouadi R, Chalghaf M, Daly Yahia MN,	Jellyfish Stings Trigger Gill Disorders and Increased Mortality in Farmed Sparus aurata (Linnaeus, 1758) in the Mediterranean Sea	PLoS One. 2016 Apr 21;11(4):e0154239. doi: 10.1371/journ	PLoS One	2016
20210704	Scopus	x	*n*							n		n		27100175	Bosch-Belmar M., M'Rabet C., Dhaouadi R., Chalghaf M., Yahia M.N.D	Jellyfish stings trigger gill disorders and increased mortality in farmed sparus aurata (linnaeus, 1758) in the mediterranean sea			2016
20210704	Scopus	x	*n*							n		n		29197422	Brauneis M.D., Zoller H., Williams H., Zschiesche E., Heckeroth A.R.	The acaricidal speed of kill of orally administered fluralaner against poultry red mites (Dermanyssus gallinae) on laying hens and its impact on mite reproduction			2017
20210704	PubMed		y			n	n			n		n		29197422	Brauneis MD, Zoller H, Williams H, Zschiesche E, Heckeroth AR.	The acaricidal speed of kill of orally administered fluralaner against poultry red mites (Dermanyssus gallinae) on laying hens and its impact on mite re	Parasit Vectors. 2017 Dec 2;10(1):594. doi: 10.1186/s1307	Parasit Vectors	2017
20210704	PubMed		y							y	E3: Health care provision	n	lab	33184985	Brendel F, Einhaus L, Then F.	Resource scarcity and prioritization decisions in medical care: A lab experiment with heterogeneous patient types	Health Econ. 2021 Feb;30(2):470-477. doi: 10.1002/hec.41	Health Econ	2021
20210704	PubMed		y				n	n		n		n		27932628	Brennan E, Maloney EK, Ophir Y, Cappella JN.	Potential Effectiveness of Pictorial Warning Labels That Feature the Images and Personal Details of Real People	Nicotine Tob Res. 2017 Oct 1;19(10):1138-1148. doi: 10.10	Nicotine Tob Res	2017
20210704	Scopus	x	*n*							n		n		27932628	Brennan E., Maloney E.K., Ophir Y., Cappella J.N.	Potential effectiveness of pictorial warning labels that feature the images and personal details of real people			2017
20210704	PubMed		y	n		n				n		n		29611455	Brewer NT, Chapman GB, Rothman AJ, Leask J, Kempe A.	Increasing Vaccination: Putting Psychological Science Into Action	Psychol Sci Public Interest. 2017 Dec;18(3):149-207. doi: 10	Psychol Sci Public Interest	2017
20210704	Scopus		y			n	n	n		n		n		21105977	Brian G., du Toit R., Ramke J., Szetu J.	Population-based study of self-reported ocular trauma in Fiji			2011
20210704	PubMed		y	n						n		n		24194456	Brocklehurst P, Price J, Glenny AM, Tickle M, Birch S, Mertz E, Grytten	The effect of different methods of remuneration on the behaviour of primary care dentists	Cochrane Database Syst Rev. 2013 Nov 6;2013(11):CD0098	Cochrane Database Syst Rev	2013
20210704	Scopus	x	*n*							n		n		30476529	Brooks R.P., Jones M.T., Hale M.W., Lunau T., Dragano N., Wright B.J.	Positive verbal feedback about task performance is related with adaptive physiological responses: An experimental study of the effort-reward imbalance stress model			2019
20210704	PubMed		y				n			n		n		30476529	Brooks RP, Jones MT, Hale MW, Lunau T, Dragano N, Wright BJ.	Positive verbal feedback about task performance is related with adaptive physiological responses: An experimental study of the effort-reward imbala	Int J Psychophysiol. 2019 Jan;135:55-62. doi: 10.1016/j.ijpsy	Int J Psychophysiol	2019
20210704	PubMed		y							y	E3: Health care provision	n	lab	29285872	Brosig-Koch J, Hehenkamp B, Kokot J.	The effects of competition on medical service provision	Health Econ. 2017 Dec;26 Suppl 3:6-20. doi: 10.1002/hec.3	Health Econ	2017
20210704	PubMed		y							y	E3: Health care provision	n	lab	26708170	Brosig-Koch J, Hennig-Schmidt H, Kairies-Schwarz N, Wiesen D.	The Effects of Introducing Mixed Payment Systems for Physicians: Experimental Evidence	Health Econ. 2017 Feb;26(2):243-262. doi: 10.1002/hec.32	Health Econ	2017
20210704	PubMed		y							y	E3: Health care provision	n	lab	29285865	Brosig-Koch J, Kairies-Schwarz N, Kokot J.	Sorting into payment schemes and medical treatment: A laboratory experiment	Health Econ. 2017 Dec;26 Suppl 3:52-65. doi: 10.1002/hec.	Health Econ	2017

20210704	Scopus	x	n						n		n		29285872	Brosig-Koch J., Hehenkamp B., Kokot J.	The effects of competition on medical service provision				2017
20210704	Scopus	x	n						n		n		29285865	Brosig-Koch J., Kairies-Schwarz N., Kokot J.	Sorting into payment schemes and medical treatment: A laboratory experiment				2017
20210704	Scopus	x	n						n		n		21527447	Bruckner T.A., Brown R.A., Margerison-Zilko C.	Positive income shocks and accidental deaths among Cherokee Indians: A natural experiment				2011
20210704	PubMed		y		n	n	n		n		n		21527447	Bruckner TA, Brown RA, Margerison-Zilko C.	Positive income shocks and accidental deaths among Cherokee Indians: a natural experiment	Int J Epidemiol. 2011 Aug;40(4):1083-90. doi: 10.1093/ije/d	Int J Epidemiol		2011
20210704	PubMed		y			n			n		n		33434852	Brunelin J., Fecteau S.	Impact of bifrontal transcranial Direct Current Stimulation on decision-making and stress reactivity. A pilot study	J Psychiatr Res. 2021 Mar;135:15-19. doi: 10.1016/j.jpsychi	J Psychiatr Res		2021
20210704	Scopus	x	n						n		n		33434852	Brunelin J., Fecteau S.	Impact of bifrontal transcranial Direct Current Stimulation on decision-making and stress reactivity. A pilot study				2021
20210704	Scopus		y				n	n	n		n			Buchan H., Lourey E., D'Este C., Sanson-Fisher R.	Effectiveness of strategies to encourage general practitioners to accept an offer of free access to online evidence-based information: A randomised controlled trial				2009
20210704	Scopus		y				n	n	n		n			Buckell J., White J.S., Shang C.	Can incentive-compatibility reduce hypothetical bias in smokers' experimental choice behavior? A randomized discrete choice experiment				2020
20210704	Scopus		y						y	E2: Health care utilisation	n	lab		Buckley N., Cuff K., Hurley J., Mestelman S., Thomas S., Cameron D.	Should I stay or should I go? Exit options within mixed systems of public and private health care finance				2016
20210704	PubMed		y	n			n		n		n		30003476	Bull ER, McCleary N, Li X, Dombrowski SU, Dusseldorp E, Johnston M.	Interventions to Promote Healthy Eating, Physical Activity and Smoking in Low-Income Groups: a Systematic Review with Meta-Analysis of Behavior	Int J Behav Med. 2018 Dec;25(6):605-616. doi: 10.1007/s12	Int J Behav Med		2018
20210704	Scopus		y	n		n		n	n		n		31192807	Bunzli S., O'Brien Bhealthsci P., Ayton D., Dowsey M., Gunn J., Choong	Misconceptions and the Acceptance of Evidence-based Nonsurgical Interventions for Knee Osteoarthritis. A Qualitative Study				2019
20210704	Scopus		y	n		n	n		n		n			Burashnikov A., Antzelevitch C.	Ranolazine versus amiodarone for prevention of postoperative atrial fibrillation				2011
20210704	PubMed		y			n		n	n		n		32543249	Busack I., Jordan F, Sapir P, Bringmann H.	The OptoGenBox - a device for long-term optogenetics in C. elegans	J Neurogenet. 2020 Sep-Dec;34(3-4):466-474. doi: 10.1080,	J Neurogenet		2020
20210704	Scopus	x	n						n		n		32543249	Busack I., Jordan F., Sapir P., Bringmann H.	The OptoGenBox–a device for long-term optogenetics in C. elegans				2020
20210704	PubMed		y			n			n		n		16684563	Bushnell PJ, Boyes WK, Shafer TJ, Bale AS, Benignus VA.	Approaches to extrapolating animal toxicity data on organic solvents to public health	Neurotoxicology. 2007 Mar;28(2):221-6. doi: 10.1016/j.neu	Neurotoxicology		2007
20210704	PubMed		y			n	n		n		n		28651151	Buu A, Massey LS, Walton MA, Cranford JA, Zimmerman MA, Cunningh	Assessment methods and schedules for collecting daily process data on substance use related health behaviors: A randomized control study	Drug Alcohol Depend. 2017 Sep 1;178:159-164. doi: 10.101	Drug Alcohol Depend		2017
20210704	Scopus		y			n	n		n		n			Buzatu R., Muntean D., Ungureanu V., Ciutina A., Gireada M., Vitan D	Holistic energy efficient design approach to sustainable building using monitored energy management system				2021
20210704	PubMed		y			n	n		n		n		19564054	Canty MN, Hutchinson TH, Brown RJ, Jones MB, Jha AN.	Linking genotoxic responses with cytotoxic and behavioural or physiological consequences: differential sensitivity of echinoderms (Asterias rubens) an	Aquat Toxicol. 2009 Aug 13;94(1):68-76. doi: 10.1016/j.aqu	Aquat Toxicol		2009
20210704	Scopus		y					n	n		n			Caplan R.D., Harrison R.V., Wellons R.V., French Jr. J.R.P.	Social support and patient adherence: Experimental and survey findings				1980
20210704	Scopus		y	n		n	n		n		n		15742623	Caporale V., Giovannini A., Patta C., Calistri P., Nannini D., Santucci U.	Vaccination in the control strategy of bluetongue in Italy				2005
20210704	Scopus		y			n			n		n			Carling-Rowland A., Black S., McDonald L., Kagan A.	Increasing access to fair capacity evaluation for discharge decision-making for people with aphasia: A randomised controlled trial				2014
20210704	Scopus	x	n						n		n		24881033	Casella E.M., Thomas T.C., Vanino D.L., Fellows-Mayle W., Lifshitz J., C	Traumatic brain injury alters long-term hippocampal neuron morphology in juvenile, but not immature, rats				2014
20210704	PubMed		y			n	n		n		n		24881033	Casella EM, Thomas TC, Vanino DL, Fellows-Mayle W, Lifshitz J, Card JP	Traumatic brain injury alters long-term hippocampal neuron morphology in juvenile, but not immature, rats	Childs Nerv Syst. 2014 Aug;30(8):1333-42. doi: 10.1007/s00	Childs Nerv Syst		2014
20210704	PubMed		y	n		n			n		n		25612168	Cazzolli D, Prittie J.	The crystalloid-colloid debate: Consequences of resuscitation fluid selection in veterinary critical care	J Vet Emerg Crit Care (San Antonio). 2015 Jan-Feb;25(1):6-1	J Vet Emerg Crit Care (San Antonio)		2015
20210704	PubMed		y			n			n		n		21074615	Cernak I, Merkle AC, Koliatsos VE, Bilik JM, Luong QT, Mahota TM, Xu L	The pathobiology of blast injuries and blast-induced neurotrauma as identified using a new experimental model of injury in mice	Neurobiol Dis. 2011 Feb;41(2):538-51. doi: 10.1016/j.nbd.2	Neurobiol Dis		2011
20210704	Scopus	x	n						n		n		21074615	Cernak I., Merkle A.C., Koliatsos V.E., Bilik J.M., Luong Q.T., Mahota T.	The pathobiology of blast injuries and blast-induced neurotrauma as identified using a new experimental model of injury in mice				2011
20210704	Scopus		y				n		n		n			Chae M.-J.	Effects of the COVID-19 pandemic on sustainable consumption				2021
20210704	Scopus		y	n		n	n		n		n			Chan E. P., Wang P.Z.T., Dave S.	Valve Bladder Syndrome Associated with Posterior Urethral Valves: Natural History, Work-up, and Management				2020
20210704	Scopus		y				n		n		n			Cheng Y.-Y., Shein P.P., Chiou W.-B.	Escaping the impulse to immediate gratification: The prospect concept promotes a future-oriented mindset, prompting an inclination towards delayed gratification				2012
20210704	Scopus		y		n				n		n			Chiappori P.-A., Durand F., Geoffard P.-Y.	Moral hazard and the demand for physician services: First lessons from a French natural experiment				1998
20210704	Scopus		y				n		n	E0: Other focus on health-related behaviour	n		21501814	Cho H., Hallfors D.D., Mbai I.I., Itindi J., Milimo B.W., Halpern C.T., Irit	Keeping adolescent orphans in school to prevent human immunodeficiency virus infection: Evidence from a randomized controlled trial in Kenya				2011
20210704	Scopus		y			n	n		n		n			Choudhury M.A.R., Mondal M.F., Khan A.U., Hossain M.S., Azad M.O.K	Evaluation of biological approaches for controlling shoot and fruit borer (Earias vitella F.) of okra grown in peri-urban area in Bangladesh				2021
20210704	PubMed		y				n	n	n		n		33861881	Clarke N, Blackwell AKM, De-Loyde K, Pechey E, Hobson A, Pilling M, M	Health warning labels and alcohol selection: a randomised controlled experiment in a naturalistic shopping laboratory	Addiction. 2021 Apr 16. doi: 10.1111/add.15519. Online ah	Addiction		2021
20210704	PubMed		y				n	n	n		n		32267588	Clarke N, Pechey E, Mantzari E, Blackwell AKM, De-Loyde K, Morris RW	Impact of health warning labels communicating the risk of cancer on alcohol selection: an online experimental study	Addiction. 2021 Jan;116(1):41-52. doi: 10.1111/add.15072.	Addiction		2021
20210704	Scopus	x	n						n		n			Clarke N., Blackwell A.K.M., De-loyde K., Pechey E., Hobson A., Pilling	Health warning labels and alcohol selection: a randomised controlled experiment in a naturalistic shopping laboratory				2021
20210704	Scopus	x	n						n		n		32267588	Clarke N., Pechey E., Mantzari E., Blackwell A.K.M., De-loyde K., Morri	Impact of health warning labels communicating the risk of cancer on alcohol selection: an online experimental study				2021
20210704	Scopus		y	n		n	n	n	n		n		13810757	Clynes M.	Respiratory Control of Heart Rate: Laws Derived from Analog Computer Simulation				1960
20210704	PubMed		y	n		n			n		n		21220405	Cole FS, Alleyne C, Barks JD, Boyle RJ, Carroll JL, Dokken D, Edwards WH	NIH Consensus Development Conference statement: inhaled nitric-oxide therapy for premature infants	Pediatrics. 2011 Feb;127(2):363-9. doi: 10.1542/peds.2010-	Pediatrics		2011
20210704	Scopus		y			n	n		n		n			Contreras C.M., Gutiérrez-García A.G., Saavedra M., Bernal-Morales B	Adverse and palliative effects of the cannabinoids [Efectos adversos y paliativos de los canabinoides]				2003
20210704	Scopus	x	n						n		n		10890299	Copeland A.L., Brandon T.H.	Testing the causal role of expectancies in smoking motivation and behavior				2000
20210704	PubMed		y				n	n	n		n		10890299	Copeland AL, Brandon TH.	Testing the causal role of expectancies in smoking motivation and behavior	Addict Behav. 2000 May-Jun;25(3):445-9. doi: 10.1016/s03	Addict Behav		2000
20210704	PubMed		y			n	n		n		n		29111882	Cornejo J, Pokrant E, Carvallo C, Maddaleno A, San Martin B.	Depletion of tylosin residues in feathers, muscle and liver from broiler chickens after completion of antimicrobial therapy	Food Addit Contam Part A Chem Anal Control Expo Risk Asse	Food Addit Contam Part A Chem Anal C		2018
20210704	Scopus	x	n						n		n		29111882	Cornejo J., Pokrant E., Carvallo C., Maddaleno A., San Martin B.	Depletion of tylosin residues in feathers, muscle and liver from broiler chickens after completion of antimicrobial therapy				2018
20210704	Scopus		y			n	n		n		n		33181146	Crofton E.J., Nenov M.N., Zhang Y., Tapia C.M., Donnelly J., Koshy S., L	Topographic transcriptomics of the nucleus accumbens shell: Identification and validation of fatty acid binding protein 5 as target for cocaine addiction				2021
20210704	Scopus		y	n				n	n		n			Cui L., Xie X., Shen Z., Lu R., Wang H.	Prediction of the healthcare resource utilization using multi-output regression models				2018
20210704	Scopus		y			n	n		n		n			Dağdeviren M., Doğan Y.H., Kanit L.	Effects of restraint stress and nitric oxide synthase inhibition on learning and strategy preference in young adult male rats				2012
20210704	Scopus	x	n						n		n		26851476	Dahlan N.D., Gital Y.Y.	Thermal sensations and comfort investigations in transient conditions in tropical office				2016
20210704	PubMed		y		n		n		n		n		26851476	Dahlan ND, Gital YY.	Thermal sensations and comfort investigations in transient conditions in tropical office	Appl Ergon. 2016 May;54:169-76. doi: 10.1016/j.apergo.20	Appl Ergon		2016
20210704	Scopus	x	n						n		n		24681813	Dammert A.C., Galdo J.C., Galdo V.	Preventing dengue through mobile phones: Evidence from a field experiment in Peru				2014
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		24681813	Dammert AC, Galdo JC, Galdo V.	Preventing dengue through mobile phones: evidence from a field experiment in Peru	J Health Econ. 2014 May;35:147-61. doi: 10.1016/j.jhealecx	J Health Econ		2014
20210704	PubMed		y			n	n		n		n		30031575	D'Aniello A, Hartog N, Sweijen T, Pianese D.	The impact of water saturation on the infiltration behaviour of elemental mercury DNAPL in heterogeneous porous media	J Contam Hydrol. 2018 Sep;216:1-9. doi: 10.1016/j.jconhyd.	J Contam Hydrol		2018
20210704	Scopus	x	n						n		n		30031575	D'Aniello A., Hartog N., Sweijen T., Pianese D.	The impact of water saturation on the infiltration behaviour of elemental mercury DNAPL in heterogeneous porous media				2018
20210704	Scopus		y	n		n			n		n		9666371	Dannenberg A.L., Fowler C.J.	Evaluation of interventions to prevent injuries: An overview				1998
20210704	PubMed		y					n	n		n		24399636	Danyliv A, Pavlova M, Gryga I, Groot W.	Preferences for physician services in Ukraine: a discrete choice experiment	Int J Health Plann Manage. 2015 Oct-Dec;30(4):346-65. doi	Int J Health Plann Manage		2015
20210704	Scopus	x	n						n		n		24399636	Danyliv A., Pavlova M., Gryga I., Groot W.	Preferences for physician services in Ukraine: A discrete choice experiment				2015
20210704	Scopus	x	n						n		n		31867655	Davis D.R., Parker M.A., Villanti A.C., Streck J.M., Priest J.S., Tidey J.W	Examining Age as a Potential Moderator of Response to Reduced Nicotine Content Cigarettes in Vulnerable Populations				2019
20210704	PubMed		y				n	n	n		n		31867655	Davis DR, Parker MA, Villanti AC, Streck JM, Priest JS, Tidey JW, Gaalem	Examining Age as a Potential Moderator of Response to Reduced Nicotine Content Cigarettes in Vulnerable Populations	Nicotine Tob Res. 2019 Dec 23;21(Suppl 1):S49-S55. doi: 10	Nicotine Tob Res		2019
20210704	Scopus	x	n						n		n		22265195	Davis E.P., Sandman C.A.	Prenatal psychobiological predictors of anxiety risk in preadolescent children				2012
20210704	PubMed		y			n	n		n		n		22265195	Davis EP, Sandman CA.	Prenatal psychobiological predictors of anxiety risk in preadolescent children	Psychoneuroendocrinology. 2012 Aug;37(8):1224-33. doi: 1	Psychoneuroendocrinology		2012
20210704	Scopus		y	n					n		n			De Alessi L.	The effect of institutions on the choices of consumers and providers of health care				1989
20210704	Scopus	x	n						n		n			de Almondes K.M., Leonardo M.E.	Study protocol of sleep education tool for children: Serious game "Perfect Bedroom: Learn to sleep well"				2018
20210704	PubMed		y	n					n		n		29997540	de Almondes KM, Leonardo MEM.	Study Protocol of Sleep Education Tool for Children: Serious Game "Perfect Bedroom: Learn to Sleep Well"	Front Psychol. 2018 Jun 26;9:1016. doi: 10.3389/fpsyg.2018	Front Psychol		2018
20210704	Scopus		y			n	n		n		n			De Angelis E., Monaci L., Mackie A., Salt L., Visconti A.	Reprint of "bioaccessibility of T-2 and HT-2 toxins in mycotoxin contaminated bread models submitted to in vitro human digestion"				2013
20210704	Scopus		y			n	n		n		n			De Angelis E., Monaci L., Mackie A., Salt L., Visconti A.	Bioaccessibility of T-2 and HT-2 toxins in mycotoxin contaminated bread models submitted to in vitro human digestion				2014
20210704	Scopus	x	n						n		n		27566182	de Noronha S.R., Campos G.V., Abreu A.R., de Souza A.A., Chianca D.A	High fat diet induced-obesity facilitates anxiety-like behaviors due to GABAergic impairment within the dorsomedial hypothalamus in rats				2017
20210704	PubMed		y			n	n		n		n		27566182	de Noronha SR, Campos GV, Abreu AR, de Souza AA, Chianca DA Jr, de	High fat diet induced-obesity facilitates anxiety-like behaviors due to GABAergic impairment within the dorsomedial hypothalamus in rats	Behav Brain Res. 2017 Jan 1;316:38-46. doi: 10.1016/j.bbr.	Behav Brain Res		2017
20210704	Scopus		y			n	n		n		n		30248828	de Sá L.C., Oliveira M., Ribeiro F., Rocha T.L., Futter M.N.	Studies of the effects of microplastics on aquatic organisms: What do we know and where should we focus our efforts in the future?				2018
20210704	PubMed		y			n	n		n		n		26583731	Delle Piane M, Corno M, Ugliengo P.	Does Dispersion Dominate over H-Bonds in Drug-Surface Interactions? The Case of Silica-Based Materials As Excipients and Drug-Delivery Agents	J Chem Theory Comput. 2013 May 14;9(5):2404-15. doi: 10.	J Chem Theory Comput		2013
20210704	Scopus	x	n						n		n			Delle Piane M., Corno M., Ugliengo P.	Does dispersion dominate over H-bonds in drug-surface interactions? the case of silica-based materials as excipients and drug-delivery agents				2013
20210704	Scopus		y	n		n	n		n		n			Deng J.-C., Jiang X., Wang D.-Z., Lu X., Gao H.-J., Wang F.	Research advance of environmental fate of herbicide atrazine and model fitting in farmland ecosystem				2005
20210704	Scopus		y			n	n		n		n			Deschamps F., Deveaux L., Rigalma K., Roussel S., Duvaux-Ponter C.	Innovative approach of the potential impact of HV lines on their environment: The experimental farm				2010
20210704	Scopus		y			n	n		n		n			Ding Y., Zhong J., Guo G., Chen F.	The impact of reduced visibility caused by air pollution on construal level				2021
20210704	PubMed		y				n	n	n		n		26290169	Dixon H, Scully M, Durkin S, Brennan E, Cotter T, Maloney S, O'Hara BJ	Finding the keys to successful adult-targeted advertisements on obesity prevention: an experimental audience testing study	BMC Public Health. 2015 Aug 20;15:804. doi: 10.1186/s128	BMC Public Health		2015
20210704	PubMed		y				n	n	n		n		24612989	Dixon H, Scully M, Kelly B, Chapman K, Wakefield M.	Can counter-advertising reduce pre-adolescent children's susceptibility to front-of-package promotions on unhealthy foods? Experimental research	Soc Sci Med. 2014 Sep;116:211-9. doi: 10.1016/j.socscimed	Soc Sci Med		2014
20210704	Scopus	x	n						n		n		24612989	Dixon H., Scully M., Kelly B., Chapman K., Wakefield M.	Can counter-advertising reduce pre-adolescent children's susceptibility to front-of-package promotions on unhealthy foods?: Experimental research				2014
20210704	PubMed		y						y	E2: Health care utilisation	n	lab	25498776	Djawadi BM, Fahr R, Turk F.	Conceptual model and economic experiments to explain nonpersistence and enable mechanism designs fostering behavioral change	Value Health. 2014 Dec;17(8):814-22. doi: 10.1016/j.jval.2(	Value Health		2014
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		25864152	Dolan P, Galizzi MM, Navarro-Martinez D.	Paying people to eat or not to eat? Carryover effects of monetary incentives on eating behaviour	Soc Sci Med. 2015 May;133:153-8. doi: 10.1016/j.socscimed	Soc Sci Med		2015
20210704	Scopus	x	n						n		n		25864152	Dolan P., Galizzi M.M., Navarro-Martinez D.	Paying people to eat or not to eat? Carryover effects of monetary incentives on eating behaviour				2015
20210704	PubMed		y	n		n			n		n		14556467	Dubousset J.	[Spinal instrumentation, source of progress, but also revealing pitfalls]	Bull Acad Natl Med. 2003;187(3):523-33.	Bull Acad Natl Med		2003
20210704	Scopus		y			n	n		n		n			Dudwiesus H., Merz E.	How safe is it to use ultrasound in prenatal medicine? Facts and contradictions - Part 2 - tory experiments regarding non-thermal effects and epidemiological studies				2021
20210704	PubMed		y	n		n			n		n		21169391	Duka T, Crombag HS, Stephens DN.	Experimental medicine in drug addiction: towards behavioral, cognitive and neurobiological biomarkers	J Psychopharmacol. 2011 Sep;25(9):1235-55. doi: 10.1177/(	J Psychopharmacol		2011
20210704	Scopus	x	n						n		n		21169391	Duka T., Crombag H.S., Stephens D.N.	Experimental medicine in drug addiction: Towards behavioral, cognitive and neurobiological biomarkers				2011
20210704	Scopus		y	n		n	n		n		n			Dumont F.J.	Immunosuppressive strategies for prevention of transplant rejection				2001
20210704	PubMed		y				n		n		n		24674228	Düring C, Jessop DC.	The moderating impact of self-esteem on self-affirmation effects	Br J Health Psychol. 2015 May;20(2):274-89. doi: 10.1111/b	Br J Health Psychol		2015
20210704	Scopus	x	n						n		n		24674228	Düring C., Jessop D.C.	The moderating impact of self-esteem on self-affirmation effects				2015
20210704	PubMed		y		n		n		n		n		8006302	Dutra-de-Oliveira JE, Ferreira JB, Vasconcellos VP, Marchini JS.	Drinking water as an iron carrier to control anemia in preschool children in a day-care center	J Am Coll Nutr. 1994 Apr;13(2):198-202. doi: 10.1080/0731	J Am Coll Nutr		1994
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		30899352	Duygu G, Alison E, Deborah FL.	The Effects of Self-Presentation to Engage in Physical Activity	Int J Exerc Sci. 2019 Mar 1;12(5):263-276. eCollection 2019	Int J Exerc Sci		2019
20210704	Scopus		y	n			n		n		n		25572196	Ebbert J.O., Agunwamba A.A., Rutten L.J.	Counseling patients on the use of electronic cigarettes				2015
20210704	Scopus		y	n		n	n		n		n			Eberhardt C., Pilz M., Rehbein P., Kurth A.H.	Reduction of osseointegration of cementless implants in osteopenic bone in a rat model [Beeinträchtigung der osseointegration zementfreier implantate im osteopenen knochen eines rattenmodells]				2005
20210704	Scopus	x	n						n		n		29944312	Egbe N.O., Eduwem D.U., Ukweh O.E., Odumegwu C.H.	Clinical practitioners' knowledge of ionizing radiation doses in diagnostic radiology examinations in Calabar				2016
20210704	PubMed		y		n	n		n	n		n		29944312	Egbe NO, Eduwem DU, Ukweh OE, Odumegwu CH.	Clinical practitioners' knowledge of ionizing radiation doses in diagnostic radiology examinations in Calabar	Niger J Med. 2016 Apr-Jun;25(2):147-51.	Niger J Med		2016
20210704	PubMed		y				n	n	n		n		34146646	Eguren J, Antúnez L, Otterbring T, Curutchet MR, Ares G.	Health gains through loss frames: Testing the effectiveness of message framing on citizens' use of nutritional warnings	Appetite. 2021 Jun 17;166:105469. doi: 10.1016/j.appet.20	Appetite		2021
20210704	PubMed		y			n		n	n		n		29022379	Elderen TV, Maes S, Seegers G, Kragten H, Wely LR.	Effects of a post-hospitalization group health education programme for patients with coronary heart disease	Psychol Health. 1994 May;9(4):317-330. doi: 10.1080/0887	Psychol Health		1994
20210704	Scopus		y	n					n		n		21166837	Elliott D., Grierson L.E.M., Hayes S.J., Lyons J.	Action representations in perception, motor control and learning: Implications for medical education				2011
20210704	Scopus	x	n						n		n			El-Wakeil N., Abdallah A.M.M.	Cotton pests and the actual strategies for their management control				2012
20210704	Scopus		y	n		n	n		n		n			El-Wakeil N., Abdallah A.M.M.	Cotton pests and the actual strategies for their management control				2014
20210704	Scopus		y			n	n		n		n		12842753	Engum S.A., Jeffries P., Fisher L.	Intravenous catheter training system: Computer-based education versus traditional learning methods				2003
20210704	PubMed		y	n		n			n		n		11392340	Ernst M, Moolchan ET, Robinson ML.	Behavioral and neural consequences of prenatal exposure to nicotine	J Am Acad Child Adolesc Psychiatry. 2001 Jun;40(6):630-41.	J Am Acad Child Adolesc Psychiatry		2001
20210704	Scopus	x	n						n		n		8448414	Faber K.A., Hughes Jr. C.L.	Dose-response characteristics of neonatal exposure to genistein on pituitary responsiveness to gonadotropin releasing hormone and volume of the sexually dimorphic nucleus of the preoptic area (SDN-POA) in postpubertal castrated female rats				1993
20210704	PubMed		y			n	n		n		n		8448414	Faber KA, Hughes CL Jr.	Dose-response characteristics of neonatal exposure to genistein on pituitary responsiveness to gonadotropin releasing hormone and volume of the se	Reprod Toxicol. 1993;7(1):35-9. doi: 10.1016/0890-6238(93	Reprod Toxicol		1993
20210704	PubMed		y			n	n		n		n		24173827	Fabritius M, Favrat B, Chtioui H, Battistella G, Annoni JM, Appenzeller	THCCOOH concentrations in whole blood: are they useful in discriminating occasional from heavy smokers?	Drug Test Anal. 2014 Jan-Feb;6(1-2):155-63. doi: 10.1002/d	Drug Test Anal		2014
20210704	Scopus	x	n						n		n		24173827	Fabritius M., Favrat B., Chtioui H., Battistella G., Annoni J.-M., Appenz	THCCOOH concentrations in whole blood: Are they useful in discriminating occasional from heavy smokers?				2014
20210704	PubMed		y	n					n		n		16197909	Falissard B.	[Methodological issues unsaid in medical research]	Med Sci (Paris). 2005 Oct;21(10):880-5. doi: 10.1051/medsc	Med Sci (Paris)		2005
20210704	Scopus	x	n						n		n		16197909	Falissard B.	Methodological unsaid in medical research [Non-dits méthodologiques en recherche médicale]				2005
20210704	Scopus		y			n	n		n		n		30030128	Farokhnia M., Lee M.R., Farinelli L.A., Ramchandani V.A., Akhlaghi F.,	Pharmacological manipulation of the ghrelin system and alcohol hangover symptoms in heavy drinking individuals: Is there a link?				2018

20210704	PubMed		y					n	n	n	n		24512102	Farooqui MA, Tan YT, Bilger M, Finkelstein EA.	Effects of financial incentives on motivating physical activity among older adults: results from a discrete choice experiment	BMC Public Health. 2014 Feb 10;14:141. doi: 10.1186/1471	BMC Public Health	2014
20210704	Scopus		y			n	n			n	n			Fasulo S., Guerriero G., Cappello S., Colasanti M., Schettino T., Leonzio	The "SYSTEMS BIOLOGY" in the study of xenobiotic effects on marine organisms for evaluation of the environmental health status: biotechnological applications for potential recovery strategies			2015
20210704	Scopus	x	n							n	n		25582891	Fedor T.M., Kohler H.-P., Behrman J.R.	The Impact of Married Individuals Learning HIV Status in Malawi: Divorce, Number of Sexual Partners, and Condom Use With Spouses			2015
20210704	PubMed		y	n				n		n	n		25582891	Fedor TM, Kohler HP, Behrman JR.	The Impact of Married Individuals Learning HIV Status in Malawi: Divorce, Number of Sexual Partners, and Condom Use With Spouses	Demography. 2015 Feb;52(1):259-80. doi: 10.1007/s13524-	Demography	2015
20210704	Scopus	x	n							n	n			Fegert J.M., Slawik L., Wermelskirchen D., Nübling M., Mühlbacher A.	Assessment of parents' preferences for the treatment of school-age children with ADHD: A discrete choice experiment			2011
20210704	PubMed		y						n	n	n		21671692	Fegert JM, Slawik L, Wermelskirchen D, Nübling M, Mühlbacher A.	Assessment of parents' preferences for the treatment of school-age children with ADHD: a discrete choice experiment	Expert Rev Pharmacoecon Outcomes Res. 2011 Jun;11(3):2	Expert Rev Pharmacoecon Outcomes R	2011
20210704	Scopus		y			n	n			n	n			Fehling J., Davidson K., Bates S.S.	Growth dynamics of non-toxic Pseudo-nitzschia delicatissima and toxic P. seriata (Bacillariophyceae) under simulated spring and summer photoperiods			2005
20210704	Scopus		y	n				n		n	n			Fereiduni M., Shahanaghi K.	A robust optimization model for distribution and evacuation in the disaster response phase			2017
20210704	PubMed		y							y	E3: Health care provision	n	lab	24001247	Ferguson E, Starmer C.	Incentives, expertise, and medical decisions: testing the robustness of natural frequency framing	Health Psychol. 2013 Sep;32(9):967-77. doi: 10.1037/a0033	Health Psychol	2013
20210704	Scopus	x	n							n		n		24001247	Ferguson E., Starmer C.	Incentives, expertise, and medical decisions: Testing the robustness of natural frequency framing			2013
20210704	Scopus		y			n	n			n		n		16157608	Field M., Mogg K., Bradley B.P.	Craving and cognitive biases for alcohol cues in social situations			2005
20210704	Scopus		y				n	n		n		n			Fitz N., Kushlev K., Jagannathan R., Lewis T., Paliwal D., Ariely D.	Batching smartphone notifications can improve well-being			2019
20210704	Scopus		y	n		n	n			n		n			Fletcher S.R.	High throughput approaches to designer products-myth or reality			2006
20210704	Scopus		y			n	n	n		n		n			Follvord F., Veltri G.A., Lupiáñez-Villanueva F., Tornese P., Codagnone	The effects of ecolabels on environmentally- and health-friendly cars: an online survey and two experimental studies			2020
20210704	PubMed		y		n		n			n		n		21492966	Fortuño Godes J, Romea Viñets J, Guerra Balic M, Sainz Pardo G, Querz	[Measurement of functional capacity and health related quality of life in an elderly group following a walking program: pilot study]	Rev Esp Geriatr Gerontol. 2011 May-Jun;46(3):147-50. doi:	Rev Esp Geriatr Gerontol	2011
20210704	Scopus		y			n	n			n		n			Fortuño Godes J., Romea Viñets J., Guerra Balic M., Sainz Pardo G., Qu	Measurement of Functional Capacity and Health Related Quality of Life in an Elderly group following a Walking Program: Pilot Study [Medida de la capacidad funcional y la calidad de vida relacionada con la salud de un grupo de personas mayores que			2011
20210704	Scopus		y			n	n			n		n			Fox J., Bailenson J.N.	Virtual self-modeling: The effects of vicarious reinforcement and identification on exercise behaviors			2009
20210704	PubMed		y	n		n				n		n		21289968	Frank W, Konta B, Seiler G.	Therapy of unspecific tinnitus without organic cause	GMS Health Technol Assess. 2006 Aug 30;2:Doc17.	GMS Health Technol Assess	2006
20210704	PubMed		y	n						n		n		3300513	Fraser CG, Woodford FP.	Strategies to modify the test-requesting patterns of clinicians	Ann Clin Biochem. 1987 May;24 (Pt 3):223-31. doi: 10.1177	Ann Clin Biochem	1987
20210704	PubMed		y				n			n	E0: Other focus on health-related behaviour	n		28562678	Friis R, Skov LR, Olsen A, Appleton KM, Saulais L, Dinnella C, Hartwell H	Comparison of three nudge interventions (priming, default option, and perceived variety) to promote vegetable consumption in a self-service buffet s	PLoS One. 2017 May 31;12(5):e0176028. doi: 10.1371/joun	PLoS One	2017
20210704	Scopus	x	n							n		n		28562678	Friis R., Skov L.R., Olsen A., Appleton K.M., Saulais L., Dinnella C., Hartv	Comparison of three nudge interventions (priming, default option, and perceived variety) to promote vegetable consumption in a self-service buffet setting			2017
20210704	Scopus		y				n			n		n			Frik A., Gaudeul A.	A measure of the implicit value of privacy under risk			2020
20210704	PubMed		y				n			n		n		33392137	Frühauf A, Niedermeier M, Kopp M.	Intention to Engage in Winter Sport in Climate Change Affected Environments	Front Public Health. 2020 Dec 18;8:598297. doi: 10.3389/fp	Front Public Health	2020
20210704	Scopus	x	n							n		n		33392137	Frühauf A., Niedermeier M., Kopp M.	Intention to Engage in Winter Sport in Climate Change Affected Environments			2020
20210704	Scopus		y						n	n		n			Gage J.D., Wilson L.J.	Acceptability of attention-deficit/hyperactivity disorder interventions: A comparison of parents			2000
20210704	PubMed		y			n				n		n		18951059	Galeraud-Denis I, Denoual-Ziad C, Muris-Guillou C, Benhaim A, Herlicon	[Elective single embryo transfer - the Scandinavian experiment]	Gynecol Obstet Fertil. 2008 Nov;36(11):1147-50. doi: 10.10	Gynecol Obstet Fertil	2008
20210704	Scopus		y			n	n			n		n			Gant S., Pursell M., Newton A., Bennett D., O'Sullivan L., Piper D.	Investigation of cargo tank vent fires on the GP3 FPSO, Part 2: Analysis of vapour dispersion			2016
20210704	Scopus		y	n		n				n		n		9629769	García Moreno L.M., Corcuera Pindado M.T., Conejo Jiménez N., Mart	Hepatic alterations in a model of alcoholism in the rat [Alteraciones hepáticas en un modelo de alcoholismo en ratas.]			1998
20210704	PubMed		y				n			n		n		28051947	Garland T Jr, Cadney MD, Waterland RA.	Early-Life Effects on Adult Physical Activity: Concepts, Relevance, and Experimental Approaches	Physiol Biochem Zool. 2017 Jan/Feb;90(1):1-14. doi: 10.108	Physiol Biochem Zool	2017
20210704	Scopus	x	n							n		n		28051947	Garland T., Jr., Cadney M.D., Waterland R.A.	Early-life effects on adult physical activity: Concepts, relevance, and experimental approaches			2017
20210704	Scopus	x	n							n		n			Gatua J.G.	Information and cooperation in preventive health behavior: The case of bed net use in rural Kenya			2021
20210704	PubMed		y				n	n		n		n		34096642	Gatua JG.	Information and cooperation in preventive health behavior: The case of bed net use in rural Kenya	Health Econ. 2021 Jun 6. doi: 10.1002/hec.4365. Online ahe	Health Econ	2021
20210704	PubMed	[x]	n							n		n		33786346	Ge G, Godager G.	Data from an incentivized laboratory experiment on strategic medical choices *[excluded as "double" since analysis in follow-up publication]*	Data Brief. 2021 Mar 3;35:106926. doi: 10.1016/j.dib.2021	Data Brief	2021
20210704	Scopus	x	n							n		n			Ge G., Godager G.	Data from an incentivized laboratory experiment on strategic medical choices			2021
20210704	Scopus		y							y	E3: Health care provision	n	lab		Ge G., Godager G.	Predicting strategic medical choices: An application of a quantal response equilibrium choice model			2021
20210704	Scopus		y			n	n			n		n		28073472	Ger K.A., Urrutia-Cordero P., Frost P.C., Hansson L.-A., Sarnelle O., Wil	The interaction between cyanobacteria and zooplankton in a more eutrophic world			2016
20210704	PubMed		y	n						n		n		11130737	Gerrard M, Gibbons FX, Reis-Bergan M, Russell DW.	Self-esteem, self-serving cognitions, and health risk behavior	J Pers. 2000 Dec;68(6):1177-201. doi: 10.1111/1467-6494.(	J Pers	2000
20210704	Scopus	x	n							n		n		11130737	Gerrard M., Gibbons F.X., Reis-Bergan M., Russell D.W.	Self-esteem, self-serving cognitions, and health risk behavior			2000
20210704	Scopus		y				n	n		n		n			Ghaffari M., Tezval J., Rakhshanderou S., Hevey D., Harooni J., Armoor	Skin cancer preventive behaviours among rural Illam farmers, western Iran: applying protection motivation theory			2020
20210704	PubMed		y	n		n				n		n		21513361	Gibbons RD, Mann JJ.	Strategies for quantifying the relationship between medications and suicidal behaviour: what has been learned?	Drug Saf. 2011 May 1;34(5):375-95. doi: 10.2165/1158935(	Drug Saf	2011
20210704	Scopus		y				n	n		n		n			Gibson D.R., Lovelle-Drache J., Young M., Hudes E.S., Sorensen J.L.	Effectiveness of brief counseling in reducing HIV risk behavior in injecting drug users: Final results of randomized trials of counseling with and without HIV testing			1999
20210704	Scopus		y	n				n		n		n			Gibson E.-L., Wardle J.	Experimental psychological approaches for studing food choice [Approches experimentales pour l'etude psychologique des choix alimentaires]			1999
20210704	PubMed		y					n		n		n		30343211	Gilam G., Abend R., Gurevitch G., Erdman A., Baker H., Ben-Zion Z., Hendl	Attenuating anger and aggression with neuromodulation of the vmPFC: A simultaneous tDCS-fMRI study	Cortex. 2018 Dec;109:156-170. doi: 10.1016/j.cortex.2018.	Cortex	2018
20210704	Scopus	x	n							n		n		30343211	Gilam G., Abend R., Gurevitch G., Erdman A., Baker H., Ben-Zion Z., H	Attenuating anger and aggression with neuromodulation of the vmPFC: A simultaneous tDCS-fMRI study			2018
20210704	Scopus	x	n							n		n		25577478	Gilman J.M., Calderon V., Curran M.T., Evins A.E.	Young adult cannabis users report greater propensity for risk-taking only in non-monetary domains			2015
20210704	PubMed		y				n			n		n		25577478	Gilman JM, Calderon V, Curran MT, Evins AE.	Young adult cannabis users report greater propensity for risk-taking only in non-monetary domains	Drug Alcohol Depend. 2015 Feb 1;147:26-31. doi: 10.1016/j	Drug Alcohol Depend	2015
20210704	Scopus		y			n	n			n		n			Gilpin J.A., Chadwick N.E.	Social behavior of the Pederson cleaner shrimp Ancylomenes pedersoni (Chace, 1958) (Decapoda: Caridea: Palemonidae) in the Caribbean Sea: Size- And gender-based dominance hierarchy			2019
20210704	Scopus	x	n							n		n		19638641	Giordano L.A., Elliott M.N., Goldstein E., Lehrman W.G., Spencer P.A.	Development, implementation, and public reporting of the HCAHPS survey			2010
20210704	PubMed		y	n						n		n		19638641	Giordano LA, Elliott MN, Goldstein E, Lehrman WG, Spencer PA.	Development, implementation, and public reporting of the HCAHPS survey	Med Care Res Rev. 2010 Feb;67(1):27-37. doi: 10.1177/107	Med Care Res Rev	2010
20210704	Scopus		y		n	n	n			n		n		28803947	Gjoreski M., Lultrek M., Gams M., Gjoreski H.	Monitoring stress with a wrist device using context			2017
20210704	Scopus		y				n	n		n		n			Glassman T., Dodd V., Kenzik K., Miller M.E., Sheu J.-J.	Social norms vs. risk reduction approaches to 21st birthday celebrations			2010
20210704	PubMed		y			n	n			n		n		6993630	Gluckman S, Barling J.	Effects of a remedial program on visual-motor perception in spina bifida children	J Genet Psychol. 1980 Jun;136(2d Half):195-202. doi: 10.108	J Genet Psychol	1980
20210704	Scopus	x	n							n		n		6993630	Gluckman S., Barling J.	Effects of a remedial program on visual-motor perception in spina bifida children			1980
20210704	PubMed		y		n					n		n		29996868	Gnich W, Sherriff A, Bonetti D, Conway DI, Macpherson LMD.	The effect of introducing a financial incentive to promote application of fluoride varnish in dental practice in Scotland: a natural experiment	Implement Sci. 2018 Jul 11;13(1):95. doi: 10.1186/s13012-0	Implement Sci	2018
20210704	Scopus	x	n							n		n		29996868	Gnich W., Sherriff A., Bonetti D., Conway D.I., Macpherson L.M.D.	The effect of introducing a financial incentive to promote application of fluoride varnish in dental practice in Scotland: A natural experiment			2018
20210704	PubMed		y							y	E3: Health care provision	n	lab	24135614	Godager G, Wiesen D.	Profit or patients' health benefit? Exploring the heterogeneity in physician altruism	J Health Econ. 2013 Dec;32(6):1105-16. doi: 10.1016/j.jhea	J Health Econ	2013
20210704	Scopus	x	n							n		n		24135614	Godager G., Wiesen D.	Profit or patients' health benefit? Exploring the heterogeneity in physician altruism			2013
20210704	Scopus	x	n							n		n		33419603	Godinot L.D., Sicsic J., Lachatre M., Bouvet E., Abiteboul D., Rouveix E.	Quantifying preferences around vaccination against frequent, mild disease with risk for vulnerable persons: A discrete choice experiment among French hospital health care workers			2021
20210704	PubMed		y					n		n		n		33419603	Godinot LD, Sicsic J, Lachatre M, Bouvet E, Abiteboul D, Rouveix E, Pell	Quantifying preferences around vaccination against frequent, mild disease with risk for vulnerable persons: A discrete choice experiment among Fre	Vaccine. 2021 Jan 29;39(5):805-814. doi: 10.1016/j.vaccine	Vaccine	2021
20210704	Scopus		y							y	E2: Health care utilisation	n	natural	19040493	Goette L., Stutzer A., Yavuzcan G., Frey B.M.	Free cholesterol testing as a motivation device in blood donations: Evidence from field experiments			2009
20210704	PubMed		y	n		n				n		n		22048845	Golbidi S, Badran M, Ayas N, Laher I.	Cardiovascular consequences of sleep apnea	Lung. 2012 Apr;190(2):113-32. doi: 10.1007/s00408-011-93	Lung	2012
20210704	Scopus	x	n							n		n		22048845	Golbidi S., Badran M., Ayas N., Laher I.	Cardiovascular consequences of sleep apnea			2012
20210704	Scopus	x	n							n		n		26580235	Goldstone A.P., Miras A.D., Scholtz S., Jackson S., Neff K.J., Pénicaud L.	Link between increased satiety gut hormones and reduced food reward after gastric bypass surgery for obesity			2016
20210704	PubMed		y			n	n			n		n		26580235	Goldstone AP, Miras AD, Scholtz S, Jackson S, Neff KJ, Pénicaud L, Geog	Link Between Increased Satiety Gut Hormones and Reduced Food Reward After Gastric Bypass Surgery for Obesity	J Clin Endocrinol Metab. 2016 Feb;101(2):599-609. doi: 10.1	J Clin Endocrinol Metab	2016
20210704	PubMed		y			n	n			n		n		22428751	Gómez-Aparicio L, Ibáñez B, Serrano MS, De Vita P, Ávila JM, Pérez-Ra	Spatial patterns of soil pathogens in declining Mediterranean forests: implications for tree species regeneration	New Phytol. 2012 Jun;194(4):1014-1024. doi: 10.1111/j.14	New Phytol	2012
20210704	Scopus	x	n							n		n		22428751	Gómez-Aparicio L., Ibáñez B., Serrano M.S., De Vita P., Ávila J.M., Pérz	Spatial patterns of soil pathogens in declining Mediterranean forests: Implications for tree species regeneration			2012
20210704	Scopus	x	n							n		n		29869777	González J.M., Doan J., Gebben D.J., Boeri M., Fishman M.	Comparing the Relative Importance of Attributes of Metastatic Renal Cell Carcinoma Treatments to Patients and Physicians in the United States: A Discrete-Choice Experiment			2018
20210704	PubMed		y						n	n		n		29869777	González JM, Doan J, Gebben DJ, Boeri M, Fishman M.	Comparing the Relative Importance of Attributes of Metastatic Renal Cell Carcinoma Treatments to Patients and Physicians in the United States: A D	Pharmacoeconomics. 2018 Aug;36(8):973-986. doi: 10.1007	Pharmacoeconomics	2018
20210704	PubMed		y			n	n			n		n		29371024	Goodwin GM, Holmes EA, Andersson E, Browning M, Jones A, Lass-Hen	From neuroscience to evidence based psychological treatments - The promise and the challenge, ECNP March 2016, Nice, France	Eur Neuropsychopharmacol. 2018 Feb;28(2):317-333. doi: 1	Eur Neuropsychopharmacol	2018
20210704	PubMed		y		n					n		n		12745177	Gosden T, Sibbald B, Williams J, Petchey R, Leese B.	Paying doctors by salary: a controlled study of general practitioner behaviour in England	Health Policy. 2003 Jun;64(3):415-23. doi: 10.1016/s0168-8	Health Policy	2003
20210704	PubMed		y			n	n			n		n		21489285	Götz T, Janik VM.	Repeated elicitation of the acoustic startle reflex leads to sensitisation in subsequent avoidance behaviour and induces fear conditioning	BMC Neurosci. 2011 Apr 13;12:30. doi: 10.1186/1471-2202	BMC Neurosci	2011
20210704	Scopus	x	n							n		n		21489285	Götz T., Janik V.M.	Repeated elicitation of the acoustic startle reflex leads to sensitisation in subsequent avoidance behaviour and induces fear conditioning			2011
20210704	PubMed		y				n			n		n		27069380	Goulet-Kennedy J, Labbe S, Fecteau S.	The involvement of the striatum in decision making	Dialogues Clin Neurosci. 2016 Mar;18(1):55-63. doi: 10.318	Dialogues Clin Neurosci	2016
20210704	Scopus	x	n							n		n		27069380	Goulet-Kennedy J., Labbe S., Fecteau S.	The involvement of the striatum in decision making			2016
20210704	PubMed		y				n	n		n		n		27774256	Graham Thomas J, Seiden A, Koffarnus MN, Bickel WK, Wing RR.	Delayed reward discounting and grit in men and women with and without obesity	Obes Sci Pract. 2015 Dec;1(2):131-135. doi: 10.1002/osp4.1	Obes Sci Pract	2015
20210704	PubMed		y			n		n		n		n		9575664	Gralewicz S, Socko R.	Persisting behavioural and electroencephalographic effects of exposure to chlorphenvinphos, an organophosphorous pesticide, in laboratory animals	Int J Occup Med Environ Health. 1997;10(4):375-94.	Int J Occup Med Environ Health	1997
20210704	Scopus	x	n							n		n		9575664	Gralewicz S., Socko R.	Persisting behavioural and electroencephalographic effects of exposure to chlorphenvinphos, an organophosphorous pesticide, in laboratory animals			1997
20210704	Scopus		y			n	n			n		n			Greco G., Cataldi S., Fischetti F.	Karate as anti-bullying strategy by improvement resilience and self-efficacy in school-age youth			2019
20210704	Scopus		y				n	n		n		n			Greco G., Fischetti F., Cataldi S., Latino F.	Effects of Shotokan Karate on resilience to bullying in adolescents			2019
20210704	Scopus		y							y	E3: Health care provision	n	lab		Green E.P.	Payment systems in the healthcare industry: An experimental study of physician incentives			2014
20210704	Scopus		y			n	n			n		n			Greving H., Sassenberg K.	Threatened individuals prefer positive information during internet search: An experimental laboratory study			2018
20210704	Scopus		y			n	n			n		n		19020412	Grimm J.W., Osincup D., Wells B., Manaois M., Fyall A., Buse C., Harkn	Environmental enrichment attenuates cue-induced reinstatement of sucrose seeking in rats			2008
20210704	Scopus		y	n						n		n			Groot L.M.J.	Cost evaluation and the financing of hospitals			1981
20210704	PubMed		y			n	n			n		n		32391555	Gunawan T, Juliano LM.	Differences in Smoking Topography and Subjective Responses to Smoking Among African American and White Menthol and Non-Menthol Smokers	Nicotine Tob Res. 2020 Oct 8;22(10):1718-1725. doi: 10.10	Nicotine Tob Res	2020
20210704	Scopus	x	n							n		n		32391555	Gunawan T., Juliano L.M.	Differences in Smoking Topography and Subjective Responses to Smoking among African American and White Menthol and Non-Menthol Smokers			2020
20210704	Scopus		y				n			n		n			Gunnsteinsson S.	Experimental identification of asymmetric information: Evidence on crop insurance in the Philippines			2020
20210704	PubMed		y			n	n			n		n		22786530	Gupta S, Carmichael C, Simpson C, Clarke MJ, Allen C, Gao Y, Chan EY, J	Electric fans for reducing adverse health impacts in heatwaves	Cochrane Database Syst Rev. 2012 Jul 11;2012(7):CD00988	Cochrane Database Syst Rev	2012
20210704	Scopus	x	n							n		n		24929194	Hamasato E.K., de Lima A.P.N., de Oliveira A.P.L., dos Santos Franco A	Cohabitation with a sick partner increases allergic lung inflammatory response in mice			2014
20210704	PubMed		y			n	n			n		n		24929194	Hamasato EK, de Lima AP, de Oliveira AP, dos Santos Franco AL, de Lim	Cohabitation with a sick partner increases allergic lung inflammatory response in mice	Brain Behav Immun. 2014 Nov;42:109-17. doi: 10.1016/j.bt	Brain Behav Immun	2014
20210704	Scopus		y			n	n			n		n		21605148	Hamilton C.E., Beresford D.V., Sutcliffe J.F.	Effects of natal habitat odour, reinforced by adult experience, on choice of oviposition site in the mosquito Aedes aegypti			2011
20210704	Scopus		y			n				n		n			Hampson B.A., De Laat M.A., Monot J., Bailiu D., Pollitt C.C.	Adaption of horses to a novel dynamic feeding system: Movement and behavioural responses			2013
20210704	Scopus	x	n							n		n			Hankin R.K.S., Britter R.E.	TWODEE: The Health and Safety Laboratory's shallow layer model for heavy gas dispersion. Part 1. Mathematical basis and physical assumptions			1999
20210704	PubMed		y			n	n			n		n		10334822	Hankin RK, Britter RE.	TWODEE: the Health and Safety Laboratory's shallow layer model for heavy gas dispersion. Part 1. Mathematical basis and physical assumptions	J Hazard Mater. 1999 May 14;66(3):211-26. doi: 10.1016/s	J Hazard Mater	1999
20210704	Scopus		y				n			n	E0: Other focus on health-related behaviour	n		31907537	Hardardottir A., Al-Hamdani M., Klein R., Hurst A., Stewart S.H.	The effect of cigarette packaging and illness sensitivity on attention to graphic health warnings: A controlled study			2020
20210704	Scopus		y				n	n		n		n		27175783	Harrington N.G., Kerr A.M.	Rethinking Risk: Prospect Theory Application in Health Message Framing Research			2017
20210704	Scopus	x	n							n		n		23322312	Harris J.L., Pierce M., Bargh J.A.	Priming effect of antismoking PSAs on smoking behaviour: A pilot study			2014
20210704	PubMed		y				n			n	E0: Other focus on health-related behaviour	n		23322312	Harris JL, Pierce M, Bargh JA.	Priming effect of antismoking PSAs on smoking behaviour: a pilot study	Tob Control. 2014 Jul;23(4):285-90. doi: 10.1136/tobaccoc	Tob Control	2014
20210704	Scopus	x	n							n		n		11533755	Hashim T.J.	Smoking habits of students in College of Applied Medical Science, Saudi Arabia			2000
20210704	PubMed		y		n		n			n		n		11533755	Hasim TJ.	Smoking habits of students in College of Applied Medical Science, Saudi Arabia	Saudi Med J. 2000 Jan;21(1):76-80.	Saudi Med J	2000
20210704	Scopus	x	n							n		n		27346756	Heil S.H., Hand D.J., Sigmon S.C., Badger G.J., Meyer M.C., Higgins S.T	Using behavioral economic theory to increase use of effective contraceptives among opioid-maintained women at risk of unintended pregnancy			2016
20210704	PubMed		y		n					n		n		27346756	Heil SH, Hand DJ, Sigmon SC, Badger GJ, Meyer MC, Higgins ST.	Using behavioral economic theory to increase use of effective contraceptives among opioid-maintained women at risk of unintended pregnancy	Prev Med. 2016 Nov;92:62-67. doi: 10.1016/j.ypmed.2016.	Prev Med	2016
20210704	Scopus		y						n	n		n			Hendijani R., Bischak D.P.	The effect of social relationships on the rates of referral to specialists			2016
20210704	Scopus	x	n							n		n		18298240	Hendricks P.S., Brandon T.H.	Smokers' Expectancies for Smoking Versus Nicotine			2008
20210704	PubMed		y				n	n		n		n		18298240	Hendricks PS, Brandon TH.	Smokers' expectancies for smoking versus nicotine	Psychol Addict Behav. 2008 Mar;22(1):135-40. doi: 10.1037	Psychol Addict Behav	2008
20210704	PubMed		y							y	E3: Health care provision	n	lab	21683460	Hennig-Schmidt H, Selten R, Wiesen D.	How payment systems affect physicians' provision behaviour--an experimental investigation	J Health Econ. 2011 Jul;30(4):637-46. doi: 10.1016/j.jhealec	J Health Econ	2011

20210704	PubMed		y									y	E3: Health care provision	n	lab	24641880	Hennig-Schmidt H, Wiesen D.	Other-regarding behavior and motivation in health care provision: an experiment with medical and non-medical students	Soc Sci Med. 2014 May;108:156-65. doi: 10.1016/j.socscim	Soc Sci Med	2014
20210704	Scopus	x	n									n		n		21683460	Hennig-Schmidt H., Selten R., Wiesen D.	How payment systems affect physicians' provision behaviour-An experimental investigation			2011
20210704	Scopus	x	n									n		n		24641880	Hennig-Schmidt H., Wiesen D.	Other-regarding behavior and motivation in health care provision: An experiment with medical and non-medical students			2014
20210704	PubMed		y	n				n				n		n		26813615	Henson J, Dunstan DW, Davies MJ, Yates T.	Sedentary behaviour as a new behavioural target in the prevention and treatment of type 2 diabetes	Diabetes Metab Res Rev. 2016 Jan;32 Suppl 1:213-20. doi:	Diabetes Metab Res Rev	2016
20210704	Scopus	x	n									n		n		26813615	Henson J., Dunstan D.W., Davies M.J., Yates T.	Sedentary behaviour as a new behavioural target in the prevention and treatment of type 2 diabetes			2016
20210704	PubMed		y	n								n		n		23550554	Herbert L, Owen V, Pascarella L, Streisand R.	Text message interventions for children and adolescents with type 1 diabetes: a systematic review	Diabetes Technol Ther. 2013 May;15(5):362-70. doi: 10.10	Diabetes Technol Ther	2013
20210704	Scopus		y	n		n	n					n		n		12424874	Herzog A.R., Ofstedal M.B., Wheeler L.M.	Social engagement and its relationship to health			2002
20210704	Scopus	x	n									n		n		2512462	Hibbard J.H., Weeks E.C.	Does the dissemination of comparative data on physician fees affect consumer use of services?			1989
20210704	PubMed		y									y	E2: Health care utilisation	n	natural	2512462	Hibbard JH, Weeks EC.	Does the dissemination of comparative data on physician fees affect consumer use of services?	Med Care. 1989 Dec;27(12):1167-74. doi: 10.1097/000056	Med Care	1989
20210704	Scopus		y	n		n	n					n		n			Hines M.	Gonadal hormones and sexual differentiation of human behavior: Effects on psychosexual and cognitive development			2017
20210704	Scopus		y		n				n			n		n		30991351	Hodgkin D., Brolin M.F., Ritter G.A., Torres M.E., Merrick E.L., Horgan	Cost savings from a navigator intervention for repeat detoxification clients			2019
20210704	Scopus	x	n									n		n		30298280	Hoefman R.J., van Exel J., Brouwer W.B.F.	The Monetary Value of Informal Care: Obtaining Pure Time Valuations Using a Discrete Choice Experiment			2019
20210704	PubMed		y						n			n		n		30298280	Hoefman RJ, van Exel J, Brouwer WBF.	The Monetary Value of Informal Care: Obtaining Pure Time Valuations Using a Discrete Choice Experiment	Pharmacoeconomics. 2019 Apr;37(4):531-540. doi: 10.1007	Pharmacoeconomics	2019
20210704	Scopus		y			n	n					n		n			Hoell S., Omenzetter P.	Structural damage detection in wind turbine blades based on time series representations of dynamic responses			2015
20210704	PubMed		y						n			n		n		12007166	Högjård S, Enemark U, Lyttkens CH, Lindgren A, Troëng T, Weibull H.	Discounting and clinical decision making: physicians, patients, the general public, and the management of asymptomatic abdominal aortic aneurysm	Health Econ. 2002 Jun;11(4):355-70. doi: 10.1002/hec.674.	Health Econ	2002
20210704	Scopus	x	n									n		n		12007166	Högjärd S., Enemark U., Lyttkens C.H., Lindgren A., Troëng T., Weibull	Discounting and clinical decision making: Physicians, patients, the general public, and the management of asymptomatic abdominal aortic aneurysms			2002
20210704	PubMed		y				n					n	E0: Other focus on health-related behaviour	n		21401253	Hollands GJ, Prestwich A, Marteau TM.	Using aversive images to enhance healthy food choices and implicit attitudes: An experimental test of evaluative conditioning	Health Psychol. 2011 Mar;30(2):195-203. doi: 10.1037/a00	Health Psychol	2011
20210704	PubMed		y			n	n					n		n		2662394	Holte A.	The Holte Sleeping Technique: an experimental study	Scand J Psychol. 1989;30(1):46-51. doi: 10.1111/j.1467-945	Scand J Psychol	1989
20210704	PubMed		y						n			n		n		31023372	Honda A, Krucien N, Ryan M, Diouf I SN, Salla M, Nagai M, Fujita N.	For more than money: willingness of health professionals to stay in remote Senegal	Hum Resour Health. 2019 Apr 25;17(1):28. doi: 10.1186/s1	Hum Resour Health	2019
20210704	Scopus	x	n									n		n		31023372	Honda A., Krucien N., Ryan M., Diouf I.S.N., Salla M., Nagai M., Fujita	For more than money: Willingness of health professionals to stay in remote Senegal			2019
20210704	PubMed		y			n	n					n		n		29444860	Hoppe D, Helfmann S, Rothkopf CA.	Humans quickly learn to blink strategically in response to environmental task demands	Proc Natl Acad Sci U S A. 2018 Feb 27;115(9):2246-2251. dc	Proc Natl Acad Sci U S A	2018
20210704	Scopus	x	n									n		n		29444860	Hoppe D., Helfmann S., Rothkopf C.A.	Humans quickly learn to blink strategically in response to environmental task demands			2018
20210704	Scopus		y	n			n					n		n		4467484	Horn K., Doerre W.	Environmental aerosol and human health [UMWELTAEROSOL UND MENSCHLICHE GESUNDHEIT]			1974
20210704	Scopus		y			n	n					n		n		16557158	Hota S., Crooke P.S., Adams A.B., Hotchkiss J.R.	Optimal phasic tracheal gas insufflation timing: An experimental and mathematical analysis			2006
20210704	Scopus		y			n	n					n		n			Hoyt C.L., Burnette J.L., Thomas F.N., Orvidas K.	Public Health Messages and Weight-Related Beliefs: Implications for Well-Being and Stigma			2019
20210704	PubMed		y				n	n				n		n		27488187	Huang J, Kim Y, Sherraden M.	Material hardship and children's social-emotional development: Testing mitigating effects of Child Development Accounts in a randomized experime	Child Care Health Dev. 2017 Jan;43(1):89-96. doi: 10.1111/c	Child Care Health Dev	2017
20210704	Scopus	x	n									n		n		27488187	Huang J., Kim Y., Sherraden M.	Material hardship and children's social-emotional development: Testing mitigating effects of Child Development Accounts in a randomized experiment			2017
20210704	Scopus		y				n					n		n		24473592	Huang J., Sherraden M., Kim Y., Clancy M.	Effects of child development accounts on early social-emotional development: An experimental test			2014
20210704	Scopus		y	n								n		n		10262222	Hudson J.I.	The changing character of quality assurance: Activities in acute care hospitals			1983
20210704	Scopus		y			n	n					n		n			Idowu O.J., Van Es H.M., Abawi G.S., Wolfe D.W., Ball J.I., Gugino B.K.	Farmer-oriented assessment of soil quality using field, laboratory, and VNIR spectroscopy methods			2008
20210704	Scopus	x	n									n		n		32865108	Iqbal M.H.	Telemedicine: An Innovative Twist to Primary Health Care in Rural Bangladesh			2020
20210704	PubMed		y						n			n		n		32865108	Iqbal MH.	Telemedicine: An Innovative Twist to Primary Health Care in Rural Bangladesh	J Prim Care Community Health. 2020 Jan-Dec;11:21501327.	J Prim Care Community Health	2020
20210704	Scopus		y	n								n		n			Jacquemet N.	Dissertation abstract: "essays in applied economics on the intervention of a third player in agency relationships"			2007
20210704	Scopus		y				n					n	E0: Other focus on health-related behaviour	n		12432669	Janelli L.M., Kanski G.W., Wu Y.W.	Individualized music--a different approach to the restraint issue.			2002
20210704	PubMed		y			n	n					n		n		16962679	Jenzsch M, Gnoth S, Beck M, Kleinschmidt M, Simutis R, Lübbert A.	Open-loop control of the biomass concentration within the growth phase of recombinant protein production processes	J Biotechnol. 2006 Dec 15;127(1):84-94. doi: 10.1016/j.jbiot	J Biotechnol	2006
20210704	Scopus	x	n									n		n		16962679	Jenzsch M., Gnoth S., Beck M., Kleinschmidt M., Simutis R., Lübbert A.	Open-loop control of the biomass concentration within the growth phase of recombinant protein production processes			2006
20210704	PubMed		y				n	n				n		n		28597379	Jin J, Wang W, He R, Gong H.	Valuing health risk in agriculture: a choice experiment approach to pesticide use in China	Environ Sci Pollut Res Int. 2017 Jul;24(21):17526-17533. doi	Environ Sci Pollut Res Int	2017
20210704	Scopus	x	n									n		n		28597379	Jin J., Wang W., He R., Gong H.	Valuing health risk in agriculture: a choice experiment approach to pesticide use in China			2017
20210704	PubMed		y			n						n		n		20697476	John P, Paulose C, Sreekanth R.	Effect of neurotransmitters and bone marrow cells for neuronal regeneration in iatrogenic spinal cord injury: An experimental study	Indian J Orthop. 2010 Jul;44(3):252-6. doi: 10.4103/0019-54	Indian J Orthop	2010
20210704	Scopus	x	n									n		n			John P.S., Paulose C.S., Sreekanth R.	Effect of neurotransmitters and bone marrow cells for neuronal regeneration in iatrogenic spinal cord injury: An experimental study			2010
20210704	Scopus		y				n					n		n		22794532	Johnson S.B., Dariotis J.K., Wang C.	Adolescent risk taking under stressed and nonstressed conditions: Conservative, calculating, and impulsive types			2012
20210704	Scopus		y	n		n	n					n		n			Jones H.W. Jr., Cohen J.	IFFS Sur Veillance 98: Preface			1999
20210704	Scopus	x	n									n		n		2068601	Jones S.L., Jones P.K., Katz J.	Compliance in acute and chronic patients receiving a health belief model intervention in the emergency department			1991
20210704	PubMed		y									y	E2: Health care utilisation	n	natural	2068601	Jones SL, Jones PK, Katz J.	Compliance in acute and chronic patients receiving a health belief model intervention in the emergency department	Soc Sci Med. 1991;32(10):1183-9. doi: 10.1016/0277-9536(	Soc Sci Med	1991
20210704	Scopus	x	n									n		n		20181288	Joyce C.M., Scott A., Jeon S.-H., Humphreys J., Kalb G., Witt J., Leahy A	The "medicine in Australia: Balancing employment and life (MABEL)" longitudinal survey - Protocol and baseline data for a prospective cohort study of	Australian doctors' workforce participation		2010
20210704	PubMed		y		n	n			n			n		n		20181288	Joyce CM, Scott A, Jeon SH, Humphreys J, Kalb G, Witt J, Leahy A.	The "medicine in Australia: balancing employment and life (MABEL)" longitudinal survey--protocol and baseline data for a prospective cohort study o	BMC Health Serv Res. 2010 Feb 25;10:50. doi: 10.1186/147	BMC Health Serv Res	2010
20210704	Scopus	x	n									n		n		1414178	Kacir K.S.	Attitudes of certified registered nurse anesthetists toward AIDS and AIDS patients.			1992
20210704	PubMed		y			n			n			n		n		1414178	Kacir KS.	Attitudes of certified registered nurse anesthetists toward AIDS and AIDS patients	AANA J. 1992 Apr;60(2):169-73. AANA J		1992
20210704	Scopus		y									y	E3: Health care provision	n	lab	33182846	Kairies-Schwarz N., Souček C.	Performance pay in hospitals: An experiment on bonus–malus incentives			2020
20210704	Scopus		y				n					n	E0: Other focus on health-related behaviour	n			Kao C.-C., Wu W.-H., Chiou W.-B.	Exposure to nature may induce lower discounting and lead to healthier dietary choices			2019
20210704	PubMed		y	n								n		n		28240040	Karakolias S, Kastanioti C, Theodorou M, Polyzos N.	Primary Care Doctors' Assessment of and Preferences on Their Remuneration	Inquiry. 2017 Jan;54:46958017692274. doi: 10.1177/00469	Inquiry	2017
20210704	Scopus	x	n									n		n		28240040	Karakolias S., Kastanioti C., Theodorou M., Polyzos N.	Primary care doctors' assessment of and preferences on their remuneration: Evidence from greek public sector			2017
20210704	Scopus		y	n		n	n					n		n			Kasanen I.H.E., Sørensen D.B., Forkman B., Sandøe P.	Ethics of feeding: The omnivore dilemma			2010
20210704	Scopus		y			n	n					n		n			Kaufman F.	The 1976 reports of the National Academy of Sciences on the chlorofluorocarbon-ozone problem			1977
20210704	Scopus		y									y	E1: Health insurance choice	n	lab		Kaufmann C., Müller T., Hefti A., Boes S.	Does personalized information improve health plan choices when individuals are distracted?			2018
20210704	Scopus		y			n	n		n			n		n			Kaur S.	Public preferences for setting up a biomass power plant to combat open-field burning of rice crop residues: A case study of district Sangrur, Punjab, India			2020
20210704	PubMed		y				n					n		n		19609178	Kennedy C, Chen JL.	Changes in childhood risk taking and safety behavior after a peer group media intervention	Nurs Res. 2009 Jul-Aug;58(4):264-73. doi: 10.1097/NNR.0b	Nurs Res	2009
20210704	Scopus	x	n									n		n		19609178	Kennedy C., Chen J.-L.	Changes in childhood risk taking and safety behavior after a peer group media intervention			2009
20210704	Scopus		y	n								n		n			Kerschbamer R., Sutter M.	The economics of credence goods - A survey of recent lab and field experiments			2017
20210704	PubMed		y									y	E3: Health care provision	n	lab	33337515	Keser C, Montmarquette C, Schmidt M, Schnitzler C.	Custom-made health-care: an experimental investigation	Health Econ Rev. 2020 Dec 18;10(1):41. doi: 10.1186/s135	Health Econ Rev	2020
20210704	Scopus	x	n									n		n			Keser C., Montmarquette C., Schmidt M., Schnitzler C.	Custom-made health-care: an experimental investigation			2020
20210704	PubMed		y						n			n		n		25943469	Kessels R, Van Herck P, Dancet E, Annemans L, Sermeus W.	How to reform western care payment systems according to physicians, policy makers, healthcare executives and researchers: a discrete choice expe	BMC Health Serv Res. 2015 May 6;15:191. doi: 10.1186/s1	BMC Health Serv Res	2015
20210704	Scopus	x	n									n		n		25943469	Kessels R., Van Herck P., Dancet E., Annemans L., Sermeus W.	How to reform western care payment systems according to physicians, policy makers, healthcare executives and researchers: A discrete choice experiment	Health policy, reform, governance and law		2015
20210704	PubMed		y				n					n		n		30064108	Khan I, Zhao M.	Water resource management and public preferences for water ecosystem services: A choice experiment approach for inland river basin management	Sci Total Environ. 2019 Jan 1;646:821-831. doi: 10.1016/j.sc	Sci Total Environ	2019
20210704	Scopus	x	n									n		n		30064108	Khan I., Zhao M.	Water resource management and public preferences for water ecosystem services: A choice experiment approach for inland river basin management			2019
20210704	Scopus		y			n	n					n		n			Kielhorn J., Melching-Kollmuß S., Mangelsdorf I.	Environmental health criteria for dermal absorption			2006
20210704	PubMed		y						n			n		n		25498779	Kilambi V, Johnson FR, González JM, Mohamed AF.	Valuations of genetic test information for treatable conditions: the case of colorectal cancer screening	Value Health. 2014 Dec;17(8):838-45. doi: 10.1016/j.jval.2(	Value Health	2014
20210704	Scopus	x	n									n		n		25498779	Kilambi V., Johnson F.R., González J.M., Mohamed A.F.	Valuations of genetic test information for treatable conditions: The case of colorectal cancer screening			2014
20210704	Scopus		y			n	n					n		n			Kinne O.	Ecology of the North Sea: Problems, successes, failures, future needs			1995
20210704	PubMed		y	n								n		n		10332643	Kirby D.	Reflections on two decades of research on teen sexual behavior and pregnancy	J Sch Health. 1999 Mar;69(3):89-94. doi: 10.1111/j.1746-15	J Sch Health	1999
20210704	Scopus		y	n		n	n					n		n		33287221	Koltai T.	Targeting the ph paradigm at the bedside: A practical approach			2020
20210704	Scopus		y									y	E3: Health care provision	n	natural	32700389	Kong E., Beshears J., Laibson D., Madrian B., Volpp K., Loewenstein G.,	Do physician incentives increase patient medication adherence?			2020
20210704	Scopus	x	n									n		n		29610355	Konova A.B., Louie K., Glimcher P.W.	The computational form of craving is a selective multiplication of economic value			2018
20210704	PubMed		y				n					n		n		29610355	Konova AB, Louie K, Glimcher PW.	The computational form of craving is a selective multiplication of economic value	Proc Natl Acad Sci U S A. 2018 Apr 17;115(16):4122-4127. d	Proc Natl Acad Sci U S A	2018
20210704	PubMed		y	n		n	n					n		n		10022272	Koren H, O'Neill M.	Experimental assessment of the influence of atmospheric pollutants on respiratory disease	Toxicol Lett. 1998 Dec 28;102-103:317-21. doi: 10.1016/s0	Toxicol Lett	1998
20210704	Scopus	x	n									n		n		10022272	Koren H., O'Neill M.	Experimental assessment of the influence of atmospheric pollutants on respiratory disease			1998
20210704	Scopus		y				n					n		n			Korolija J.N., Plavsic J.V., Marinkovic D., Mandic L.M.	Beer as a teaching aid in the classroom and laboratory			2012
20210704	Scopus	x	n									n		n		26831045	Krabbe-Alkemade Y.J.F.M., Groot T.L.C.M., Lindeboom M.	Competition in the Dutch hospital sector: an analysis of health care volume and cost			2017
20210704	PubMed		y		n							n		n		26831045	Krabbe-Alkemade YJ, Groot TL, Lindeboom M.	Competition in the Dutch hospital sector: an analysis of health care volume and cost	Eur J Health Econ. 2017 Mar;18(2):139-153. doi: 10.1007/s	Eur J Health Econ	2017
20210704	Scopus		y			n	n					n		n			Kralisch A., Yeo A.W., Jali N.	Linguistic and cultural differences in information categorization and their impact on website use			2006
20210704	Scopus	x	n									n		n		17545499	Kressel L.M., Chapman G.B.	The default effect in end-of-life medical treatment preferences			2007
20210704	PubMed		y						n			n		n		17545499	Kressel LM, Chapman GB.	The default effect in end-of-life medical treatment preferences	Med Decis Making. 2007 May-Jun;27(3):299-310. doi: 10.1	Med Decis Making	2007
20210704	Scopus		y			n						n		n			Kumar P., Huang L.-Y.Z., Srinivasan R.	Effect of three commercial biopesticides of neem (Azadirachta indica) and Bacillus thuringiensis on legume pod borer (Maruca vitrata) (Lepidoptera: Crambidae) in Thailand			2014
20210704	Scopus	x	n									n		n		26544532	Kuo H.-C., Lee C.-C., Chiou W.-B.	The power of the virtual ideal self in weight control: Weight-reduced avatars can enhance the tendency to delay gratification and regulate dietary practices			2016
20210704	PubMed		y				n					n	E0: Other focus on health-related behaviour	n		26544532	Kuo HC, Lee CC, Chiou WB.	The Power of the Virtual Ideal Self in Weight Control: Weight-Reduced Avatars Can Enhance the Tendency to Delay Gratification and Regulate Dieta	Cyberpsychol Behav Soc Netw. 2016 Feb;19(2):80-5. doi: 10	Cyberpsychol Behav Soc Netw	2016
20210704	Scopus	x	n									n		n		24656643	Kurti A.N., Dallery J.	Effects of exercise on craving and cigarette smoking in the human laboratory			2014
20210704	PubMed		y			n	n					n		n		24656643	Kurti AN, Dallery J.	Effects of exercise on craving and cigarette smoking in the human laboratory	Addict Behav. 2014 Jun;39(6):1131-7. doi: 10.1016/j.addbe	Addict Behav	2014
20210704	Scopus		y						n			n		n		11288682	Kvist T.	Endodontic retreatment. Aspects of decision making and clinical outcome.			2001
20210704	Scopus		y				n					n	E0: Other focus on health-related behaviour	n			Kyung N., Kwon H.E., Ravichandran T.	Walk for whom? The effectiveness of egoistic and philanthropic incentive designs for mobile health interventions			2021
20210704	PubMed		y									y	E3: Health care provision	n	lab	28279924	Lagarde M, Blaauw D.	Physicians' responses to financial and social incentives: A medically framed real effort experiment	Soc Sci Med. 2017 Apr;179:147-159. doi: 10.1016/j.socscim	Soc Sci Med	2017
20210704	PubMed		y						n			n		n		23349119	Lagarde M, Pagaiya N, Tangcharoensathian V, Blaauw D.	One size does not fit all: investigating doctors' stated preference heterogeneity for job incentives to inform policy in Thailand	Health Econ. 2013 Dec;22(12):1452-69. doi: 10.1002/hec.2	Health Econ	2013
20210704	PubMed		y						n			n		n		21886800	Lagarde M, Smith Paintain L, Antwi G, Jones C, Greenwood B, Chandra	Evaluating health workers' potential resistance to new interventions: a role for discrete choice experiments	PLoS One. 2011;6(8):e23588. doi: 10.1371/journal.pone.00	PLoS One	2011
20210704	Scopus	x	n									n		n		28279924	Lagarde M., Blaauw D.	Physicians' responses to financial and social incentives: A medically framed real effort experiment			2017
20210704	Scopus	x	n									n		n		23349119	Lagarde M., Pagaiya N., Tangcharoensathian V., Blaauw D.	One size does not fit all: Investigating doctors' stated preference heterogeneity for job incentives to inform policy in Thailand			2013
20210704	PubMed		y		n							n		n		18393650	Lairson DR, Yoon SJ, Carter PM, Greisinger AJ, Talluri KC, Agzarwal M,	Economic evaluation of an intensified disease management system for patients with type 2 diabetes	Dis Manag. 2008 Apr;11(2):79-94. doi: 10.1089/dis.2008.11	Dis Manag	2008
20210704	PubMed		y	n				n				n		n		29780658	Lakkaraju H, Kleinberg J, Leskovec J, Ludwig J, Mullainathan S.	The Selective Labels Problem: Evaluating Algorithmic Predictions in the Presence of Unobservables	KDD. 2017 Aug;2017:275-284. doi: 10.1145/3097983.3098	KDD	2017
20210704	Scopus	x	n									n		n			Lakkaraju H., Kleinberg J., Leskovec J., Ludwig J., Mullainathan S.	The selective labels problem: Evaluating algorithmic predictions in the presence of unobservables			2017
20210704	PubMed		y	n		n						n		n		20520794	Lambrechts L, Scott TW, Gubler DJ.	Consequences of the expanding global distribution of Aedes albopictus for dengue virus transmission	PLoS Negl Trop Dis. 2010 May 25;4(5):e646. doi: 10.1371/jc	PLoS Negl Trop Dis	2010
20210704	PubMed		y				n					n		n		28322987	Landolt K, O'Donnell E, Hazi A, Dragano N, Wright BJ.	An experimental examination of the effort-reward imbalance model of occupational stress: Increased financial reward is related to reduced stress ph	Biol Psychol. 2017 Apr;125:121-129. doi: 10.1016/j.biopsyc	Biol Psychol	2017
20210704	PubMed		y			n	n					n		n		17688181	Landon J, Davison M, Krägeloh CU, Thompson NM, Miles JL, Vickers MH	Global undernutrition during gestation influences learning during adult life	Learn Behav. 2007 May;35(2):79-86. doi: 10.3758/bf03193	Learn Behav	2007
20210704	Scopus	x	n									n		n		17688181	Landon J., Davison M., Krägeloh C.U., Thompson N.M., Miles J.L., Vicke	Global undernutrition during gestation influences learning during adult life			2007
20210704	Scopus	x	n									n		n		19679384	Lee T.M.Y., Guo L.-g., Shi H.-z., Li Y.-z., Luo Y.-j., Sung C.Y.Y., Chan C.C	Neural correlates of Traditional Chinese Medicine induced advantageous risk-taking decision making			2009
20210704	PubMed		y				n					n		n		19679384	Lee TM, Guo LG, Shi HZ, Li YZ, Luo YJ, Sung CY, Chan CC, Lee TM.	Neural correlates of traditional Chinese medicine induced advantageous risk-taking decision making	Brain Cogn. 2009 Dec;71(3):354-61. doi: 10.1016/j.bandc.2	Brain Cogn	2009
20210704	Scopus		y									y	E1: Health insurance choice	n	natural	31181131	Lee Y.-S., Kim S.-Y., Chae Y.	Distribution of monetary incentives in health insurance scheme influences acupuncture treatment choices: An experimental study			2019
20210704	PubMed		y						n			n		n		33328140	Leng A, Maitland E, Wang S, Nicholas S, Liu R, Wang J.	Individual preferences for COVID-19 vaccination in China	Vaccine. 2021 Jan 8;39(2):247-254. doi: 10.1016/j.vaccine.	Vaccine	2021

20210704	Scopus	x	n						n		n		33328140	Leng A., Maitland E., Wang S., Nicholas S., Liu R., Wang J.	Individual preferences for COVID-19 vaccination in China			2021
20210704	PubMed		y	n			n		n		n		27903310	Leng G, Adan RAH, Belot M, Brunstrom JM, de Graaf K, Dickson SL, Ha	The determinants of food choice	Proc Nutr Soc. 2017 Aug;76(3):316-327. doi: 10.1017/S0029	Proc Nutr Soc	2017
20210704	Scopus	x	n						n		n		27903310	Leng G., Adan R.A.H., Belot M., Brunstrom J.M., De Graaf K., Dickson	The determinants of food choice			2017
20210704	Scopus		y		n		n	n	n		n		18348735	Lennox R.D., Cecchini M.A.	The NARCONON™ drug education curriculum for high school students: A non-randomized, controlled prevention trial			2008
20210704	Scopus	x	n						n		n		24342844	Lenzenweger M.F.	Thinking clearly about the endophenotype-intermediate phenotype-biomarker distinctions in developmental psychopathology research			2013
20210704	PubMed		y	n		n			n		n		24342844	Lenzenweger MF.	Thinking clearly about the endophenotype-intermediate phenotype-biomarker distinctions in developmental psychopathology research	Dev Psychopathol. 2013 Nov;25(4 Pt 2):1347-57. doi: 10.10	Dev Psychopathol	2013
20210704	Scopus	x	n						n		n			Leukert-Becker K., Zweifel P.	Preferences for health insurance in Germany and the Netherlands – a tale of two countries			2014
20210704	Scopus		y					n	n		n			Leukert-Becker K., Zweifel P.	Preferences for health insurance in Germany and the Netherlands – a tale of two countries			2014
20210704	Scopus	x	n						n		n		15471227	Leys N.M.E.J., Hendrickx L., De Boever P., Baatout S., Mergeay M.	Space flight effects on bacterial physiology			2004
20210704	PubMed		y			n	n		n		n		15471227	Leys NM, Hendrickx L, De Boever P, Baatout S, Mergeay M.	Space flight effects on bacterial physiology	J Biol Regul Homeost Agents. 2004 Apr-Jun;18(2):193-9.	J Biol Regul Homeost Agents	2004
20210704	Scopus		y			n	n		n		n			Li T.S., Labadin J., Piau P., Tyng L.Y., Rahman S.A.	Human behavioral changes and its impact in disease modeling			2015
20210704	Scopus		y					n	n		n			Lian D., Li Y., Lu R.	Job Preferences of Nurses from Township Health Centers in Poverty-stricken Areas:a Discrete Choice Experiment-based Study [基于离散选择试验的贫困地区乡镇卫生院护理人员工作偏好研究]			2020
20210704	PubMed		y					n	n		n		31186189	Liao Q, Lam WWT, Wong CKH, Lam C, Chen J, Fielding R.	The relative effects of determinants on Chinese adults' decision for influenza vaccination choice: What is the effect of priming?	Vaccine. 2019 Jul 9;37(30):4124-4132. doi: 10.1016/j.vaccir	Vaccine	2019
20210704	Scopus	x	n						n		n		31186189	Liao Q., Lam W.W.T., Wong C.K.H., Lam C., Chen J., Fielding R.	The relative effects of determinants on Chinese adults' decision for influenza vaccination choice: What is the effect of priming?			2019
20210704	Scopus		y			n	n		n		n			Lindsay S., Woodbridge D.M.-K.	Spacecraft state-of-health (SOH) analysis via data mining			2014
20210704	Scopus		y			n	n		n		n			Liu B., Li X., He Y., Wang X.	Electrostatic layer-by-layer self-assembly on colloidal spheres and capsules composed of azo polyelectrolytes			2008
20210704	PubMed		y						y	E2: Health care utilisation	n	natural	29385590	Liu W, Outlaw JJ, Wineinger N, Boeldt D, Bloss CS.	Effect of co-payment on behavioral response to consumer genomic testing	Transl Behav Med. 2018 Jan 29;8(1):130-136. doi: 10.1093/	Transl Behav Med	2018
20210704	Scopus	x	n						n		n		29385590	Liu W., Outlaw J.J., Wineinger N., Boeldt D., Bloss C.S.	Efect of co-payment on behavioral response to consumer genomic testing			2018
20210704	Scopus		y			n			n		n			Llorca P.R., Nardecchia M., Nascetti A.	Active control of autonomous capillary systems for lab-on-chip devices suitable for micro- and nano-satellites biological experiments			2016
20210704	PubMed		y			n	n		n		n		23415791	Logge W, Kingham J, Karl T.	Behavioural consequences of IVC cages on male and female C57BL/6J mice	Neuroscience. 2013 May 1;237:285-93. doi: 10.1016/j.neur	Neuroscience	2013
20210704	Scopus	x	n						n		n		23415791	Logge W., Kingham J., Karl T.	Behavioural consequences of IVC cages on male and female C57BL/6J mice			2013
20210704	Scopus		y	n		n			n		n			Lohr K.N., Brook R.H., Kaufman M.A.	Quality of care in the New Mexico Medicaid program (1971-1975)			1980
20210704	PubMed		y			n	n		n		n		2147775	Lökk J.	Emotional and social effects of a controlled intervention study in a day-care unit for elderly patients	Scand J Prim Health Care. 1990 Sep;8(3):165-72. doi: 10.31	Scand J Prim Health Care	1990
20210704	Scopus	x	n						n		n		2147775	Lökk J.	Emotional and social effects of a controlled intervention study in a day-care unit for elderly patients			1990
20210704	Scopus		y	n					n		n			Lopez C.M., Diaz S., Abrahim O., DiBrito S.R.	Diversity and Inclusion in Surgery: The Role of Implicit Bias on Patient Care			2020
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		31374898	López-Galán B, de-Magistris T.	Testing Emotional Eating Style in Relation to Willingness to Pay for Nutritional Claims	Nutrients. 2019 Aug 1;11(8):1773. doi: 10.3390/nu1108177	Nutrients	2019
20210704	Scopus	x	n						n		n		31374898	López-Galán B., De-Magistris T.	Testing emotional eating style in relation to willingness to pay for nutritional claims			2019
20210704	Scopus		y			n	n		n		n			Lubelli B., van Hees R.P.J., Bolhuis J.	Effectiveness of methods against rising damp in buildings: Results from the EMERISDA project			2018
20210704	Scopus		y					n	n		n			Lyu X., Fu C., Wang X.	Effect and underlying mechanism of refutation texts on the trust and moral judgment of patients			2019
20210704	Scopus	x	n						n		n		20604695	MacKinnon D.P., Elliot D.L., Thoemmes F., Kuehl K.S., Moe E.L., Goldbe	Long-term effects of a worksite health promotion program for firefighters			2010
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		20604695	MacKinnon DP, Elliot DL, Thoemmes F, Kuehl KS, Moe EL, Goldberg L, E	Long-term effects of a worksite health promotion program for firefighters	Am J Health Behav. 2010 Nov-Dec;34(6):695-706. doi: 10.5	Am J Health Behav	2010
20210704	Scopus	x	n						n		n		31096952	Madsen K.P., Cleal B., Olesen K., Hagelund L., Willaing I.	Willingness to pay for flexibility at the workplace for people with diabetes and chronic disease: A discrete choice experiment in a population of workers	in Denmark		2019
20210704	PubMed		y					n	n		n		31096952	Madsen KP, Cleal B, Olesen K, Hagelund L, Willaing I.	Willingness to pay for flexibility at the workplace for people with diabetes and chronic disease: a discrete choice experiment in a population of workers	BMC Public Health. 2019 May 16;19(1):584. doi: 10.1186/s	BMC Public Health	2019
20210704	Scopus	x	n						n		n		19255818	Magnan R.E., Köblitz A.R., Zielke D.J., McCaul K.D.	The effects of warning smokers on perceived risk, worry, and motivation to quit			2009
20210704	PubMed		y				n	n	n		n		19255818	Magnan RE, Köblitz AR, Zielke DJ, McCaul KD.	The effects of warning smokers on perceived risk, worry, and motivation to quit	Ann Behav Med. 2009 Feb;37(1):46-57. doi: 10.1007/s1216	Ann Behav Med	2009
20210704	Scopus	x	n						n		n		33901865	Mahboub H.H., Beheiry R.R., Shahin S.E., Behairy A., Khedr M.H.E., Ib	Adsorptivity of mercury on magnetite nano-particles and their influences on growth, economical, hemato-biochemical, histological parameters and	bioaccumulation in Nile tilapia (Oreochromis niloticus)		2021
20210704	PubMed		y			n	n		n		n		33901865	Mahboub HH, Beheiry RR, Shahin SE, Behairy A, Khedr MHE, Ibrahim S	Adsorptivity of mercury on magnetite nano-particles and their influences on growth, economical, hemato-biochemical, histological parameters and	Aquat Toxicol. 2021 Jun;235:105828. doi: 10.1016/j.aquato	Aquat Toxicol	2021
20210704	Scopus		y			n	n		n		n		26820978	Makowska I.J., Weary D.M.	Differences in anticipatory behaviour between rats (Rattus norvegicus) housed in standard versus semi-naturalistic laboratory environments			2016
20210704	PubMed		y	n					n		n		25909927	Malone A, Conway DI.	Payment methods may influence behaviour of primary care dentists	Evid Based Dent. 2015 Mar;16(1):4-5. doi: 10.1038/sj.ebd.6	Evid Based Dent	2015
20210704	PubMed		y	n			n		n		n		24480426	Manciocco A, Calamandrei G, Alleva E.	Global warming and environmental contaminants in aquatic organisms: the need of the etho-toxicology approach	Chemosphere. 2014 Apr;100:1-7. doi: 10.1016/j.chemosph	Chemosphere	2014
20210704	Scopus		y						y	E2: Health care utilisation	n	natural		Manning W.G., Leibowitz A., Goldberg G.A., Rogers W.H., Newhouse J	A Controlled Trial of the Effect of a Prepaid Group Practice on Use of Services			1984
20210704	Scopus		y			n	n		n		n			Manteuffel G., Langbein J., Puppe B.	From operant learning to cognitive enrichment in farm animal housing: Bases and applicability			2009
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		31626833	Mantzari E, Pechey R, Codling S, Sexton O, Hollands GJ, Marteau TM.	The impact of 'on-pack' pictorial health warning labels and calorie information labels on drink choice: A laboratory experiment	Appetite. 2020 Feb 1;145:104484. doi: 10.1016/j.appet.20	Appetite	2020
20210704	Scopus		y	n			n	n	n		n			Mao L.	Promoting social contagion of preventive behavior during influenza epidemics: An agent-based simulation			2016
20210704	Scopus		y	n		n	n		n		n			Marino B.D.V., Mahato T.R., Druitt J.W., Leigh L., Lin G., Russell R.M.,	The agricultural biome of Biosphere 2: Structure, composition and function			1999
20210704	Scopus		y			n	n		n		n			Marques R.M., Reis B., Cavazin A.C.T., Moreira F.C., Buchoski M., Silva	Germination and vigour of seed of sorghum (Sorghum bicolor L. Moench) treated with Arsenicum album			2011
20210704	PubMed		y	n					n		n		8456215	Martin DC, Diehr P, Perrin EB, Koepsell TD.	The effect of matching on the power of randomized community intervention studies	Stat Med. 1993 Feb;12(3-4):329-38. doi: 10.1002/sim.4780	Stat Med	1993
20210704	Scopus	x	n						n		n		23816180	Martin O.V., Martin S., Andreas K.	Dispelling urban myths about default uncertainty factors in chemical risk assessment - Sufficient protection against mixture effects?			2013
20210704	PubMed		y			n	n		n		n		23816180	Martin OV, Martin S, Kortenkamp A.	Dispelling urban myths about default uncertainty factors in chemical risk assessment--sufficient protection against mixture effects?	Environ Health. 2013 Jul 1;12(1):53. doi: 10.1186/1476-069	Environ Health	2013
20210704	Scopus	x	n						n		n		24083394	Martinez L.S.	Explaining the effects of anticipated regret messages on young women's intention to consume folic acid: A moderated-mediation model			2014
20210704	PubMed		y			n	n		n		n		24083394	Martinez LS.	Explaining the effects of anticipated regret messages on young women's intention to consume folic acid: a moderated-mediation model	J Health Commun. 2014;19(1):115-32. doi: 10.1080/108107	J Health Commun	2014
20210704	Scopus		y			n	n		n		n			Matei M., Ciortan S., Circiumaru A.	An analysis of incisive-bracket bond resistance in orthodontics. I. General approach			2014
20210704	Scopus		y	n					n		n			Matthewman S., Huppatz K.	A sociology of Covid-19			2020
20210704	PubMed		y	n		n			n		n		24507953	Mattingly K, Ponsonby AL.	A consideration of group work processes in modern epidemiology	Ann Epidemiol. 2014 Apr;24(4):319-23. doi: 10.1016/j.anne	Ann Epidemiol	2014
20210704	Scopus	x	n						n		n		24507953	Mattingly K., Ponsonby A.-L.	A consideration of group work processes in modern epidemiology			2014
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		29016721	Maynard OM, Langfield T, Attwood AS, Allen E, Drew I, Votier A, Munafo	No Impact of Calorie or Unit Information on Ad Libitum Alcohol Consumption	Alcohol Alcohol. 2018 Jan 1;53(1):12-19. doi: 10.1093/alcalc	Alcohol Alcohol	2018
20210704	Scopus	x	n						n		n		12650372	Mays G.P., Hurley R.E., Grossman J.M.	An empty toolbox? Changes in health plans' approaches for managing costs and care			2003
20210704	PubMed		y	n					n		n		12650372	Mays GP, Hurley RE, Grossman JM.	An empty toolbox? Changes in health plans' approaches for managing costs and care	Health Serv Res. 2003 Feb;38(1 Pt 2):375-93. doi: 10.1111/.	Health Serv Res	2003
20210704	Scopus		y			n	n		n		n			Mazur S., Nawrocki J.	The influence of carrot plant control against alternaria blight on the root health status after storage			2007
20210704	Scopus	x	n						n		n		24528812	Mcmahon C.G.	Management of ejaculatory dysfunction			2014
20210704	PubMed		y	n		n			n		n		24528812	McMahon CG.	Management of ejaculatory dysfunction	Intern Med J. 2014 Feb;44(2):124-31. doi: 10.1111/imj.123	Intern Med J	2014
20210704	PubMed		y			n	n		n		n		26370881	McManus AM, Ainslie PN, Green DJ, Simair RG, Smith K, Lewis N.	Impact of prolonged sitting on vascular function in young girls	Exp Physiol. 2015 Nov;100(11):1379-87. doi: 10.1113/EP085	Exp Physiol	2015
20210704	PubMed		y					n	n		n		32255923	Meginnis K, Hanley N, Mujumbusi L, Lamberton PHL.	Non-monetary numeraires: Varying the payment vehicle in a choice experiment for health interventions in Uganda	Ecol Econ. 2020 Apr;170:106569. doi: 10.1016/j.ecolecon.2	Ecol Econ	2020
20210704	Scopus	x	n						n		n			Meginnis K., Hanley N., Mujumbusi L., Lamberton P.H.L.	Non-monetary numeraires: Varying the payment vehicle in a choice experiment for health interventions in Uganda			2020
20210704	PubMed		y	n					n		n		33810225	Meherali S, Punjani N, Louie-Poon S, Abdul Rahim K, Das JK, Salam RA,	Mental Health of Children and Adolescents Amidst COVID-19 and Past Pandemics: A Rapid Systematic Review	Int J Environ Res Public Health. 2021 Mar 26;18(7):3432. do	Int J Environ Res Public Health	2021
20210704	Scopus		y			n	n		n		n			Memon S.A., Wahid I., Khan M.K., Tanoli M.A., Bimaganbetova M.	Environmentally friendly utilization of wheat straw ash in cement-based composites			2018
20210704	Scopus		y			n		n	n		n		28025924	Miguel A., Hall A., Liu W., Garrett J., Ballew A., Yang T.H., Segal R.	Improving comprehensive medication review acceptance by using a standardized recruitment script: A randomized control trial			2017
20210704	Scopus	x	n						n		n		18761782	Miles J.L., Landon J., Davison M., Krägeloh C.U., Thompson N.M., Trigg	Prenatally undernourished rats show increased preference for wheel running v. lever pressing for food in a choice task			2009
20210704	PubMed		y			n	n		n		n		18761782	Miles JL, Landon J, Davison M, Krägeloh CU, Thompson NM, Triggs CM,	Prenatally undernourished rats show increased preference for wheel running v. lever pressing for food in a choice task	Br J Nutr. 2009 Mar;101(6):902-8. doi: 10.1017/S0007114	Br J Nutr	2009
20210704	PubMed		y			n		n	n		n		16840926	Mirabel-Sarron C, El-Nouty C, Eiber R, Leonard T, Guelfi JD.	[A food cognition questionnaire]	Encephale. 2006 May-Jun;32(3 Pt 1):328-34. doi: 10.1016/s	Encephale	2006
20210704	Scopus	x	n						n		n		16840926	Mirabel-Sarron C., El-Nouty C., Eiber R., Leonard T., Guelfi J.D.	A foodcognition questionnaire [Elaboration d'un questionnaire sur les cognitions alimentaires]			2006
20210704	Scopus		y			n	n	n	n		n			Monzani D., Marinucci M., Pancani L., Rusconi P., Mazzoni D., Pravett	Thinking of future as an older individual increases perceived risks for age-related diseases but not for COVID-19			2021
20210704	Scopus	x	n						n		n		24274377	Moore N.P., Boogaard P.J., Bremer S., Buesen R., Edwards J., Fraysse E	Guidance on classification for reproductive toxicity under the globally harmonized system of classification and labelling of chemicals (GHS)			2013
20210704	PubMed		y	n		n		n	n		n		24274377	Moore NP, Boogaard PJ, Bremer S, Buesen R, Edwards J, Fraysse B, Ha	Guidance on classification for reproductive toxicity under the globally harmonized system of classification and labelling of chemicals (GHS)	Crit Rev Toxicol. 2013 Nov;43(10):850-91. doi: 10.3109/104	Crit Rev Toxicol	2013
20210704	Scopus		y		n	n	n		n		n			Moretto L.A., Bolsoni-Silva A.T.	Promoting-academics program: Effects on the promotion of social interactions and mental health [Promove-Universitários: Efeitos na promoção de interações sociais e saúde mental]			2019
20210704	Scopus	x	n						n		n		12196616	Morisky D.E., Malotte C.Kevin, Ebin V., Davidson P., Cabrera D., Trout	Behavioral interventions for the control of tuberculosis among adolescents			2001
20210704	PubMed		y			n		n	n		n		12196616	Morisky DE, Malotte CK, Ebin V, Davidson P, Cabrera D, Trout PT, Coly	Behavioral interventions for the control of tuberculosis among adolescents	Public Health Rep. 2001 Nov-Dec;116(6):568-74. doi: 10.10	Public Health Rep	2001
20210704	Scopus		y				n	n	n		n			Moyer-Gusé E., Chung A.H., Jain P.	Identification With Characters and Discussion of Taboo Topics After Exposure to an Entertainment Narrative About Sexual Health			2011
20210704	Scopus		y	n		n	n		n		n			Mueller J.M.	No "dilettante affair": Rethinking the experimental use exception to patent infringement for biomedical research tools			2001
20210704	PubMed		y	n		n		n	n		n		28628931	Mühlbacher AC, Sadler A.	[The Probabilistic Efficiency Frontier: A Value Assessment of Treatment Options in Hepatitis C]	Gesundheitswesen. 2019 Jan;81(1):e21-e32. doi: 10.1055/s	Gesundheitswesen	2019
20210704	PubMed		y	n		n	n		n		n			Muñoz M.D.C.L., Ogawa T.R., Foncerrada H., Rebollo C., Cortesano J.A	Psychopathology and tobacco smoking by high school students [Psicopatologia y uso de tabaco en estudiantes de secundaria]			2006
20210704	Scopus		y				n	n	n		n			Murakami K., Itsubo N., Kuriyama K., Yoshida K., Tokimatsu K.	Development of weighting factors for G20 countries. Part 2: estimation of willingness to pay and annual global damage cost			2018
20210704	Scopus		y			n	n		n		n			Murray L.	Intersubjectivity, object relations theory, and empirical evidence from mother-infant interactions			1991
20210704	PubMed		y	n					n		n		27820523	Murray SF, Hunter BM, Bisht R, Ensor T, Bick D.	Demand-side financing measures to increase maternal health service utilisation and improve health outcomes: a systematic review of evidence from	JBI Libr Syst Rev. 2012;10(58):4165-4567. doi: 10.11124/jbi	JBI Libr Syst Rev	2012
20210704	Scopus		y	n					n		n			Mwabu G.	Chapter 53 Health Economics for Low-Income Countries			2007
20210704	Scopus		y	n					n		n			Nagatsu M., Favereau J.	Two Strands of Field Experiments in Economics: A Historical-Methodological Analysis			2020
20210704	PubMed		y				n	n	n		n		30930526	Nan X, Qin Y.	How Thinking about the Future Affects Our Decisions in the Present: Effects of Time Orientation and Episodic Future Thinking on Responses to Health	Hum Commun Res. 2019 Apr;45(2):148-168. doi: 10.1093/h	Hum Commun Res	2019
20210704	Scopus	x	n						n		n			Nan X., Qin Y.	How thinking about the future affects our decisions in the present: Effects of time orientation and episodic future thinking on responses to health warning messages			2019
20210704	PubMed		y				n	n	n		n		24138335	Napper LE, Harris PR, Klein WM.	Combining self-affirmation with the extended parallel process model: the consequences for motivation to eat more fruit and vegetables	Health Commun. 2014;29(6):610-8. doi: 10.1080/10410236	Health Commun	2014
20210704	Scopus		y	n					n		n		27227720	Neugebauer R., Schmittdiel J.A., Van Der Laan M.J.	A Case Study of the Impact of Data-Adaptive Versus Model-Based Estimation of the Propensity Scores on Causal Inferences from Three Inverse Probability Weighting Estimators			2016
20210704	PubMed		y	n					n		n		10796802	Oakley-Browne MA, Adams P, Mobberley PM.	Interventions for pathological gambling	Cochrane Database Syst Rev. 2000;(2):CD001521. doi: 10.1	Cochrane Database Syst Rev	2000
20210704	PubMed		y	n					n		n		17636678	Oakley-Browne MA, Adams P, Mobberley PM.	WITHDRAWN: Interventions for pathological gambling	Cochrane Database Syst Rev. 2007 Jul 18;(1):CD001521. do	Cochrane Database Syst Rev	2007
20210704	Scopus	x	n						n		n		9520961	O'Brien B.J., Goeree R., Gafni A., Torrance G.W., Pauly M.V., Erder H.,	Assessing the Value of a New Pharmaceutical: A Feasibility Study of Contingent Valuation in Managed Care			1998
20210704	PubMed		y					n	n		n		9520961	O'Brien BJ, Goeree R, Gafni A, Torrance GW, Pauly MV, Erder H, Rusth	Assessing the value of a new pharmaceutical. A feasibility study of contingent valuation in managed care	Med Care. 1998 Mar;36(3):370-84. doi: 10.1097/00005650	Med Care	1998
20210704	Scopus		y			n	n		n		n		31262362	O'Donnell A.J., Rund S.S.C., Reece S.E.	Time-of-day of blood-feeding: Effects on mosquito life history and malaria transmission			2019
20210704	PubMed		y	n					n		n		3282177	Oldham RK.	Who's paying for new drugs?	Nature. 1988 Apr 28;332(6167):795. doi: 10.1038/332795a	Nature	1988
20210704	Scopus	x	n						n		n		31179868	Ong J.J., Neke N., Wambura M., Kuringe E., Grund J.M., Plotkin M., d'E	Use of Lotteries for the Promotion of Voluntary Medical Male Circumcision Service: A Discrete-Choice Experiment among Adult Men in Tanzania			2019
20210704	PubMed		y					n	n		n		31179868	Ong JJ, Neke N, Wambura M, Kuringe E, Grund JM, Plotkin M, d'Elbée	Use of Lotteries for the Promotion of Voluntary Medical Male Circumcision Service: A Discrete-Choice Experiment among Adult Men in Tanzania	Med Decis Making. 2019 May;39(4):474-485. doi: 10.1177/	Med Decis Making	2019
20210704	Scopus		y	n		n	n		n		n			Oppenheimer C., Scaillet B., Martin R.S.	Sulfur degassing from volcanoes: Source conditions, surveillance, plume chemistry and earth system impacts			2011
20210704	PubMed		y	n					n		n		27435520	Pal DK, Ferrie C, Addis L, Akiyama T, Capovilla G, Caraballo R, de Saint-I	Idiopathic focal epilepsies: the "lost tribe"	Epileptic Disord. 2016 Sep 1;18(3):252-88. doi: 10.1684/epc	Epileptic Disord	2016
20210704	PubMed		y			n	n		n		n		28434584	Palanza P, Parmigiani S.	How does sex matter? Behavior, stress and animal models of neurobehavioral disorders	Neurosci Biobehav Rev. 2017 May;76(Pt A):134-143. doi: 1(	Neurosci Biobehav Rev	2017
20210704	Scopus	x	n						n		n		28434584	Palanza P., Parmigiani S.	How does sex matter? Behavior, stress and animal models of neurobehavioral disorders			2017
20210704	Scopus		y	n		n			n		n			Paloyo A.R., Reichert A.R., Reinermann H., Tauchmann H.	The causal link between financial incentives and weight loss: An evidence-based survey of the literature			2014
20210704	Scopus		y			n	n		n		n			Peters F.	On some relationships between storms and plankton dynamics			2010
20210704	Scopus	x	n						n		n		3112999	Peters H.J., Duine T.J.	The project 'Normalized Living' of the 'De Landrijt' nursing home in Eindhoven. Various results of an experiment in psychogeriatric care [Het project 'Genormaliseerd Wonen' van verpleeghuis 'De Landrijt' te Eindhoven. Enkele uitkomsten van een exp			1987

20210704	PubMed		y			n			n		n		3112999	Peters HJ, Duine TJ.	[The project 'Normalized Living' of the 'De Landrijt' nursing home in Eindhoven. Various results of an experiment in psychogeriatric care]	Tijdschr Gerontol Geriatr. 1987 Jun;18(3):187-91.	Tijdschr Gerontol Geriatr	1987
20210704	Scopus		y			n	n		n		n			Pezzato F.A., Silveira D.T.L., Novais D.B., Hoshino K.	Assessment of impulsivity in REM-sleep deprived rats [Avaliação da impulsividade em ratos privados de sono REM]			2012
20210704	Scopus		y	n		n	n		n		n			Pflanz M.	Limits to conclusions from epidemiological studies			1978
20210704	Scopus		y			n	n		n		n			Piccolo L., Libera F.D., Bonarini A., Seymour B., Ishiguro H.	Pain and self-preservation in autonomous robots: From neurobiological models to psychiatric disease			2018
20210704	Scopus	x	n						n		n		9064982	Pitschner H.F., Neuzner J.	Radiofrequency catheter ablation of supraventricular tachycardias [Katheterablation bei supraventrikularen Tachykardien]			1996
20210704	PubMed		y			n			n		n		9064982	Pitschner HF, Neuzner J.	[Catheter ablation in supraventricular tachycardia]	Z Kardiol. 1996;85 Suppl 6:45-60.	Z Kardiol	1996
20210704	PubMed		y	n					n		n		27820525	Pölkki T, Korhonen A.	The effectiveness of music on pain among preterm infants in the neonatal intensive care unit: a systematic review	JBI Libr Syst Rev. 2012;10(58):4600-4609. doi: 10.11124/jbi	JBI Libr Syst Rev	2012
20210704	Scopus		y			n	n		n		n		33563120	Polverino G., Martin J.M., Bertram M.G., Soman V.R., Tan H., Brand J.	Psychoactive pollution suppresses individual differences in fish behaviour			2021
20210704	Scopus	x	n						n		n		17110782	Popescu L.M., Lewitt R.M.	Small nodule detectability evaluation using a generalized scan-statistic model			2006
20210704	PubMed		y	n		n	n		n		n		17110782	Popescu LM, Lewitt RM.	Small nodule detectability evaluation using a generalized scan-statistic model	Phys Med Biol. 2006 Dec 7;51(23):6225-44. doi: 10.1088/0	Phys Med Biol	2006
20210704	PubMed		y	n		n			n		n		19034231	Porres-Aguilar M, Zuckerman MJ, Figueroa-Casas JB, Krowka MJ.	Portopulmonary hypertension: state of the art	Ann Hepatol. 2008 Oct-Dec;7(4):321-30.	Ann Hepatol	2008
20210704	PubMed		y					n	n		n		29338877	Poulos C, Curran D, Anastassopoulou A, De Moerlooze L.	German travelers' preferences for travel vaccines assessed by a discrete choice experiment	Vaccine. 2018 Feb 8;36(7):969-978. doi: 10.1016/j.vaccine.	Vaccine	2018
20210704	PubMed		y					n	n		n		25595236	Poulos C, Reed Johnson F, Krishnarajah G, Anonychuk A, Misurski D.	Pediatricians' preferences for infant meningococcal vaccination	Value Health. 2015 Jan;18(1):67-77. doi: 10.1016/j.jval.201	Value Health	2015
20210704	Scopus	x	n						n		n		29338877	Poulos C., Curran D., Anastassopoulou A., De Moerlooze L.	German travelers' preferences for travel vaccines assessed by a discrete choice experiment			2018
20210704	Scopus	x	n						n		n		25595236	Poulos C., Johnson R.F., Krishnarajah G., Anonychuk A., Misurski D.	Pediatricians' preferences for infant meningococcal vaccination			2015
20210704	Scopus		y	n				n	n		n		26409167	Powell-Jackson T., Ansah E.K.	The indirect effects of subsidised healthcare in rural Ghana			2015
20210704	Scopus		y						y	E2: Health care utilisation	n	natural		Powell-Jackson T., Hanson K., Whitty C.J.M., Ansah E.K.	Who benefits from free healthcare? Evidence from a randomized experiment in Ghana			2014
20210704	PubMed		y				n	n	n		n		33068295	Pozolotina T, Olsen SO.	General vs health-specific consideration of immediate and future consequences to explain eating and exercise behavior in a Norwegian student popu	Scand J Psychol. 2021 Feb;62(1):51-57. doi: 10.1111/sjop.12	Scand J Psychol	2021
20210704	Scopus	x	n						n		n		33068295	Pozolotina T., Olsen S.O.	General vs health-specific consideration of immediate and future consequences to explain eating and exercise behavior in a Norwegian student population: A randomized survey experiment			2021
20210704	PubMed		y					n	n		n		33358372	Presley B, Groot W, Widjanarko D, Pavlova M.	Preferences for pharmacist services to enhance medication management among people with diabetes in Indonesia: A discrete choice experiment	Patient Educ Couns. 2021 Jul;104(7):1745-1755. doi: 10.101	Patient Educ Couns	2021
20210704	Scopus	x	n						n		n		33358372	Presley B., Groot W., Widjanarko D., Pavlova M.	Preferences for pharmacist services to enhance medication management among people with diabetes in Indonesia: A discrete choice experiment			2021
20210704	Scopus	x	n						n		n		31708010	Pries L.-K., Snijders C., Menne-Lothmann C., Decoster J., Van Winkel R.	TwinsCan - Gene-Environment Interaction in Psychotic and Depressive Intermediate Phenotypes: Risk and Protective Factors in a General Population Twin Sample			2019
20210704	PubMed		y			n			n		n		31708010	Pries LK, Snijders C, Menne-Lothmann C, Decoster J, van Winkel R, Colli	TwinsCan - Gene-Environment Interaction in Psychotic and Depressive Intermediate Phenotypes: Risk and Protective Factors in a General Populatio	Twin Res Hum Genet. 2019 Dec;22(6):460-466. doi: 10.101	Twin Res Hum Genet	2019
20210704	Scopus		y			n	n		n		n			Ptak T.J., Gillilan C.	Impact of residential HVAC filtration on indoor concentration of PM1.0 and PM2.5 particulate matter			2014
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		31584021	Purnima B, Uloopi KS, Vinay C, Chandrasekhar R, RojaRamya KS.	Influence of gratification behavior on early childhood caries and body mass index in preschool children	J Indian Soc Pedod Prev Dent. 2019 Jul-Sep;37(3):232-236. c	J Indian Soc Pedod Prev Dent	2019
20210704	Scopus	x	n						n		n		31584021	Purnima B., Uloopi K., Vinay C., Chandrasekhar R., Rojaramya K.S.	Influence of gratification behavior on early childhood caries and body mass index in preschool children			2019
20210704	Scopus		y			n		n	n		n		26703413	Raemer D.B., Kolbe M., Minehart R.D., Rudolph J.W., Pian-Smith M.C.	Improving anesthesiologists' ability to speak up in the operating room: A randomized controlled experiment of a simulation-based intervention and a	qualitative analysis of hurdles and enablers		2016
20210704	PubMed		y	n			n		n		n		27619923	Raghuveer G, White DA, Hayman LL, Woo JG, Villafane J, Celermajer D	Cardiovascular Consequences of Childhood Secondhand Tobacco Smoke Exposure: Prevailing Evidence, Burden, and Racial and Socioeconomic Dispari	Circulation. 2016 Oct 18;134(16):e336-e359. doi: 10.1161/C	Circulation	2016
20210704	Scopus	x	n						n		n		29601897	Rassu F.S., Linsenbardt H.R., Fields S.A., Meagher M.W.	Does Pain Affect Preference? The Effect of Tonic Laboratory Pain on Discounting of Delayed Rewards			2018
20210704	PubMed		y				n		n		n		29601897	Rassu FS, Linsenbardt HR, Fields SA, Meagher MW.	Does Pain Affect Preference? The Effect of Tonic Laboratory Pain on Discounting of Delayed Rewards	J Pain. 2018 Sep;19(9):962-972. doi: 10.1016/j.jpain.2018.0	J Pain	2018
20210704	PubMed		y				n		n		n		29078303	Reeck C, Wall D, Johnson EJ.	Search predicts and changes patience in intertemporal choice	Proc Natl Acad Sci U S A. 2017 Nov 7;114(45):11890-11895.	Proc Natl Acad Sci U S A	2017
20210704	Scopus	x	n						n		n		29078303	Reeck C., Wall D., Johnson E.J.	Search predicts and changes patience in intertemporal choice			2017
20210704	PubMed		y						y	E3: Health care provision	n	lab	32751839	Reif S, Hafner L, Seebauer M.	Physician Behavior under Prospective Payment Schemes-Evidence from Artefactual Field and Lab Experiments	Int J Environ Res Public Health. 2020 Jul 31;17(15):5540. do	Int J Environ Res Public Health	2020
20210704	Scopus	x	n						n		n		32751839	Reif S., Hafner L., Seebauer M.	Physician behavior under prospective payment schemes—evidence from artefactual field and lab experiments			2020
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		28085904	Reimann M, Lane K.	Can a Toy Encourage Lower Calorie Meal Bundle Selection in Children? A Field Experiment on the Reinforcing Effects of Toys on Food Choice	PLoS One. 2017 Jan 13;12(1):e0169638. doi: 10.1371/journ.	PLoS One	2017
20210704	Scopus	x	n						n		n		28085904	Reimann M., Lane K.	Can a toy encourage lower calorie meal bundle selection in children? a field experiment on the reinforcing effects of toys on food choice			2017
20210704	PubMed		y	n					n		n		7927143	Reiser SJ.	Criteria for standard versus experimental therapy	Health Aff (Millwood). 1994 Summer;13(3):127-36. doi: 10.	Health Aff (Millwood)	1994
20210704	Scopus		y			n	n		n		n			Ren J., Liu J.-W., Yang P.	Fault-tolerant tracking control for continuous flight control system based on reinforcement learning algorithm with incremental strategy [基于增量式策略强化学习算法的飞行控制系统的容错跟踪控制]			2020
20210704	Scopus		y			n	n		n		n			Reniers G.L.L., Ponnet K., Kempeneers A.	Higher education chemical lab safety interventions: Efficacious or ineffective?			2014
20210704	Scopus		y			n	n		n		n			Richter O., Kullmer C., Kreuzig R.	Metabolic fate modeling of selected human pharmaceuticals in soils			2007
20210704	PubMed		y				n	n	n		n		1563193	Rickert VI, Gottlieb AA, Jay MS.	Is AIDS education related to condom acquisition?	Clin Pediatr (Phila). 1992 Apr;31(4):205-10. doi: 10.1177/00	Clin Pediatr (Phila)	1992
20210704	PubMed		y	n		n			n		n		15215259	Robert L.	The three avenues of gerontology: from basic research to clinical gerontology and anti-aging medicine. Another French paradox	J Gerontol A Biol Sci Med Sci. 2004 Jun;59(6):B540-2. doi: 1	J Gerontol A Biol Sci Med Sci	2004
20210704	Scopus	x	n						n		n		15215259	Robert L.	The three avenues of gerontology: From basic research to clinical gerontology and anti-aging medicine. Another French paradox			2004
20210704	PubMed		y			n			n		n		28558306	Roberts M, Hanley N, Cresswell W.	User fees across ecosystem boundaries: Are SCUBA divers willing to pay for terrestrial biodiversity conservation?	J Environ Manage. 2017 Sep 15;200:53-59. doi: 10.1016/j.je	J Environ Manage	2017
20210704	Scopus	x	n						n		n		28558306	Roberts M., Hanley N., Cresswell W.	User fees across ecosystem boundaries: Are SCUBA divers willing to pay for terrestrial biodiversity conservation?			2017
20210704	Scopus	x	n						n		n		22824497	Rockers P.C., Jaskiewicz W., Wurts L., Kruk M.E., Mgomella G.S., Ntala	Preferences for working in rural clinics among trainee health professionals in Uganda: A discrete choice experiment			2012
20210704	PubMed		y					n	n		n		22824497	Rockers PC, Jaskiewicz W, Wurts L, Kruk ME, Mgomella GS, Ntalazi F, T	Preferences for working in rural clinics among trainee health professionals in Uganda: a discrete choice experiment	BMC Health Serv Res. 2012 Jul 23;12:212. doi: 10.1186/147	BMC Health Serv Res	2012
20210704	PubMed		y		n		n		n		n		29965717	Rodgers SE, Bailey R, Johnson R, Poortinga W, Smith R, Berridge D, Anx	Health impact, and economic value, of meeting housing quality standards: a retrospective longitudinal data linkage study	Southampton (UK): NIHR Journals Library; 2018 Jun.	Health impact, and economic value, of	2018
20210704	Scopus	x	n						n		n		28764612	Rodriguez V.J., Chisembele M., Jones D.L., Cook R., Weiss S.M., Alcaide	Influencing the importance of health, partners, and hygiene among Zambian women			2018
20210704	PubMed		y					n	n		n		28764612	Rodriguez VJ, Chisembele M, Jones DL, Cook R, Weiss SM, Alcaide ML.	Influencing the importance of health, partners, and hygiene among Zambian women	Int J STD AIDS. 2018 Mar;29(3):259-265. doi: 10.1177/0956	Int J STD AIDS	2018
20210704	Scopus		y			n	n		n		n		33782823	Rodriguez-Moro G., Ramírez-Acosta S., Callejón-Leblic B., Arias-Borreg	Environmental metal toxicity assessment by the combined application of metallomics and metabolomics			2021
20210704	PubMed		y			n	n		n		n		26599590	Rodriguez-Romero A, Jiménez-Tenorio N, Riba I, Blasco J.	Laboratory simulation system, using Carcinus maenas as the model organism, for assessing the impact of CO2 leakage from sub-seabed injection and	Environ Res. 2016 Jan;144(Pt A):117-129. doi: 10.1016/j.env	Environ Res	2016
20210704	PubMed		y			n	n		n		n		23604485	Roenneberg T, Kantermann T, Juda M, Vetter C, Allebrandt KV.	Light and the human circadian clock	Handb Exp Pharmacol. 2013;(217):311-31. doi: 10.1007/97	Handb Exp Pharmacol	2013
20210704	Scopus	x	n						n		n		23604485	Roenneberg T., Kantermann T., Juda M., Vetter C., Allebrandt K.V.	Light and the human circadian clock			2013
20210704	Scopus		y			n	n		n		n		12634020	Roski J., Jeddeloh R., An L., Lando H., Hannan P., Hall C., Zhu S.-H.	The impact of financial incentives and a patient registry on preventive care quality: Increasing provider adherence to evidence-based smoking cessation practice guidelines			2003
20210704	Scopus		y	n		n	n		n		n		17535033	Ruden D.M., Rasouli P., Lu X.	Potential long-term consequences of fad diets on health, cancer, and longevity: Lessons learned from model organism studies			2007
20210704	Scopus		y			n		n	n		n			Sabzmakan L., Hazavehei S., Morowatisharifabad M., Hasanzadeh A.,	The effects of a PRECEDE-based educational program on depression, general health, and quality of life of coronary artery bypass grafting patients			2010
20210704	Scopus	x	n						n		n		20433328	Salkovskis P.M., Rimes K.A., Bolton J., Wroe A.L.	An experimental investigation of factors involved in the decision to undertake genetic testing for schizophrenia			2010
20210704	PubMed		y					n	n		n		20433328	Salkovskis PM, Rimes KA, Bolton J, Wroe AL.	An experimental investigation of factors involved in the decision to undertake genetic testing for schizophrenia	J Ment Health. 2010 Apr;19(2):202-10. doi: 10.3109/09638.	J Ment Health	2010
20210704	Scopus		y	n		n	n		n		n			Sandler A.	Against standard deviation as a quality control maxim in anthropometry			2021
20210704	PubMed		y					n	n		n		31869666	Saran I, Winn L, Kipkoech Kirui J, Menya D, Prudhomme O'Meara W.	The relative importance of material and non-material incentives for community health workers: Evidence from a discrete choice experiment in West	Soc Sci Med. 2020 Feb;246:112726. doi: 10.1016/j.socscime	Soc Sci Med	2020
20210704	Scopus	x	n						n		n		31869666	Saran I., Winn L., Kipkoech Kirui J., Menya D., Prudhomme O'Meara W	The relative importance of material and non-material incentives for community health workers: Evidence from a discrete choice experiment in Western Kenya			2020
20210704	Scopus	x	n						n		n		31981135	Schaffer E.M., Gonzalez J.M., Wheeler S.B., Kwarisiima D., Chamie G.,	Promoting HIV Testing by Men: A Discrete Choice Experiment to Elicit Preferences and Predict Uptake of Community-based Testing in Uganda			2020
20210704	PubMed		y					n	n		n		31981135	Schaffer EM, Gonzalez JM, Wheeler SB, Kwarisiima D, Chamie G, Thiru	Promoting HIV Testing by Men: A Discrete Choice Experiment to Elicit Preferences and Predict Uptake of Community-based Testing in Uganda	Appl Health Econ Health Policy. 2020 Jun;18(3):413-432. do	Appl Health Econ Health Policy	2020
20210704	Scopus		y	n		n	n		n		n			Schaffner K.F.	Reduction in Biology and Medicine			2011
20210704	Scopus		y	n		n			n		n		26993535	Scharff R.L., Besser J., Sharp D.J., Jones T.F., Peter G.-S., Hedberg C.W.	An Economic Evaluation of PulseNet: A Network for Foodborne Disease Surveillance			2016
20210704	Scopus		y			n	n		n		n		19048320	Scheurer K., Alewell C., Bänninger D., Burkhardt-Holm P.	Climate and land-use changes affecting river sediment and brown trout in alpine countries-a review			2009
20210704	Scopus		y			n	n		n		n		6556391	Schinke S.P., Gilchrist L.D.	Primary Prevention of Tobacco Smoking			1983
20210704	Scopus	x	n						n		n		2673975	Schinnar A.P., Rothbard A.B.	Evaluation questions for Philadelphia's capitation plan for mental health services			1989
20210704	PubMed		y	n					n		n		2673975	Schinnar AP, Rothbard AB.	Evaluation questions for Philadelphia's capitation plan for mental health services	Hosp Community Psychiatry. 1989 Jul;40(7):681-3. doi: 10.1	Hosp Community Psychiatry	1989
20210704	PubMed		y			n	n		n		n		19118868	Schiopu N, Tiruta-Barna L, Jayr E, Méhu J, Moszkowicz P.	Modelling and simulation of concrete leaching under outdoor exposure conditions	Sci Total Environ. 2009 Feb 15;407(5):1613-30. doi: 10.1016	Sci Total Environ	2009
20210704	Scopus	x	n						n		n			Schiopu N., Tiruta-Barna L., Jayr E., Méhu J., Moszkowicz P.	Modelling and simulation of concrete leaching under outdoor exposure conditions			2009
20210704	Scopus		y			n	n		n		n			Schmittgen S., Groher T., Hunsche M., Noga G.	Inductome: Optimizing plant performance under controlled stress conditions aiming towards increased accumulation of secondary metabolites in tomato leaves			2019
20210704	Scopus		y					n	n		n			Schöll C., Möller S., Longino A.	Assessing the impact of inaccurate decision support systems on experts' behavior and decisions			2017
20210704	Scopus	x	n						n		n		15529902	Schroeder S.T., Hovell M.F., Kolody B., Elder J.P.	Use of newsletters to promote environmental political action: An experimental analysis			2004
20210704	PubMed		y				n	n	n		n		15529902	Schroeder ST, Hovell MF, Kolody B, Elder JP.	Use of newsletters to promote environmental political action: an experimental analysis	J Appl Behav Anal. 2004 Fall;37(3):427-9. doi: 10.1901/jaba	J Appl Behav Anal	2004
20210704	PubMed		y			n	n		n		n		24665951	Schumann K, Guenther A, Jewgenow K, Trillmich F.	Animal housing and welfare: effects of housing conditions on body weight and cortisol in a medium-sized rodent (Cavia aperea)	J Appl Anim Welf Sci. 2014;17(2):111-24. doi: 10.1080/1088	J Appl Anim Welf Sci	2014
20210704	Scopus	x	n						n		n		24665951	Schumann K., Guenther A., Jewgenow K., Trillmich F.	Animal Housing and Welfare: Effects of Housing Conditions on Body Weight and Cortisol in a Medium-Sized Rodent (Cavia aperea)			2014
20210704	Scopus	x	n						n		n		7803065	Schweitzer S.O., Atchison K.A., Lubben J.E., Mayer-Oakes S.A., De Jong	Health promotion and disease prevention for older adults: Opportunity for change or preaching to the converted?			1994
20210704	PubMed		y				n	n	n		n		7803065	Schweitzer SO, Atchison KA, Lubben JE, Mayer-Oakes SA, De Jong FJ, M	Health promotion and disease prevention for older adults: opportunity for change or preaching to the converted?	Am J Prev Med. 1994 Jul-Aug;10(4):223-9.	Am J Prev Med	1994
20210704	Scopus		y	n		n	n		n		n		32834384	Scioli E. R., Smith B. N., Whitworth J. W., Spiro A., Esterman M., Dutra S	Moderated mediation for exercise maintenance in pain and posttraumatic stress disorder: A randomized trial			2020
20210704	Scopus	x	n						n		n			Segovia M. S., Palma M.A., Nayga R.M., Jr.	Can episodic future thinking affect food choices?			2020
20210704	PubMed		y				n		n	E0: Other focus on health-related behaviour	n		32834246	Segovia MS, Palma MA, Nayga RM Jr.	Can episodic future thinking affect food choices?	J Econ Behav Organ. 2020 Sep;177:371-389. doi: 10.1016/j.	J Econ Behav Organ	2020
20210704	Scopus	x	n						n		n		28702852	Senn T.E., Braksmajer A., Urban M.A., Coury-Doniger P., Carey M.P.	Pilot Test of an Integrated Sexual Risk Reduction Intervention for Women with a History of Childhood Sexual Abuse			2017
20210704	PubMed		y			n		n	n		n		28702852	Senn TE, Braksmajer A, Urban MA, Coury-Doniger P, Carey MP.	Pilot Test of an Integrated Sexual Risk Reduction Intervention for Women with a History of Childhood Sexual Abuse	AIDS Behav. 2017 Nov;21(11):3247-3259. doi: 10.1007/s10	AIDS Behav	2017
20210704	Scopus	x	n						n		n		27242289	Serafine K.M., Labay C., France C.P.	Dietary supplementation with fish oil prevents high fat diet-induced enhancement of sensitivity to the locomotor stimulating effects of cocaine in adolescent female rats			2016
20210704	PubMed		y			n	n		n		n		27242289	Serafine KM, Labay C, France CP.	Dietary supplementation with fish oil prevents high fat diet-induced enhancement of sensitivity to the locomotor stimulating effects of cocaine in ado	Drug Alcohol Depend. 2016 Aug 1;165:45-52. doi: 10.1016/	Drug Alcohol Depend	2016
20210704	Scopus		y			n	n		n		n			Shabahang R.	Cognitive behavioural intervention for health anxiety, somatosensory amplification, and depression in coronavirus disease 2019 anxiety: an interventional study in Iran [Zastosowanie interwencji poznawczo-behawioralnej w leczeniu lęku o zdrowie, a			2020
20210704	Scopus	x	n						n		n		20844951	Sharp W.G., Jaquess D.L., Morton J.F., Herzinger C.V.	Pediatric Feeding Disorders: A Quantitative Synthesis of Treatment Outcomes			2010
20210704	PubMed		y	n					n		n		20844951	Sharp WG, Jaquess DL, Morton JF, Herzinger CV.	Pediatric feeding disorders: a quantitative synthesis of treatment outcomes	Clin Child Fam Psychol Rev. 2010 Dec;13(4):348-65. doi: 10.	Clin Child Fam Psychol Rev	2010
20210704	Scopus	x	n						n		n		7721587	Shaughnessy P.W., Schlenker R.E., Hittle D.F.	Case mix of home health patients under capitated and fee-for-service payment			1995
20210704	PubMed		y	n					n		n		7721587	Shaughnessy PW, Schlenker RE, Hittle DF.	Case mix of home health patients under capitated and fee-for-service payment	Health Serv Res. 1995 Apr;30(1):79-113.	Health Serv Res	1995
20210704	Scopus		y	n		n			n		n		10574231	Shaw C., Abrams K., Marteau T.M.	Psychological impact of predicting individuals' risks of illness: A systematic review			1999
20210704	Scopus		y	n		n			n		n		321111	Shephard D.A.E.	Genetic intervention: The modern chimera			1977
20210704	Scopus		y			n			n		n			Shrum T.R.	The salience of future impacts and the willingness to pay for climate change mitigation: an experiment in intergenerational framing			2021
20210704	Scopus		y	n		n			n		n		29332613	Smith E., Scarborough P., Rayner M., Briggs A.D.M.	Should we tax unhealthy food and drink?			2018
20210704	Scopus		y			n			n		n		20512031	Smith S.L., Rasmussen E.B.	Effects of 2-AG on the reinforcing properties of wheel activity in obese and lean Zucker rats			2010
20210704	PubMed		y				n	n	n		n		31070426	Sofis MJ, Lemley SM, Budney AJ, Stanger C, Jarmolowicz DP.	Persisting on the past: Cross-sectional and prospective associations between sunk cost propensity and cannabis use	Exp Clin Psychopharmacol. 2020 Apr;28(2):225-234. doi: 10	Exp Clin Psychopharmacol	2020
20210704	Scopus		y				n	n	n		n		11440887	Sondo B., Sya D., Paré R., Kouanda S., Savadogo L.	The use of contraceptive methods by the Mossi tribe in a health district of Kaya, Burkina Faso [L'utilisation des méthodes contraceptives par les Mossi	d'un district sanitaire rural de Kaya, Burkina Faso]		2001
20210704	PubMed		y				n	n	n		n		28266905	Sontag JM, Noar SM.	Assessing the Potential Effectiveness of Pictorial Messages to Deter Young Women from Indoor Tanning: An Experimental Study	J Health Commun. 2017 Apr;22(4):294-303. doi: 10.1080/10	J Health Commun	2017
20210704	PubMed		y	n		n			n		n		2404151	Soumerai SB, Ross-Degnan D, Gortmaker S, Avorn J.	Withdrawing payment for nonscientific drug therapy. Intended and unexpected effects of a large-scale natural experiment	JAMA. 1990 Feb 9;263(6):831-9.	JAMA	1990
20210704	PubMed		y			n	n		n		n		26028515	Spagnoli S, Xue L, Kent ML.	The common neural parasite Pseudoloma neurophilia is associated with altered startle response habituation in adult zebrafish (Danio rerio): Implicat	Behav Brain Res. 2015 Sep 15;291:351-360. doi: 10.1016/j.	Behav Brain Res	2015
20210704	Scopus	x	n						n		n		26028515	Spagnoli S., Xue L., Kent M.L.	The common neural parasite Pseudoloma neurophilia is associated with altered startle response habituation in adult zebrafish (Danio rerio): Implications for the zebrafish as a model organism			2015
20210704	Scopus	x	n						n		n		15703124	Spangenberg E.M.F., Augustsson H., Dahlborn K., Essén-Gustavsson B.,	Housing-related activity in rats: Effects on body weight, urinary corticosterone levels, muscle properties and performance			2005
20210704	Scopus	x	n						n		n		25801331	Spangenberg E.M.F., Keeling L.J.	Assessing the welfare of laboratory mice in their home environment using animal-based measures– a benchmarking tool			2016

20210704	PubMed		y			n	n		n	n		15703124	Spangenberg EM, Augustsson H, Dahlborn K, Essén-Gustavsson B, Cvek	Housing-related activity in rats: effects on body weight, urinary corticosterone levels, muscle properties and performance	Lab Anim. 2005 Jan;39(1):45-57. doi: 10.1258/0023677052	Lab Anim	2005
20210704	PubMed		y			n	n		n	n		25801331	Spangenberg EM, Keeling LJ.	Assessing the welfare of laboratory mice in their home environment using animal-based measures--a benchmarking tool	Lab Anim. 2016 Feb;50(1):30-8. doi: 10.1177/0023677215	Lab Anim	2016
20210704	Scopus		y				n	n	n	n		23408278	Spoth R., Clair S., Trudeau L.	Universal Family-Focused Intervention with Young Adolescents: Effects on Health-Risking Sexual Behaviors and STDs Among Young Adults			2014
20210704	Scopus	x	n						n	n			Ssewamala F.M., Ismayilova L.	Integrating children's savings accounts in the care and support of orphaned adolescents in rural Uganda			2009
20210704	PubMed		y				n		n	n		20445763	Ssewamala FM, Ismayilova L.	Integrating Children's Savings Accounts in the Care and Support of Orphaned Adolescents in Rural Uganda	Soc Serv Rev. 2009 Sep 1;83(3):453-472. doi: 10.1086/6059	Soc Serv Rev	2009
20210704	Scopus		y				n	n	n	n			Stafie C., Apostol M.	Application of a therapeutic education program on liver steatosic patients - A standard reproductive biopsycho behavioral approach			2010
20210704	Scopus		y	n		n	n		n	n			Stelmack R.M.	On the Psychobiology of Personality: Essays in Honor of Marvin Zuckerman			2004
20210704	PubMed		y			n	n		n	n		9105945	Steptoe A, Evans O, Fieldman G.	Perceptions of control over work: psychophysiological responses to self-paced and externally-paced tasks in an adult population sample	Int J Psychophysiol. 1997 Apr;25(3):211-20. doi: 10.1016/s0	Int J Psychophysiol	1997
20210704	Scopus	x	n						n	n		9105945	Steptoe A., Evans O., Fieldman G.	Perceptions of control over work: Psychophysiological responses to self-paced and externally-paced tasks in an adult population sample			1997
20210704	PubMed		y			n			n	n		16422722	Stevens B, Guerriere D, McKeever P, Croxford R, Miller KL, Watson-Ma	Economics of home vs. hospital breastfeeding support for newborns	J Adv Nurs. 2006 Jan;53(2):233-43. doi: 10.1111/j.1365-264	J Adv Nurs	2006
20210704	Scopus	x	n						n	n		16422722	Stevens B., Guerriere D., McKeever P., Croxford R., Miller K.-L., Watso	Economics of home vs. hospital breastfeeding support for newborns			2006
20210704	Scopus	x	n						n	n		20109483	Stoops W.W., Lile J.A., Rush C.R.	Monetary alternative reinforcers more effectively decrease intranasal cocaine choice than food alternative reinforcers			2010
20210704	PubMed		y				n		n	n	E0: Other focus on health-related behaviour	20109483	Stoops WW, Lile JA, Rush CR.	Monetary alternative reinforcers more effectively decrease intranasal cocaine choice than food alternative reinforcers	Pharmacol Biochem Behav. 2010 Apr;95(2):187-91. doi: 10.	Pharmacol Biochem Behav	2010
20210704	Scopus		y	n		n	n		n	n		19487058	Strand P., Brown J.	The international conference on radioecology and environmental radioactivity			2009
20210704	Scopus		y					n	n	n			Streibelt M., Bethge M.	Patient preferences for the arrangement of integrated care programmes: A discrete choice experiment [Patientenpräferenzen bei der Ausgestaltung	Integrierter Versorgungsprogramme: ein Discrete Choice Experiment]		2009
20210704	Scopus		y				n		n	n		32424621	Studer B., Geniole S.N., Becker M.L., Eisenegger C., Knecht S.	Inducing illusory control ensures persistence when rewards fade and when others outperform us			2020
20210704	Scopus		y	n			n		n	n			Suedfeld P.	Homo invictus: The indomitable species			1997
20210704	PubMed		y	n			n		n	n		11067179	Sussman S, Dent CW, Stacy AW, Hodgson CS, Burton D, Flay BR.	Project Towards No Tobacco Use: implementation, process and post-test knowledge evaluation	Health Educ Res. 1993 Mar;8(1):109-23. doi: 10.1093/her/8	Health Educ Res	1993
20210704	Scopus	x	n						n	n		11067179	Sussman S., Dent C.W., Stacy A.W., Hodgson C.S., Burton D., Flay B.R.	Project towards no tobacco use: Implementation, process and post-test knowledge evaluation			1993
20210704	PubMed		y			n	n		n	n		27175970	Suvorov A, Vandenberg LN.	To Cull or Not To Cull? Considerations for Studies of Endocrine-Disrupting Chemicals	Endocrinology. 2016 Jul;157(7):2586-94. doi: 10.1210/en.2(	Endocrinology	2016
20210704	Scopus	x	n						n	n		27175970	Suvorov A., Vandenberg L.N.	To cull or not to cull? Considerations for studies of endocrine-disrupting chemicals			2016
20210704	Scopus	x	n						n	n		31445502	Swerdlow N.R., Bhakta S.G., Talledo J., Benster L., Kotz J., Lavadia M.,	Lessons learned by giving amphetamine to antipsychotic-medicated schizophrenia patients			2019
20210704	PubMed		y			n			n	n		31445502	Swerdlow NR, Bhakta SG, Talledo J, Benster L, Kotz J, Lavadia M, Light	Lessons learned by giving amphetamine to antipsychotic-medicated schizophrenia patients	Neuropsychopharmacology. 2019 Dec;44(13):2277-2284. d	Neuropsychopharmacology	2019
20210704	Scopus		y	n		n	n		n	n		939658	Szanto P.B.	The value of the autopsy			1976
20210704	PubMed		y			n	n		n	n		10479886	Tanii H, Zang XP, Saijoh K.	[Allylnitrile-induced behavioral abnormalities and findings relating to the mechanism underlying behavioral abnormalities]	Nihon Eiseigaku Zasshi. 1999 Jul;54(2):459-66. doi: 10.1265,	Nihon Eiseigaku Zasshi	1999
20210704	Scopus	x	n						n	n		10479886	Tanii H., Zang X.-P., Saijoh K.	Allylnitrile-induced behavioral abnormalities and findings relating to the mechanism underlying behavioral abnormalities			1999
20210704	Scopus	x	n						n	n		22726453	Teixeira P.J., Carraça E.V., Markland D., Silva M.N., Ryan R.M.	Exercise, physical activity, and self-determination theory: A systematic review			2012
20210704	PubMed		y	n			n		n	n		22726453	Teixeira PJ, Carraça EV, Markland D, Silva MN, Ryan RM.	Exercise, physical activity, and self-determination theory: a systematic review	Int J Behav Nutr Phys Act. 2012 Jun 22;9:78. doi: 10.1186/1	Int J Behav Nutr Phys Act	2012
20210704	Scopus		y			n	n		n	n		21185910	Terry A.V., Buccafusco J.J., Gearhart D.A., Beck W.D., Middlemore-Ris	Repeated, intermittent exposures to diisopropylfluorophosphate in rats: Protracted effects on cholinergic markers, nerve growth factor-related proteins, and cognitive function			2011
20210704	Scopus		y		n		n	n	n	n			Thomas C.	Health risk behaviours of high school learners and their perceptions of preventive services offered by general practitioners			2009
20210704	Scopus	x	n						n	n		34090246	Thoré E.S.J., Brendonck L., Pinceel T.	Neurochemical exposure disrupts sex-specific trade-offs between body length and behaviour in a freshwater crustacean			2021
20210704	PubMed		y			n	n		n	n		34090246	Thoré ESJ, Brendonck L, Pinceel T.	Neurochemical exposure disrupts sex-specific trade-offs between body length and behaviour in a freshwater crustacean	Aquat Toxicol. 2021 May 28;237:105877. doi: 10.1016/j.aq	Aquat Toxicol	2021
20210704	PubMed		y				n		n	n		33507769	Thrailkill EA, Alcalá JA.	Relapse after incentivized choice treatment in humans: A laboratory model for studying behavior change	Exp Clin Psychopharmacol. 2021 Jan 28. doi: 10.1037/pha0(	Exp Clin Psychopharmacol	2021
20210704	Scopus		y				n	n	n	n			Tian H., du Toit D., Toriola A.L.	The effects of an enhanced quality Physical Education programme on the physical activity levels of Grade 7 learners in Potchefstroom, South Africa			2017
20210704	PubMed		y				n		n	n		28424641	Tinghög G, Andersson D, Västfjäll D.	Are Individuals Luck Egalitarians? - An Experiment on the Influence of Brute and Option Luck on Social Preferences	Front Psychol. 2017 Mar 29;8:460. doi: 10.3389/fpsyg.	Front Psychol	2017
20210704	Scopus	x	n						n	n			Tinghög G., Andersson D., Västfjäll D.	Are individuals luck egalitarians? - An experiment on the influence of brute and option luck on social preferences			2017
20210704	Scopus		y		n		n	n	n	n			Tjosvold D., Andrews R., Jones H.	Cooperative and Competitive Relationships Between Leaders and Subordinates			1983
20210704	PubMed		y			n			n	n		29115210	Todsen T.	Surgeon-performed ultrasonography	Dan Med J. 2017 Nov;64(11):85421.	Dan Med J	2017
20210704	Scopus	x	n						n	n		29115210	Todsen T.	Surgeon-performed ultrasonography			2017
20210704	Scopus		y	n			n		n	n		31192623	Tomporowski P.D., Pesce C.	Exercise, sports, and performance arts benefit cognition via a common process			2019
20210704	PubMed		y					n	n	n		24812202	Torbica A, De Allegri M, Belemsaga D, Medina-Lara A, Ridde V.	What criteria guide national entrepreneurs' policy decisions on user fee removal for maternal health care services? Use of a best-worst scaling choice	J Health Serv Res Policy. 2014 Oct;19(4):208-15. doi: 10.11	J Health Serv Res Policy	2014
20210704	PubMed		y						y	E2: Health care utilisation	n	lab	30123148	Traczyk J, Lenda D, Serek J, Fulawka K, Tomczak P, Strizyk K, Polec A, Zj	Does Fear Increase Search Effort in More Numerate People? An Experimental Study Investigating Information Acquisition in a Decision From Experie	Front Psychol. 2018 Aug 3;9:1203. doi: 10.3389/fpsyg.2018	Front Psychol	2018
20210704	Scopus		y	n			n		n	n			Trantow J., Herzog R.	Causes of systematic errors in stability testing [URSACHEN SYSTEMATISCHER FEHLER BEI STABILITATSPRUFUNGEN]			1995
20210704	Scopus		y			n	n		n	n		21852519	Ulrich D.A., Burghardt A.R., Lloyd M., Tiernan C., Hornyak J.E.	Physical activity benefits of learning to ride a two-wheel bicycle for children with Down Syndrome: A randomized trial			2011
20210704	PubMed		y	n			n		n	n		32201626	Umar N, Quaife M, Exley J, Shuaibu A, Hill Z, Marchant T.	Toward improving respectful maternity care: a discrete choice experiment with rural women in northeast Nigeria	BMJ Glob Health. 2020 Mar 5;5(3):e002135. doi: 10.1136/b	BMJ Glob Health	2020
20210704	Scopus	x	n						n	n			Umar N., Quaife M., Exley J., Shuaibu A., Hill Z., Marchant T.	Toward improving respectful maternity care: A discrete choice experiment with rural women in northeast Nigeria			2020
20210704	Scopus	x	n						n	n		21553973	Updegraff J.A., Emanuel A.S., Gallagher K.M., Steinman C.T.	Framing Flu Prevention-An Experimental Field Test of Signs Promoting Hand Hygiene During the 2009-2010 H1N1 Pandemic			2011
20210704	PubMed		y		n				n	n		21553973	Updegraff JA, Emanuel AS, Gallagher KM, Steinman CT.	Framing flu prevention--an experimental field test of signs promoting hand hygiene during the 2009-2010 H1N1 pandemic	Health Psychol. 2011 May;30(3):295-9. doi: 10.1037/a0023	Health Psychol	2011
20210704	PubMed		y						y	E3: Health care provision	n	natural	31285667	Vaisson G, Witteman HO, Chipenda-Dansokho S, Saragosa M, Bouck Z,	Testing e-mail content to encourage physicians to access an audit and feedback tool: a factorial randomized experiment	Curr Oncol. 2019 Jun;26(3):205-216. doi: 10.3747/co.26.48	Curr Oncol	2019
20210704	Scopus	x	n						n	n		31285667	Vaisson G., Witteman H.O., Chipenda-Dansokho S., Saragosa M., Bouc	Testing e-mail content to encourage physicians to access an audit and feedback tool: A factorial randomized experiment			2019
20210704	Scopus		y			n	n		n	n			Valcu A., Bakcu S.	Analysis of the results obtained in the calibration of electronic analytical balances			2012
20210704	PubMed		y	n		n			n	n		26110109	Val-Laillet D, Aarts E, Weber B, Ferrari M, Quaresima V, Stoeckel LE, A	Neuroimaging and neuromodulation approaches to study eating behavior and prevent and treat eating disorders and obesity	Neuroimage Clin. 2015 Mar 24;8:1-31. doi: 10.1016/j.nicl.2	Neuroimage Clin	2015
20210704	Scopus	x	n						n	n		12683469	Van Dongen H.P.A., Maislin G., Mullington J.M., Dinges D.F.	The cumulative cost of additional wakefulness: Dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction	and total sleep deprivation		2003
20210704	PubMed		y			n			n	n		12683469	Van Dongen HP, Maislin G, Mullington JM, Dinges DF.	The cumulative cost of additional wakefulness: dose-response effects on neurobehavioral functions and sleep physiology from chronic sleep restriction	Sleep. 2003 Mar 15;26(2):117-26. doi: 10.1093/sleep/26.2.	Sleep	2003
20210704	Scopus	x	n						n	n			Van Elderen T., Maes S., Seegers G.	Effects of a post-hospitalization group health education programme for patients with coronary heart disease			1994
20210704	Scopus		y			n	n		n	n		31896183	van Koppenhagen N., Gourgoulianni N., Rohner P.T., Roy J., Wegmann	Sublethal effects of the parasiticide ivermectin on male and female reproductive and behavioural traits in the yellow dung fly			2020
20210704	Scopus	x	n						n	n		11528604	Van Kuyk E.M., Wissink-Essink M., Brugman-Boezeman A.T.M., Oerlem	Multidisciplinary behavioral treatment of defecation problems: A controlled study in children with anorectal malformations			2001
20210704	PubMed		y			n	n		n	n		11528604	van Kuyk EM, Wissink-Essink M, Brugman-Boezeman AT, Oerlemans HM	Multidisciplinary behavioral treatment of defecation problems: a controlled study in children with anorectal malformations	J Pediatr Surg. 2001 Sep;36(9):1350-6. doi: 10.1053/jpsu.20	J Pediatr Surg	2001
20210704	PubMed		y	n		n	n		n	n		26413118	Vani G, Anbarasi K, Shyamaladevi CS.	Bacoside A: Role in Cigarette Smoking Induced Changes in Brain	Evid Based Complement Alternat Med. 2015;2015:286137.	Evid Based Complement Alternat Med	2015
20210704	Scopus	x	n						n	n			Vani G., Anbarasi K., Shyamaladevi C.S.	Bacoside A: Role in Cigarette Smoking Induced Changes in Brain			2015
20210704	Scopus		y	n					n	n			Vasconcelos L.A.	Exploring macrocontingencies and metacontingencies: Experimental and Non-experimental contributions [Explorando macrocontingencias y metacontingencias: Contribuciones experimentales y no-experimentales]			2013
20210704	Scopus		y	n		n			n	n		21523955	Vasilescu C.	Current problems in surgical oncology I. Theoretical models in oncology and their implications in surgical therapy [Probleme de chirurgie oncologică 1.	Modele teoretice în oncologie şi implicaţiile lor în tratamentul chirurgical]		2011
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20210704	Scopus	x	n						n	n		26209857	Vatsalya V., Gowin J.L., Schwandt M.L., Momenan R., Coe M.A., Cooke	Effects of varenicline on neural correlates of alcohol salience in heavy drinkers			2015
20210704	PubMed		y	n					n	n		22160812	Verharen C, Tharakan J, Middendorf G, Castro-Sitiriche M, Kadoda G.	Introducing survival ethics into engineering education and practice	Sci Eng Ethics. 2013 Jun;19(2):599-623. doi: 10.1007/s11948	Sci Eng Ethics	2013
20210704	Scopus	x	n						n	n		22160812	Verharen C., Tharakan J., Middendorf G., Castro-Sitiriche M., Kadoda G	Introducing Survival Ethics into Engineering Education and Practice			2013
20210704	Scopus	x	n						n	n		33411753	Veszteg R.F., Yamakawa K., Matsubayashi T., Ueda M.	Acute stress does not affect economic behavior in the experimental laboratory			2021
20210704	PubMed		y				n		n	n		33411753	Veszteg RF, Yamakawa K, Matsubayashi T, Ueda M.	Acute stress does not affect economic behavior in the experimental laboratory	PLoS One. 2021 Jan 7;16(1):e0244881. doi: 10.1371/journal	PLoS One	2021
20210704	PubMed		y	n					n	n		30402904	Vetter C.	Circadian disruption: What do we actually mean?	Eur J Neurosci. 2020 Jan;51(1):531-550. doi: 10.1111/ejn.14	Eur J Neurosci	2020
20210704	Scopus		y	n		n	n		n	n			Vickers M.H., Cupido C.-L., Gluckman P.D.	Developmental programming of obesity and type 2 diabetes			2007
20210704	PubMed		y			n			n	n		29259545	Vijayraghavan S, Major AJ, Everling S.	Neuromodulation of Prefrontal Cortex in Non-Human Primates by Dopaminergic Receptors during Rule-Guided Flexible Behavior and Cognitive Contr	Front Neural Circuits. 2017 Dec 5;11:91. doi: 10.3389/fncir.	Front Neural Circuits	2017
20210704	Scopus	x	n						n	n		29259545	Vijayraghavan S., Major A.J., Everling S.	Neuromodulation of prefrontal cortex in non-human primates by dopaminergic receptors during rule-guided flexible behavior and cognitive control			2017
20210704	Scopus		y	n		n	n		n	n			Vineis P., Avendano-Pabon M., Barros H., Chadeau-Hyam M., Costa G.,	The biology of inequalities in health: The LIFEPATH project			2017
20210704	PubMed		y				n		n	n		23148449	Vlaev I, Seymour B, Chater N, Winston JS, Yoshida W, Wright N, Symm	Prices need no preferences: social trends determine decisions in experimental markets for pain relief	Health Psychol. 2014 Jan;33(1):66-76. doi: 10.1037/a00303	Health Psychol	2014
20210704	Scopus	x	n						n	n		23148449	Vlaev I., Seymour B., Chater N., Winston J.S., Yoshida W., Wright N., Sy	Prices need no preferences: Social trends determine decisions in experimental markets for pain relief			2014
20210704	Scopus	x	n						n	n		10573732	Vuitton D.A., De Wazières B., Dupond J.L.	Psychoimmunology: A questionable model? [Psycho-immunologie: Un modele en question]			1999
20210704	PubMed		y	n			n		n	n		10573732	Vuitton DA, de Wazières B, Dupond JL.	[Psychoimmunology: a questionable model?]	Rev Med Interne. 1999 Oct;20(10):934-46. doi: 10.1016/s0	Rev Med Interne	1999
20210704	Scopus		y			n	n	n	n	n			Wagener A., Bragard I., Jonius B., Étienne A.-M.	Psychosocial needs and perception of inequity: Combination of methods of action aimed to help cancer patients' spouses - A pilot study [Besoins psychosociaux et perception d'iniquité: combinaison de méthodes d'action pour venir en aide aux conjoint			2014
20210704	Scopus	x	n						n	n		33634740	Wagner A.J.M., Sukalla F.	Targeting Physical Inactivity–Effects of Three Different Consequence Frames on Population Subgroups' Health-Related Perceptions and Behavioral Intentions			2021
20210704	PubMed		y				n	n	n	n		33634740	Wagner AJM, Sukalla F.	Targeting Physical Inactivity - Effects of Three Different Consequence Frames on Population Subgroups' Health-Related Perceptions and Behavioral In	J Health Commun. 2021 Jan 2;26(1):47-56. doi: 10.1080/10	J Health Commun	2021
20210704	PubMed		y				n	n	n	n			Wallander L., Blomqvist J.	Fat Words or Useful Concepts?: Consensus and Variation in Conceptions of Problematic Drinking in Contemporary Sweden			2019
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20210704	Scopus		y				n	n	n	n			Wang X.	The role of empathic concern, internalized moral principle, and anticipated guilt in college students' intentions to send or read text messages while driving			2014
20210704	Scopus		y				n	n	n	n		27918859	Wang X., Zhao X.	The Mediating Role of Temporal Considerations on the Effects of Self-Affirmation on Responses to Organ Donation Messages			2018
20210704	PubMed		y				n	n	n	n		24118369	Waters EA, Kincaid C, Kaufman AR, Stock ML, Peterson LM, Muscanell	Concerns about unintended negative consequences of informing the public about multifactorial risks may be premature for young adult smokers	Br J Health Psychol. 2014 Nov;19(4):720-36. doi: 10.1111/b	Br J Health Psychol	2014
20210704	Scopus		y	n					n	n			Weaver J., Munro D.	Austerity, neo-liberal economics, and youth suicide: The case of New Zealand, 1980-2000			2013
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20210704	Scopus		y	n		n	n		n	n		2004145938	Weisskittel P.D.	West Nile virus infection in a renal transplant recipient.			2004
20210704	PubMed		y		n	n			n	n		15303427	Weisskittel PD.	West Nile virus infection in a renal transplant recipient	Nephrol Nurs J. 2004 May-Jun;31(3):327-9.	Nephrol Nurs J	2004
20210704	PubMed		y	n					n	n		10311893	Welch WP.	Medicare capitation payments to HMOs in light of regression toward the mean in health care costs	Adv Health Econ Health Serv Res. 1985;6:75-100.	Adv Health Econ Health Serv Res	1985
20210704	PubMed		y	n					n	n		3925777	Wenzel RP.	Nosocomial infections, diagnosis-related groups, and study on the efficacy of nosocomial infection control. Economic implications for hospitals under	Am J Med. 1985 Jun 28;78(6B):3-7. doi: 10.1016/0002-9343	Am J Med	1985
20210704	Scopus		y	n			n		n	n			Wertenbroch K.	Consumption self-control by rationing purchase quantities of virtue and vice			1998
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20210704	Scopus		y	n		n			n	n			Weston S.L., Collins R.P., Boxall J.B.	A novel demonstration of adhered material mobilisation by hydraulic transients			2019
20210704	Scopus	x	n						n	n			Wettstein D.J., Boes S.	The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: Evidence from an online experiment			2020
20210704	Scopus	x	n						n	n		33726735	Wettstein D.J., Boes S.	Assessing social preferences in reimbursement negotiations for new Pharmaceuticals in Oncology: an experimental design to analyse willingness to pay	and willingness to accept		2021
20210704	PubMed		y						y	E4: Health intervention pricing	y	lab	32440753	Wettstein DJ, Boes S.	The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: evidence from an online experiment	Health Econ Rev. 2020 May 21;10(1):13. doi: 10.1186/s135	Health Econ Rev	2020
20210704	PubMed		y						y	E4: Health intervention pricing	y	lab	33726735	Wettstein DJ, Boes S.	Assessing social preferences in reimbursement negotiations for new Pharmaceuticals in Oncology: an experimental design to analyse willingness to p	BMC Health Serv Res. 2021 Mar 16;21(1):234. doi: 10.1186	BMC Health Serv Res	2021
20210704	PubMed		y				n		n	n		30305049	Wiant K, Geisen E, Creel D, Willis G, Freedman A, de Moor J, Klabunde	Risks and rewards of using prepaid vs. postpaid incentive checks on a survey of physicians	BMC Med Res Methodol. 2018 Oct 11;18(1):104. doi: 10.11	BMC Med Res Methodol	2018
20210704	Scopus	x	n						n	n		30305049	Wiant K., Geisen E., Creel D., Willis G., Freedman A., De Moor J., Klabu	Risks and rewards of using prepaid vs. postpaid incentive checks on a survey of physicians			2018
20210704	Scopus		y			n	n		n	n			Wilday J., Saw J.L., Wardman M., Bilio M.	The CO2PipeHaz Good Practice Guidelines for CO2 pipeline safety			2014
20210704	PubMed		y			n		n	n	n		33334498	Wirth O, Foreman AM, Friedel JE, Andrew ME.	Two discrete choice experiments on laboratory safety decisions and practices	J Safety Res. 2020 Dec;75:99-110. doi: 10.1016/j.jsr.2020.0	J Safety Res	2020
20210704	Scopus	x	n						n	n		33334498	Wirth O., Foreman A.M., Friedel J.E., Andrew M.E.	Two discrete choice experiments on laboratory safety decisions and practices			2020
20210704	Scopus	x	n						n	n		31133408	Witry M.J., St. Marie B.J., Viyyuri B.R., Windschitl P.D.	Factors Influencing Judgments to Consult Prescription Monitoring Programs: A Factorial Survey Experiment			2020

20210704	PubMed		y					n		n		n		33113408	Witry MJ, St Marie BJ, Vivyuri BR, Windschitl PD.	Factors Influencing Judgments to Consult Prescription Monitoring Programs: A Factorial Survey Experiment	Pain Manag Nurs. 2020 Feb;21(1):48-56. doi: 10.1016/j.pm	Pain Manag Nurs	2020
20210704	Scopus		y			n	n			n		n			Wright A.	Downslope and north: How soil degradation and synthetic pesticides drove the trajectory of mexican agriculture through the twentieth century			2012
20210704	PubMed		y							y	E3: Health care provision	n	lab	30351230	Xi X, Wang E, Lu Q, Chen P, Wo T, Tang K.	Does an economic incentive affect provider behavior? Evidence from a field experiment on different payment mechanisms	J Med Econ. 2019 Jan;22(1):35-44. doi: 10.1080/13696998.	J Med Econ	2019
20210704	Scopus	x	n							n		n		30351230	Xi X., Wang E., Lu Q., Chen P., Wo T., Tang K.	Does an economic incentive affect provider behavior? Evidence from a field experiment on different payment mechanisms			2019
20210704	Scopus		y			n	n			n		n			Yang B., Nan X., Zhao X.	Persuasiveness of anti-smoking messages: self-construal and message focus			2017
20210704	Scopus		y			n	n			n		n			Yang Z., Wu Q., Dong H., Zou H.	The energy budget of tree sparrows Passer montanus in wind different speed and duration			2013
20210704	Scopus		y	n		n	n			n		n			Yasuda T., Nagano N., Kitano H., Ohga H., Sakai T., Ohshimo S., Matsu	Tag attachment success can be temperature dependent: A case study of the chub mackerel Scomber japonicus			2015
20210704	PubMed		y			n				n		n		27284278	Yazdani F, Naghshvarian M, Salehi A, Marzban M.	Effects of Dexamphetamine and Music on Reversal Learning	Iran J Psychiatry Behav Sci. 2016 Mar 15;10(1):e3483. doi: !	Iran J Psychiatry Behav Sci	2016
20210704	Scopus	x	n							n		n			Yazdani F., Naghshvarian M., Salehi A., Marzban M.	Effects of dexamphetamine and music on reversal learning			2016
20210704	Scopus	x	n							n		n			Yeung C.L., Wang X., Lashkor M., Cantini E., Rawson F.J., Iqbal P., Pree	Modulation of Biointeractions by Electrically Switchable Oligopeptide Surfaces: Structural Requirements and Mechanism			2014
20210704	PubMed		y			n	n			n		n		25793154	Yeung CL, Wang X, Lashkor M, Cantini E, Rawson FJ, Iqbal P, Preece JA,	Modulation of Biointeractions by Electrically Switchable Oligopeptide Surfaces: Structural Requirements and Mechanism	Adv Mater Interfaces. 2014 Apr;1(2):1300085. doi: 10.1002	Adv Mater Interfaces	2014
20210704	PubMed		y					n		n		n		32444362	Yihdego M, Amogne A, Desta S, Choi Y, Shiferaw S, Seme A, Liu L, Helle	Improving the demand for birth registration: a discrete choice experiment in Ethiopia	BMJ Glob Health. 2020 May;5(5):e002209. doi: 10.1136/bm	BMJ Glob Health	2020
20210704	Scopus		y			n	n			n		n		11268375	Yirmiya R., Pollak Y., Morag M., Reichenberg A., Barak O., Avitsur R., S	Illness, cytokines, and depression			2000
20210704	Scopus		y							y	E2: Health care utilisation	n	natural	6439714	Yokley J.M., Glenwick D.S.	INCREASING THE IMMUNIZATION OF PRESCHOOL CHILDREN; AN EVALUATION OF APPLIED COMMUNITY INTERVENTIONS			1984
20210704	Scopus		y			n				n		n			Yoshida M., Miyake Y.	Effect of time on making decisions in an ultimatum game - Application to medical ICT field			2012
20210704	PubMed		y	n						n		n		21204332	Young R.	Drug Discrimination	In: Buccafusco JJ, editor. Methods of Behavior Analysis in Ne	Methods of Behavior Analysis in Neuroc	2009
20210704	PubMed		y							y	E2: Health care utilisation	n	natural	32113625	Yue M, Wang Y, Low CK, Yoong JS, Cook AR.	Optimal Design of Population-Level Financial Incentives of Influenza Vaccination for the Elderly	Value Health. 2020 Feb;23(2):200-208. doi: 10.1016/j.jval.2	Value Health	2020
20210704	Scopus	x	n							n		n		32113625	Yue M., Wang Y., Low C.K., Yoong J.S.-Y., Cook A.R.	Optimal Design of Population-Level Financial Incentives of Influenza Vaccination for the Elderly			2020
20210704	Scopus		y			n	n			n		n			Zaeri S., Neasi A., Khaje N.	The effectiveness of stress management training on psychological empowerment and job burnout			2020
20210704	Scopus		y			n	n			n		n			Zamoshchina T.A., Berdnikova T.I., Otmakhov V.I., Sheleg E.S., Teplyak	Effect of Filipendula extract on the rhythmic organization of the daily dynamics of body temperature and behavioral activity in rats			2018
20210704	Scopus		y	n		n				n		n		10273271	Zaretsky H.W.	A proposal: statewide Hospital economic control program			1981
20210704	Scopus		y			n				n		n		1307893	Zeler K.M., McPharlane T.J., Salamonsen R.F.	Effectiveness of nursing involvement in bedside monitoring and control of coagulation status after cardiac surgery.			1992
20210704	PubMed		y	n		n				n		n		33415211	Zhang AY, Xu X.	Prevalence, Burden, and Treatment of Lower Urinary Tract Symptoms in Men Aged 50 and Older: A Systematic Review of the Literature	SAGE Open Nurs. 2018 Dec 26;4:237796081811773. doi: 1	SAGE Open Nurs	2018
20210704	PubMed		y					n		n		n		31270879	Zhu J, Li J, Zhang Z, Li H.	Patients' choice and preference for common disease diagnosis and diabetes care: A discrete choice experiment	Int J Health Plann Manage. 2019 Oct;34(4):e1544-e1555. d	Int J Health Plann Manage	2019
20210704	Scopus	x	n							n		n		31270879	Zhu J., Li J., Zhang Z., Li H.	Patients' choice and preference for common disease diagnosis and diabetes care: A discrete choice experiment			2019
20210704	Scopus		y			n				n		n		22463734	Ziegenfuss J.Y., Burmeister K., James K.M., Haas L., Tilburt J.C., Beebe	Getting physicians to open the survey: Little evidence that an envelope teaser increases response rates			2012
20210704	Scopus		y	n		n				n		n		27526497	Zigler C.M., Kim C., Choirat C., Hansen J.B., Wang Y., Hund L., Samet J.	Causal Inference Methods for Estimating Long-Term Health Effects of Air Quality Regulations			2016
na	(Galizzi_2018)		y	n						n		n			Abaluck, J., & Gruber, J. (2011). Choice inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program. American Economic Review, 101(4): 1180-1210.				2011
na	(Galizzi_2018)	x	n							n		n			Ahlert, M., Felder, S., & Vogt, B. (2012). Which patients do I treat? An experimental study with economists and physicians. Health Economics Review. 2, 1-11.				2012
na	(Galizzi_2018)		y		n			n		n		n			Allison, J.J., Kiefe, C.I., Cook E.F., Gerrity M.S., Orav, E.J., & Centor, R. (1998). The association of physician attitudes about uncertainty and risk taking with resource use in a Medicare HMO. Medical Decision Making, 18, 320-329.				1998
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural		Altmann, S. & Traxler, C. (2014). Nudges at the dentist. European Economic Review. 72, 19-38.				2014
na	(Galizzi_2018)		y	n						n		n			Al-Ubaydli, O., & List, J.A. (2015). On the generalizability of experimental results in economics. Handbook of Experimental Economic Methodology. (eds. G.R. Fréchette and A. Schotter), Oxford University Press, Oxford, UK.				2015
na	(Galizzi_2018)		y				n			n		n			Andersen, S., Cox, J.C., Harrison, G.W., Lau, M., Rutström, E.E., & Sadiraj, V. (2015). Asset Integration and Attitudes to Risk: Theory and Evidence. Working paper, GSU.				2015
na	(Galizzi_2018)		y				n			n		n			Andersen, S., Harrison, G.W., Lau, M., & Rutström, E.E. (2008a). Eliciting risk and time preferences. Econometrica. 76, 583-618.				2008
na	(Galizzi_2018)		y				n			n		n			Andersen, S., Harrison, G.W., Lau, M., & Rutström, E.E. (2008b). Lost in state space: are preferences stable? International Economic Review. 49, 1091-1112.				2008
na	(Galizzi_2018)		y				n			n		n			Andersen, S., Harrison, G.W., Lau, M., & Rutström, E.E. (2010). Preference heterogeneity in experiments: comparing the field and the laboratory. Journal of Economic Behavior & Organization. 73, 209-224.				2010
na	(Galizzi_2018)		y	n			n			n		n			Andersen, S., Harrison, G.W., Lau, M., & Rutström, E.E. (2014). Discounting behavior: a reconsideration. European Economic Review. 71, 15-33.				2014
na	(Galizzi_2018)		y	n			n			n	E0: Other focus on health-related behaviour	n			Anderson, L.R., & Mellor, J.M. (2008). Predicting health behaviors with an experimental measure of risk preference. Journal of Health Economics. 27, 1260-1274.				2008
na	(Galizzi_2018)		y				n			n		n			Anderson, L.R., & Mellor, J.M. (2009). Are risk preferences stable? Comparing an experimental measure with a validated survey-based measure. Journal of Risk and Uncertainty. 39(2), 137-160.				2009
na	(Galizzi_2018)		y				n			n		n			Andreoni, J. (1988): Why free ride? Strategies and learning in public goods experiments. Journal of Public Economics. 37, 291–304.				1988
na	(Galizzi_2018)		y					n		n		n			Ansher, C.A., Ariely, D., Nagler, A., Rudd, M., Schwartz, J.A., & Shah, A. (2014). Better medicine by default. Medical Decision Making, 34(2), 147-158.				2014
na	(Galizzi_2018)		y	n						n		n			Attema, A.E. (2012). Developments in time preference and their implications for medical decision making. Journal of the Operational Research Society. 63, 1388–1399.				2012
na	(Galizzi_2018)		y	n				n		n		n			Attema, A.E., & Brouwer, W.B.F. (2010). The value of correcting values: influence and importance of correcting TTO score for time preference. Value in Health, 13(8), 879-884.				2010
na	(Galizzi_2018)		y					n		n		n			Attema, A.E., & Brouwer, W.B.F. (2012). A test of independence of discounting from quality of life. Journal of Health Economics, 31, 22-34.				2012
na	(Galizzi_2018)		y					n		n		n			Attema, A.E., & Brouwer, W.B.F. (2014). Deriving time discounting correction factors for TTO tariffs. Health Economics, 23(4), 410-425.				2014
na	(Galizzi_2018)		y				n	n		n		n			Attema, A.E., Bleichrodt, H., & Wakker, P.P. (2012). A direct method for measuring discounting and QALYs more easily and reliably. Medical Decision Making, 32(4), 583-593.				2012
na	(Galizzi_2018)		y					n		n		n			Attema, A.E., Versteegh, M.M. (2013). Would you rather be ill now, or later? Health Economics, 22(12), 1496-1506.				2013
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural		Baicker, C., Taubman, S.L., Allen, H.L., Bernstein, M., Gruber, J.H., Newhouse, J.P., Schneider, E.C., Wright, B.J., Zaslavzky, A.M., & Finkelstein, A.N.. (2013). The Oregon Experiment – Effects of Medicaid on clinical outcomes. New England Journal of Medicine, 368, 1713-1722.				2013
na	(Galizzi_2018)		y							y	E3: Health care provision	n	natural		Banerjee, A.V., Duflo, E., & Glennerster, R. (2007). Putting a band aid on a corpse: incentives for nurses in the Indian public health care system. Journal of the European Economic Association, 6(2-3), 487-500.				2007
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural		Banerjee, A.V., Duflo, E., Glennerster, R., & Kothari, D. (2010). Improving immunization coverage in rural India: a clustered randomized controlled evaluation of immunization campaigns with and without incentives. British Medical Journal, 340, c2220.				2010
na	(Galizzi_2018)		y	n						n		n			Bardsley, N., Cubitt, R., Loomes, G., Moffatt, P., Starmer, C., & Sugden, R. (2009). Experimental Economics: Rethinking the Rules. Princeton, NJ: Princeton University Press.				2009
na	(Galizzi_2018)		y				n			n		n			Battalio, R., Kagel, J., & Jiranyakul, K. (1990). Testing between Alternative Models of Choice under Uncertainty: Some Initial Results, Journal of Risk and Uncertainty. 3, 25-50.				1990
na	(Galizzi_2018)		y	n						n		n			Bhargava, S. & Loewenstein, G. (2015). Behavioral economics and public policy 102: Beyond nudging. American Economic Review, papers and proceedings, 105(5), 396-401.				2015
na	(Galizzi_2018)		y	n						n		n			Bickel, Moody, & Higgins (2016). Some current dimensions of the behavioural economics of health-related behaviour change. Preventive Medicine, 92, 16-23.				2016
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	lab		Binder, S. & Nuscheler, R. (2017). Risk-Taking in Vaccination, Surgery, and Gambling Environments - Evidence from a Framed Laboratory Experiment, Health Economics, forthcoming.				2017
na	(Galizzi_2018)		y				n	n		n		n			Bleichrodt, H., & Johannesson, M. (2001). Time preference for health: A test of stationarity versus decreasing timing aversion. Journal of Mathematical Psychology. 45, 265–282.				2001
na	(Galizzi_2018)		y	n						n		n			Bleichrodt, H., (2002). A new explanation for the difference between time trade-off utilities and standard gamble utilities. Health Economics. 11, 447-456.				2002
na	(Galizzi_2018)		y	n						n		n			Bleichrodt, H., Wakker, P., & Johannesson, M. (1997). Characterizing QALYs by risk neutrality. Journal of Risk and Uncertainty. 15, 107–114.				1997
na	(Galizzi_2018)		y						y	n		n			Bohm, P., (1984). Revealing demand for an actual public good. Journal of Public Economics. 24(2), 135-151.				1984
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	lab		Böhm, R., Betsch, C., & Korn, L. (2016). Selfish-Rational Non-Vaccination: Experimental Evidence from an Interactive Vaccination Game, Journal of Economic Behavior & Organization. 131 B, 183-195.				2016
na	(Galizzi_2018)	x	n							n		n			Böhm, R., Meier, N., Korn, L. & Betsch, C., (2017). Behavioural Consequences of Vaccination Recommendations: An Experimental Analysis, Health Economics, forthcoming.				2017
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab		Bosig-Koch, J., Hehenkam, B. & Kokot, J. (2017). The effects of competition on medical service provision, Health Economics, forthcoming.				2017
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n			Bradford, W.D. (2010). The association between individual time preferences and health maintenance habits. Medical Decision Making. 30, 99–112.				2010
na	(Galizzi_2018)		y					n		n		n			Bradford, W.D., Zoller, J., & Silvestri, G.A. (2010). Estimating the Effect of Individual Time Preferences on the Use of Disease Screening. Southern Economic Journal. 76, 1005–1031.				2010
na	(Galizzi_2018)		y						y	n		n			Brewer, N.T., Chapman, G.B., Schwartz, J., & Bergus, G.R. (2007). Assimilation and contrast effects in physician and patient treatment choices. Medical Decision Making, 27, 203-211.				2007
na	(Galizzi_2018)		y						y	n		n			Brock, J.M., Lange, A., & Leonard, K.L. (2016). Generosity and Prosocial Behavior in Healthcare Provision Evidence from the Laboratory and Field. Journal of Human Resources. 51, 133-162.				2016
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural		Bronchetti, E.T., Huffman, D.B., & Magenheim, E. (2015). Attention, intentions, and follow-through in preventive health behavior: Field experimental evidence on flu vaccination. Journal of Economic Behavior & Organization. 116, 270-291.				2015
na	(Galizzi_2018)		y				n			n		n			Brookshire, D.S., Coursey, D.L. & Schulze, W.D. (1987). The external validity of experimental economics techniques: analysis of demand behavior. Economic Inquiry. 25, 239-250.				1987
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab		Brosig-Koch, J., Hennig-Schmidt, H., Kairies-Schwarz, N. & Wiesen, D. (2016b): Physician performance pay: Evidence from a laboratory experiment, Ruhr Economic Papers, No. 658.				2016
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab		Brosig-Koch, J., Hennig-Schmidt, H., Kairies-Schwarz, N. & Wiesen, D. (2017b): Physician performance pay: Experimental Evidence. Unpublished manuscript, University of Cologne.				2017
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab		Brosig-Koch, J., Hennig-Schmidt, H., Kairies-Schwarz, N., & Wiesen, D. (2016a): Using artefactual field and lab experiments to investigate how fee-for-service and capitation affect medical service provision, Journal of Economic Behavior & Organization, 131 B, 17-23.				2016
na	(Galizzi_2018)	x	n							n		n			Brosig-Koch, J., Hennig-Schmidt, H., Kairies-Schwarz, N., & Wiesen, D. (2017a): The effects of introducing mixed payment systems for physicians: Experimental evidence, Health Economics, 26, 26: 243–262.				2017
na	(Galizzi_2018)	x	n							n		n			Brosig-Koch, J., Kokot, J., & Kairies-Schwarz, N. (2017). Sorting into payment schemes and medical treatment: A laboratory experiment, Health Economics, forthcoming.				2017
na	(Galizzi_2018)	x	n							n		n			Buckley, N., Cuff, K., Hurley, J., Mestelman, S., Thomas, S., & Cameron, D., (2016). Should I stay or should I go? Exit options within mixed systems of public and private health care finance. Journal of Economic Behavior & Organization. 131 B, 62-77.				2016
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab		Buckley, N.J., Cuff, K., Hurley, J., McLeod, L., Mestelman, S., & Cameron, D. (2012): An Experimental Investigation of Mixed Systems of Public and Private Health Care Finance, Journal of Economic Behavior & Organization, 84, 713-729.				2012
na	(Galizzi_2018)		y							y	E1: Health insurance choice	n	lab		Buckley, N.J., Cuff, K., Hurley, J., McLeod, L., Nuscheler, R., & Cameron, D. (2012). Willingness-to-pay for parallel private health insurance: Evidence from a laboratory experiment. Canadian Journal of Economics. 45, 137-166.				2012
na	(Galizzi_2018)		y				n			n		n			Buckley, N.J., Cuff, K., Hurley, J., Mestelman, S, Thomas, S. & Cameron, D. (2015). Support for Public Provision of a Priate Good with Top-Up and Opt-Out: A Controlled Laboratory Experiment. Journal of Economic Behavior & Organization. 111, 177-196.				2015
na	(Galizzi_2018)		y	n						n		n			Burman, L.E., Reed, W.R., & Alm, J. (2010). A call for replication studies. Public Finance Review. 38, 787-793.				2010
na	(Galizzi_2018)		y	n			n			n		n			Burtless, G. (1995). The case for randomised field trials in economic and policy research. Journal of Economic Perspectives. 9, 63-84.				1995
na	(Galizzi_2018)		y				n	n		n		n			Cairns, J.A. (1994). Valuing future benefits. Health Economics. 3, 221–229.				1994
na	(Galizzi_2018)		y	n			n	n		n		n			Cairns, J.A., & Van Der Pol, M. (1997). Constant and decreasing timing aversion for saving lives. Social Science and Medicine, 45(11), 1653-1659.				1997
na	(Galizzi_2018)		y	n						n		n			Camerer, C., & Hogarth, R. (1999). The effects of financial incentives in experiments: a review and capital-production-labor framework. Journal of Risk and Uncertainty 18, 7–42.				1999
na	(Galizzi_2018)		y				n			n		n			Camerer, C.F., Dreber, A., Forsell, E., Ho, T.H., Huber, J., Johannesson, M., Kirchler, M., Almenberg, J., Altmejd, A., Chan, T., & Heikensten, E. (2016). Evaluating replicability of laboratory experiments in economics. Science, 351, 1433-1436.				2016
na	(Galizzi_2018)		y	n						n		n			Chamberlin, E.H. (1948). An experimental imperfect market. Journal of Political Economy, 56, 95–108.				1948
na	(Galizzi_2018)		y					n		n		n			Chapman, G.B. (1996). Temporal discounting and utility for health and money. Journal of Experimental Psychology: Learning, Memory and Cognition. 22, 771.				1996
na	(Galizzi_2018)		y					n		n		n			Chapman, G.B., & Coups, E.J. (1999). Time Preferences and Preventive Health Behavior Acceptance of the Influenza Vaccine. Medical Decision Making. 19, 307–314.				1999
na	(Galizzi_2018)		y						y	n		n			Chapman, G.B., & Elstein, A.S. (1995). Valuing the future: temporal discounting of health and money. Medical Decision Making, 15, 373-386.				1995
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n			Charness, G. and Gneezy, U. (2009). Incentives to exercise. Econometrica. 77, 909-931.				2009
na	(Galizzi_2018)		y	n						n		n			Charness, G., & E. Fehr (2015): From the lab to the real world, Science, 350, 512–513.				2015
na	(Galizzi_2018)		y	n						n		n			Charness, G., & Kuhn, P. (2011). Lab Labor: What Can Labor Economists Learn from the Lab? in Ashenfelter, O. & Card, D. (Eds.) Handbook of Labor Economics, Elsevier, New York, vol. 4, 229-330.				2011
na	(Galizzi_2018)		y				n	n		n		n			Chiou, Yang, & Wan (2011). Ironic effects of dietary supplementation. Psychological Science, 22, 1081-1086.				2011
na	(Galizzi_2018)		y		n		n	n		n		n			Clark, A., & Loheac, Y. (2007). 'It wasn't me, it was them!': Social influence in risky behavior by adolescents. Journal of Health Economics, 26, 763-784.				2007
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural		Cohen, J., Dupas, P., & Schaner, S. (2015). Price subsidies, diagnostic tests, and targeting of malaria treatment. American Economic Review, 105(2), 609-645.				2015
na	(Galizzi_2018)		y				n			n		n			Coller, M., & Williams, M.B. (1999). Eliciting individual discount rates. Experimental Economics. 2, 107-127.				1999
na	(Galizzi_2018)		y	n						n		n			Cook, T.D., & Campbell, D.T. (1979). Quasi-experimentation: Design and analysis for field settings. Chicago: Rand McNally.				1979
na	(Galizzi_2018)		y	n						n		n			Cox, J.C., Green, E.P., & Hennig-Schmidt, H. (2016): Experimental and behavioral economics of healthcare, Journal of Economic Behavior & Organization, 131(B), A1-A4.				2016
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab		Cox, J.C., Sadiraj, V., Schnier, K.E., & Sweeney, J.F. (2016). Incentivizing cost-effective reductions in hospital readmission rates. Journal of Economic Behavior & Organization, 131 B, 24-35.				2016
na	(Galizzi_2018)		y				n			n		n			Cummings, R.G., Elliott, S., Harrison, G.W. & Murphy, J. (1997). Are hypothetical referenda incentive compatible? Journal of Political Economy. 105, 609-621.				1997
na	(Galizzi_2018)		y	n						n		n			Cummings, R.G., Harrison, G.W. & Rutström, E.E. (1995). Homegrown Values and Hypothetical Surveys: Is the Dichotomous Choice Approach Incentive-Compatible? American Economic Review. 85, 260-66.				1995
na	(Galizzi_2018)		y	n						n		n			de Bekker-Grob, E. W., Ryan, M., & Gerard, K. (2012). Discrete choice experiments in health economics: a review of the literature. Health economics. 21, 145-172.				2012
na	(Galizzi_2018)		y	n						n		n			Dolan, P., & Galizzi, M.M. (2014a). Getting policy-makers to listen to field experiments. Oxford Review of Economic Policy. 30(4), 725-752.				2014
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n			Dolan, P., & Galizzi, M.M. (2014b). Because I'm worth it. A lab-field experiment on spillover effects of incentives in health. LSE CEP Discussion Paper CEPDP1286, London School of Economics.				2014
na	(Galizzi_2018)		y	n			n			n		n			Dolan, P., & Galizzi, M.M. (2015): Like ripples on a pond: behavioral spillovers and their consequences for research and policy. Journal of Economic Psychology. 47, 1-16.				2015
na	(Galizzi_2018)		y				n	n		n		n			Dolan, P., & Gudex, C. (1995). Time preference, duration and health state valuations. Health Economics. 4, 289–299.				1995
na	(Galizzi_2018)	x	n							n		n			Dolan, P., Galizzi, M.M., & Navarro-Martinez, D. (2015). Paying people to eat or not to eat? Carryover effects of monetary incentives on eating behavior. Social Science and Medicine. 133, 153-158.				2015

na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Duflo, E., Dupas, P., Kremer, M. (2015). Education, HIV and early fertility: experimental evidence from Kenya. American Economic Review, 105(9), 2257-2297.	2015
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Dupas, P. (2011). Do teenagers respond to HIV risk information? Evidence from a field experiment in Kenya. American Economic Journal: Applied Economics, 3(1), 1-36.	2011
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Dupas, P. (2014a). Short-run subsidies and long-run adoption of new health products: evidence from a field experiment. Econometrica, 82(1), 187-228.	2014
na	(Galizzi_2018)	y	n						n		n		Dupas, P. (2014b). Getting essential health products to their end users: subsidize, but how much? Science, 345(6202), 1279-1281.	2014
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Dupas, P., Hoffmann, V., Kremer, M., & Zwane, A.P. (2016). Targeting health subsidies through a non-price mechanism: a randomized controlled trial in Kenya. Science, 353(6302), 889-895.	2016
na	(Galizzi_2018)	y						n	n		n		Ellermann, K., Halstenberg, K., Kuntz, L., Martakis, K., Roth, B., and Wiesen, D. (2017). The effect of feedback on antibiotics provision in pediatrics: Experimental evidence, Working paper, University of Cologne.	2017
na	(Galizzi_2018)	y				n			n		n		Engel, C., & Rand, D.G. (2014). What does "clean" really mean? The implicit framing of decontextualized experiments. Economics Letters, 122(3), 386-389.	2014
na	(Galizzi_2018)	y	n						n		n		Falk, A., & Heckman, J.J. (2009): Lab experiments are a major source of knowledge in the social sciences. Science. 326, 535-538.	2009
na	(Galizzi_2018)	y		n					n		n		Fan, C., Chen, K., & Kann, K. (1998): The Design of Payment Systems for Physicians under Global Budget - An Experimental Study, Journal of Economic Behavior & Organization, 34, 295–311.	1998
na	(Galizzi_2018)	y				n			n		n		Fehr, E., Kirchsteiger, G. & Riedl, A., (1993). Does fairness prevent market clearing? An experimental investigation. Quarterly Journal of Economics. 108, 437-459.	1993
na	(Galizzi_2018)	y	n						n		n		Ferber, R., & Hirsch, W.Z. (1978). Social experimentation and economic policy: A survey. Journal of Economic Literature. 16, 1379-1414.	1978
na	(Galizzi_2018)	y						y	n		n		Finkelstein A., & Taubman S. (2015). Randomize evaluations to improve health care delivery. Science, 347, 720–722.	2015
na	(Galizzi_2018)	y							y	E2: Health care utilisation	n	natural	Finkelstein, A.N., Taubman, S.L., Allen, H.L., Wright, B.J., & Baicker, K. (2016). Effect of Medicaid coverage on ED use: further evidence from Oregon's Experiment. New England Journal of Medicine, 375, 1505-1507.	2016
na	(Galizzi_2018)	y							y	E2: Health care utilisation	n	natural	Finkelstein, A.N., Taubman, S.L., Wright, B.J., Bernstein, M., Gruber, J.H., Newhouse, J.P., Allen, H.L., & Baicker, K. (2012). The Oregon Health Insurance Experiment: evidence from the first year. Quarterly Journal of Economics. 127, 1057-1106.	2012
na	(Galizzi_2018)	y						y	n		n		Fiore, S.M., Harrison, G.W., Hughes, C.E., & Rutstrom, E.E. (2009). Virtual experiments and environmental policy. Journal of Environmental Economics and Management. 57, 65-86.	2009
na	(Galizzi_2018)	y	n						n		n		Frank, R.G. (2007). Behavioral economics and health economics. In: Diamond, P., Vartianinen, H. (Eds.), Behavioral Economics and Its Applications. Princeton University Press.	2007
na	(Galizzi_2018)	y	(n)	(n)		(n)			n		n		Friedman, D. & Cassar, A. (2004). Economics lab: an intensive course in experimental economics. Routledge.	2004
na	(Galizzi_2018)	y	n						n		n		Friedman, D., & Sunder, S. (1994). Experimental methods: A primer for economists. Cambridge University Press.	1994
na	(Galizzi_2018)	y	n						n		n		Fuchs, V. (2000). The future of health economics. Journal of Health Economics 19, 141–157.	2000
na	(Galizzi_2018)	y	n						n		n		Gafni, A., & Torrance, G.W. (1984). Risk attitude and time preference in health. Management Science. 30, 440–451.	1984
na	(Galizzi_2018)	y				n			n		n		Galizzi, M.M. & Navarro-Martinez, D. (2017). On the external validity of social-preference games: A systematic lab-field study, Management Science, forthcoming.	2017
na	(Galizzi_2018)	y	n						n		n		Galizzi, M.M. (2014). What is really behavioural in behavioural health policies? And, does it work? Applied Economics Perspectives and Policy. 36(1), 25-60.	2014
na	(Galizzi_2018)	y	n						n		n		Galizzi, M.M. (2017). Behavioral Aspects of Policy Formulation: Experiments, Behavioral Insights, Nudges. In Howlett M, Mukherjee I (Eds.) Handbook of Policy Formulation, Handbooks of Research on Public Policy, Edward Elgar Publishing, Cheltenham, UK, ISBN: 9781784719319.	2017
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Galizzi, M.M., & Miraldo, M. (2017). Are you what you eat? Healthy behaviour and risk preferences. The B.E. Journal of Economic Analysis and Policy, forthcoming.	2017
na	(Galizzi_2018)	y	n						n		n		Galizzi, M.M., Godager, G., Linnosmaa, I., Tammi, T., & Wiesen, D. (2015). Provider altruism in health economics. THL Discussion paper, No. 4.	2015
na	(Galizzi_2018)	y						y	n		n		Galizzi, M.M., Harrison, G.W., & Miniaci, R. (2017). Linking experimental and survey data for a UK representative sample: structural estimation of risk and time preferences. Unpublished manuscript, London School of Economics.	2017
na	(Galizzi_2018)	y	n						n		n		Galizzi, M.M., Harrison, G.W., & Miraldo, M. (2017). Experimental methods and behavioral insights in health economics: estimating risk and time preferences in health. In Baltagi, B., Moscone, F. (Eds) Health Econometrics in Contributions to Economic Analysis, Emerald Publishing, UK.	2017
na	(Galizzi_2018)	y				n	(n)		n		n		Galizzi, M.M., Machado, S.R., & Miraldo, M. (2016). Temporal stability, cross-validity, and external validity of risk preferences measures: experimental evidence from a UK representative survey. LSE Research Online Working Paper 67554. Department of Social Policy, London School of Economics. http://eprints.lse.ac.uk/6	2016
na	(Galizzi_2018)	y					n		n		n		Galizzi, M.M., Miraldo, M., & Stavropoulou, C. (2016). In sickness but not in wealth: field evidence on patients' risk preferences in the financial and health domain. Medical Decision Making. 36, 503–517.	2016
na	(Galizzi_2018)	y					n		n		n		Galizzi, M.M., Miraldo, M., Stavropoulou, C., & Van Der Pol, M. (2016). Doctors-patients differences in risk and time preferences: a field experiment. Journal of Health Economics, 50, 171-182.	2016
na	(Galizzi_2018)	y	n						n		n		Galizzi. M.M. & Wiesen, D. (2017). Behavioral experiments in health: an introduction. Health Economics, forthcoming.	2017
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Garcia Prado, A. Arrieta, A., Gonzalez, P. & Pinto Prades, J.L. (2017). Risk Attitudes in Medical Decisions for Others: An Experimental Approach. Health Economics, forthcoming.	2017
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Gine', Karlan, D., Zinman, (2010). Put your money where your butt is: a commitment contract for smoking cessation. American Economic Journal: Applied Economics, 2, 213-235.	2010
na	(Galizzi_2018)	y	n						n		n		Gneezy, U., Meier, S., & Rey-Biel, P. (2011). When and why incentives (don't) work to modify behavior. Journal of Economic Perspectives. 25, 191-209.	2011
na	(Galizzi_2018	x	n						n		n		Godager, G., & Wiesen, D. (2103). Profit or patients' health benefit? Exploring the heterogeneity in physician altruism. Journal of Health Economics, 32, 1105-1116.	2013
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Godager, G., Hennig-Schmidt, H., & Iversen, T. (2016). Does performance disclosure influence physicians' medical decisions? An experimental study. Journal of Economic Behavior & Organization, 131, 36-46.	2016
na	(Galizzi_2018)	y	n						n		n		Green, D. P., & Gerber, A. S. (2003). The underprovision of experiments in political science. The Annals of the American Academy of Political and Social Science, 589, 94-112.	2003
na	(Galizzi_2018	x	n						n		n		Green, E.P. (2014). Payment systems in the healthcare industry: An experimental study of physician incentives. Journal of Economic Behavior & Organization. 106, 367-378.	2014
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Greiner, B., Zhang, L., & Tang, C. (2017). Separation of Prescription and Treatment in Health Care Markets-A Laboratory Experiment. Health Economics, forthcoming.	2017
na	(Galizzi_2018)	y	n						n		n		Guala, F. (2005). The methodology of experimental economics. Cambridge University Press, Cambridge, UK.	2005
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Halpern, S.D., French, B., Small, D.S., Sausgiver, K., Harhay, M.O., Audrain-McGovern, J. Loewenstein, G., Brennan, T.A., Asch, D.A., & Volpp, K.G. (2015). A Randomized Trial of Four Financial Incentive Programs for Smoking Cessation. New England Journal of Medicine, 372(22), 2108-2117.	2015
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Halpern, S.D., French, B., Small, D.S., Sausgiver, K., Harhay, M.O., Audrain-McGovern, J., Loewenstein, G., Asch, D.A., & Volpp, K.G. (2016). Heterogeneity in the effects of reward- and deposit-based financial incentives on smoking cessation. American Journal of Respiratory and Critical Care Medicine, 194(8), 981-988.	2016
na	(Galizzi_2018)	y							y	E2: Health care utilisation	n	natural	Halpern, S.D., Loewenstein, G., Volpp, K.G., Cooney, E., Vranas, K. Quill, C.M., McKenzie, M.S., Harhay, M.O., Gabler, N.B., Silva, T., Arnold, R., Argus, D.C., & Bryce, C. (2013). Default Options In Advance Directives Influence How Patients Set Goals For End-Of-Life Care. Health Affairs, 32(2).	2013
na	(Galizzi_2018)	y	n						n		n		Hanoch, Y., Barnes, A.J., & Rice, T. (2017). Behavioral Economics and Healthy Behaviors: Key Concepts and Current Research. London, UK: Routledge.	2017
na	(Galizzi_2018)	y	n						n		n		Hansen, F., Anell, A., Gerdtham, U. G., & Lyttkens, C. H. (2015). The future of health economics: the potential of behavioral and experimental economics. Nordic Journal of Health Economics. 3, 68-86.	2015
na	(Galizzi_2018)	y	n			n			n		n		Harrison, G.W. (2006). Hypothetical bias over uncertain outcomes. In J.A. List (Ed.) Using Experimental Methods in Environmental and Resource Economics, Northampton, MA: Edward Elgar.	2006
na	(Galizzi_2018)	y	n			n			n		n		Harrison, G.W. (2010). The behavioral counter-revolution. Journal of Economic Behavior and Organization, 73, 49-57.	2010
na	(Galizzi_2018)	y	n						n		n		Harrison, G.W. (2013). Field experiments and methodological intolerance. Journal of Economic Methodology. 20(2), 103-117.	2013
na	(Galizzi_2018)	y	n			n			n		n		Harrison, G.W. (2014). Cautionary notes on the use of field experiments to address policy issues. Oxford Review of Economic Policy. 30(4), 753-763.	2014
na	(Galizzi_2018)	y	n						n		n		Harrison, G.W., & List, J.A. (2004). Field experiments. Journal of Economic Literature. 42, 1009-1055.	2004
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., & List, J.A. (2008). Naturally occurring markets and exogenous laboratory experiments: A case study of the winner's curse. The Economic Journal, 118, 822-843.	2008
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., & Rutström, E.E. (2008). Risk aversion in the laboratory. In J.C. Cox & G.W. Harrison (Eds.), Risk Aversion in Experiments. Bingley, UK: Emerald Research in Experimental Economics, Volume 12.	2008
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., Hofmeyr, A., Ross, D., & Swarthout, J.T. (2015). Risk preferences, time preferences, and smoking behavior. CEAR Working Paper 2015-11. Robinson College of Business. Georgia State University.	2015
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., Lau, M.I. & Rutström, E.E. (2007). Estimating risk attitudes in Denmark: A field experiment. Scandinavian Journal of Economics. 109, 341-368.	2007
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., Lau, M.I., & Rutström, E.E. (2009). Risk attitudes, randomization to treatment, and self-selection into experiments. Journal of Economic Behavior & Organization. 70, 498-507.	2009
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., Lau, M.I., & Rutström, E.E. (2010). Individual discount rates and smoking: evidence from a field experiment in Denmark. Journal of Health Economics. 29, 708-717.	2010
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., Lau, M.I., & Rutström, E.E. (2015). Theory, experimental design, and econometrics are complementary (and so are lab and field experiments). In G. Frechette & A. Schotter (Eds.), Handbook of experimental economic methodology. Oxford: Oxford University Press.	2015
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., Lau, M.I., & Williams, M.B. (2002). Estimating individual discount rates in Denmark: A field experiment. American Economic Review. 92, 1606-1617.	2002
na	(Galizzi_2018)	y				n			n		n		Harrison, G.W., List, J.A., & Towe, C. (2007). Naturally occurring preferences and exogenous laboratory experiments: A case study of risk aversion. Econometrica. 75, 433-458.	2007
na	(Galizzi_2018)	y	n						n		n		Haynes, L., Service, O, Goldacre, B., & Torgerson, D. (2012). Test, learn, adapt: developing public policy with randomized controlled trials. Cabinet Office Behavioural Insights Team.	2012
na	(Galizzi_2018)	y	n						n		n		Heckman, J.J. (2010). Building bridges between structural and program evaluation approaches to evaluating policies. Journal of Economic Literature. 48(2), 356-398.	2010
na	(Galizzi_2018)	y	n						n		n		Heckman, J.J., & Smith, J.A. (1995). Assessing the case for social experiments. Journal of Economic Perspectives. 9(2), 85-110.	1995
na	(Galizzi_2018	x	n						n		n		Hennig-Schmidt, H., & Wiesen, D. (2014). Other-regarding behavior and motivation in health care provision: An experiment with medical and non-medical students, Social Science & Medicine,108, 156-165.	2014
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Hennig-Schmidt, H., Jürges, H., & Wiesen, D. (2017). Dishonesty in healthcare practice: A behavioral experiment on upcoding in neonatology, Working paper, University of Cologne.	2017
na	(Galizzi_2018	x	n						n		n		Hennig-Schmidt, H., Selten, R., & Wiesen, D. (2011). How payment systems affect physicians' provision behavior: an experimental investigation. Journal of Health Economics. 30(4), 637-646.	2011
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Herr, A., & Normann, H.-T. (2016). Organ donation in the lab: Preferences and votes on the priority rule, Journal of Economic Behavior & Organization. 161, Part B, 139-149	2016
na	(Galizzi_2018)	y		n		n			n		n		Herrnstein, R., Loewenstein, G., Prelec, D., & Vaughan, W. (1993). Utility maximization and melioration: Internalities in individual choice. Journal of Behavioral Decision Making, 6, 149-185.	1993
na	(Galizzi_2018)	y				n			n		n		Hey, J.D., & Orme, C. (1994). Investigating generalizations of expected utility theory using experimental data. Econometrica. 62, 1291-1326.	1994
na	(Galizzi_2018)	y				n			n		n		Holt, C. & Laury, S.K. (2002) Risk Aversion and Incentive Effects. American Economic Review. 92,1644-1655.	2002
na	(Galizzi_2018)	y							y	E1: Health insurance choice	n	lab	Huck, S., Lünser, G., Spitzer, F., & Tyran, J.R. (2016). Medical insurance and free choice of physician shape patient overtreatment: A laboratory experiment. Journal of Economic Behavior & Organization, 131, 78-105.	2016
na	(Galizzi_2018)	y						n	n		n		Jakobsson, N., Kotsadam, A., Syse, A., & Øien, H. (2016): Gender Bias in Public Long-term Care? A Survey Experiment among Care Managers, Journal of Economic Behavior & Organization. 131, Part B, 126-138.	2016
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		John, L., Loewenstein, G., & Volpp, K. (2012). Empirical observations on longer-term use of incentives for weight loss. Preventive Medicine, 55(1) 568-574.	2012
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		John, L., Loewenstein, G., Troxel, A., Norton, L., Fassbender, J., & Volpp, K. (2011). Financial Incentives for Extended Weight Loss: A Randomized, Controlled Trial. Journal of General Internal Medicine, 621-626.	2011
na	(Galizzi_2018)	y	n	n					n		n		Jürges, H., & Köberlein, J. (2015). What explains DRG upcoding in neonatology? The roles of financial incentives and infant health. Journal of Health Economics. 43, 13-26.	2015
na	(Galizzi_2018)	y	n						n		n		Kagel, J.H. (2015). Laboratory experiments: The lab in relationship to field experiments, field data, and economic theory. In G. Frechette and A. Schotter (Eds.), Handbook of Experimental Economic Methodology. Oxford University Press: Oxford.	2015
na	(Galizzi_2018)	y			n				n		n		Kagel, J.H., Battalio, R.C., Rachlin, H., & Green, L. (1981). Demand Curves for Animal Consumers, Quarterly Journal of Economics. 96 1-15.	1981
na	(Galizzi_2018)	y							y	E1: Health insurance choice	n	lab	Kairies-Schwarz, N., Kokot, J., Vomhof, M., & Weßling, J. (2017). Health insurance choice and risk preferences under cumulative prospect theory – An experiment, Journal of Economic Behavior & Organization. 137, 374-397.	2017
na	(Galizzi_2018)	y	n						n		n		Keane, M.P. (2010a). Structural vs. atheoretic approaches to econometrics. Journal of Econometrics. 156, 3-20.	2010
na	(Galizzi_2018)	y	n						n		n		Keane, M.P. (2010b). A structural perspective on the experimentalist school. Journal of Economic Perspectives. 24(2), 47-58.	2010
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Kessler, J.B., & Roth, A. (2012). Organ Allocation Policy and the Decision to Donate. American Economic Review, 102, 2018-2047.	2012
na	(Galizzi_2018)	y	n						n		n		Kessler, J.B., & Roth, A. (2014a). Getting More Organs for Transplantation. American Economic Review. 104, 425-430.	2014
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Kessler, J.B., & Roth, A. (2014b). Loopholes undermine donation: An experiment motivated by an organ donation priority loophole in Israel, Journal of Public Economics. 114, 19-28.	2014
na	(Galizzi_2018)	y					(n)		n		n		Kesternich, I., Heiss, F., McFadden, D., & Winter, J. (2013). Suit the action to the word, the word to the action: hypothetical choices and real decisions in Medicare Part D. Journal of Health Economics. 32, 1313-1324.	2013
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Kesternich, I., Schumacher, H., & Winter, J. (2015). Professional norms and physician behavior: homo oeconomicus or homo hippocraticus? Journal of Public Economics. 13, 1–11.	2015
na	(Galizzi_2018)	y							y	E2: Health care utilisation	n	natural	Kimmel, S.E, Troxel, A.B., French, B., Loewenstein, G., Brensinger, C.M., Meussner, C., Doshi, J.A., Laskin, M., & Volpp, K. (2016). A randomized trial of lottery-based incentives and reminders to improve warfarin adherence: The Warfarin Incentives (WIN2) Trial. Pharmacoepidemiology and Drug Safety, 25, 1219-1227.	2016
na	(Galizzi_2018)	y							y	E2: Health care utilisation	n	natural	Kimmel, S.E., Troxel, A.B., Loewenstein, G., Bensinger, C.M., Jaskowiak, J., Doshi, J.A., Laskin, M., & Volpp, K. (2012). Randomized Trial of Lottery-Based Incentives to Improve Warfarin Adherence. American Heart Journal, 164(2), 268-274.	2012
na	(Galizzi_2018)	y				(n)			n		n		Kolstad, J. R., & Lindkvist, I. (2012). Pro-Social Preferences and Self-Selection into the Public Health Sector: Evidence from an Economic Experiment. Health Policy and Planning. 28, 320–327.	2012
na	(Galizzi_2018)	y	n						n		n		Kőszegi, B. (2003). Health anxiety and patient behavior. Journal of Health Economics. 22, 1073-1084.	2003
na	(Galizzi_2018)	y	n						n		n		Kőszegi, B. (2006). Emotional agency. Quarterly Journal of Economics. 121,121-155.	2006
na	(Galizzi_2018)	y	n						n		n		Kramer, M., & Shapiro, S. (1984). Scientific challenges in the application of randomized trials. Journal of the American Medical Association. 252, 2739-2745.	1984
na	(Galizzi_2018)	y				n			n		n		Krawczyk, M. (2011). What brings your subjects to the lab? A field experiment. Experimental Economics, 14, 482-489.	2011
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Kullgren, J.T., Troxel, A.B., Loewenstein, G., Asch, D.A., Norton, L.A., Wesby, L., Tao, Y., Zhu, J., & Volpp, K.G. (2013). Individual vs. Group-Based Incentives for Weight Loss: A Randomized, Controlled Trial. Annals of Internal Medicine, 158(7), 505-514.	2013
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Kullgren, J.T., Troxel, A.B., Loewenstein, G., Norton, L.A., Gatto, D., Tao, Y., Zhu, J., Schofield, H., Shea, J.A., Asch, D.A., Pellathy, T., Driggers, J., & Volp, K.G. (2016). A randomized controlled trial of employer matching of employees' monetary contributions to deposit contracts to promote weight loss. American Journal	2016
na	(Galizzi_2018	x	n						n		n		Lagarde, M. & Blaauw, D. (2017). Physicians' responses to financial and social incentives: A medically framed real effort experiment, Social Science & Medicine, 179, 147-159.	2017
na	(Galizzi_2018)	y	n						n		n		Leamer, E.E. (2010). Tantalus on the road to asymptopia. Journal of Economic Perspectives. 24(2), 31-46.	2010
na	(Galizzi_2018)	y	n	n					n		n		Leeds, I.L., Sadiraj, V., Cox, J.C., Gao, X.S., Pawlik, T.M., Schnier, K.E. & Sweeney, J.F. (2017). Discharge decision-making after complex surgery: Surgeon behaviors compared to predictive modeling to reduce surgical readmissions. American Journal of Surgery, 213(1), 112-119.	2017
na	(Galizzi_2018)	y	n	n					n		n		Levitt, S.D., & List, J.A. (2007). What do laboratory experiments measuring social preferences reveal about the real world? Journal of Economic Perspectives. 21(2), 153-174.	2007
na	(Galizzi_2018)	y	n						n		n		Levitt, S.D., & List, J.A. (2009), Field experiments in economics: The past, the present, and the future, European Economic Review, 53(1), 1-18.	2009
na	(Galizzi_2018)	y	n						n		n		Levitt, S.D., & List, J.A. (2011). Was there really a Hawthorne effect at the Hawthorne Plant? An analysis of the original illumination experiments. American Economic Journal: Applied Economics. 3, 224-238.	2011
na	(Galizzi_2018)	y							y	E3: Health care provision	n	lab	Li, D., Hawley, Z., & Schnier, K. (2013). Increasing organ donation via changes in the default choice or allocation rule, Journal of Health Economics. 32, 1117-1129.	2013
na	(Galizzi_2018)	y							y	E3: Health care provision	n	natural	Lindeboom, M., van der Klaauw, B., & Vriend, S. (2016): Audit rates and compliance: A field experiment in care provision, Journal of Economic Behavior & Organization.131B, 160–173.	2016
na	(Galizzi_2018)	y	n			n			n		n		Loewenstein, G. (1996). Out of control: Visceral influences on behavior. Organizational Behavior and Human Decision Processes, 65, 272-92.	1996
na	(Galizzi_2018)	y	n						n		n		Loewenstein, G., Asch, D., Volpp, K. (2013). Behavioral economics holds potential to deliver better results for patients, insurers, and employers. Health Affairs, 32(7), 1244-1250.	2013
na	(Galizzi_2018)	y	n	n		n			n		n		Loewenstein, G., Brennan, Volpp, K. (2007). Asymmetric paternalism to improve health behaviors. JAMA, 298, 2415-2417.	2007
na	(Galizzi_2018)	y				n			n	E0: Other focus on health-related behaviour	n		Loewenstein, G., Price, J., & Volpp, K.G. (2016). Habit Formation in children: Evidence from incentives for healthy eating. Journal of Health Economics, 45, 47-54.	2016

na	(Galizzi_2018)		y	n						n		n		Loewenstein, G., Schwartz, J., Ericson, K., Kessler, J.B., Bhargava, S., Hagmann, D. Blumenthal-Barby, J., D'Aunno, T., Handel, B., Kolstad, J., Nussbaum, D., Shaffer, V., Skinner, J., Ubel, P., & Zikmund-Fisher, B.J. (2017). Behavioral Insights for Health Care Policy. Behavioral Science and Policy (in press).	2017
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Long, J.A., Jahnle, E.C., Richardson, D.M., Loewenstein, G., & Volpp, K.G. (2012). A Randomized Controlled Trial of Peer Mentoring and Financial Incentive to Improve Glucose Control in African American Veterans. Annals of Internal Medicine. 156, 416-424.	2012
na	(Galizzi_2018	x	n							n		n		Manning, W.D., Newhouse, J.P., Duan, N., Keeler, E.B., Leibowitz, A., & Marquis, S.M. (1981). Some interim results from a controlled trial on cost sharing in health insurance. New England Journal of Medicine, 305(25), 1501-1507.	1981
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural	Manning, W.D., Newhouse, J.P., Duan, N., Keeler, E.B., Leibowitz, A., & Marquis, S.M. (1987). Health insurance and the demand for medical care: evidence from a randomized experiment. American Economic Review. 77, 251-277.	1987
na	(Galizzi_2018)		y	n						n		n		Marwell, G., & Ames, R.E., (1981). Economists free ride, does anyone else?: Experiments on the provision of public goods. Journal of Public Economics, 15, 295-310.	1981
na	(Galizzi_2018)		y					n		n		n		Massin, S., Ventelou, B., Nebout, A., Verger, P., & Pulcini, C. (2015). Cross-sectional survey: risk-averse French general practitioners are more favorable toward influenza vaccination. Vaccine, 33(5), 610-614.	2015
na	(Galizzi_2018)		y					n		n		n		Michel-Lepage, A., Ventelou, B., Nebout, A., Verger, P., & Pulcini, C. (2013). Cross-sectional survey: risk averse French GPs use more rapid-antigen diagnostic tests in tonsillitis in children. BMJ Open, 3(10), e003540.	2013
na	(Galizzi_2018)		y	n						n		n		Michie, S. (2008). Designing and implementing behavior change interventions to improve population health. Journal of Health Services Research & Policy, 13, 64-69.	2008
na	(Galizzi_2018)		y	n						n		n		Miguel, E., Camerer, C.F., Casey, K., Cohen, J., Esterling, K.M., Gerber, A., Glennerster, R., Green, D.P., Humphreys, M., Imbens, G., Laitin, D., Madon, T., Nelson, L., Nosek, B.A., Petersen, M., Sedlmayr, R., Simmons, J.P., Simonsohn, U., & Van der Laan, M. (2014). Promoting transparency in social science research. Sci	2014
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural	Milkman, K. L., Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2011). Using implementation intentions prompts to enhance influenza vaccination rates. Proceedings of the National Academy of Sciences, 108, 10415–10420.	2011
na	(Galizzi_2018)		y				n			n		n		Milkman, K., Minson, J., & Volpp, K. (2014). Holding the hunger games hostage at the gym: an evaluation of temptation bundling. Management Science, 60(2), 283-299.	2014
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab	Mimra, W., Rasch, A., & Waibel, C., (2016). Second opinions in markets for expert services: Experimental evidence. Journal of Economic Behavior & Organization. 131,106-125.	2016
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Muller et al (2009). Tell me why: the influence of self-involvement on short term smoking behaviour. Addictive Behaviors, 34, 427-431.	2009
na	(Galizzi_2018)		y				n			n		n		Muralidharan, K., & Sundararaman, V. (2011). Teacher Performance Pay: Experimental Evidence from India. Journal of Political Economy. 119, 39-77.	2011
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural	Newhouse, J.P., Manning, W.G., Morris, C.N., Orr, L.L., Duan, N., Keeler, E.B., Leibowitz, A., Marquis, K.H., Marquis, M.S., Phelps, C.E., & Brook, R.H., (1981). Some interim results from a controlled trial of cost sharing in health insurance. New England Journal of Medicine, 305, 1501–1507.	1981
na	(Galizzi_2018)		y						y	n		n		Ockenfels, A., & Wiesen, D. (2017). Professional culture and dishonesty in medicine, Unpublished manuscript, University of Cologne.	2017
na	(Galizzi_2018)		y	n						n		n		Oliver, A.J. (2017). The Origins of Behavioural Public Policy. Cambridge, UK: Cambridge University Press.	2017
na	(Galizzi_2018)		y	(n)						n		n		Open Science Collaboration (2015). Estimating the reproducibility of psychological science. Science, 349(6251), aac4716.	2015
na	(Galizzi_2018)		y	n						n		n		Oxholm, A.S. (2016). Physician response to target-based performance payment. University of Southern Denmark. COHERE Discussion Papers, No. 9, 2016.	2016
na	(Galizzi_2018)		y	n						n		n		Pauly, M.V., (1979). The ethics and economics of kickbacks and fee Splitting. Bell Journal of Economics, 10, 344-352.	1979
na	(Galizzi_2018)		y	n						n		n		Plott, C.R. (1982). Industrial Organization Theory and Experimental Economics. Journal of Economic Literature. 20, 1485–1572.	1982
na	(Galizzi_2018)		y				n	n		n		n		Prosser, L.A., & Wittenberg, E. (2007). Do risk attitudes differ across domains and respondent types? Medical Decision Making. 27, 281–287.	2007
na	(Galizzi_2018)		y		n			n		n		n		Rana, Y., Haberer, J., Huang, C., Kambugu, A., Mukasa, B., Trirumurthy, H., Wabukala, P., and Linnemayr, S., (2015). Short message service (SMS)-based intervention to improve treatment adherence among HIV-positive youth in Uganda: focus group findings. PLOS ONE, 10(4), e0125187.	2015
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Rao, G., Krall, J., & Loewenstein, G. (2011). An Internet-based Pediatric Weight Management Program with and without Financial Incentives: A Randomized Trial. Childhood Obesity, 7(2), 122-128.	2011
na	(Galizzi_2018)		y				n			n		n		Rassenti, S.J., Smith, V.L., & Bulfin R.L. (1982). A combinatorial auction mechanism for airport time slot allocation, Bell Journal of Economics, 13(2), 402–417.	1982
na	(Galizzi_2018)		y	n						n		n		Roberto, C.A., & Kawachi, I. (2015). Behavioral Economics and Public Health. Oxford, UK: Oxford University Press.	2015
na	(Galizzi_2018)		y	n						n		n		Roth, A.E. (2002): The Economist as Engineer: Game Theory, Experimentation, and Computation as Tools for Design Economics. Econometrica, 70: 1341–1378.	2002
na	(Galizzi_2018)		y	n						n		n		Roth, A.E., & Peranson, E. (1999): The Redesign of the Matching Market for American Physicians: Some Engineering Aspects of Economic Design. American Economic Review. 89, 748-780.	1999
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Royer, H., Stehr, M., & Sydnor, J. (2015). Incentives, commitments, and habit formation in exercise: Evidence from a field experiment with workers at a fortune-500 company. American Economic Journal: Applied Economics. 7, 51-84.	2015
na	(Galizzi_2018)		y	n						n		n		Rubin, D.B. (1974). Estimating the causal effects of treatments in randomized and non-randomized studies. Journal of Educational Psychology. 66, 688-701.	1974
na	(Galizzi_2018)		y	n				n		n		n		Ryan, M., & Farrar, S. (2000). Using conjoint analysis to elicit preferences for health care. BMJ: British Medical Journal. 320, 1530.	2000
na	(Galizzi_2018)		y					n		n		n		Ryan, M., McIntosh, E., & Shackley, P. (1998). Methodological issues in the application of conjoint analysis in health care. Health Economics. 7, 373-378.	1998
na	(Galizzi_2018)		y					n		n		n		Samper, L.A. & Schwartz, J.A. (2013). Price inferences for sacred versus regular goods: changing the price of medicine influences perceived health risk. Journal of Consumer Research, 39, 1343-1358.	2013
na	(Galizzi_2018)		y		n		n	n		n		n		Sauermann, H., & Selten, R. (1959). Ein Oligopolexperiment. Zeitschrift für die gesamte Staatswissenschaft, 115, 427–471.	1959
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Schofield, H., Loewenstein, G., Kopisc, J., & Volpp, K.G. (2015). Comparing the effectiveness of individualistic, altruistic, and competitive incentives in motivating completion of mental exercises. Journal of Health Economics. 44, 286-299.	2015
na	(Galizzi_2018)		y							y	E1: Health insurance choice	n	lab	Schram, A., & Sonnemans, J. (2011). How individuals choose health insurance: An experimental analysis. European Economic Review. 55, 799–819.	2011
na	(Galizzi_2018)		y					n		n		n		Schwartz, J.A., & Chapman, G.B. (1999). Are more options always better? The attraction effect in physicians' decisions about medications. Medical Decision Making, 19, 315-323.	1999
na	(Galizzi_2018)		y				n			n		n		Schwartz, J.A., Mochon, D., Wyper, L., Maroba, J., Patel, D., Ariely, D. (2014). Healthier by precommittment. Psychological Science, 25(2), 538-546.	2014
na	(Galizzi_2018)		y				n			n		n		Schwartz, J.A., Riis, J., Elbel, B., & Ariely, D. (2012). Inviting consumers to downsize fast-food portions significantly reduces calorie consumption. Health Affairs, 31, 2399-2407.	2012
na	(Galizzi_2018)		y							y	E2: Health care utilisation	n	natural	Sen, A.P, Sewell, T.B., Riley, E.B., Stearman, B., Bellamy, S.L., Hu, M.F., Park, J.D., Yao, Y., Zhu, J., Loewenstein, G., Asch, D.A., & Volpp, K.G. (2014). Financial Incentives for Home-Based Health Monitoring: A Randomized Controlled Trial. Journal of General Internal Medicine, 29(5), 770-777.	2014
na	(Galizzi_2018)		y	n						n		n		Silverman, E., & Skinner, J. (2004). Medicare upcoding and hospital ownership, Journal of Health Economics. 23, 369-389.	2004
na	(Galizzi_2018)		y	n					(y)	n		n		Smith V.L., (1976) Experimental economics: induced value theory. American Economic Review, 66, 274-279.	1976
na	(Galizzi_2018)		y	n						n		n		Smith V.L., (1982). Microeconomic systems as experimental science. American Economic Review, 72, 923-955.	1982
na	(Galizzi_2018)		y	n						n		n		Smith, V.L. (2002). Method in experiment: rhetoric and reality. Experimental Economics, 5, 91-110.	2002
na	(Galizzi_2018)		y	n						n		n		Sunstein, C.R. (2011). Empirically informed regulation. University of Chicago Law Review. 78, 1349-1429.	2011
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Sutter, M., Kocher, M.G., Glätzle-Rützler, D., & Trautmann, S.T. (2013). Impatience and Uncertainty: Experimental Decisions Predict Adolescents' Field Behavior. American Economic Review, 103, 510–31.	2013
na	(Galizzi_2018)		y				n	n		n		n		Szrek, H., Chao, L.-W., Ramlagan, S., & Peltzer, K. (2012). Predicting (un) healthy behavior: A comparison of risk-taking propensity measures. Judgment and Decision Making. 7, 716.	2012
na	(Galizzi_2018)		y	n						n		n		Thaler, R.H. & Sunstein, CR. (2008). Nudge: Improving Decisions About Health, Wealth, and Happiness. Princeton, NY: Princeton University Press.	2008
na	(Galizzi_2018)		y					n		n		n		Tsutsui, Y., Benzion, U., & Shahrabani, S. (2012). Economic and behavioral factors in an individual's decision to get an influenza vaccination in Japan, Journal of Socio-Economics, 41(5), 594-602.	2012
na	(Galizzi_2018)		y					n		n		n		Ubel, P. & Loewenstein, G. (1995). The efficacy and equity of retransplantation: an experimental survey of public attitudes. Health Policy, 34, 145-151.	1995
na	(Galizzi_2018)		y				n	n		n		n		Van Der Pol, M., & Cairns, J. (2011). Descriptive validity of alternative intertemporal models for health outcomes: an axiomatic test. Health Economics, 20, 770-782.	2011
na	(Galizzi_2018)		y				n	n		n		n		Van Der Pol, M., & Cairns, J.A. (1999). Individual Time Preferences for Own: an Application of a Dichotomous Choice Question with Follow-Up. Applied Economics Letters, 6, 649-654.	1999
na	(Galizzi_2018)		y				n	n		n		n		Van der Pol, M., & Cairns, J.A. (2001). Estimating time preferences for health using discrete choice experiments. Social Science and Medicine. 52, 1459–1470.	2001
na	(Galizzi_2018)		y				n	n		n		n		Van der Pol, M., & Cairns, J.A. (2008). Comparison of two methods of eliciting time preference for future health states. Social Science and Medicine. 67, 883–889.	2008
na	(Galizzi_2018)		y				n	n		n		n		Van Der Pol, M., & Ruggeri, M., 2008. Is risk attitude outcome specific within the health domain? Journal of Health Economics, 27, 706-717.	2008
na	(Galizzi_2018)		y				n	n		n		n		Van Der Pol, M., Cairns, J., (2002). A Comparison of the Discounted Utility Model and Hyperbolic Discounting Models in the Case of Social and Private Intertemporal Preferences for Health. Journal of Economic Behavior and Organization, 49, 79-96.	2002
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		VanEpps, E.M., Downs, J.S., & Loewenstein, G. (2016a). Calorie label formats: Using numbers or traffic lights to reduce lunch calories. Journal of Public Policy and Marketing, 35(1), 26-36.	2016
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		VanEpps, E.M., Downs, J.S., & Loewenstein, G. (2016b). Advance ordering for healthier eating? Field experiments on the relationship between time delay and meal healthfulness. Journal of Marketing Research, Vol LIII, 369-380.	2016
na	(Galizzi_2018)		y	n						n		n		Vervloet et al. (2012). The effectiveness of interventions using electronic reminders to improve adherence to chronic medication. JAMA, 19, 696-704.	2012
na	(Galizzi_2018)		y				n	n		n		n		Viscusi, W., & Hakes, J.K. (2008). Risk beliefs and smoking behavior. Economic Inquiry. 46(1), 45–59.	2008
na	(Galizzi_2018)		y				n	n		n		n		Viscusi, W.K., & Hersch, J. (2001). Cigarette smokers as job risk takers. Review of Economics and Statistics. 83(2), 269–80.	2001
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Volpp, K. G., Troxel, A. B., Pauly, M. V., Glick, H. A., Puig, A., Asch, D. A., . . . Audrain-McGovern, J. (2009). A randomized, controlled trial of financial incentives for smoking cessation. New England Journal of Medicine, 360, 699–709.	2009
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Volpp, K., John, L.K., Troxel, A.B., Norton, L., Fassbender, J., & Loewenstein, G. (2008). Financial incentive-based approaches for weight loss, Journal of American Medical Association. 300, 2631-7.	2008
na	(Galizzi_2018)		y	n						n		n		Volpp, K.G., Asch, D.A., Galvin, R., & Loewenstein, G. (2011). Redesigning employee health incentives: lessons from behavioural economics. New England Journal of Medicine. 365, 388-390.	2011
na	(Galizzi_2018)		y		n					n		n		Volpp, K.G., Loewenstein, G., Troxel, A.B., Doshi, J., Price, M., Laskin, M., & Kimmel, S.E. (2008). A test of financial incentives to improve warfarin adherence. Biomedical Central: Health Services Research, 8:272.	2008
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab	Waibel, C., & Wiesen, D. (2017) An experiment on referrals in health care, Working Paper, ETH Zurich.	2017
na	(Galizzi_2018)		y		n		n			n		n		Wakker, P., & Deneffe, D. (1996). Eliciting von Neumann-Morgenstern utilities when probabilities are distorted or unknown. Management Science. 42, 1131–50.	1996
na	(Galizzi_2018)		y							y	E3: Health care provision	n	lab	Wang, J., Iversen, T. Hennig-Schmidt, H. & Godager, G. (2017). How Changes in Payment Schemes Influence Provision Behavior. HERO Working Paper 2017/2.	2017
na	(Galizzi_2018)		y				n			n		n		Weber, E.U., Blais, A.R., & Betz, N.E. (2002). A domain-specific risk-attitude scale: measuring risk perceptions and risk behaviors. Journal of Behavioral Decision Making. 15(4), 263-290.	2002
na	(Galizzi_2018)		y				n			n	E0: Other focus on health-related behaviour	n		Wisdom, J., Downs, J., & Loewenstein, G. (2009). Promoting healthy choices: Information versus convenience. American Economic Journal: Applied Economics, 99(2), 159–164.	2009
na	(Galizzi_2018)		y	n						n		n		Zizzo, D.J. (2010). Experimenter demand effects in economic experiments. Experimental Economics, 13, 75–98.	2010

b) Abstract **screening** | c) Research **categorization**

	Records found	Duplicates	Included for abstract screening	1: Experiment (original data)	2: Randomized, controlled, prospective, (sample size)	3: Micro economic principles (& human behaviour)	4: Supply/demand behaviour related to (public) health care	5: Real, observable situation and/or real consequences, no deception	Not conclusively assessable	Included for research categorization		Research objective of interest
Included DBs	749		539							39	*60*	2
Excluded		*210*		*149*	*26*	*251*	*325*	*128*	*0*	*500*		*37*
Included G&W	254		242							40	*68*	0
Excluded		*12*		*89*	*11*	*1*	*92*	*42*	*9*	*202*		*40*
Total	**1003**	***222***	**781**	**238**	**37**	**252**	**417**	**170**	**9**	**79**		**2**

Parallel test (several criteria possible)

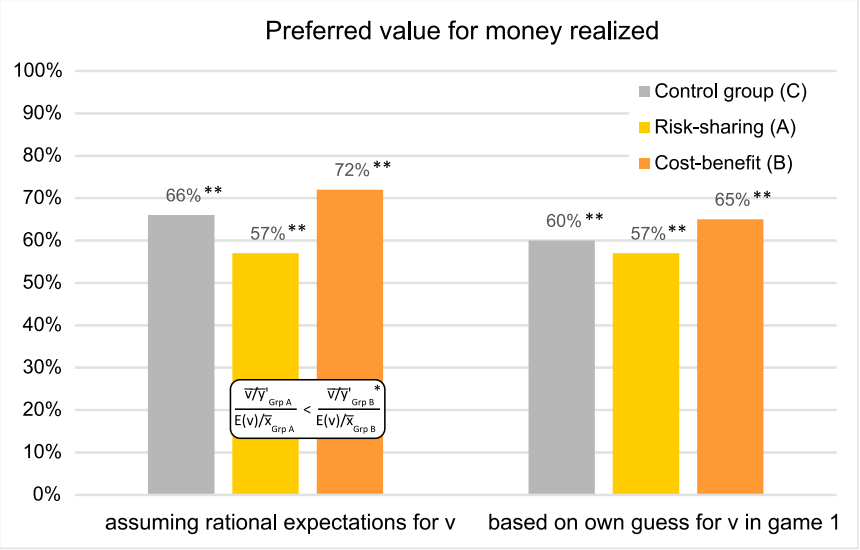
Sources retrieved from: PubMed, Scopus and manually included from Galizzi_2018, GW (Galizzi, M.M., Wiesen, D.: Behavioral Experiments in Health Economics. https://doi.org/10.1093/acrefore/9780190625979.013.244)

CHAPTER 1: Appendix 3 – details on experimental results

Figure A6: Negotiation outcomes per game and price group (study 3)

Mean values of 500 pairing variations, each containing a mean value per outcome (across all pairs and games per group).
Trades successful based on final price offers stated. Trades possible based on stated preferences (WTP≥WTA). Agreed prices for successful pairs equals mean of successful offers stated. The differences between groups for the two negotiation outcomes were significant at observation level variation ($p<0.01$). Due to the higher number of variations (in favour of representativeness) compared to the smaller number of negotiating pairs, the p-values might be overstated. For this reason, in the final experiment, the significance (t-tests) was recorded at the level of the negotiation pairs for each variation for the negotiation outcomes (see Chapter 1.4.4 and explanations in Chapter 5, Appendix 3).
Illustration based on the results from the second experimental study, described in detail in Chapter 4, published in [3].

Figure A7: Negotiation outcomes, mean of means over all pairing variations (study 4)



Left: price preferences (x) set in relation to the expected value of the lottery E(v), assuming rational expectation. Right: price preferences (x) set in relation to the participants' stated guess about the outcome of the lottery in game one. Both was conducted for couples whose price preferences allowed an agreement (WTP≥WTA).
** The difference between the realised value for money (VfM) of the negotiating pair and their implicitly stated VfM is significant (paired t-test) at $p<0.01$ for the majority of variations (>97%).
* Difference between treatment groups significant at $p<0.05$ for the majority of variations (>83%).
Grp: treatment group. Detailed results are displayed in Table A9, Chapter 5, Appendix 4.
Illustration based on the results from the second experimental study, described in detail in Chapter 5, published in [4].

CHAPTER 2: Appendix 1 – additional tables

See following pages.

The appendix was published under:

Wettstein, D.J., Boes, S.: Effectiveness of national pricing policies for patent-protected pharmaceuticals in the OECD: a systematic literature review. Appl health econ health policy 17(2), 143-162 (2019). https://doi.org/10.1007/s40258-018-0437-z

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Appendix 1

Table 3: Search strategy

#	descriptor	proceeding	PUBMED	MEDLINE	Scopus	Web of Science	OECD iLibrary	COCHRANE	Other	TOTAL
1	pharmaceutical OR medicine AND pricing OR prices	AND, OR, 2005-		162						
2	"pharmaceutical pricing" OR "* prices" OR "* price"	exact OR, 2005-	180		131	101	19			
3	"pharmaceutical pricing" OR "* prices" OR "* price" OR "medicine prices" OR "drug prices"	exact OR, 2005-						5		
4	"medicine prices" OR "drug prices" AND NOT #2	exact OR, AND, 2005-	174							
5	pricing, pharmaceuticals, innovative	AND, 2005-	66							
6	patient access pricing pharmaceuticals policies	AND, 2005-	51							
7	pharmaceutical, "pricing policies"	AND, 2005-	24							
8	"pharmaceutical policies"	exact, 2005-	82							
9	"value-based pricing" OR "value based pricing"	exact, OR, 2005-	46							
10	pharmaceutical, pricing, policies	AND, 2005-					20			
11	"price regulation", pharmaceutical	exact, AND, 2005-	49							
12	"reference pricing"	exact, 2005-	151							
99	[manually added since cited by included systematic review]		1						3	
	Search results		**824**	162	131	101	39	5	3	**1265**
	duplicates		99	126	58	79	27	5	0	394
	Initial abstract screening		**725**	36	73	22	12	0	3	**871**
	excluded		550	31	64	15	4	0	2	666
	Initial research categorization		**175**	5	9	7	8	0	1	**205**
	excluded		149	5	6	6	8	0	0	174
	Assessment		**26**	0	3	1	0	0	1	**31**

Additional checks:

#	descriptor	proceeding	PUBMED
A1	"managed entry" NOT #2 NOT #9 NOT #12	exact, OR, 2005-	44
A2	"risk sharing agreements" OR "risk sharing schemes" OR "risk sharing contracts NOT #2 NOT #9 NOT #12	exact OR, 2005-	67
A3	"managed entry" OR "risk sharing" AND pharmaceutical OR pharmaceuticals OR drugs NOT #2 NOT #9 NOT #12	AND, OR, 2005-	106
	Additional inclusions		0

Search fields: title, abstract, key words. Word variations if supported.

Table 4: Categorization type of research

Type of economic research	Empirical/ analytical	excluded
Economic model (analytic)	analytic	Y
Economic model (analytic, empirical data)	combined	N
Cost-effectiveness analysis (CEA)	combined	N
Cost-utility analysis (CUA)	combined	N
Cost-benefit analysis	combined	N
RCT, NRCT	empiric	N
Controlled before-after study (CBA)	empiric	N
Interrupted time series study (ITS)	empiric	N
Repeated measures study (RM)	empiric	N
Statistical analysis - inductive (not RCT/NRCT, CBA or ITS)	empiric	N
Statistical analysis - descriptive	empiric	Y
(Retrospective) Observational study	empiric	Y
Survey / (Structured) Interviews	empiric	Y
Case study	empiric	Y
Systematic Review	empiric	N
Literature Review (not systematic)	empiric	Y
Legal analysis	empiric	Y
Synthesis/Comment	empiric	Y
Guideline	combined	Y

Table 5: Categorization research objective

Research objective (independent > dependent var.)	excluded
Prices (descriptive)	Y
Prices > Behaviour	Y
Prices > Access*	Y
Prices > Health outcome	Y
Prices > Usage**	Y
Prices > Expenditures	Y
Prices > Equity	Y
Prices > Invest (R&D)	Y
Prices > Other	Y
Other (non_Policy) > Prices	Y
Other (non_Policy) > Other	Y
Policy (descriptive)	Y
Policy > Prices	N
Policy > Behaviour	N
Policy > Access*	N
Policy > Health outcome	N
Policy > Usage**	N
Policy > Expenditures	N
Policy > Usage** & Exp	N
Policy > Welfare***	N
Policy > Equity	N
Policy > Invest (R&D)	N
Policy > diverse	N
Policy implementation	Y

* includes affordability and availability (supply)
** includes drug use and healthcare utilization
*** includes individual benefit and overall welfare
Y: yes, N: no, R&D: Research and Development

Table 6: Reason for excluded studies included in other systematic reviews

Publication	Acosta_2014	Green_2010	Lee_2012	Reason for exclusion
Aronsson 2001	X			Out of defined time-frame
Bjerrum 2001		X		Out of defined time-frame
Brekke 2003	X			Out of defined time-frame
Brekke 2009			X	Off-patent market
Brekke 2011	X			Off-patent market
Bursey 2000		X		Out of defined time-frame
Carroll 2006		X		No pricing regulation (search key words)
Delate 2005		X		No pricing regulation (search key words)
Farley 2008		X		No pricing regulation (search key words)
Fischer 2004		X		Out of defined time-frame
Fischer 2007		X		No pricing regulation (search key words)
Fretheim 2007		X		No pricing regulation (search key words)
Grootendorst 2002	X		X	Out of defined time-frame
Grootendorst_2004			X	Out of defined time-frame
Hartung 2004		X		Out of defined time-frame
Hartung 2006		X		No pricing regulation (search key words)
Hazlet 2002	X	X	X	Out of defined time-frame
Jackevicious 2008		X		No pricing regulation (search key words)
Keith 1994		X		Out of defined time-frame
Kephart 2005		X		No pricing regulation (search key words)
Kibicho 2012	X			Free pricing market
Law 2008		X		No pricing regulation (search key words)
MacCara 2001		X		Out of defined time-frame
Marshall 2002	X	X		Out of defined time-frame
Marshall 2006		X		No pricing regulation (search key words)
Marshall 2007		X		No pricing regulation (search key words)
McManus 2001	X			Out of defined time-frame
Morden 2008		X		No pricing regulation (search key words)
Moreno-Torres_2011	X		X	Off-patent market
Motheral 2004		X		Out of defined time-frame
Narine 2001	X			Out of defined time-frame
Pavcnik 2002	X			Out of defined time-frame
Puig-Junoy 2004			X	Out of defined time-frame
Puig-Junoy 2007	X		X	Off-patent market
Roughead 2006		X		No pricing regulation (search key words)
Sakshaug 2007		X		No pricing regulation (search key words)
Sawyer 1983	X			Out of defined time-frame
Schneeweiss 2002	X		X	Out of defined time-frame
Schneeweiss 2003	X		X	Out of defined time-frame
Schneeweiss 2004		X	X	Out of defined time-frame
Schneeweiss 2006		X		No pricing regulation (search key words)
Smalley 1995		X		Out of defined time-frame
Soumerai 2008		X		No pricing regulation (search key words)
van Driel 2008		X		No pricing regulation (search key words)
Mabasa 2006			X	No pricing regulation as defined
Pavcnik 2000			X	Out of defined time-frame
Johnson 2011			X	Free pricing market

Table 7: Questionnaire for assessment of risk of bias

		Interrupted time series study (ITS)	Statistical analysis - inductive (not ITS)	Economic model (analytic, empirical data)	Systematic Review
Study design					
S1	Research question stated and answerable?	X	X	X	X
S2	Intervention and potential alternative clearly defined and pre-specified?	X	X	X	X
S3	Study design appropriate to adress question, following conventions?	X	X	X	
S4	Setting and scope justified and appropriate to answer question (time frame, coverage)?	X	X	X	X
Data					
D1	Sources of data described and justified (quality, relevance, etc.)?	X	X	X	X
D2	Outcomes clearly stated, predefined & meaningful? Measures valid and reliable? Abstractions clear?	X	X	X	X
D3	Reasons for selection/ exclusion of data stated and plausible?	X	X	X	X
D4	Intervention independent from other changes?	X	X	X	
Model					
M1	Economic model (structure) displayed in a clear, transparent manner?			X	
M2	Evidence for the model structure applied provided?			X	
M3	Structural assumptions transparent and justified?Are they reasonable given the overall objective?			X	
Empirical analysis					
E1	Shape of the intervention effect prespecified?	X		X	
E2	Major outcomes presented in disaggregated as well as aggregated form?	X		X	X
E3	Data analysed appropriately? Details of statistical tests given?	X		X	X
E4	Incomplete outcome data adressed?	X		X	X
E5	Method of synthesis or meta-analysis of estimates described?	X		X	X
E6	Conclusions & recommendations justified and based on the results (data) reported? Theoretical (model) conclusions valid given the data presented?	X		X	X
E7	Limitation and potential biases discussed?	X		X	X

IST: Interrupted Time Series Study, TRP: Therapeutic Reference Pricing, ERP: External (International) Reference Pricing, VBP: Value-Based Pricing

Table 8: Assessment risk of bias: scoring table

			STUDY DESIGN				DATA				MODEL			EMPIRICAL ANALYSIS							
			S1 Research question stated and answerable?	S2 Intervention and potential alternative clearly defined and pre-specified?	S3 Study design appropriate to adress question, following conventions?	S4 Setting and scope justified and appropriate to answer question (time frame, coverage)?	D1 Sources of data described and justified (quality, relevance, etc.)?	D2 Outcomes clearly stated, predefined & meaningful? Measures valid and reliable? Abstractions clear?	D3 Reasons for selection/ exclusion of data stated and plausible?	D4 Intervention independent from other changes?	M1 Economic model (structure) displayed in a clear, transparent manner?	M2 Evidence for the model structure applied provided?	M3 Structural assumptions transparent and justified?Are they reasonable given the overall objective?	E1 Shape of the intervention effect prespecified?	E2 Major outcomes presented in disaggregated as well as aggregated form?	E3 Data analysed appropriately ? Details of statistical tests given?	E4 Incomplete outcome data adressed?	E5 Method of synthesis or meta-analysis of estimates described?	E6 Conclusions & recommendations justified and based on the results (data) reported? Theoretical (model) conclusions valid given the data presented?	E7 Limitation and potential biases discussed?	
Publication	**Type of economic research**	**Research objective**																			**SCORE**
Atella_2012	Economic model (analytic, empirical data)	Policy > Prices	Y (LOW)	N (HIGH)	N (HIGH)	N (HIGH)	unclear	unclear	Y (LOW)	N (HIGH)	Y (LOW)	Y (LOW)	unclear	N (HIGH)	N (HIGH)	Y (LOW)	unclear	Y (LOW)	N (HIGH)	N (HIGH)	**44%**
Comanor_2018	Economic model (analytic, empirical data)	Policy > Prices	unclear	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	**3%**
Kaiser_2014	Economic model (analytic, empirical data)	Policy > Welfare***	Y (LOW)	Y (LOW)	N (HIGH)	unclear	Y (LOW)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	Y (LOW)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	**81%**
Koenig_2011	Economic model (analytic, empirical data)	Policy > Invest (R&D)	Y (LOW)	unclear	N (HIGH)	Y (LOW)	N (HIGH)	unclear	unclear	N (HIGH)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	Y (LOW)	**67%**
Armeni_2016	Interrupted time series study (ITS)	Policy > Expenditures	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	unclear	-	-	-	Y (LOW)	unclear	Y (LOW)	Y (LOW)	unclear	Y (LOW)	Y (LOW)	**90%**
Augurzky_2009	Interrupted time series study (ITS)	Policy > Prices	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	N (HIGH)	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	Y (LOW)	**83%**
Barros_2010	Interrupted time series study (ITS)	Policy > Expenditures	Y (LOW)	unclear	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	unclear	-	-	-	unclear	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	**83%**
Grootendorst_2005	Interrupted time series study (ITS)	Policy > Expenditures	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	**100%**
Grootendorst_2006	Interrupted time series study (ITS)	Policy > Prices	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	**93%**
Morgan_2008	Interrupted time series study (ITS)	Policy > Invest (R&D)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	Y (LOW)	N (HIGH)	Y (LOW)	N (HIGH)	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	**77%**
Stargardt_2010	Interrupted time series study (ITS)	Policy > Usage**	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	unclear	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	Y (LOW)	**90%**
Yfantopoulos_2008	Interrupted time series study (ITS)	Policy > Prices	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	unclear	N (HIGH)	-	-	-	Y (LOW)	N (HIGH)	N (HIGH)	unclear	Y (LOW)	N (HIGH)	N (HIGH)	**57%**
Golec_2010	Statistical analysis - inductive (not ITS)	Policy > Invest (R&D)	Y (LOW)	N (HIGH)	N (HIGH)	unclear	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	-	-	-	-	-	-	-	-	-	-	**19%**
Kalo_2012	Statistical analysis - inductive (not ITS)	Policy > Usage** & Exp	Y (LOW)	Y (LOW)	N (HIGH)	N (HIGH)	unclear	N (HIGH)	N (HIGH)	N (HIGH)	-	-	-	-	-	-	-	-	-	-	**31%**
Kanavos_2011	Statistical analysis - inductive (not ITS)	Policy > Prices	Y (LOW)	N (HIGH)	N (HIGH)	N (HIGH)	unclear	Y (LOW)	N (HIGH)	N (HIGH)	-	-	-	-	-	-	-	-	-	-	**31%**
Kyle_2007	Statistical analysis - inductive (not ITS)	Policy > Access*	Y (LOW)	N (HIGH)	N (HIGH)	Y (LOW)	Y (LOW)	N (HIGH)	unclear	N (HIGH)	-	-	-	-	-	-	-	-	-	-	**44%**
Leopold_2012_II	Statistical analysis - inductive (not ITS)	Policy > Prices	Y (LOW)	Y (LOW)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	-	-	-	-	-	-	-	-	-	-	**25%**
Stargardt_2011	Statistical analysis - inductive (not ITS)	Policy > Prices	Y (LOW)	Y (LOW)	N (HIGH)	N (HIGH)	unclear	Y (LOW)	Y (LOW)	N (HIGH)	-	-	-	-	-	-	-	-	-	-	**56%**
vonderSchulenburg_201	Statistical analysis - inductive (not ITS)	Policy > Prices	unclear	unclear	N (HIGH)	N (HIGH)	Y (LOW)	N (HIGH)	unclear	N (HIGH)	-	-	-	-	-	-	-	-	-	-	**31%**
Acosta_2014	Systematic Review	Policy > diverse	Y (LOW)	Y (LOW)	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	-	-	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	**100%**
Espin_2011	Systematic Review	Policy > Prices	Y (LOW)	Y (LOW)	-	Y (LOW)	N (HIGH)	unclear	N (HIGH)	-	-	-	-	-	N (HIGH)	unclear	unclear	N (HIGH)	N (HIGH)	N (HIGH)	**38%**
Galizzi_2011	Systematic Review	Policy > Prices	Y (LOW)	Y (LOW)	-	Y (LOW)	Y (LOW)	Y (LOW)	unclear	-	-	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	Y (LOW)	**92%**
Green_2010	Systematic Review	Policy > diverse	Y (LOW)	Y (LOW)	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	-	-	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	**100%**
Lee_2012	Systematic Review	Policy > diverse	Y (LOW)	Y (LOW)	-	Y (LOW)	Y (LOW)	Y (LOW)	unclear	-	-	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	Y (LOW)	**92%**
Lee_2015	Systematic Review	Policy > Expenditures	Y (LOW)	Y (LOW)	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	-	-	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	unclear	Y (LOW)	Y (LOW)	**96%**
Morgan_2009	Systematic Review	Policy > diverse	Y (LOW)	Y (LOW)	-	Y (LOW)	unclear	Y (LOW)	unclear	-	-	-	-	-	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	N (HIGH)	Y (LOW)	**83%**
Puig-Junoy_2005	Systematic Review	Policy > Welfare***	Y (LOW)	Y (LOW)	-	Y (LOW)	unclear	Y (LOW)	Y (LOW)	-	-	-	-	-	unclear	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	Y (LOW)	**92%**
Relakis_2013	Systematic Review	Policy > diverse	Y (LOW)	unclear	-	Y (LOW)	Y (LOW)	N (HIGH)	N (HIGH)	-	-	-	-	-	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	**29%**
Rémuzat_2015	Systematic Review	Policy > Prices	Y (LOW)	Y (LOW)	-	Y (LOW)	unclear	unclear	unclear	-	-	-	-	-	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	**38%**
vanderGronde_2017	Systematic Review	Policy > diverse	unclear	N (HIGH)	-	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	-	-	-	-	-	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	**4%**
Zhou_2014	Systematic Review	Policy > Expenditures	Y (LOW)	N (HIGH)	-	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	-	-	-	-	-	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	N (HIGH)	**8%**

Y: yes, N: no, IST: Interrupted Time Series Study, TRP: Therapeutic Reference Pricing, ERP: External (International) Reference Pricing, VBP: Value-Based Pricing
* includes affordability and availability (supply), ** includes drug use and healthcare utilization, *** includes individual benefit and overall welfare

CHAPTER 2: Appendix 2 – retrieved records

Available online at the following link:

https://static-content.springer.com/esm/art%3A10.1007%2Fs40258-018-0437-z/MediaObjects/40258_2018_437_MOESM2_ESM.pdf

The appendix was published under:

Wettstein, D.J., Boes, S.: Effectiveness of national pricing policies for patent-protected pharmaceuticals in the OECD: a systematic literature review. Appl health econ health policy 17(2), 143-162 (2019). https://doi.org/10.1007/s40258-018-0437-z

CHAPTER 3: Appendix 1 – selected screens and payoff details

See following pages.

The appendix was published under:

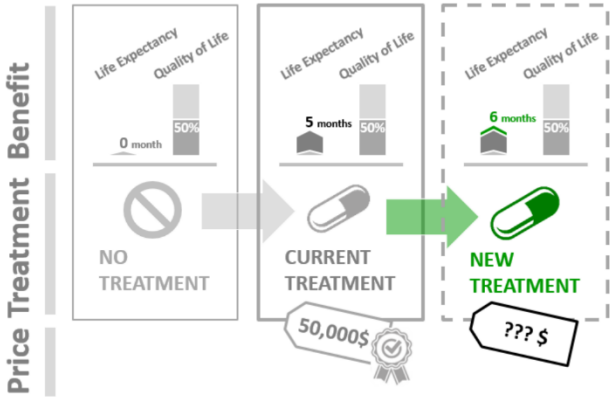
Wettstein, D.J., Boes, S.: Assessing social preferences in reimbursement negotiations for new Pharmaceuticals in Oncology: an experimental design to analyse willingness to pay and will-ingness to accept. BMC Health Serv. Res. 21(1), 234 (2021). https://doi.org/10.1186/s12913-021-06231-8

Additional file 1: Selected screens and payoff details

Figure 4 and 5: reservation price decision screen both roles (100k$ groups 1-4)

Training round 1 (of 4):

The Pharma Company offers a new pharmaceutical treatment which prolongs the survival of the patient by **six** months (compared to no treatment), increasing the life expectancy by **one** additional month compared to the current standard therapy. The treatment does not increase the quality of life compared to the standard treatment.



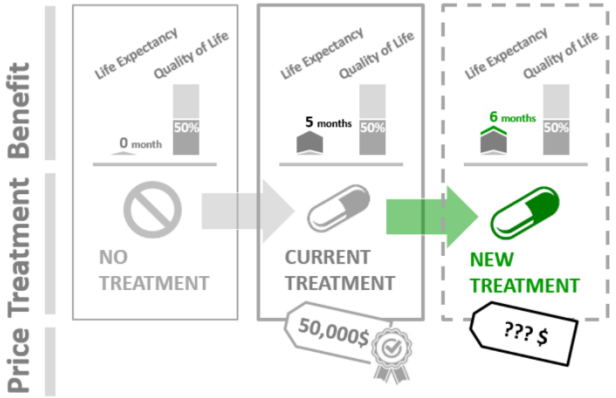
You expect the offer from the pharma company shortly. Before you enter into a negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair for the new product:**

Your maximum price of ___,000 $ leads to the following state of the society:			
in thousand Dollars	**New Benefit**	**Compared to Current State**	**New Asset (Benefit + Initial Asset)**
Patient	30	+5	30
2 Payers			
2 Investors			
Seller	120	0	240
Regulator	120	0	240

Please select your maximum price by moving the red slider below.
You will see the related consequences in the table above.
If the values do not change, please klick the red slider again.

Training round 1 (of 4):

Your company developed a new treatment which prolongs the survival of the patient by **six** months (compared to no treatment), increasing the life expectancy by **one** additional month compared to the current standard treatment. The treatment does not increase the quality of life compared to the standard treatment.



You have to prepare an offer for the Health minister shortly. Before you enter into a negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair for the new product:**

Your minimum price of ___,000 $ leads to the following state of the society:			
in thousand Dollars	**New Benefit**	**Compared to Current State**	**New Asset (Benefit + Initial Asset)**
Patient	30	+5	30
2 Payers			
2 Investors			
Seller	120	0	240
Regulator	120	0	240

Please select your minimum price by moving the red slider below.
You will see the related consequences in the table above.
If the values do not change, please klick the red slider again.

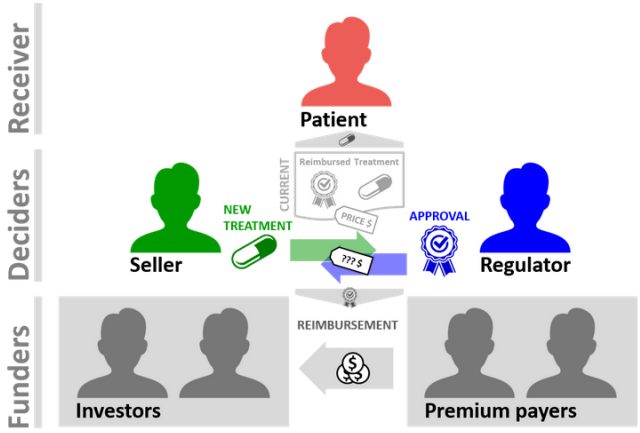
Figures extracted from the experimental survey used in this and the subsequent study [1]. The experimental surveys are available in Additional file 3 and 4. The illustrations are the authors' own creations.

Figure 6: run 02, control questions Q1 and Q2

The **Seller** offers the new treatment at a proposed price, which has to be approved by the government (**Regulator**). If the **Regulator** considers the price as to high, he/she will refuse to approve the product. Vice versa, if the **Seller** is confronted with a counterproposal (reduced price) considered too low, he/she will not introduce the product in this market.

If both parties agree, the **Patient** will get access to the new treatment with all its benefits (life expectancy, quality of life). The **Investors** will in consequence receive the price (revenue) and the **Payers** will have to pay the price (cost).

As long as the regulator and the seller do not agree, the product will not be available, which means no additional benefit for the patient, no additional costs for the premium payers and no revenue for investors. The regulator and the seller are both employed and receive a fix salary.



Control question 1: What happens, if the **seller** proposes the new product at a price much higher than the regulator wants to accept? Please select all correct answers below:

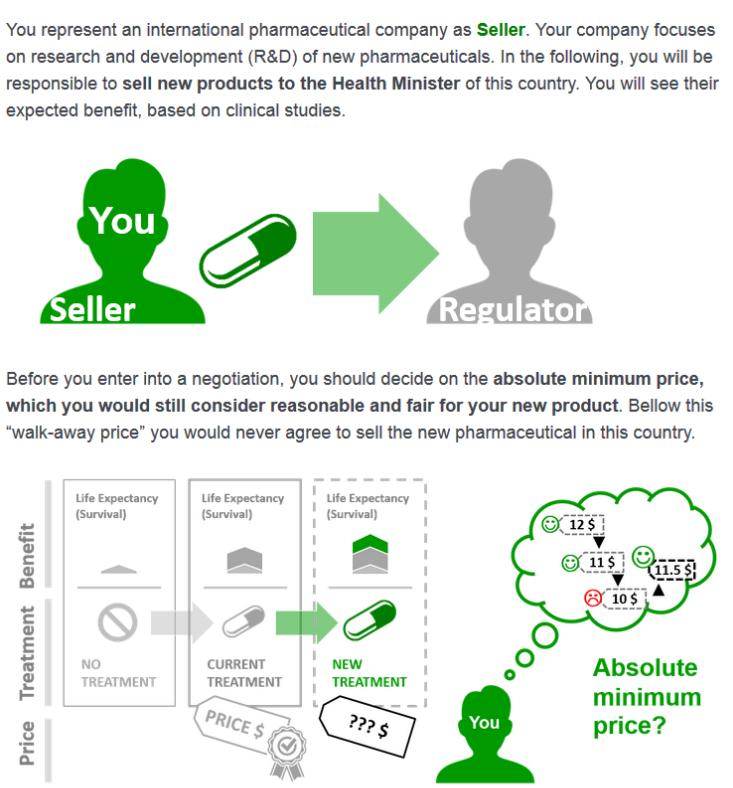
- The company will still sell the new product, since the patient pays for his treatment out-of-pocket in this country.
- The patient will not get access to the new treatment, since the new product will not be reimbursable by the public health insurance.
- The seller and the regulator will not receive their fix salary.
- The premium payers will have to pay for the new treatment at an unreasonable high price.
- The investors earn more money on their risky investment than they originally expected.

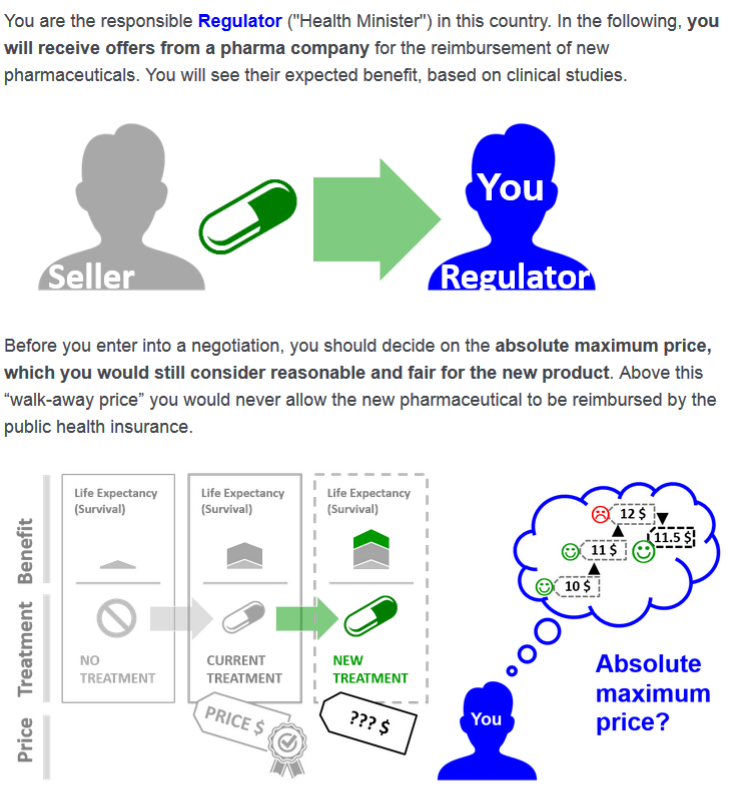
Control question 2: Would your answer be different if the **regulator** askes for a price of the new product lower than the lowest price the seller wants to accept?

Yes, this is different.	No, the effect is the same as in the question above.

Figure extracted from the experimental survey used in this and the subsequent study [1]. The experimental surveys are available in Additional file 3 and 4. The illustrations are the authors' own creations.

Figure 7 and 8: run 02, role introduction (left group 4: seller 100k$, right group 5: regulator 1$)





Figures extracted from the experimental survey used in this and the subsequent study [1]. The experimental surveys are available in Additional file 3 and 4. The illustrations are the authors' own creations.

Followed by comprehension question Q3 (Figure 9 and 10 below) displayed on the same screen.

Figure 9 and 10: run 02, comprehension question Q3 (left group 4: seller 100k$, right group 5: regulator 1$)

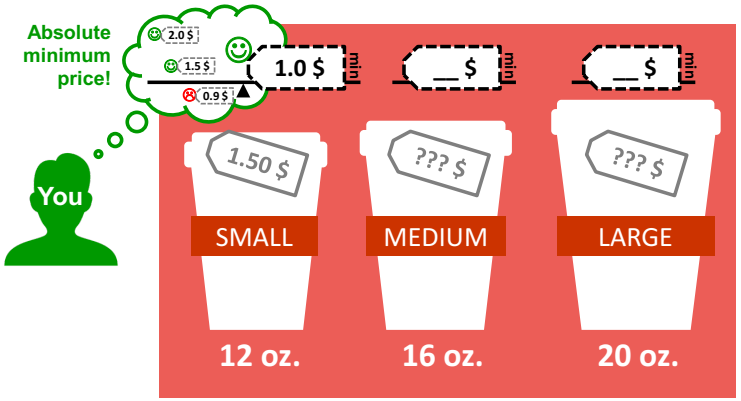
Control question 3: Let us pretend that you are a coffee shop owner. We further assume that your customers are real coffee lovers. Meaning that they always benefit more from two cups than from one, more from a large cup than from a small one (see picture below). Let us finally assume that 1 $ represents the minimum price you still consider reasonable and fair for a **small** cup of 12 oz.

a) Assuming that increasing your coffee output requires additional effort (investment) from you: Which price would represent your absolute minimum willingness to sell a **medium** cup of 16 oz.?

- A price higher than 1 $
- A price of 1 $
- A price lower than 1 $

b) Would you sell the large cup of 20 oz. for 1 $?

- Yes
- No



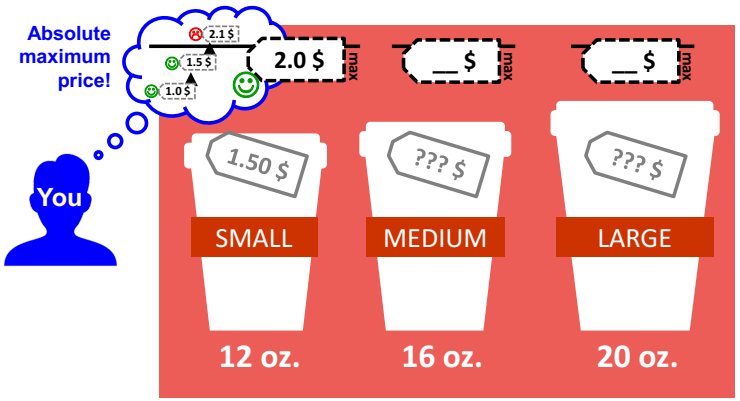
Control question 3: Let us assume that you are a real coffee lover (if not, you can replace coffee with soda or else). Meaning that you always benefit more from two cups than from one, more from a large cup than from a small one (see picture below). Let us further assume that 2 $ represents the maximum price you still consider reasonable and fair for a **small** cup of 12 oz.

a) Assuming all other things equal and that you have the money available and can afford it: Which price would represent your absolute maximum willingness to pay for a **medium** cup of 16 oz.?

- A price higher than 2 $
- A price of 2 $
- A price lower than 2 $

b) Would you buy a large cup of 20 oz. for 2 $?

- Yes
- No

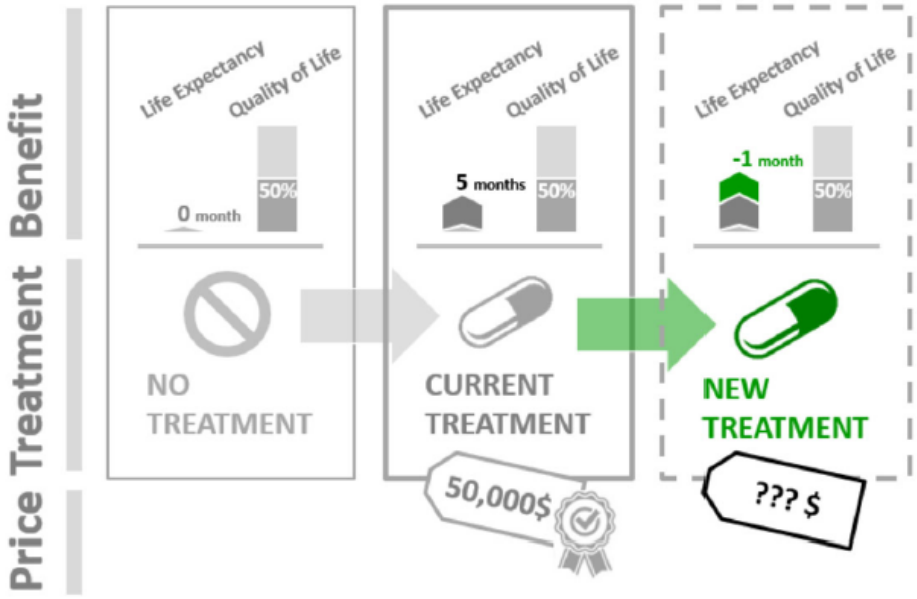


Figures based on the images in the experimental survey used in this and the subsequent study [1]. The experimental surveys are available in Additional file 3 and 4. The illustrations are the authors' own creations. In the original images, the coffee cups are adjusted from wikiHow: How to Order Coffee. wikiHow Inc.; 2019.

Figure 11: run 02, instructional manipulation check ("screener") to identify inattention

Decision situation (1 of 1):

Now the Pharma Company offers a new treatment which prolongs the survival of the patient by minus **one month** (compared to no treatment), decreasing the life expectancy below **zero**. This obviously makes no sense. We just need to test, whether participants read the relevant information. If you did so, please click on the green pill below and submit without entering a price.



You expect the offer from the pharma company shortly. Before you enter into a negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair for the new product:**

Your maximum price of ___,000 $ leads to the following state of the society:			
in thousand Dollars	**New Benefit**	**Compared to Current State**	**New Asset (Benefit + Initial Asset)**
Patient	-5	-30	-30
2 Payers			
2 Investors			
Seller	120	0	240
Regulator	120	0	240

Figure extracted from the experimental survey used in this and the subsequent study [1]. The experimental surveys are available in Additional file 3 and 4. The illustrations are the authors' own creations.

Figure 12: decision table with message for price entries equal or lower than previous round (run two only)

Your maximum price of 160000 $ leads to the following state of the society:			
in thousand Dollars	**New Benefit**	**Compared to Current State**	**New Asset (Benefit + Initial Asset)**
Patient	50	+25	50
2 Payers	80	-110	320
2 Investors	160	+110	400
Seller	120	0	240
Regulator	120	0	240

You did not increase your price although the patient outcome of the product increased. Does this truly reflect your preference?

Please select your minimum price by moving the red slider below.
You will see the related consequences in the table above.
If the values do not change, please click the red slider again.

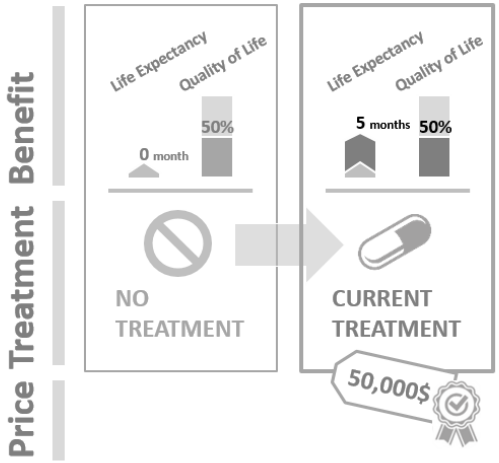
Your previous decision:
8 months: 162,000 $

Figure extracted from the experimental survey used in this and the subsequent study [1]. The experimental surveys are available in Additional file 3 and 4. The illustrations are the authors' own creations.

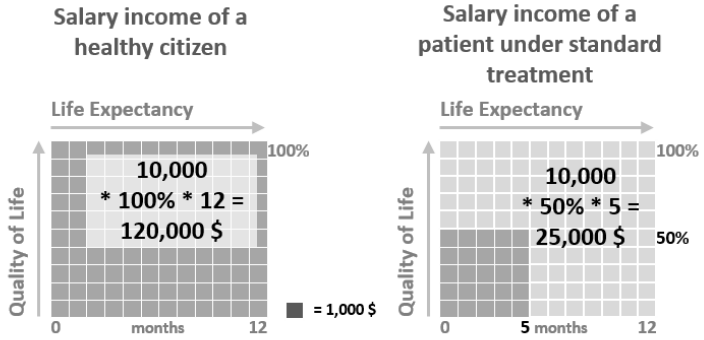
Figure 13: initial state (introduction screen, currency group 100k$) and comprehension question Q4 (all displayed on same screen)

Initial position:

Patients suffer from a deadly, incurable blood cancer. With no treatment, they have a remaining life expectancy below one month. There is one pharmaceutical treatment available, which increases the patient's life expectancy (*survival*) by **five months** at an unchanged quality of life (*QoL*). The QoL is an experience-based, self-reported indicator for the patient's physical functioning, bodily pain, as well as mental, emotional and social functioning etc. It is measured at a scale from 0 to 100%. The lower the score the more disabled the patient. The QoL of the patient under current standard treatment is **50%**.



At full QoL (100%) the patient could realize a monthly income of 10,000 $. Due to the lower QoL the patient's work ability (productivity) is reduced proportionally. In consequence the potential income he/she can generate equals 10,000 $ * 50% = 5,000 $ per month. This translates into a total economic benefit for the patient under current standard therapy of 10,000 $ * **50%** * **5** months = 25,000 $.



With exception of the patient, all citizens have an initial asset of 120,000 $ (equals to a yearly income at full work ability). In addition to this, the Health minister (you) as well as the representative from the pharma company expect both a fix salary of 120,000 $. The two payers will receive the same income of 120,000 $ but will have to share the health care costs, deducted from their yearly income. The two investors have no fix income but will share the revenue generated with the reimbursed pharmaceuticals.

The current standard treatment costs **50,000 $** per therapy and patient, paid by the health insurance.
In consequence each of the two payers earns currently 95,000 $ (= 120,000 – 50,000 / 2) and each of the two investors 25,000 $ (= 50,000 / 2).

Control question 4: If the patient's survival increases from zero to 4 months at the same quality of life (50%), how much will he/she gain "economically" in cash?

- Nothing, the benefit of survival cannot be expressed in monetary terms.
- Nothing, the patient cannot work at a reduced quality of life.
- 20,000 $
- 25,000 $
- 40,000 $

Figure extracted from the experimental survey used in this and the subsequent study [1]. The experimental surveys are available in Additional file 3 and 4. The illustrations are the authors' own creations.

Payoffs to stakeholders:

The experiment was implemented as Qualtrics survey and linked on MTurk as Human Intelligence Task (HIT). The Decision Science Laboratory of ETH Zurich (DeSciL) executed the experimental runs and delivered anonymized data to the researchers. Bonus distributions were performed by the DeSciL to ensure participants remain anonymous to the researchers.

- All prices expressed in fictive "Dollar" ($) during the game traded at the end of the experiment at a currency rate of 100,000 $ = 1 US$ for group 1 to 4. Prices for group 5 to 6 traded at par.
- Patient: benefit converted to US$ (divided by ten for run one) was donated to the Leukemia & Lymphoma Society (LLS) which provides financial support for patients with blood cancer (https://www.lls.org/support/financial-support).
- Payers and investors: benefit plus initial assets converted to US$ divided by ten was paid to four other MTurk-Users (randomly selected, only positive amounts implemented).
- Regulator or Seller: A fix amount of 2.4 US$ was paid to each participant (voucher right at the end of the survey) corresponding to a "yearly income" plus initial assets in the experiment. Bonus was distributed by the DeSciL, after the run was closed.

  Bonus run one: participants received an additional bonus of 0.6 US$ for participating in the voluntary introductory training (corresponding to 25% of fix salary).

  Bonus run two (covered in subsequent study [1]): no bonus for the mandatory training. Participants received instead the difference between their price offer and their reservation price, if their offer lead to an agreement for any successful round in game two. This was determined by a random pairing of regulators and sellers at the end of the experiment.

References

1. Wettstein DJ, Boes S. The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: evidence from an online experiment. *Health Econ Rev*. 2020;10(1):13.

CHAPTER 3: Appendix 2 – model and hypotheses

See following pages.

The appendix was published under:

Wettstein, D.J., Boes, S.: Assessing social preferences in reimbursement negotiations for new Pharmaceuticals in Oncology: an experimental design to analyse willingness to pay and will-ingness to accept. BMC Health Serv. Res. 21(1), 234 (2021). https://doi.org/10.1186/s12913-021-06231-8

Additional file 2: Model and hypotheses[1]

Model and hypotheses

A "robust finding" from past laboratory experiments in economics is that "individuals take into account the welfare of all parties and have a preference for efficient outcomes" [2-6,1] and that "non-selfish preferences are the rule rather than the exception" [7]. Building on these research results, the model used in this study was based on a simple CES[2]-function, where a rational decider (regulator R or seller S) should maximize his/her social utility (U) considering the utility (benefit π) of the other involved stakeholders besides his own: U (π_R,π_S,π_C,π_P,π_I), including the patient's (consumer C), the payers' (P) and the investors' (I) benefit.

a) Stated preferences: reservation prices

Since payoffs in the reservation price games are for both deciding roles identical, independent of their decision (x) and flat during the game (fix salary) the utility functions can be simplified for both deciding roles (D): U_D (π_C,π_P,π_I) = $(\gamma_D \pi_C^\rho + \delta_D \pi_P^\rho + \varepsilon_D \pi_I^\rho)^{1/\rho}$ with γ=1-δ-ε for the weighting of the affected stakeholders' benefits.

- Hypothesis H0-I: the two deciding roles weight the benefit of the other stakeholders with zero (no social or distributional preferences with γ=δ=ε=0), hence reservation prices (x) are randomly distributed between 50,000 $ and 500,000 $ in each round and do not differ between rounds with incremental patient benefit (E[X_r] = 275,000 $ for r = {1;…;5}).
- Hypothesis H0-II: the deciders are inequality averse regarding funders only. Since π_D is independent of (x) and since π_P and π_I are assumed to be symmetrical, both deciding roles

[1] The present study on social preferences forms the basis for a subsequent study in which incentivized bargaining behaviour was investigated [1]. The model described was also used in an adapted form in the subsequent study [1].
[2] Constant elasticity of substitution

will simply redistribute the total assets (all initial assets 4*120'000 plus initial premium benefit of the payers 2*120,000 $) to minimize the difference between the funders (payer, investor) by choosing x=120,000 $, indifferent between any patient outcome (patient benefit, affected by incremental survival and QoL), assuming that:

- they do not care for pareto-efficiency (since "payer" framed as being "available to pay"),
- they have an identical utility distribution as per defined model,
- they have equal agency/sympathy for the funders with $\delta=\varepsilon$.

- Hypothesis H0-III: reservation prices in relation to the patient outcome gained do not differ comparing each round to the standard of care, using ICER (see Table 3 and 4 further below). Since QoL and monthly income are constant in this experiment, the respective price to keep each incremental constant between rounds does not differ between alternative measures.
    - Hypothesis H0-IIIb: reservation prices in relation to the patient outcome gained do not differ between consecutive rounds, using ICER.
- Hypothesis H0-IV: difference due to price magnitude framing (hypothetical 100k$ vs 1$ price group) has no effect since effective payoffs at the end of the experiment converted to USD are identical for all groups.
- Hypothesis H0-V: since payoff-functions are identical for both deciding roles and indifference curves are reversible, for every round WTP equals WTA, hence the assigned role has no effect on the price decision (no valuation differences) with $\gamma_R=\gamma_S$, $\delta_R=\delta_S$ and $\varepsilon_R=\varepsilon_S$.

b) Stated preferences: relevance of stakeholders

- Hypothesis H0-VI: since payoff-functions are identical for all groups and indifference curves are reversible, ranking of the stakeholders' relevance is identical.

Efficiency and effectiveness

Efficiency and effectiveness measures:

i. WTP or WTA per life month gained: reservation price in proportion to the incremental survival, compared to no treatment
(x_r / m_r)

ii. WTP or WTA per quality adjusted life month (QALM) gained: reservation price in proportion to the incremental survival reflecting quality of life
$(x_r / m_r * q_r)$

iii. Incremental cost-effectiveness ratio ICER: difference between the reservation price and the price of the standard treatment in proportion to the QALM gained
$(x_r – x_0) / (m_r * q_r – m_0 * q_0)$

iv. Incremental cost-benefit ratio ICBR: difference between the reservation price and the price of the standard treatment in proportion to the patient benefit (QALM * monthly income) gained
$(x_r – x_0) / (\pi_C(m_r * q_r) – \pi_C(m_0 * q_0))$

v. Added value: difference between the value of the new treatment and the value of the standard treatment. Value is measured by the patient benefit in proportion to the cost of the treatment [8]
$\pi C(mr * qr) / xr – \pi C(m0 * q0) / x0$

Table 4: efficiency and effectiveness measures

i) WTP or WTA per life month gained: $\frac{x_r}{m_r}$	ii) WTP or WTA per quality adjusted life month (QALM) gained $\frac{x_r}{m_r \times q_r}$
iii) Incremental cost-effectiveness ratio ICER: $\frac{x_r - x_0}{m_r \times q_r - m_0 \times q_0}$	iv) Incremental cost-benefit ratio ICBR: $\frac{x_r - x_0}{\pi_C(m_r, q_r) - \pi_C(m_0, q_0)}$
v) Added value: $\frac{\pi_C(m_r, q_r)}{x_r} - \frac{\pi_C(m_0, q_0)}{x_0}$	

Table 5: Prices for constant efficiency and effectiveness per measure

							Prices for constant…					*…effectiveness & efficiency*				
Treat	**Round**	**Survival (months)**	**Δ**	**QoL**	**Δ**	**Patient benefit**	WTP,WTA per incr. Month	WTP,WTA per incremental QALM	ICER (cost per incremental QALM)	Incremental Cost-Benefit Ratio (reflecting monthly income)	Added value	**WTP,WTA per incr. Month**	**WTP,WTA per incremental QALM**	**ICER (cost per incremental QALM)**	**Incremental Cost-Benefit Ratio (reflecting monthly income)**	**Added value**
None		*0*		*0.5*		*0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*					
SoC	*0*	*5*	*+5*	*0.5*	*0*	***0.25***	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.1*	*0.2*	*0.2*	*2*	*nv*
New	1	**8**	+3	**0.5**	0	**0.40**	0.8	0.8	0.8	0.8	0.8	0.1	0.2	0.2	2	0%
	2	**10**	+2	**0.5**	0	**0.50**	1.0	1	1	1	1	0.1	0.2	0.2	2	0%
	3	**12**	+2	**0.5**	0	**0.60**	1.2	1.2	1.2	1.2	1.2	0.1	0.2	0.2	2	0%
	4	**15**	+3	**0.5**	0	**0.75**	1.5	1.5	1.5	1.5	1.5	0.1	0.2	0.2	2	0%
	5	**17**	+2	**0.5**	0	**0.85**	1.7	1.7	1.7	1.7	1.7	0.1	0.2	0.2	2	0%

SoC, standard of care; QoL, quality of life; nv, no value

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1. Wettstein, D.J., Boes, S.: The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: evidence from an online experiment. Health Econ Rev 10(1), 13 (2020). https://doi.org/10.1186/s13561-020-00267-y
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CHAPTER 3: Appendix 3 – complete instructions for the first run of the experiment

Available online at the following link:

https://static-content.springer.com/esm/art%3A10.1186%2Fs12913-021-06231-8/MediaObjects/12913_2021_6231_MOESM3_ESM.pdf

The appendix was published under:

Wettstein, D.J., Boes, S.: Assessing social preferences in reimbursement negotiations for new Pharmaceuticals in Oncology: an experimental design to analyse willingness to pay and will-ingness to accept. BMC Health Serv. Res. 21(1), 234 (2021). https://doi.org/10.1186/s12913-021-06231-8

CHAPTER 3: Appendix 4 – complete instructions for the second run of the experiment

Available online at the following link:

https://static-content.springer.com/esm/art%3A10.1186%2Fs12913-021-06231-8/MediaObjects/12913_2021_6231_MOESM4_ESM.pdf

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CHAPTER 4: Appendix 1 – selected screens and payoff details

See following pages.

The appendix was published under:

Wettstein, D.J., Boes, S.: The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: evidence from an online experiment. Health econ rev 10(1), 13 (2020). https://doi.org/10.1186/s13561-020-00267-y

Appendix 1: Selected screens and payoff details

Figure 4 and 5: introduction to price offer task (left for the regulator, right for the seller role)

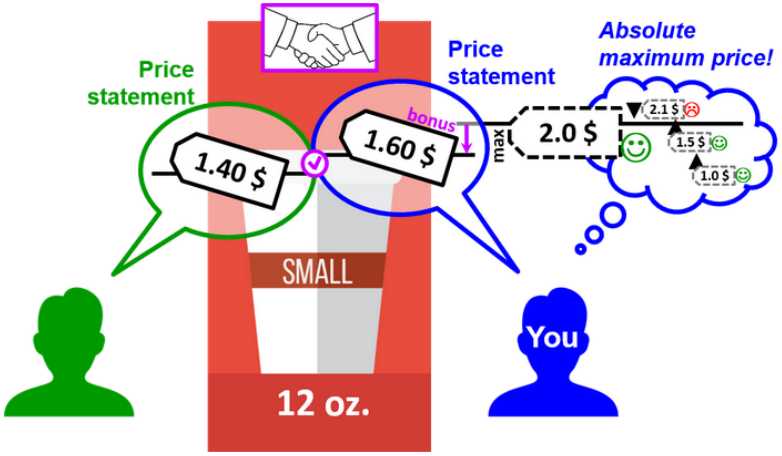
We will revisit the five new pharmaceutical products of round 1 to 5. But now you can state an actual price expectation to the seller. The seller himself will do the same. Your counterpart is another participant, randomly selected after the experiment.

If your expectation is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient will get access to the new treatment with all its benefits (increased life expectancy, economic benefit). The investors will receive the price (revenue) and the payers will have to pay the price (cost). If no agreement is reached, the product will not be available in this country.

You and your counterpart will both receive **an additional bonus for reaching an agreement: you can keep the difference between** your successful price statement and your absolute maximum price (stated in the first part of the experiment). Hence, the lower your price statement compared to your absolute maximum price, the higher your bonus – if the offer is not below the seller's price statement. Then again, the higher your price expectation, the higher potentially the chance of reaching an agreement with the seller.

Below the decision table you will see for each round your stated maximum prices from the first part of the experiment.

Ok? Let us start!



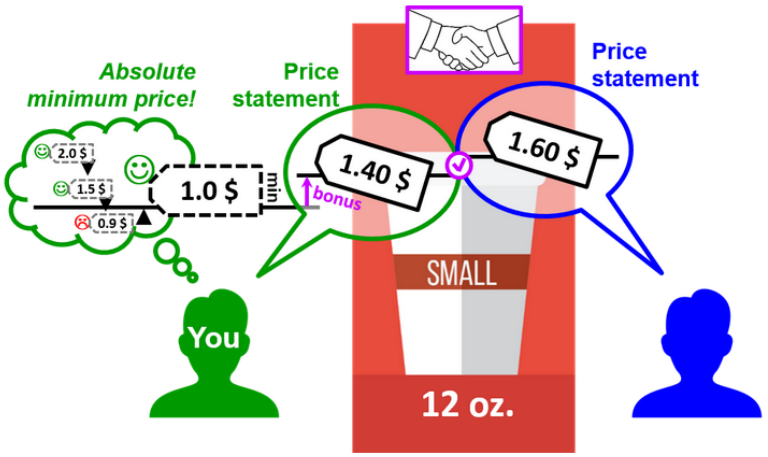
We will revisit the five new pharmaceutical products of round 1 to 5. But now you can place an actual price offer to the regulator. The regulator himself will do the same and state his price expectation. Your counterpart is another participant, randomly selected after the experiment.

If your offer is **lower or equal** to the price expectation of the regulator, you will both agree. In consequence, the patient will get access to the new treatment with all its benefits (increased life expectancy, economic benefit). The investors will receive the price (revenue) and the payers will have to pay the price (cost). If no agreement is reached, the product will not be available in this country.

You and your counterpart will both receive **an additional bonus for reaching an agreement: you can keep the difference** between your successful price offer and your absolute minimum price (stated in the first part of the experiment). Hence, the higher your price offer compared to your absolute minimum price, the higher your bonus – if the offer is not beyond the regulator's price statement. Then again, the lower your price offer, the higher potentially the chance of reaching an agreement with the regulator.

Below the decision table you will see for each round your stated minimum prices from the first part of the experiment.

Ok? Let us start!



The coffee cup relates to the comprehension questions in the introductory training, see Appendix 1 in our previous publication [1]. Coffee cup adjusted from wikiHow [2].

Figure 6: decision table with message for price offers violating reservation price as introduced and trained (run two, example for seller role). Participants could still ignore the message and submit any price in range.

Your maximum price of 160000 $ leads to the following state of the society:			
in thousand Dollars	**New Benefit**	**Compared to Current State**	**New Asset (Benefit + Initial Asset)**
Patient	50	+25	50
2 Payers	80	-110	320
2 Investors	160	+110	400
Seller	120	0	240
Regulator	120	0	240

Your price statement is equal or below your minimum price. This might increase the chance of an agreement but you will not receive any bonus.

Please state your price by moving the red slider below.
You will see the related consequences in the table above.
If the values do not change, please click the red slider again.

Your minimum prices form the first five rounds:
8 months: 162,000 $
10 months: 160,000 $
12 months: 218,000 $
15 months: 348,000 $
17 months: 390,000 $

Payoffs to stakeholders:

The experiment was designed as Qualtrics survey and linked on MTurk as Human Intelligence Task (HIT). The Decision Science Laboratory of ETH Zurich (DeSciL) executed the experimental runs and delivered anonymized data to the researchers. Bonus distributions were performed by the DeSciL to ensure participants remain anonymous to the researchers.

- All prices expressed in fictive "Dollar" ($) during the game (group 1 and 2) traded at the end of the experiment at a currency rate of 100,000 $ = 1 US$. Prices for group 3 to 4 traded at par (see Table 1).
- Patient: benefit converted to US$ was donated to the Leukemia & Lymphoma Society (LLS) which provides financial support for patients with blood cancer (https://www.lls.org/support/financial-support).
- Payers and investors: benefit plus initial assets converted to US$ divided by ten was paid to four other MTurk-Users (randomly selected, only positive amounts implemented).
- Regulator or Seller: A fix amount of 2.4 US$ was paid to each participant (voucher right at the end of the survey) corresponding to a "yearly income" plus initial assets in the experiment. Bonus was distributed by the DeSciL, after the experiment was closed. Participants received the difference between their price offer and their reservation price, if their offer lead to an agreement for any successful round in game two. This was determined by a random pairing of regulators and sellers at the end of the experiment.

1. Wettstein DJ, Boes S. Assessing Social Preferences in Reimbursement Negotiations for New Pharmaceuticals: An Experimental Design to Analyse Willingness to Pay and Willingness to Accept *Manuscript submitted for publication.* 2020.
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CHAPTER 4: Appendix 2 – model and hypotheses

See following pages.

The appendix was published under:

Wettstein, D.J., Boes, S.: The impact of reimbursement negotiations on cost and availability of new pharmaceuticals: evidence from an online experiment. Health econ rev 10(1), 13 (2020). https://doi.org/10.1186/s13561-020-00267-y

Appendix 2: Model and hypotheses

Our underlying model is based on the "robust finding" from existing laboratory research in economics that "individuals take into account the welfare of all parties and have a preference for efficient outcomes" and that "non-selfish preferences are the rule rather than the exception" [1-7]. Relating to similar research, we built our reflections in the previous study on a simple CES[1]-function (see Appendix 2 of the publication) [7]: A rational decider (regulator R or seller S) should maximize his or her social utility (U) considering the utility (benefit π) of the other involved stakeholders besides his own with U (π_R,π_S,π_C,π_P,π_I), including the patient's (consumer C), the payers' (P) and the investors' (I) benefit. Payoffs in the reservation price games were for both deciding roles identical, independent of their decision (x) and flat during the game (fixed salary). Hence we proposed to simplify the utility functions for both deciding roles (D): U_D (π_C,π_P,π_I) = $(\gamma_D \pi_C^\rho + \delta_D \pi_P^\rho + \varepsilon_D \pi_I^\rho)^{1/\rho}$ with γ=1-δ-ε representing the distributed weighting of the affected passive stakeholders' benefits. [7]

For our reflections in the study presented here, we extend the utility function from above for the decider (D) with his and his opponents (O) benefit as follows:

$$U_D\ (\pi_D,\pi_O,\pi_C,\pi_P,\pi_I) = (\alpha_D \pi_D^\rho + \beta_D \pi_O^\rho + \gamma_D \pi_C^\rho + \delta_D \pi_P^\rho + \varepsilon_D \pi_I^\rho)^{1/\rho} * Pr(y_D\ |E(y_O\ ))$$

with $\pi_R^\rho = 240 + (\hat{x}_R - y_R)$ for regulators (D, O), $\pi_S^\rho = 240 + (y_S - \hat{x}_S)$ for sellers (D, O), and α = 1-β-γ-δ-ε.

The estimated probability (Pr) for an agreement depends on the own price offer y_D in the second game and the expected price offer of the opponent y_O. The potential bonus depends on the own

[1] Constant elasticity of substitution

reservation price from the first game (external variable $\hat{x}_D$). A rational utility maximizing decider should maximize relevant payoffs considering the probability of reaching an agreement.

We first assume that no valuation differences exist, especially not between roles (WTP=WTA) and that players share this assumption with $x_D = x_O$ for the same round.

> *Hypothesis H0-I: deciders will state a price offer (y) equal to their reservation price (x),* since this maximizes expected overall social payoff, even though their own bonus is zero.

We could further assume that rational deciders with social preferences might care for the patient only and weight all other payoffs with zero. A consequence of this assumption would be that the optimal price offer for the decider is again equal to his reservation price, but even if he assumes WTP≠WTA. Since this offer maximizes the chance of an agreement and increases the patient benefit compared to the status without agreement. Hence the result is equal to H0-I for altruistic players who do not assume WTP=WTA but care for patient's outcome only.

Alternatively we could assume that the deciders are still rational utility maximizers, but deviate from y=x since they do not only assume WTP≠WTA but do care for other stakeholders' benefits, beside the patient. For this, deciders need an alternative assumption for the opponents offer. If both roles simply assume a systematic valuation gap (reluctance to trade) where sellers value the new treatment higher than regulators (WTP < WTA) the outcome is again $y_D = x_D$ (H0-I). Since a successful offer with $y_S \leq x_R$ would violate the (introduced and trained) definition of WTP and WTA.

They could however have a general assumption about the distribution of the counteroffer $E(y_O)$, less dependent of their own valuation. For example that $E(y_O)$ is more likely to be located at the mean of an expected price range of possible or realistic price offers. A very simple expected price range is equal to the range between 0 and 500 k$ for which the decider could assume a normal

distribution of his opponent's offer y_O around 250 k$. Alternatively, the expected mean y_O could also be at 275 k$ (mean of the decision range). We further assume that participants share one range of expected prices in the experiment.

If the decider is rational and weights his own benefit higher than the benefit of his opponent, the optimum lies beyond y_O (>250 k$) for the regulator and below y_O for the seller (<250 k$).

> *Hypothesis H1-III: margins claimed do differ between role groups above or below a shared assumed most likely counteroffer.*

The smaller the decision maker estimates the standard deviation of the (normal) distribution of y_O, the steeper the density function and smaller the distance of his optimal expected bonus from the expected y_O (250 k$). This holds true also if the decider is strictly prosocial and weights all payoffs equal (see Figure 7 below). Only the optimum for an altruistic seller who weights the passive stakeholders equal but ignores not only his own but also the payoff for his active opponent, lies still at the point of equal distribution between funders at a price of 120 k$.

> Hypothesis H1-IIIa: Regulators will either state $y_R = E(y_O)$ if their reservation price from the first game is $\hat{x}_R \geq E(y_O)$, or $y_R = \hat{x}_R$ if their $\hat{x} < E(y_O)$. The sellers will state $y_S = E(y_O)$ if their $\hat{x}_S \leq E(y_O)$, or $y_R = \hat{x}_S$ if their reservation price is $\hat{x}_S > E(y_O)$.

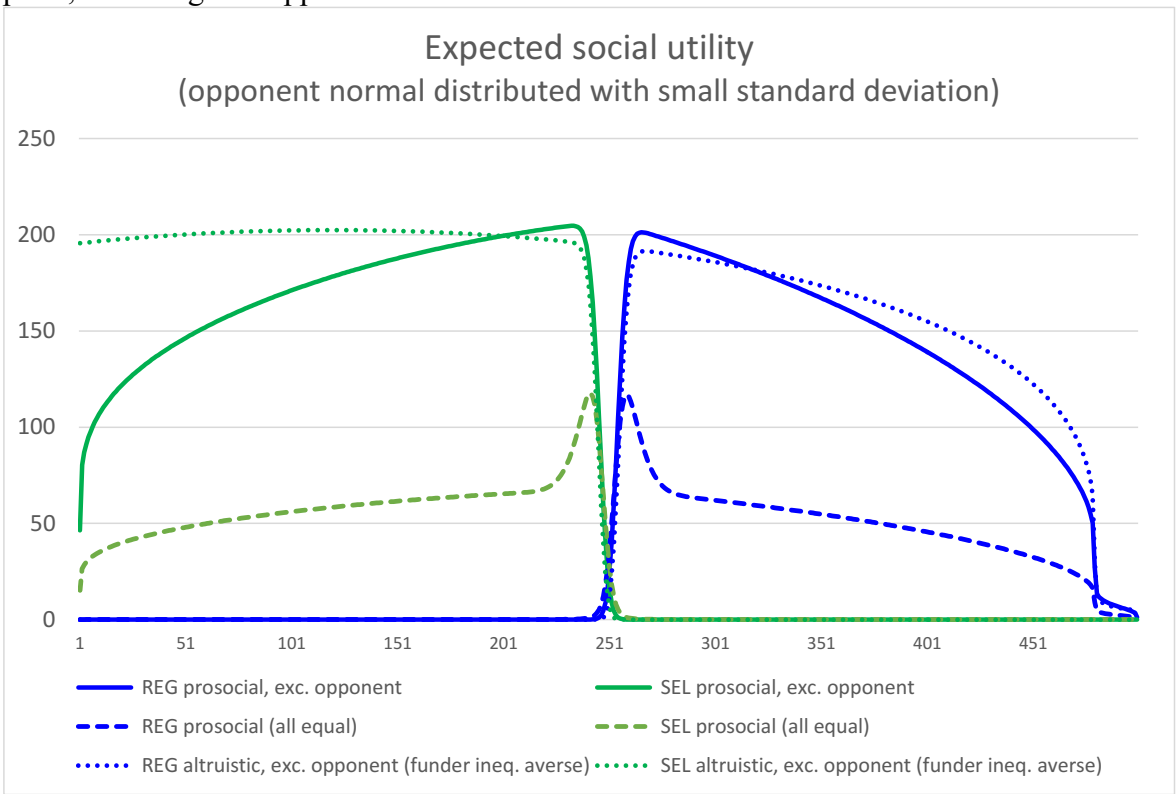
This means for example for $E(y_O)$ = 250 k$: regulators with a reservation price of 50 to 250 k$ as well as sellers with a reservation price of 250 to 500 k$ will not deviate with their offer from their reservation price. Since they would otherwise decrease the chance of an agreement and therefore expected payoffs. Regulators above 250 k$ however should deviate from their preference and ask for 250 k$, as well as sellers below 250 k$ and therefore have a "margin" between offer and reservation price.

Generalized H1-IIIa implies that if we split participants in two groups of those with reservation prices above and below the expected mean offer, regulators should have margins only in the upper and sellers only in the lower group.

Finally, we could in general assume that players share a valid assumption about each other's price offers.

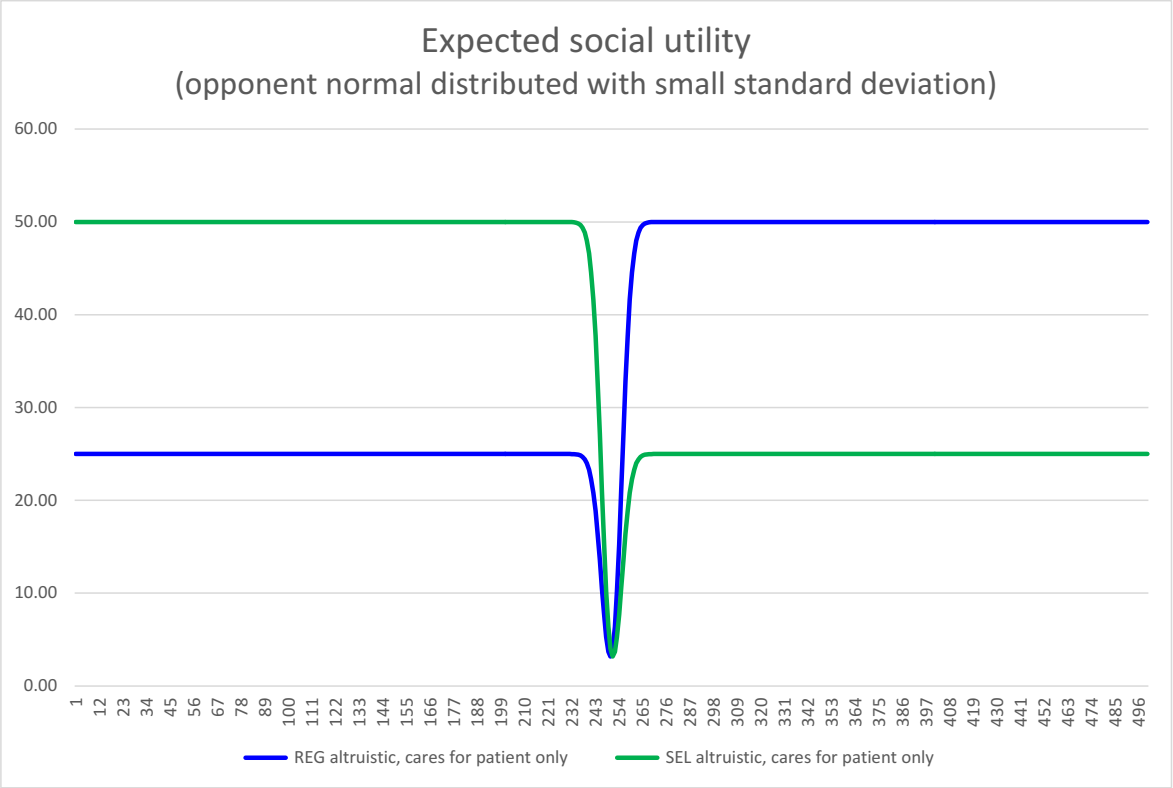
- Hypothesis H0-IV: Comparing price offers between the two role groups, an agreement is reached with means $\overline{y}_S \leq \overline{y}_R$ overall (weak) and for each negotiation pair $y_{Si} \leq y_{Ri}$ (strong). Since players are rational utility maximizers and assuming that an agreement in line with their stated social preferences is always preferable to none

Figure 7: expected social utility for price offer decision in round 2 for each given reservation price, assuming that opponent's counter offer is normal distributed.



For simplification "no treatment" as default if no agreement is reached. Optima remain unchanged with "standard of care" as default. Fix salary of deciders excluded.

Figure 8: same if decider cares for patient/agreement only



Standard of care as alternative, if no agreement is reached. Optima remain unchanged with "no treatment" as default.

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CHAPTER 5: Appendix 1 – details on design

See following pages.

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How value-based policy interventions influence price negotiations for new medicines: An experimental approach and initial evidence

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Health Policy

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Appendix 1: Details on design

Table A1 Overview games

Part/stage	Setting	Incentive	Game	Round	Decision task[1,2]	Consequences of the decision		
1st part: active role (negotiator)						In the case of an agreement[1]	In the case of no agreement	Available alternative (if no agreement)[4]
Stage 1: reservation price (x)	Autonomous	Fixed salary	**1**	1	Decide on a "reasonable and fair" maximum (buyer) or minimum (seller) price x (between CHF 0 and 10) for the closed envelope with an unknown donation for the patient (between CHF 0 and 10). There is no negotiation partner involved.	No agreement needed. Payers will have to pay the price x to the investors, the patient association will receive the donation. Buyer and seller will both receive a fixed salary of CHF 5.	-	-
				2	Repetition of game 1 with the additional requirement to estimate the unknown donation in the envelope (patient value).		-	-
Stage 2: price offers (y)	Interactive	Salary from principal	**2**	1	Decide on a price offer y for the closed envelope with an unknown donation for the patient. The offer will be matched with a counteroffer from a random negotiation partner playing the opposite role. An agreement will be reached if the seller's price is equal to or lower than the buyer's price offer.	Payers will have to pay the agreed price (mean of offers) to the investors, the patient association will receive the donation. Buyer and seller can expect a salary determined by their principal, which depends on the price agreed.	Payers will have to pay nothing, investors will receive zero revenue and the patient will receive no donation. Buyer and seller might receive a salary for not reaching an agreement if this is determined accordingly by their principal.	No alternative available.
			3		Same decision task as in game 2, with one difference. This time, an alternative to the object of negotiation (closed envelope) is available: a known donation for the patient at a known price for the payer/investor. It will be traded in the case of no agreement.		Payers will have to pay the price of the available alternative to the investors, and the patient association will receive the alternative donation. Buyer and seller will receive a salary determined by their principal, which depends on the price of the alternative.	There is a donation of CHF 1 available for the patient at a payer price of CHF 3.
			4					Donation of CHF 2 at a price of CHF 5.
			5					Donation of CHF 3 at a price of CHF 6.
			6					Donation of CHF 4 at a price of CHF 7.
			7					Donation of CHF 6 at a price of CHF 8.
			2	2	Replay of game 2 with the possibility to revise the decision.			No alternative available
2nd part: passive role (funder)								
Stage 3: salary for agent (w)	Autonomous	Final game capital[3]	**8**		Decide on a salary for the agent: payers for their randomly assigned buyer, investors for their randomly assigned seller. The salary may differ for defined reimbursement price ranges (CHF 0.1-1, ..., 9.0-10). The salary for no agreement in the case of no available alternative (game 2) must also be determined.	The corresponding salary for the agreed price will be deducted from the principal's initial capital (CHF 20)[3] and transferred to the agent.	The corresponding salary for the price of the available alternative (or the defined salary for no agreement in the case of no available alternative) will be deducted from the principal's initial capital and transferred to the agent.	-

Participants were informed that one of the games (1-7) played would be randomly selected at the end of the experiment for the implementation of the payoffs to all affected stakeholders in real life. For this, they were randomly assigned into groups of five twice: once as negotiators to play one of their own games and once as principals to fund the game of two other negotiators and reward their agent.
1: In the risk-sharing group (treatment A), negotiators had to agree on a minimum patient benefit (final donation) in addition to the price. The buyer's requested minimum had to be equal to or higher than the promised minimum of the seller. If the negotiation was successful but the final donation turned out to be below the agreed minimum patient benefit, the agreed price was cut in half ("risk-sharing").
2: In the cost-benefit group (treatment B), negotiators had to type in an estimate of the patient benefit (v) in the closed envelope for an automatic calculation of the cost-benefit of their pricing decision (y/v). It was up to the participants to decide whether to take this additional information into account in their pricing decision.
3: Investors' initial capital was reduced by an amount only known to them (indicated to lie between CHF 0 and 10), representing the acquisition or investment cost for their envelope.
4: While in game 2, a failure to agree meant no transactions at all, an alternative to the object of negotiation (closed envelope) was available in games 3-7 and traded in the case of no agreement.

Table A2 Parameters per role and round

Group, Game	Setting				Decisions					Result					
	Market				Negotiators (agents)				Principals	Trade		Negotiators		Funders	
	Lottery	Alternative[2]			Buyer, Seller				Payer, Investor	Funders	Patient	Buyer	Seller	Payer	Investor
Group B / C	Donation unre-vealed[1]	Donation revealed (v_0)	Reimbursed price (y_0)	Investment cost[3] (i, i_0)	Reser-vation price (x)	Price offer (y)	Agreed price[4,5] (y^*)	Agreed min. outcome[5] (v^*)	Salary for agent (w)	Reimbursed price[6,7] (y')	Donation for transfer[1,7] (v')	Salary (w')	Salary (w')	Capital	Capital
1	E(v)	-	-	E(i)	x	-	-	-	w_x	x	v	5	5	$20-x-w_x$	$20-i+x-w_x$
2	E(v)	-	-	E(i)	-	y	$(y_B+y_S)/2$	-	$w_{y'}$	y^*, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
3	E(v)	1	3	E(i)	-	y	$(y_B+y_S)/2$	-	$w_{y'}$	y^*, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
4	E(v)	2	5	E(i)	-	y	$(y_B+y_S)/2$	-	$w_{y'}$	y^*, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
5	E(v)	3	6	E(i)	-	y	$(y_B+y_S)/2$	-	$w_{y'}$	y^*, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
6	E(v)	4	7	E(i)	-	y	$(y_B+y_S)/2$	-	$w_{y'}$	y^*, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
7	E(v)	6	8	E(i)	-	y	$(y_B+y_S)/2$	-	$w_{y'}$	y^*, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
Group A															
1	E(v)	-	-	E(i)	x	-	-	-	w_x	x	v	5	5	$20-x-w_x$	$20-i+x-w_x$
2	E(v)	-	-	E(i)	-	y	$(y_B+y_S)/2$	$(v_B+v_S)/2$	w_{y*}	y^*, $y^*/2$, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
3	E(v)	1	3	E(i)	-	y	$(y_B+y_S)/2$	$(v_B+v_S)/2$	w_{y*}	y^*, $y^*/2$, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
4	E(v)	2	5	E(i)	-	y	$(y_B+y_S)/2$	$(v_B+v_S)/2$	w_{y*}	y^*, $y^*/2$, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
5	E(v)	3	6	E(i)	-	y	$(y_B+y_S)/2$	$(v_B+v_S)/2$	w_{y*}	y^*, $y^*/2$, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
6	E(v)	4	7	E(i)	-	y	$(y_B+y_S)/2$	$(v_B+v_S)/2$	w_{y*}	y^*, $y^*/2$, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$
7	E(v)	6	8	E(i)	-	y	$(y_B+y_S)/2$	$(v_B+v_S)/2$	w_{y*}	y^*, $y^*/2$, y_0	v, v_0	$w_{y'}$	$w_{y'}$	$20-y'-w_{y'}$	$20-i+y'-w_{y'}$

1: v randomly chosen from distribution Rv {0.0;0.1;…;9.9;10.0}
2: available alternative implemented in case of no agreement
3: All players knew that there were investment costs between 0 and 10. Only the investors knew the exact amount for the final wage decision.
4: y^* defined only if $y_B \geq y_S$ (agreement)
5: for group A: y^* and v^* defined only if $y_B \geq y_S$ and $v_S \geq v_B$
6: for group A: $y'=y^*$ if $v \geq v^*$ and $y'=y^*/2$ if $v < v^*$
7: if no agreement reached: for game 2 $y'=v'=0$; for offer games 3 to 7 $y'=y_0$, $v'=v_0$
Amounts displayed are in Swiss Francs (CHF).

Table A3 Cost-benefit ratio and value for money of available alternative in offer games

patient benefit (v, in CHF) \ price (y, in CHF)	0	1	2	3	4	5	6	7	8	9	10
0											
1		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00
2		0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00
3		0.33	0.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33
4		0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50
5		0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00
6		0.17	0.33	0.50	0.67	0.83	1.00	1.17	1.33	1.50	1.67
7		0.14	0.29	0.43	0.57	0.71	0.86	1.00	1.14	1.29	1.43
8		0.13	0.25	0.38	0.50	0.63	0.75	0.88	1.00	1.13	1.25
9		0.11	0.22	0.33	0.44	0.56	0.67	0.78	0.89	1.00	1.11
10		0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00

y/v cost-benefit ratio

alternative if no agreement

patient benefit (v, in CHF) \ price (y, in CHF)	0	1	2	3	4	5	6	7	8	9	10
0											
1		1.00	0.50	0.33	0.25	0.20	0.17	0.14	0.13	0.11	0.10
2		2.00	1.00	0.67	0.50	0.40	0.33	0.29	0.25	0.22	0.20
3		3.00	1.50	1.00	0.75	0.60	0.50	0.43	0.38	0.33	0.30
4		4.00	2.00	1.33	1.00	0.80	0.67	0.57	0.50	0.44	0.40
5		5.00	2.50	1.67	1.25	1.00	0.83	0.71	0.63	0.56	0.50
6		6.00	3.00	2.00	1.50	1.20	1.00	0.86	0.75	0.67	0.60
7		7.00	3.50	2.33	1.75	1.40	1.17	1.00	0.88	0.78	0.70
8		8.00	4.00	2.67	2.00	1.60	1.33	1.14	1.00	0.89	0.80
9		9.00	4.50	3.00	2.25	1.80	1.50	1.29	1.13	1.00	0.90
10		10.00	5.00	3.33	2.50	2.00	1.67	1.43	1.25	1.11	1.00

v/y value for money

alternative if no agreement

Details on experimental procedure (experimental protocol)

Implementation

The study was originally planned and in Qualtrics implemented as a physical laboratory experiment. Due to the measures ordered by the Swiss authorities in spring 2020 to combat COVID-19, it became impossible to conduct behavioural experiments in the physical laboratory; therefore, the experiment was conducted online ("virtual lab"). Except for the execution platform, the experiment was carried out as originally planned, with no adjustment of the setting or subject pool. The study sample (n=367) was recruited among Swiss university students, registered through the University Registration Center for Study Participants (www.uast.uzh.ch) of the ETH Zurich and the University of Zurich (UZH). Participants had to be Swiss residents and at least 18 years of age. The experiment was conducted in four sessions held between June 21 and July 2, 2020. The Decision Science Laboratory of ETH Zurich (DeSciL) executed the experimental runs (hosted on https://ethzurichenv.eu.qualtrics.com) and delivered anonymized data to the researchers. The pairing of the participants' final offers as well as salary functions, determination of the respective patient benefit, determination of the negotiation results, and determination of the payoff-relevant game were performed in Excel using macro routines (VBA). Payoff distributions to the participants were performed by the DeSciL to ensure participants remain anonymous to the researchers. The donation to the patient association (Swiss Cancer League www.krebsliga.ch) was transferred by the researchers after the experiment was closed. Participants had to state their informed consent (electronically) prior to the experiment. The research design was submitted to the national database BASEC (Business Administration System for Ethics Committees) of swissethics (Swiss Ethics Committees on research involving humans) before the implementation of the experiment. The local ethics commission of the Canton of Zurich reviewed the application and confirmed that the project does not fall within the scope of the Swiss Human Research Act (HRA) and therefore no authorization was required. The following section provides a detailed summary on the experimental design and the games played, followed by the key instruction screens. The design was preregistered at OSF.io before the experiment: https://osf.io/jhzk2.

Table A1 above provides an overview over all games played.

The full experimental instructions have been uploaded before data collection and are available here http://doi.org/10.5281/zenodo.3909606.

Games played

The participants were introduced to price negotiations in a real opportunity to improve patient benefit. This process included providing information on the monetary consequences of their decisions (payoffs) as well as information on the parallels of the experimental setting to real-world pricing negotiations for new pharmaceutical products (contextual framing). Various economic experiments have shown that the described context of the decision situation has an impact on the participants (framing effect) [2-6]. While some health economic experiments in the past have used a neutral frame only, most recent studies have implemented a health frame, some of them comparing a group

with a neutral framing to one with a health framing [6-12]. Meaningful context can aid in understanding and reduce implicit associations which increases experimental control [13]. Figures A1-A4 below show the experimental introductions, highlighting the contextual framing elements. For the framing of the negotiation situation and patient benefit, the therapeutic area of oncology was chosen. This was for two reasons. First, because of its relevance to the policy reform debate described at the beginning of this article. Cancer therapies have shown the highest growth rates in costs and list prices in recent years, and also show the highest cost growth projections for the coming years [14-17]. Apart from its relevance to the political reform debate, the topic of cancer treatment is also easier to instruct. For most participants, it can be expected that they can relate to cancer treatment. This contrasts with many other specialty treatments (e.g., immunology or rare diseases), where potentially larger differences in player understanding could also cause larger, uncontrollable biases in behaviour and unduly increase the complexity of the decision situation.

Participants were informed that one of their pricing decisions would be randomly selected for implementation at the end of the experiment and have real consequences not only for themselves but also for other participants (payoffs for payers and investors) and through donations to a cancer patient association (Swiss Cancer League) as a proxy for patient benefit[1]. They were also informed that in the final part of the experiment they would take on a second role, that of investor or payer (assigned to a different negotiating pair). This assignment would be independent of their original role as buyer or seller.

To test participants understanding after the introduction they had to answer five comprehension questions. The first four were related to conditions for and impact of negotiation success, the last on the concept of a reservation price (WTP, WTA). Game and payoff currencies were in Swiss Francs (CHF)[2]. Both active roles had the same payoff function (see Table A2 below)

All players started with an initial capital of CHF 20. In the first stage participants were asked to decide on a "reasonable and fair" maximum (buyer's WTP) or minimum (seller's WTA) price for the closed envelope, containing an unknown donation (between CHF 0 and 10) for the patient. The price (x) had to be in a range of CHF 0.0 to 10.0, entered by moving a slider.[3] No negotiation partner was involved at this stage and the task was rewarded with a fixed salary of CHF 5. The

[1] A link to the website for the Swiss Cancer League ("Krebsliga Schweiz") was provided in the instructions, where the participants could see that the donations would be used to directly support patients in need (see Figure A3).

[2] During the time the experiment was conducted, one Swiss Franc corresponded on average to 0.94 Euro or 1.05 US Dollars.

[3] The use of discrete choice formats for the price decision was considered for the present experiment, but ultimately had to be discarded. A single binary or dichotomous decision would not have been sufficient to obtain meaningful WTP and WTA values for pairing negotiators and determining negotiation outcomes. The "decisions would have had to be repeated in an iterative process, which would have meant an inflationary increase in the duration per round and of the experiment overall" [18]. The main reason for not using a multiple price list format was the unreasonable complexity of an appropriate decision table. On the one hand, this was due to the estimated effect size and the intervals needed to capture the valuation and offer differences between negotiators. On the other hand, due to the necessary representation of the distributional effects between the different parties involved. The table would have been either too selective or too comprehensive. Since the interest of the experiment was not to elicit nominal risk preferences, but rather the different negotiation successes and outcomes under different pricing rules, an unguided elicitation format, the Contingent Valuation Method (CVM) with a direct matching, was chosen [19].

social consequences of the decision were simple: the redistribution from payer to investor corresponded exactly to the price decision (x), the patient received in any case the value of the envelope and the reward for the decision maker was known. This game was repeated once with the additional requirement to also estimate the value (v) of the donation in the envelope (entered by typing the value in a field). During this second round of game one, treatment group A was introduced to the risk-sharing concept and procedure, while treatment group B was introduced to the cost-effectiveness concept and calculator. The term and concept of "cost-effectiveness" was used in the experiment due to the reference to corresponding policy instruments in real world. Since the patient benefit was monetised, "cost-benefit" is used for the analysis and interpretation of the results.[4]

In the second stage of the experiment participants had to decide on a price offer (y) to trade the closed envelope with a negotiation partner. An agreement was reached if the seller's price was equal or lower to the buyer's price offer. Negotiators were told, that their salary for completing the task would be determined by their principal at the end. The social consequences of the decision thus no longer depended only on one's own price decision, but also on the price decision of the opponent and remuneration by the principal.

While in game two a failure to agree meant no transactions at all, an alternative to the object of negotiation (closed envelope) was available in game three to seven. The alternative was a donation of a known amount for the patient at a known price for the investor respectively cost for the payer. Participants were told that this alternative would be traded in case of no agreement. This extension of the decision situation was implemented to simulate the impact of an already established standard treatment which is often available in real-world reimbursement negotiations. After five games with an available alternative, game two with no alternative was repeated.

In the third stage of the experiment participants had to decide on the salary (w) for their agents, paid from their own capital. The salary had to be typed in for ten defined reimbursement price ranges (CHF 0.1-1.0, ..., 9.0-10.0). The salary for no agreement in case of no available alternative (game two) had to be decided as well. In addition to that, the investors' initial capital was reduced by an amount (indicated to lie between CHF 0 and 10), representing the acquisition or investment cost for their closed envelope. Both funder roles received the same description for their task, with exception of the exact amount of the investment costs, only known to the investors.

[4] The cost-effectiveness ratio for the new option of a patient benefit and the existing alternative were considered separately and not incrementally (incremental cost-effectiveness ratio ICER) for two reasons. First, the implementation of the ICER would have decisively increased the complexity of the decision situation. Second, the interest of the experiment was in differences in the overall value for money achieved for the overall population (see first paragraph of the discussion section of the manuscript) and not in an incremental view (accepting the status quo).

Selected instruction screens

Figure A1/2 Introduction screens (contextual framing[5] on real world reimbursement negotiations marked red |)

General information about the experimental setting

Thank you very much in advance for your willingness to contribute to our research!
Please read carefully the instructions below.

1. Introduction

This experiment is part of a scientific study interested in understanding the valuation of new pharmaceutical products and specifically the related price negotiations.

A pharmaceutical product is a substance or combination of substances that is intended to treat, prevent or diagnose a disease. This includes therapeutics to treat a disease (commonly referred to as "medicines"), as well as vaccines to prevent a disease.

In the following you will take part in a price negotiation, comparable to the reimbursement situation for a new pharmaceutical product.

You will be asked to make decisions that affect the outcome of your negotiations and could have an impact on your own finances, but also on those of other participants and indirectly on patients in the real world.

We will comment on some parallels to the negotiation situation for new pharmaceuticals in the "real world" in the following introduction.

→

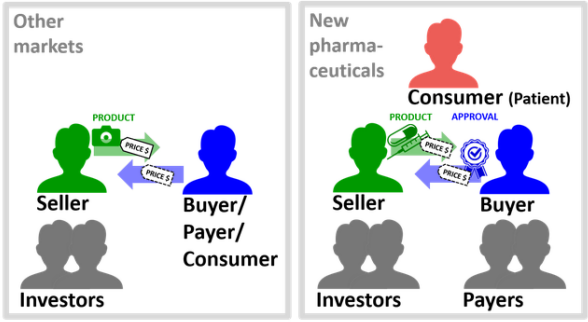
2. Background information

Price negotiations for new pharmaceutical products are in most countries very complex. While there is a "seller" and a "buyer", like in other markets, both often have few to no alternative trade partners available to trade a new product: the pharmaceutical company is an exclusive seller of a patent-protected product, the health authority or health insurance is an exclusive "buyer".

In addition to that, for some of the European countries the "buyer" (health authority) who decides on the price is not even the "payer" (health insurance). And most importantly, in most first world countries the "consumer" (patient) is neither the price setting "buyer" nor the "payer" for new patent-protected pharmaceuticals.

Below an illustration, including also the fifth player, the funding investor, who invested in the development of the new product and expects a return for the risk he/she took. Finally, since the consumer of these product is mostly also not the competent "decider", there is even a very central sixth player involved, the treating physician, which we will however neglect for this experiment.

Patients or citizens will not benefit from a new promising therapy or vaccination, if the seller and buyer cannot agree on a price. And if they do agree, the payer has in general to pay the product (if medically indicated).



Last but not least, in many other markets the value of the traded products is much easier to assess and compare.In contrast, the value of a new pharmaceutical product is inherently complex and often uncertain when entering the market. This in addition to the fact that not every consumer might show the intended response and benefit from the substance as promised.

The value for the patient and the society as whole could for example be a prolonged survival for cancer patients, protection against a viral infection, reduction of pain or less side effects, etc.

[5] See explanation on contextual framing on page 6 above.

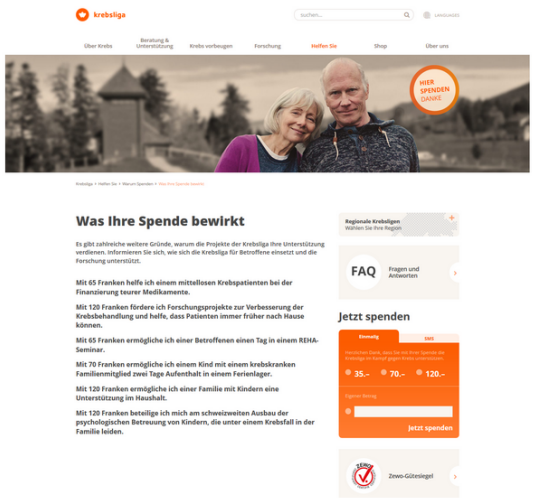
→

Figure A3/4 Introduction screens (contextual framing on real world reimbursement negotiations marked red)

3. The general setup of this experiment

You have been assigned to the role of the **buyer**. Your task will be to **buy a closed envelope** from the seller if you can agree on a price. The envelope contains a donation to the Swiss Cancer League "Krebsliga Schweiz" (www.krebsliga.ch). The association uses donations not only for research purposes but also to directly support patients (see here: https://participate.krebsliga.ch/purposes/direkthilfe).

The value of the donation inside the envelope lies between CHF 0 and 10. The "desirable" value would of course be CHF 10, as this represents the maximum health benefit possible. However, the envelope will only be opened at the end of the experiment to reveal its true value for patients. This means that you will have to negotiate a price for the envelope without knowing the true value of the donation inside.



Comparing the **envelope** in our experiment to a new **medicine** or **vaccine** in the real world, we have to consider two factors of uncertainty:

- **Uncertainty of response:** The pharmaceutical will most likely not show the same effectiveness in every patient/citizen. In other words, not every patient will respond to a medicine and a vaccine will not protect all citizens who receive it.
  Translated to our experiment: If the value of the donation in the envelope turns out to be CHF 5 (instead of the aspired maximum of CHF 10), you could compare this to a vaccine which prevents 50% of the citizens who were vaccinated against an infectious disease (like hepatitis C, seasonal influenza or Covid-19, etc.).
- **Uncertainty of the clinical benefit:** The promised effect reported from clinical studies might not translate to the real world and/or data on long-term effectiveness might not be available yet.
  Translated to our experiment: Neither the seller nor the buyer will know the real value of the final donation in the envelope. Still both of you will have to decide on a price for the envelope. In the most extreme case, you both agree on a price of CHF 0 for the envelope with a final donation of CHF 10, or vice versa, on a price of CHF 10 for a donation of CHF 0. Of course it is also possible, that you both cannot find an agreement, which will mean that the envelope will not be processed for a donation.

4. The roles

You and the other participants form a "society" with five different citizens:

- **The Patient** (or citizen to be protected) is the only actor who is not present during the experiment. Any patient value generated during this experiment will be donated to the "Relief Fund" of the Swiss Cancer League (https://participate.krebsliga.ch/purposes/direkthilfe) which provides direct help to cancer patients and their families.
- **The Seller** possesses the envelope containing a donation of an unknown value which he/she offers to the buyer at a proposed price *(comparable to a representative of a pharmaceutical company, offering a new medicine or vaccine with the promise to increase the health benefit)*.
- **The Buyer** is responsible to propose and approve a price for the envelope on behalf of the patient or citizen and the payer *(comparable to the representative of the public health authorities)*.
- **The Investor** is financer and owner of the envelope and will receive the market price, paid by the payer, if the seller and buyer find an agreement *(comparable to the shareholder of a pharmaceutical company)*.
- **The Payer** will have to pay the negotiated price at the end of the experiment, if the seller and buyer find an agreement *(comparable to the premium payers of a health insurance)*.

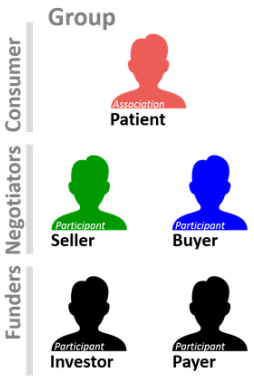


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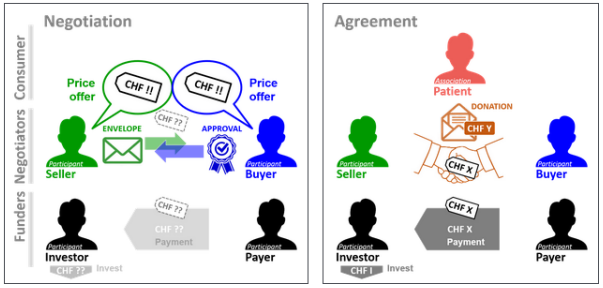
Figure A5/6 Introduction screens (contextual framing on real world reimbursement negotiations marked red)

5. The trade

The negotiating **seller** and the **buyer (you)** have to negotiate a price for the closed envelope. The **seller** possesses the envelope at the beginning. If he or she asks for a price beyond the buyer's proposed price, the **buyer** will refuse to approve the potential donation for the patient. Vice versa, if the buyer askes for a lower price than the seller's expectation, the latter will not agree to trade the envelope.

If the negotiators find an agreement, the patient association will receive the donation in the envelope. The assigned **payer** will have to pay the market price of the envelope to the assigned **investor**. The real value of the donation will be determined at the end of the experiment.



6. The initial capital

Each player starts with an initial capital of CHF 20. For your **active role** you have already been randomly assigned to the role of the **buyer** of the envelope.

At the end of the experiment you will additionally be randomly assigned to a **passive role** of either the **investor** or the **payer**. The investors' initial capital will be reduced by an amount (between CHF 0 and 10) only known to them, representing the acquisition or investment cost for their envelope (which has a currently unknown value between CHF 0 and 10 for the patient, also unknown to the investor). The initial investment costs and the final donation in the envelope are independent of each other.

The active and the passive assignment are independent from each other: **your current active role does not determine your later passive role**.

→

7. The final payoffs

For the final payoffs you will first be **randomly paired with a player who played the opposite role**. One of the games you both played will be randomly selected. The prices you both submitted in that particular game will determine the negotiation outcome: agreement or disagreement plus the final market price (average of both offers) if successful. Two other players are then randomly assigned to both of you, one as the investor, the other as the payer. If you and your counterpart reached an agreement, the market price will be transferred from the payer to the investor. The envelope with the donation will be transferred to the supervisor of the experiment.

In parallel, you will be randomly assigned as either investor or payer to a second group (independently of your active role). Depending on the negotiation outcome of this group and your passive role, your capital will either increase, decrease or remain the same.

Finally the donations of the successful pairs will be revealed (value between CHF 0 and 10) and transferred for payment to the patient association.

You will receive information on your final payoff in CHF within 5 working days after your session took place, along with instructions on how to submit your bank details. This information will not be transferred to the researchers. The DeSciL will handle the money transfer to your bank account.

8. The structure of the experiment

The experiment will start with a first, introspective part. After this you will play the described negotiation game in different formats. In the third part you will slip into the role of one of the two funders. In the end, you will be asked some final questions. After the experiment, one of the games you played will be implemented to determine the cash payments as described above.

→

Figure A7/8 Decision screen **game 1 round 1 (reservation price)**, including comprehension question 5, for the **buyer**

First part of the experiment

The objective of this first part of the experiment is to find out the "true value" that you assign to an opportunity to increase "value for patients".

You are the responsible **buyer** in your group.

In the following experiment, the **seller** will offer you a product (the envelope) at a proposed price.

Before you enter into a price negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the product. Above this "walk-away price" you would never agree to buy it.
This valuation is **"private" and only known to you**, but not to your counterpart.

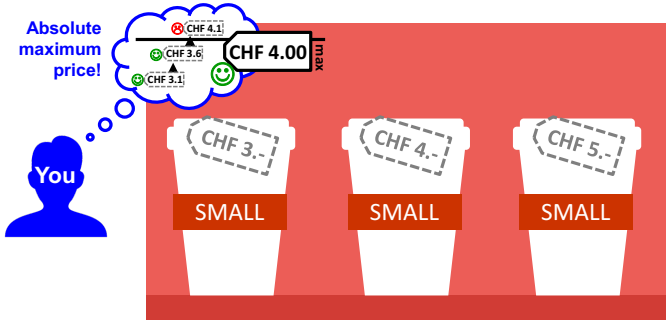
Let's illustrate this quickly with an example:
Let us assume that you are a real coffee lover (if not, you can replace coffee with soda or else). Let us further assume that despite your passion for coffee, CHF 4.00 represents the maximum price you still consider reasonable and fair for a small cup.

Which of the following offers from a coffee shop owner would you accept?

3.- for a cup,

4.- for a cup,

5.- for a cup.



The illustrations are the authors' own creations. In the original images, the coffee cups are adjusted from wikiHow [1].

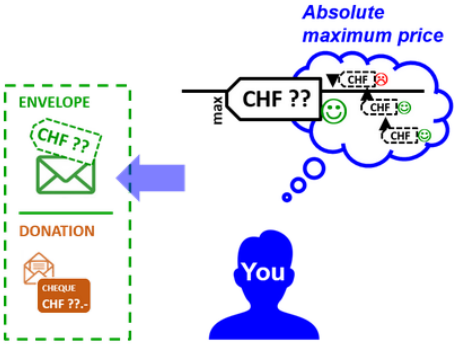
Correct!

Back to our experiment.

The "product" you will be offered is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **buyer** you will be responsible to propose a price for the envelope to the **seller**.

Before you enter into a negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the envelope. Above this "walk-away price" you would never approve a payment for the envelope.



This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies.** There is no "correct" answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

Please enter your **maximum price** (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Figure A9/10 Decision screen game 1 round 1 (reservation price), including comprehension question 5, for the **seller**

First part of the experiment

The objective of this first part of the experiment is to find out the "true value" that you assign to an opportunity to increase the "value for patients".

You are the responsible **seller** in your group.

In the following experiment, you will be responsible to sell a product (the envelope) to the **buyer**.

Before you enter into a price negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the product. Below this "walk-away price" you would never agree to sell it.
This valuation is **"private" and only known to you**, but not to your counterpart.

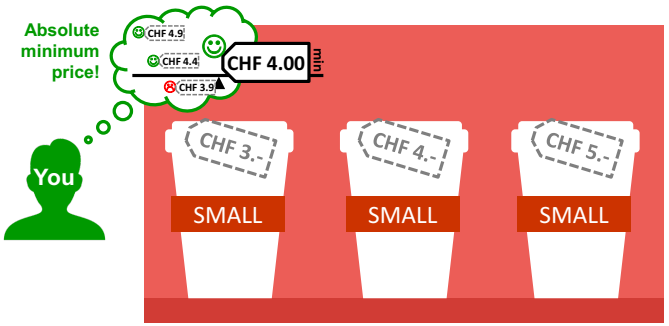
Let's illustrate this quickly with an example:
Let us pretend that you are a coffee shop owner. We further assume that your customers are real coffee lovers. Let us further assume that CHF 4.00 represents the minimum price you still consider reasonable and fair for a small cup.

Which of the following offers from your customer would you accept?

3.- for a cup,

4.- for a cup,

5.- for a cup.



The illustrations are the authors' own creations. In the original images, the coffee cups are adjusted from wikiHow [1].

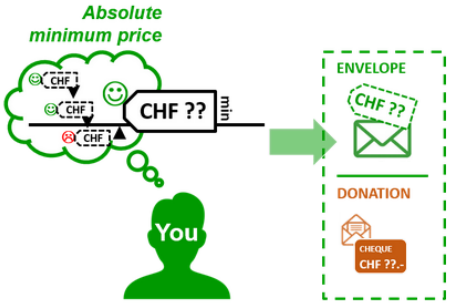
Correct!

Back to our experiment.

The "product" you have to sell is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **seller** you will be responsible to propose a price for the envelope to the **buyer**.

Before you enter into a negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the envelope. Below this "walk-away price" you would never agree to sell the envelope.



This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies**. There is no "correct" answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

Please enter your **minimum price** (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Figure A11/12 Decision screen **game 3 (price offer with available alternative)**, treatment group C (control group), buyer (left), seller (right)

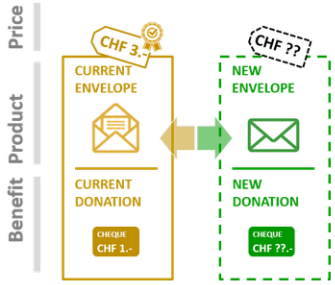
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
The seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF 5.

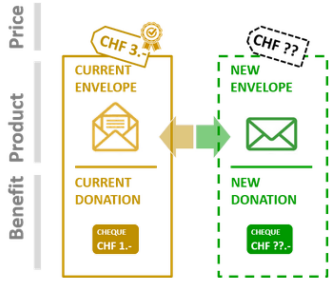
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
You received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.

If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF 5.

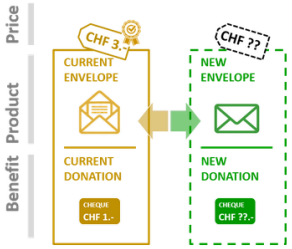
Figure A13/14 Decision screen game 3 (price offer with available alternative), **treatment group A (risk-sharing)**, buyer (left), seller (right)

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
The seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

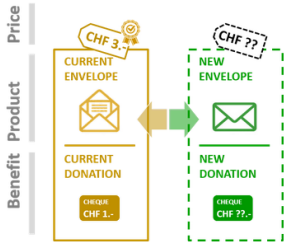
Your defined (private) maximum price in the first part of the experiment was CHF 5.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
You received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please inform the buyer about your "promised" minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF 5.

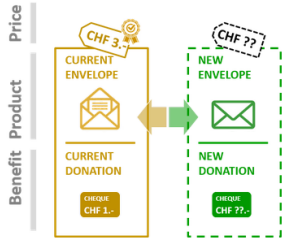
Figure A15/16 Decision screen game 3 (price offer with available alternative), **treatment group B (cost-benefit[6])**, buyer (left), seller (right)

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3** (cost-effectiveness ratio of 3/1=3).
The seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

5

Please inform the seller about your price offer f velope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'su 5

The cost-effectiveness ratio of your decision would be 5 / 5 = 1.

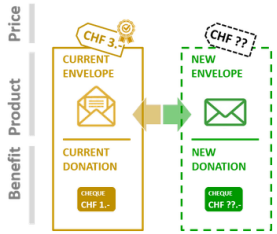
Your defined (private) maximum price in the first part of the experiment was CHF 5.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3** (cost-effectiveness ratio of 3/1=3).
You received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

5

Please inform the buyer about your price offer f velope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'su 5

The cost-effectiveness ratio of your decision would be 5 / 5 = 1.

Your defined (private) minimum price in the first part of the experiment was CHF 5.

[6] See explanation on the use of "cost-effectiveness" vs "cost-benefit" on page 7 above.

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CHAPTER 5: Appendix 2 – details on behavioural model

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How value-based policy interventions influence price negotiations for new medicines: An experimental approach and initial evidence

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Appendix 2: Details on behavioural model

Details on basic assumptions and hypotheses

2.2.1 Basic assumptions and model

For our basic considerations we adapt the simple CES[1]-function, used in our previous two studies, which represents the utility function of the negotiators [1,2]. Our basic assumptions regarding the behaviour of the participants are based on the following behaviour model. The model is supported by robust evidence from laboratory research in economics that "individuals take into account the welfare of all parties" and that "non-selfish preferences are the rule rather than the exception" [1-8]. A rational[2] buyer (B) or seller (S) will maximize his or her social utility (U)[3] considering the utility (π) of all involved stakeholders with U (π_B,π_S,π_C,π_P,π_I), including the patient's (consumer C), the payer's (P) and the investor's (I) utility, with a respective weighting of the included utilities ($\alpha+\beta+\gamma+\delta+\varepsilon=1$). All payoffs in the reservation price game are identical for both deciding roles (negotiators N). Consequently, the utility function is identical in the reservation price game. Since buyers' willingness to pay (WTP) equals sellers' willingness to accept (WTA) and no valuation differences (WTP=WTA) exist:

$$U_N\,(\pi_N,\pi_O,\pi_C,\pi_P,\pi_I) = (\alpha_N \pi_N^\rho + \beta_N \pi_O^\rho + \gamma_N \pi_C^\rho + \delta_N \pi_P^\rho + \varepsilon_N \pi_I^\rho)^{1/\rho}$$

$$\text{with } \alpha = 1-\beta-\gamma-\delta-\varepsilon.$$

In the reservation price game, their expected payoff is independent of their own or the opponents price decision (x), due to the fixed salary and lack of interaction (no counteroffer). In the price offer game, the negotiators need to consider for their price offer (y_N) that their social utility depends on the counteroffer (y_O) of their negotiation partner. The probability of an agreement increases for buyers and decreases for sellers as their price offer increases. Depending on the assumption for the distribution of counteroffers, this probability can change gradually (e.g., when assuming normally distributed counteroffers) or discretely (when assuming a single expected value). Furthermore, the own payoff of the players is no longer fixed but depends on a salary function decided by their principal. Consequently, negotiators' social preferences expand to include preferences for their own salary and the salary of their counterpart. The principals decide on the salaries (w) for their agents at the end of the experiment after the decisions have already been made by the negotiators. Since the two salaries depend on the preferences of the payer and the investor, the agents must make an additional assumption about the social preferences of the principals. As the principals cannot set incentives for a subsequent negotiation, the agents may assume that the principals will

[1] Constant elasticity of substitution

[2] Assuming complete and transitive preferences and considering all available information provided during the experiment.

[3] The underlying model with social preferences was chosen to establish a comprehensible link to the concrete constellation in the real world. As outlined in the introductory chapter 1 (manuscript), the reform discussion mainly revolves around the impact of price regulation of new medicines on patients, payers and research investments (investors). In addition to social, distributional considerations, other decision rationales or heuristics could be considered in the model. However, according to the assumptions of the proposed model, these do not differ between the two rational negotiators and are neglected in the following. Bounded rational explanations for differences are addressed in the discussion section.

simply redistribute according to their social preferences. And vice versa, if principals (who were all buyers or sellers before) assume no valuation gaps and that agents perform backwards induction, anticipating the principals' decision, they have no rational reason to deviate from their own preferences from the offer games for the salary distribution. The only new information available are the investment costs of the respective group (i'), but the expected value of the investment cost overall stays the same and investors don't know which funder role their agent will be assigned to. Consequently, the same utility function again applies to both negotiators in the offer game. In addition to the reservation price game the opponent's expected offer needs to be included, as well as the opportunity costs of "no agreement" (corresponding to the available alternative in games three to seven)[4]:

$$U_N\,(\pi_N,\pi_O,\pi_C,\pi_P,\pi_I) = \left(\alpha_N\pi_N^{\rho} + \beta_N\pi_O^{\rho} + \gamma_N\pi_C^{\rho} + \delta_N\pi_P^{\rho} + \varepsilon_N\pi_I^{\rho}\right)^{\frac{1}{\rho}} \times Pr\left(y_N \,\middle|\, E(y_O)\right) - \text{(no agreement)}$$

with $\alpha=1-\beta-\gamma-\delta-\varepsilon$.

Since the value of the donation (v) in the envelope is known to be between CHF 0 and 10 (no decimals) a rational player assumes the expected value of a random distribution and sets π_C = CHF 5. Similar is the case for the unknown investment costs for the investor, for which a rational player assumes i = CHF -5. Initial capital is for both funders CHF 20. Finally, the negotiator has to make an assumption about the two agents' wages, which affect the payoffs of the two funders as well as the payoff for the negotiator and his counterpart. Since wages depend on the expected price of an agreement or the price of the alternative in case of no agreement, we first consider, for simplicity, the price decision in the absence of a salary for the two negotiators. This could be the case if the negotiator assumes (contrary to the assumption made above) that the principal decides purely selfishly at the end.

The estimated probability (Pr) of an agreement depends on the price offered by the deciding player (y_N) and the expected price offered by the opponent (y_O). A rational, utility-maximizing decision-maker should maximize total (weighted) payoffs, taking into account the probability of reaching an agreement. Of course, they can still weight one or even all involved stakeholders with zero. A purely selfish player would do the latter since he/she is indifferent for any redistribution between the other stakeholders. If, on the other hand, they are interested in at least one of the three passive stakeholders, they must assess the probability of an agreement. Consequently, they must form an assumption about the likely counteroffer. As stated above, the players assume no valuation gaps between buyers and sellers. Apart from few extreme preferences (see further below), players will prefer an agreement at their reservation price (considering the counteroffer) versus none and assume the same for their counterparts. In the absence of any further information about the preferences of the counterpart, they have no rational reason to deviate from their own reservation price. For the total population, it can consequently be assumed that the price offers do not differ between the average buyer and seller, as there are no valuation gaps.

[4] For simplicity, the dependence of π_N, π_O, π_P and π_I on price is not shown in detail

Lastly, we add the agent's reward function under the aforementioned assumption that the principal also has other-regarding preferences. Since, as mentioned above, the agent assumes that the principal redistributes in favour of his agent in the end according to his own social preference in the offer game, and there are no valuation gaps, $\pi_N = w(y_N)$ is used. By doing so, to avoid complicated iterations, we assume for simplicity that the principal in the end – and thus the agent – chooses $w(y_N)$ based on a preference function in the absence of a wage, such that utility is optimized.

In the following, using possible distributional preferences as an example, it is shown that, given balanced social preferences, agreement is preferred in the majority of games and possible weights. This is also true when considering a salary for the negotiators. We use an example where participants expect a counteroffer of CHF 5. In absence of any assumptions about the counterpart's preferences this is also simply the expected value of a random counteroffer. The utility function for the offer game with no available alternative (game 2) reads as follows (for simplicity, the same salary function is used for agreement and non-agreement):

$$U_N(\pi_N,\pi_O,\pi_C,\pi_P,\pi_I) = \left(\alpha_N w_N^\rho + \beta_N w_O^\rho + \gamma_N 5^\rho + \delta_N(20 + y_N - w_B)^\rho + \varepsilon_N(20 - 5 + y_N - w_S)^\rho\right)^{\frac{1}{\rho}} \times$$
$$Pr(y_N|5) - (\delta_N 20^\rho - w_B + \varepsilon_N(20 - 5 - w_S)^\rho)^{\frac{1}{\rho}} \times (1 - Pr(y_N|5)),$$
$$\text{with } \alpha = 1 - \beta - \gamma - \delta - \varepsilon.$$

The shape of the utility functions differs for the two roles, as the buyer increases the chance of an agreement by increasing his/her price, while the seller needs to lower his/her price to increase the chance of an agreement. As visualized in Figure A17-28 and Table A4 below, for players with different social preferences the optimal choice corresponds in most examples to the expected counteroffer (CHF 5). This would even hold if the player (contrary to the assumption) assumes WTP>WTA ("preference range") and expects a counteroffer below (buyer) or above (seller) his reservation price. In this case, a buyer can increase utility with an offer y_B<WTP down to the expected counteroffer with $y_B=E(y_S)$. The same is true vice versa for the seller. This is due to the concave utility function. Only if the payer (δ) is weighted very high, while patient (γ) and investor (ε) are weighted very low to zero, does the failure of the negotiation become dominant for the buyer in the absence of an alternative.

The opportunity costs of "no agreement" differs for the games three to seven, where an alternative is available, if no agreement is reached, which guarantees patient benefit, payer costs and investor revenue (after investment cost) higher than zero. The optimal price offer might differ from the reservation price even for a rational player, since "no agreement" might be preferred in some cases. In the following we provide some examples of possible utility functions for the six offer games for selected weightings of the affected stakeholders. For most examples in offer game 2 and 3 the preferred choice is equal to the expected counteroffer. Since the price for the investor for the available alternative is in offer game 4 higher (CHF 6) than the expected value of the closed envelope (CHF 5), a seller who weights the investor very high might prefer "no agreement" and offer consequently a price beyond CHF 5. In offer game 5 this could even be the case for lower weights of ε>0.5 and in offer game 6 "no agreement" is clearly dominant for the seller if he/she cares for the

investor's payoff. Since also the patient benefit is in offer game 6 higher (CHF 6) than the expected value of the closed envelope (CHF 5), even the buyer could decide to let the negotiation fail in this game, if he/she weights the patient clearly higher than the payer.

Treatment group B (cost-benefit): the intervention has no impact on a rational negotiator. All assumptions, payoff functions, as well as the expected values for unknown parameters (v, i, y_o) are identical to control group C (see Table A2 in Appendix 1).

Treatment group A (risk-sharing): The intervention has no impact on the price decision of a rational negotiator. All basic assumptions, as well as the expected values for unknown parameters (v, i, y_o) are identical to control group C (see Table A2 in Appendix 1). The additional requirement of $v_B \leq v_S$ extends the probability term in the utility function of the negotiators. The additional possibility of y*/2 (if v*<v') extends the payoff function for funders and the potential salary for the negotiator. Both extensions are however not relevant for the price decision of the negotiator. Neither of the two roles needs to adjust their optimal price decision due to the intervention. They might however differ in their patient benefit statement (request or promise). As shown in Table A5 below, the buyer has a dominant strategy to ask for a minimum patient benefit of $v_B = 0$, while the seller will promise $v_S = 5$.

2.2.2 Hypotheses

Assuming that whenever reimbursement negotiations take place, at least one party should generally be interested in reaching an agreement, negotiation success is measured by whether an agreement is reached or not. Under the above-mentioned assumptions of rational players, no valuation gaps exist, and buyers' willingness to pay (WTP) equals sellers' willingness to accept (WTA). Apart from a few extreme preferences (see 2.2.3 below), rational players will prefer an agreement expect the same for their counterpart and will state equal price offers. This might nevertheless change for some of the games with a given alternative, where the available alternative could be more attractive than reaching an agreement for one or both negotiators (see below). With reference to real-world reimbursement negotiations for new medicines, the first hypothesis tests the absence of trade reluctance ($y_B<y_S$) rather than the general absence of offer differences ($y_B \neq y_S$). This is even though, based on the assumptions described above for rational players, only settlements with $y_B=y_S$ (and none with $y_B>y_S$) are expected.

Null hypothesis 1: Mean negotiators can agree on a price with a buying price offer (y_B) higher than or equal to the selling offer (y_S).

Furthermore, under the assumption of a rational player, neither policy intervention has an impact on the price decision. Expected values for unknown parameters and basic payoff functions are identical for all three treatment groups. While the risk-sharing parameters extend the decision situation in group A, they are not relevant for the price decision of a rational negotiator. Neither role needs to adjust their optimal price decision due to either of the two policy interventions.

Null hypothesis 1b: Negotiation success does not differ between treatment groups.

Apart from a few extreme preferences, the available alternative should not lead to different price offers in games two to four (see 2.2.3 below). Rational players in both roles should prefer an agreement, expect the same for their counterpart and will state equal price offers. This could change for sellers in games five to seven, where the return to investors is higher for a failed negotiation than for a successful settlement at the expected value of a random counteroffer. Or generally in game 7 where the patient benefit if the negotiation fails is higher than the expected value of the lottery (Table A4 below).

Null hypothesis 2a: The available alternative (y_0, v_0) to an agreement has no impact on the price offer y.

If null hypothesis 2a is rejected, the effect should be the same for the mean negotiator, regardless of the interventions (see above).

Null hypothesis 2b: The impact of the alternative (y_0, v_0) on the price offer y does not differ between treatment groups.

The negotiation outcomes of interest are agreed prices (y*), reimbursement prices (y') and patient benefit (v'). y* and y' can differ for treatment group A only, since any agreed price might be cut in half if the final donation (v) is lower than the agreed minimum patient benefit (v*)[5]. Even if negotiation success between treatment groups is comparable, negotiation outcomes could still differ. Nonetheless, the abovementioned considerations also imply that the agreed price (y*), reimbursement price (y') and patient benefit (v') should not differ between treatment groups.

Null hypotheses 3a and 3b: Mean[6] y' and v' do not differ between treatment groups.

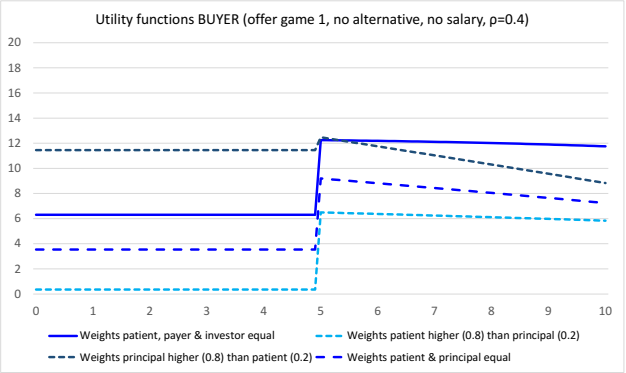
By comparing the reimbursement price with the patient benefit, we obtain the cost-benefit ratio (y'/v') of successful negotiations. The reciprocal value (v'/y') can be interpreted as "value for money", representing the donation for the patient association per 1 CHF transferred from the payer to the investor.

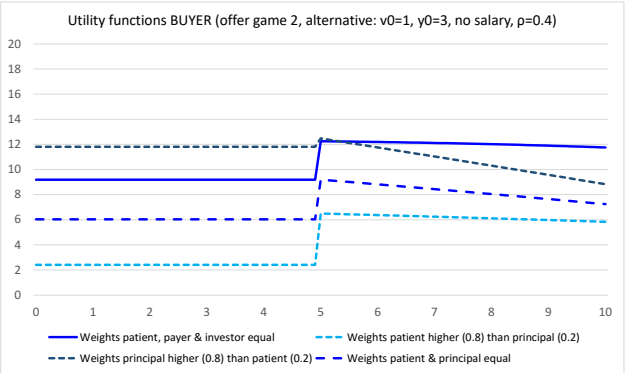
Null hypothesis 3c: The mean value for money (v'/y') does not differ between treatment groups.

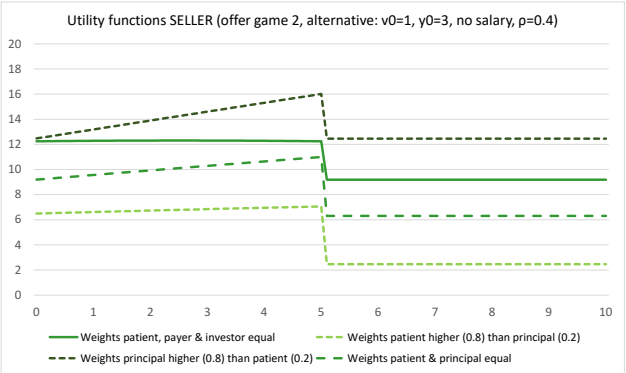
[5] Since an agreement on the patient benefit was required in group A, the reported results focus on y' rather than y*.
[6] Negotiators might willingly or unwillingly disagree in favour of an available alternative (game 3 to 7) or no patient benefit and payer cost at all (game 2). Looking at successful trades only would neglect this. Therefore, we will refer to "all pairs" for the mean values in general, accounting for all reimbursement decisions taken in a group, unless "successful pairs" are stated specifically.

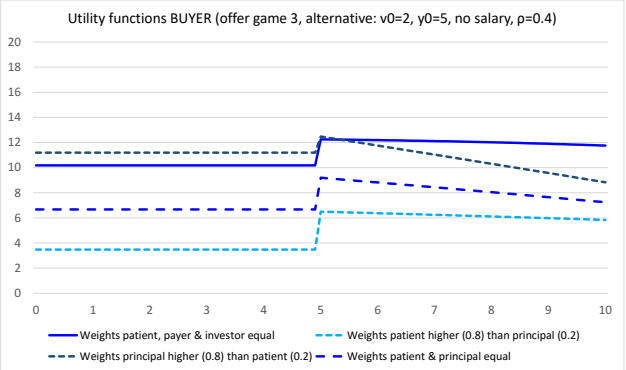
2.2.3 Utility functions and optimal price statements

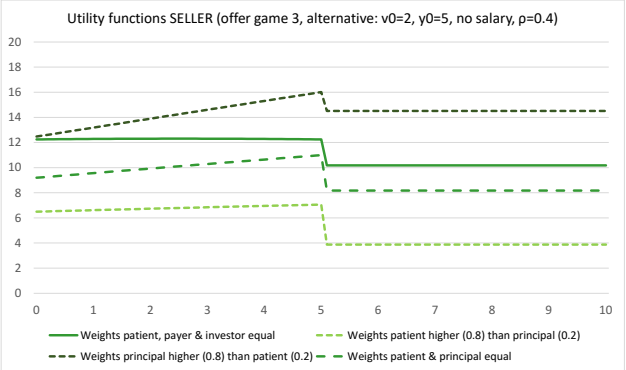
Figure A17-36 Utility function in the offer games for players with different social preferences, assuming the opponent to offer the expected value of a random distribution (CHF 5):

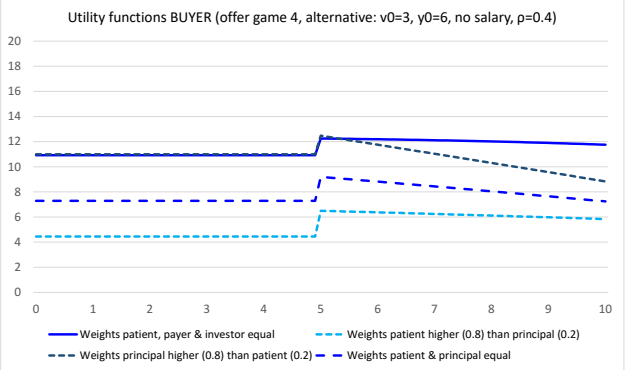


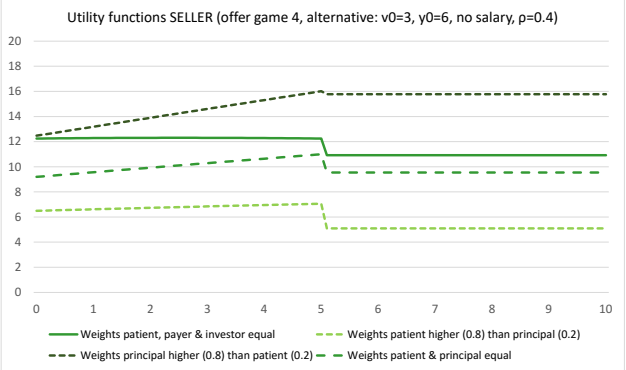


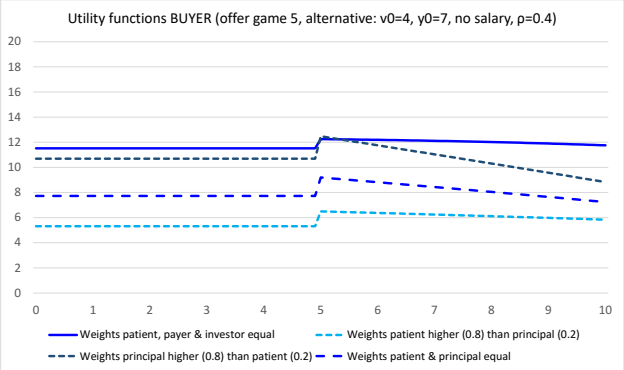


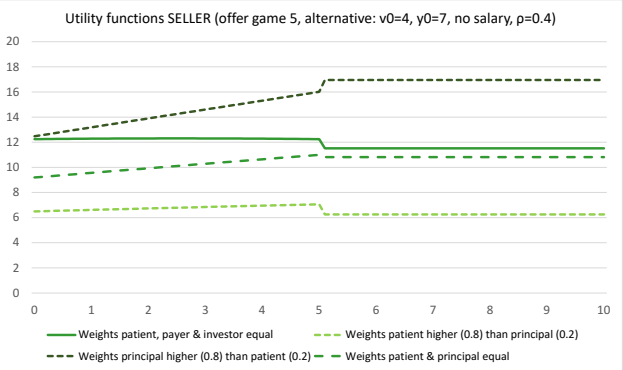


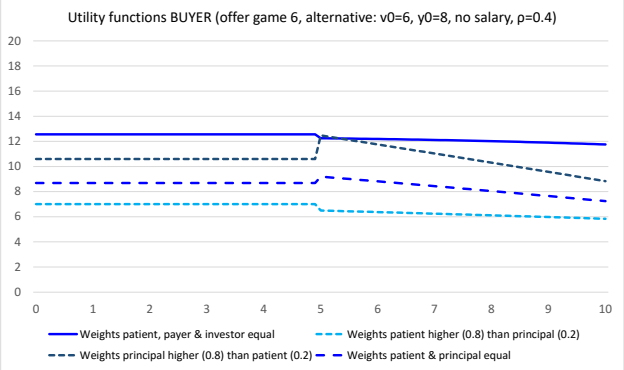


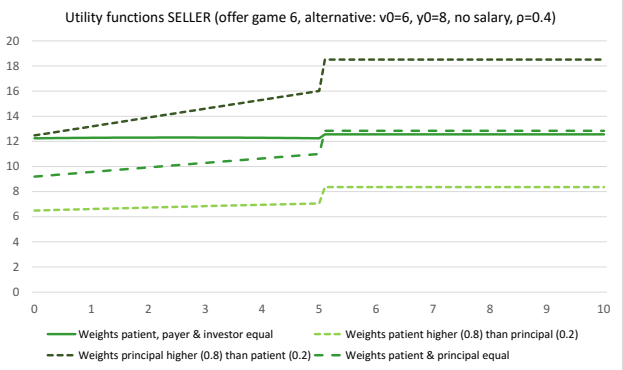




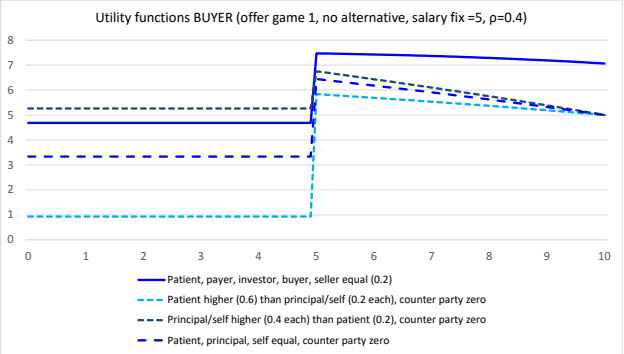


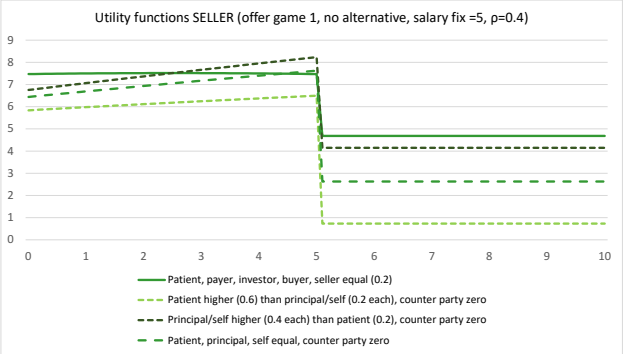


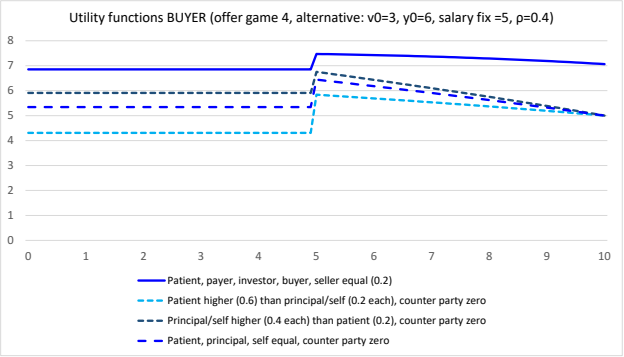


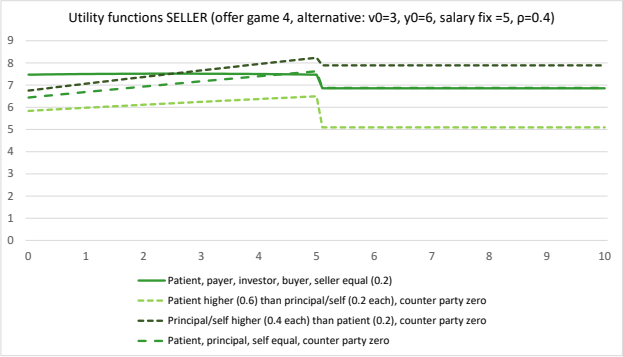


Including a fixed salary for the negotiators:

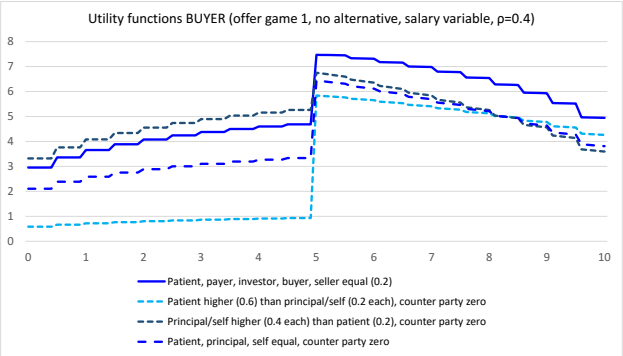


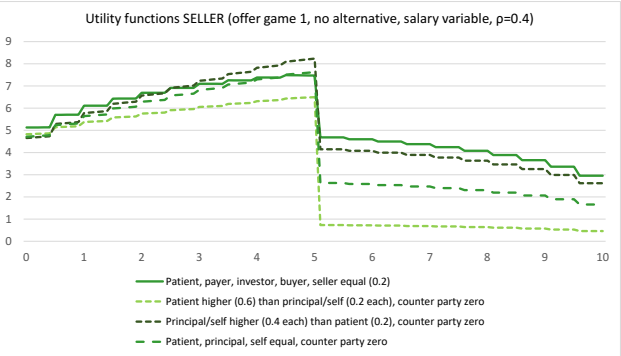




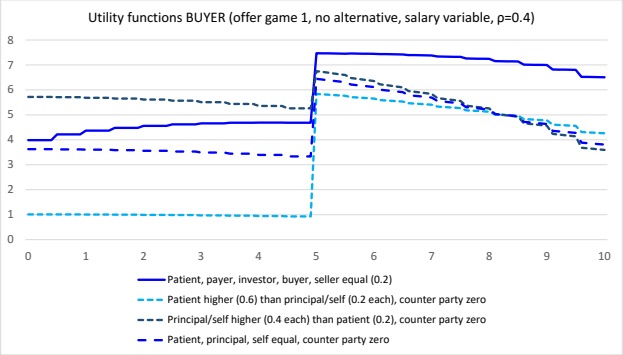


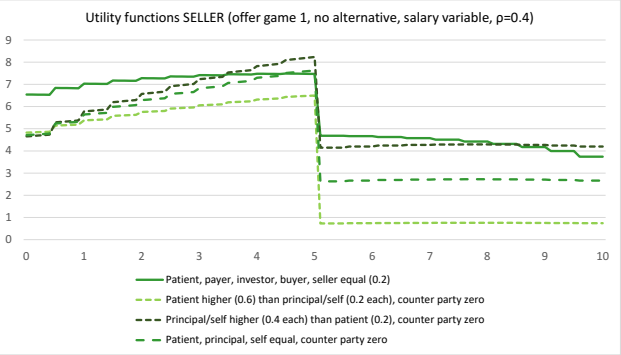
Including a variable salary for the negotiators, rewarding prices closer to optima with a higher salary:





Including a variable salary for the negotiators, rewarding lower prices for buyers and higher prices for sellers:





Considering a fixed salary or a variable salary to strengthen an agent relationship changes the shape of the utility functions, but in most realistic scenarios, agreement remains the preferred option over negotiation failure, and redistribution does not change the relevant maxima either.

Table A4 Optimal price offers for selected weightings

	Weight in CES function			**Optimal price** per offer game (OG)					
	Patient	Payer	Investor	1	2	3	4	5	6
BUYER	0.33	0.33	0.33	5.00	5.00	5.00	5.00	5.00	*0.00*
	1.00	-	-	5.00	5.00	5.00	5.00	5.00	*0.00*
	0.90	0.10	-	5.00	5.00	5.00	5.00	5.00	*0.00*
	0.80	0.20	-	5.00	5.00	5.00	5.00	5.00	*0.00*
	0.70	0.30	-	5.00	5.00	5.00	5.00	5.00	*0.00***
	0.60	0.40	-	5.00	5.00	5.00	5.00	5.00	5.00 ***
	0.50	0.50	-	5.00	5.00	5.00	5.00	5.00	5.00
	0.40	0.60	-	5.00	5.00	5.00	5.00	5.00	5.00
	0.30	0.70	-	5.00	5.00	5.00	5.00	5.00	5.00
	0.20	0.80	-	5.00**	5.00**	5.00	5.00	5.00	5.00
	0.10	0.90	-	*0.00****	*0.00****	5.00	5.00	5.00	5.00
	-	1.00	-	*0.00*	*0.00*	5.00*	5.00	5.00	5.00
SELLER	0.33	0.33	0.33	2.50	2.50	2.50	2.50	2.50	*10.00*
	1.00	-	-	5.00	5.00	5.00	5.00	5.00	*10.00*
	0.90	-	0.10	5.00	5.00	5.00	5.00	5.00	*10.00*
	0.80	-	0.20	5.00	5.00	5.00	5.00	5.00	*10.00*
	0.70	-	0.30	5.00	5.00	5.00	5.00	5.00	*10.00*
	0.60	-	0.40	5.00	5.00	5.00	5.00	5.00	*10.00*
	0.50	-	0.50	5.00	5.00	5.00	5.00	5.00**	*10.00*
	0.40	-	0.60	5.00	5.00	5.00	5.00	*10.00****	*10.00*
	0.30	-	0.70	5.00	5.00	5.00	5.00	*10.00*	*10.00*
	0.20	-	0.80	5.00	5.00	5.00	5.00**	*10.00*	*10.00*
	0.10	-	0.90	5.00	5.00	5.00	*10.00*	*10.00*	*10.00*
	-	-	1.00	5.00	5.00	5.00*	*10.00*	*10.00*	*10.00*
BUYER	0.25	0.50	0.25	5.00	5.00	5.00	5.00	5.00	5.00
	0.20	0.60	0.20	5.00	5.00	5.00	5.00	5.00	5.00
	0.25	0.65	0.10	5.00	5.00	5.00	5.00	5.00	5.00
	0.20	0.70	0.10	5.00	5.00	5.00	5.00	5.00	5.00
SELLER	0.25	0.25	0.50	5.00	5.00	5.00	5.00	5.00**	*10.00*
	0.20	0.20	0.60	5.00	5.00	5.00	5.00	*10.00****	*10.00*
	0.25	0.10	0.65	5.00	5.00	5.00	5.00	*10.00*	*10.00*
	0.20	0.10	0.70	5.00	5.00	5.00	5.00	*10.00*	*10.00*
Offer game (OG):	*Alternative if no agreement reached:*		*Price Value*	*0.00*	*3.00*	*5.00*	*6.00*	*7.00*	*8.00*
				0.00	*1.00*	*2.00*	*3.00*	*4.00*	*6.00*
	Rounds:			*2, repeated after OG-6*	*1*	*1*	*1*	*1*	*1*

italic for buyer: indifference from 0 to <5; underline for buyer: indifference from 5 to 10
italic for seller: indifference from 5< to 10; underline for seller: indifference from 0 to 5
* for buyer: indifference between agreement at 5.00 and no agreement (0 to <5);
* for seller: indifference between agreement at 5.00 and no agreement (5< to 10)
** maximum switches for lower rates of substitution (ρ); *** maximum switches for higher rates of substitution (ρ)

Potential agency indicators: for buyer offer game 6, for seller offer game 5.

Table A5 Optimal offer for the minimum patient benefit in treatment group A (given $y_B \geq y_S$)

y' [v*]		Buyer (v_B)			
	stated $v_{B,S}$	0	0<, <5	5	5<
Seller (v_S)	0	**y*** [0]	0 [-]	0 [-]	0 [-]
	0<, <5	**y*** [0<, <2.5]	0 or **y***	0 [-]	0 [-]
	5	**y* [2.5]**	**y*** [2.5<, <5]	**y***[5]	0 [-]
	5<	**y*** [2.5<, <5]	**y*** [2.5≤, <5]	0.5y* [5<]	0 or 0.5y* [-;5<]

v_B: buyer's requested minimum patient benefit; v_S: seller's promised minimum patient benefit;
v*: agreed minimum patient benefit = $(v_B+v_S)/2$ if $v_B \leq v_S$, else v* = - ;
y': reimbursement price = y* if $E(v) \geq v^*$ and y' = y*/2 if $E(v) < v^*$, else y' = 0;

Reading example: Since negotiators have already agreed on a price y* (at the expected value of a random distribution of CHF 5 as per example above) they have no reason to further redistribute payoffs with their minimum patient benefit statement. Since rational players expect the patient benefit (donation in the envelope) to be equal to the expected value of a random distribution at CHF 5, buyers have no reason to request a minimum patient benefit above 5. This would redistribute payoffs from the investor to the payer (risk-sharing) or even jeopardise the agreement, if the seller promises 5 or lower. Therefore, the strategies in the column on the far right are dominated, which both players know. All cells shaded grey mark desired (optimal) minimum patient benefit agreements, where the price agreement remains unchanged at y*. At a promised minimum patient benefit of 5 the seller has an optimal strategy which is independent of any of the buyer's expected minimum patient benefit statements. The buyer has the same at 0. The two strategies overlap at the minimum patient benefit agreement (v*) of CHF 2.5.

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CHAPTER 5: Appendix 3 – details on statistical methods

See following pages.

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How value-based policy interventions influence price negotiations for new medicines: An experimental approach and initial evidence

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Appendix 3: Details on statistical methods

Details on statistical analysis

Key variables of interest for the analysis are as follows:

- Mean price offers of buyers and sellers ($\overline{y}_B$, $\overline{y}_S$), as well as for negotiators overall ($\overline{y}$)
- Mean negotiation outcomes: prices agreed ($\overline{y}$*), reimbursement prices ($\overline{y}$'), patient benefit ($\overline{v}$') and value for money ($\overline{v'/y'}$).

We first tested the potential for price agreements (hypothesis 1a) and the impact of the available alternative (hypotheses 2a and 2b) by analysing stated price offers. In a second step, participants and their offers were randomly matched into pairs to determine and analyse negotiation outcomes (hypotheses 1b and 3a-c). Variables were tested for each offer game (y_g for game g 2 to 7) as well as for the offer games overall ($\overline{y}_n$ per player n).

For the negotiation outcomes, as in the experiment, patient benefit (v) was determined by lottery (between CHF 0 and 10). For comparability, in the statistical analysis the expected value of the lottery of E(v) = CHF 5 was used, which a rational player should take into account for his/her decision. For improved readability, and because the term is already used differently (stated expectation in the RS group), the preceding "expected" or "E()" is omitted.

Table A6 Variables of interest and statistical tests

	Price offers		**Negotiation outcomes**				Available alternative (if no agreement reached)		
Unit of observation	Participant (1 buyer or seller)		Pair (1 buyer-seller-pair)[1]						
Unit of analysis	Role group, treatment group		Treatment group						
Games	Buyer	Seller	Price agreed[2]	Price reim-bursed[2,3]	Patient benefit[3]	Value for money[3]	Price (y_0)	Patient benefit (v_0)	Value for money
2 (round 1)	y_B	y_S	y*	y'	v'=5	v'/y'	0	0	0
3	y_B	y_S	y*	y'	v'=5	v'/y'	3	1	0.33
4	y_B	y_S	y*	y'	v'=5	v'/y'	5	2	0.4
5	y_B	y_S	y*	y'	v'=5	v'/y'	6	3	0.5
6	y_B	y_S	y*	y'	v'=5	v'/y'	7	4	0.57
7	y_B	y_S	y*	y'	v'=5	v'/y'	8	6	0.75
2 (round 2)	y_B	y_S	y*	y'	v'=5	v'/y'	0	0	0
Hypotheses									
1. Negotiation success	Null hypothesis 1a		Null hypothesis 1b[1]						
2. Impact of alternative	Null hypothesis 2a,b		--						
3. Negotiation outcome			Null hypothesis 3a-c						

1: Buyers and sellers were randomly matched into pairs. This was repeated to create a pairing sample representative of the total number of permutations possible. For the success rate, the unit of observation is not one pair but one "pairing variation" (permutation).
2: y* and y' can differ for treatment group A (risk-sharing) only since any agreed price might be cut in half if the final donation (v) is lower than the agreed minimum patient benefit (v*). Since an agreement on the patient benefit was required in group A, the analysis focuses on y' rather than y*.
3: For the real payoffs after the experiment, the donation was determined by a lottery (CHF 0-10). For the statistical analysis, v' was fixed at the expected value of the lottery E(v)=CHF 5, which a rational player should take into account for his/her decision. In the pairing the lottery converged to the expected value across the full sample of variations for all three treatment groups and did not differ ($p<0.01$).
Amounts in Swiss Francs (CHF).

2.3.1 Mean price offers

Null hypothesis 1a, which states the absence of potential trade-inhibiting differences between mean price offers, was tested by independent-samples t-test and Mann-Whitney-U-test for $\bar{y}_B \geq \bar{y}_S$.

Null hypotheses 2a and 2b, which postulate the absence of an impact of the available alternative to an agreement, were tested in the model below with:

$\lambda_1=0$ for no impact on price offer differences between games (3a) and

$\mu_{12}=\mu_{13}=0$ for no impact of the treatments on price offer differences between games (3b).

Hierarchical linear regression (two-level random effects model):

Level 1 (offer game g): $y_{gn} = \lambda_{0n} + \lambda_{1n}VfM_{0gn} + r_{gn}$

Level 2 (negotiator n): $\lambda_{0n} = \mu_{00} + \mu_{01}RG_n + \mu_{02}RS_n + \mu_{03}CB_n + \mu_{04}RP_n + u_{0n}$

$\lambda_{1n} = \mu_{10} + \mu_{11}RG_n + \mu_{12}RS_n + \mu_{13}CB_n + u_{1n}$

RG: Role (buyer=0, seller=1), RS: treatment A risk-sharing (0,1), CB: treatment B cost-benefit (0,1), RP: reservation price from game 1, VfM_0: value for money of alternative (v_0/y_0), v_0: alternative patient benefit, y_0: price of alternative patient benefit.

On the one hand, the model tested the influence of the varying alternative (represented by its value for money VfM_0) on the player's price offers (level 1, within-subjects, hypothesis 2a). At the same time, the influence of intersubject factors (role and treatment) on this effect was tested (level 2, between-subjects, hypothesis 2b). According to the underlying behavioural model, it is possible that in certain games, the negotiators prefer the failure of the negotiation due to the opportunity costs of an agreement. For this reason, also two alternative models were tested that examined the influence of the expected incremental patient benefit (CHF 5 minus v_0) and the expected incremental payer cost (or investor revenue, CHF 5 minus y_0)[1] instead of VfM_0. Further details on the statistical model are described below (2.3.3).

2.3.2 Mean negotiation outcomes

To analyse the actual negotiation success per treatment group and the negotiation outcomes, the price offers of buyers and sellers had to be paired randomly on an individual basis. As per the experimental instructions, this was done once at the end of the experiment to generate real-world payoffs to the participants and the patient association (see Appendix 1). The procedure was, however, also necessary for the statistical analysis for two reasons. While the mean price offer difference indicates a potential for success, it does not reveal the mean agreeable price of the group. It includes all offers and does not differentiate between potentially more successful offers and offers with a very low chance of success.[2] However, the share of potential agreements vs. disagreements (in favour of the alternative) has an impact on the overall cost, patient benefit and value for money.

[1] Expected price based on a rational assumption about the counteroffer, see Appendix 2.
[2] Moreover, the success potential can be shown only on a binary basis (0 or 100%).

In contrast to the actual experiment, a one-time pairing would not have been meaningful for the statistical analysis. To account for the high number of possible permutations[3] of the pairing per treatment group, we repeated the random pairing for a representative sample size of 9,600 variations[4]. A similar approach was used, e.g., by Borges and Knetsch (1998), to simulate trade outcomes with an experimental dataset [1,2][5]. See further below a simplified example for the pairing method (Figure A37).

Null hypothesis 1b, which postulates an equal success rate (number of successful pairs in relation to all pairs) between treatment groups, was assessed by independent-samples t-test over all variations.

Null hypotheses 3a-c, which specifies an absence of differences between the treatment groups regarding reimbursement prices ($\bar{y}$'), patient benefit ($\bar{v}$') and value for money ($\overline{v'/y'}$), were tested by independent-samples t-test and U-test (for 3a, similar for 3b, 3c): $\bar{y}'_{Group\_A} = \bar{y}'_{Group\_B} = \bar{y}'_{Group\_C}$.

The differences were evaluated by recording the mean values (across all pairs) per negotiation outcome, game and treatment group for each of the 9,600 variations. The corresponding results of the t-tests (across all pairs) were recorded as well. To assess the statistical validity across all variations, the proportion of variations with significant effects in the total number of variations was calculated. Null hypotheses were rejected overall at $p<0.05$ ($p<0.01$) if the majority of variations (>50%) showed a significant difference between pairs. To compare the value for money realized to the stated preferences by pairs, the respective paired t-tests per variation were recorded similarly. For the main variables of interest, the full trade data were recorded for additional U-test.

2.3.3 Details on the hierarchical linear regression (two-level random effects model)

The null model tests, whether the two-level model is indicated. A significant intercept (μ_{00}) at level 2 rejects the null hypothesis of no offer price differences on level two (participants).

Model 0 (null model):

Level 1 (offer game g): $y_{gn} = \lambda_{0n} + r_{gn}$

Level 2 (negotiator n): $\lambda_{0n} = \mu_{00} + u_{0n}$

The two-level model tests the influence of the varying alternative on the player's price offers (level 1, within-subject, hypothesis 2a). At the same time the influence of inter-subject factors (role and treatment)

[3] The correct term in combinatorics for all "pairing variations" possible is "permutations" (if the number of buyers and sellers is equal) or "k-permutations" (if the number of buyers and sellers is not equal). The total number of permutations and k-permutations is n! and n!/(n-k)!, respectively. We use the term "permutations" to refer to the total number of possible (k-)permutations and the term "pairing variations" to refer to our representative sample of 9,600 variations (or iterations or runs) of the random pairing, drawn from all possible permutations. For each of the treatment groups, the smaller role group determined the number of pairs per iteration. The random players of the larger group remaining at each iteration 'sat on the bench'.

[4] The appropriate size for a representative sample of all possible permutations (e.g., for 45 negotiators on both sides 45!=1.E+56) was determined by using the standard formula for the determination of sample sizes in large populations: (1.96^2×0.5×(1-0.5))/0.01^2 = 9,604.

[5] The method is further remotely comparable to the sensitivity analysis in cost-effectiveness models. However, in these approaches, value and cost parameters of a health technology (impacting patient benefit) are stochastically varied over a number of iterations for comparison with WTP. In our case, the value and cost (of an opportunity to improve patient benefit) are fixed per game, while we vary, so to speak, different comparisons of WTP and WTA.

on this effect is tested (level 2, between-subject, hypothesis 2b). The model 1 tests the impact of the varying alternative, represented by its value for money ($VfM = v_0/y_0$), the resulting patient benefit relative to its cost if no agreement is reached. A significant parameter for λ_{1n} at level 1 rejects null hypothesis 2a. Significant parameters μ_{12} and μ_{13} at level 2 show an interaction of both treatments with the impact of the varying VfM_0 on the price offers, which rejects the null hypothesis 2b. We further control for a potential impact of the assigned role μ_{01} and a potential impact of individual stated preferences μ_{04} (reservation price from game 1). Model a is controlled for other mean price offer differences (random intercept) between participants, while model b also controls for additional differences between participants related to the effect of the varying alternative (random slope) on price offers.

Model 1a (random intercept with interaction term between levels)

Level 1 (offer game g): $y_{gn} = \lambda_{0n} + \lambda_{1n} VfM_{0gn} + r_{gn}$

Level 2 (negotiator n): $\lambda_{0n} = \mu_{00} + \mu_{01} RG_n + \mu_{02} RS_n + \mu_{03} CB_n + \mu_{04} RP_n + u_{0n}$

$\lambda_{1n} = \mu_{10} + \mu_{11} RG_n + \mu_{12} RS_n + \mu_{13} CB_n$

Model 1b (random intercept and random slope with interaction term between levels)

Level 1 (offer game g): $y_{gn} = \lambda_{0n} + \lambda_{1n} VfM_{0gn} + r_{gn}$

Level 2 (negotiator n): $\lambda_{0n} = \mu_{00} + \mu_{01} RG_n + \mu_{02} RS_n + \mu_{03} CB_n + \mu_{04} RP_n + u_{0n}$

$\lambda_{1n} = \mu_{10} + \mu_{11} RG_n + \mu_{12} RS_n + \mu_{13} CB_n + u_{1n}$

RG: Role (buyer=0, seller=1), RS: treatment A risk-sharing (0,1), CB: treatment B cost-benefit (0,1), RP: reservation price from game 1, VfM_0: value for money of alternative (v_0/y_0), v_0: alternative patient benefit, y_0: price of alternative patient benefit, r_{gn}, u_{0n} and u_{1n}: residual terms (random coefficients).

According to our behavioural model (Appendix 2) it is possible that in certain games the negotiators prefer the failure of the negotiation, due to the opportunity costs of an agreement. This could be particularly the case in game 7, where the patient benefit of the alternative is higher (CHF 6) than the expected value of an agreement (CHF 5). But also, in games five to seven, where the return to investors is higher for a failed negotiation than for a successful settlement at the expected value of a rational or random counteroffer. For this reason, we are also testing two alternative models that examine the influence of the expected incremental patient benefit ($\Delta v = 5 - v_0$), as well as the incremental expected payer cost respectively investor return ($\Delta v = 5 - y_0$) instead of VfM.

Model 2a (random intercept with interaction term between levels)

Level 1 (offer game g): $y_{gn} = \lambda_{0n} + \lambda_{1n} \Delta v_{gn} + r_{gn}$

Level 2 (negotiator n): $\lambda_{0n} = \mu_{00} + \mu_{01} RG_n + \mu_{02} RS_n + \mu_{03} CB_n + \mu_{04} RP_n + u_{0n}$

$\lambda_{1n} = \mu_{10} + \mu_{11} RG_n + \mu_{12} RS_n + \mu_{13} CB_n$

Model 2b (random intercept and random slope with interaction term between levels)

Level 1 (offer game g): $y_{gn} = \lambda_{0n} + \lambda_{1n} \Delta v_{gn} + r_{gn}$

Level 2 (negotiator n): $\lambda_{0n} = \mu_{00} + \mu_{01} RG_n + \mu_{02} RS_n + \mu_{03} CB_n + \mu_{04} RP_n + u_{0n}$

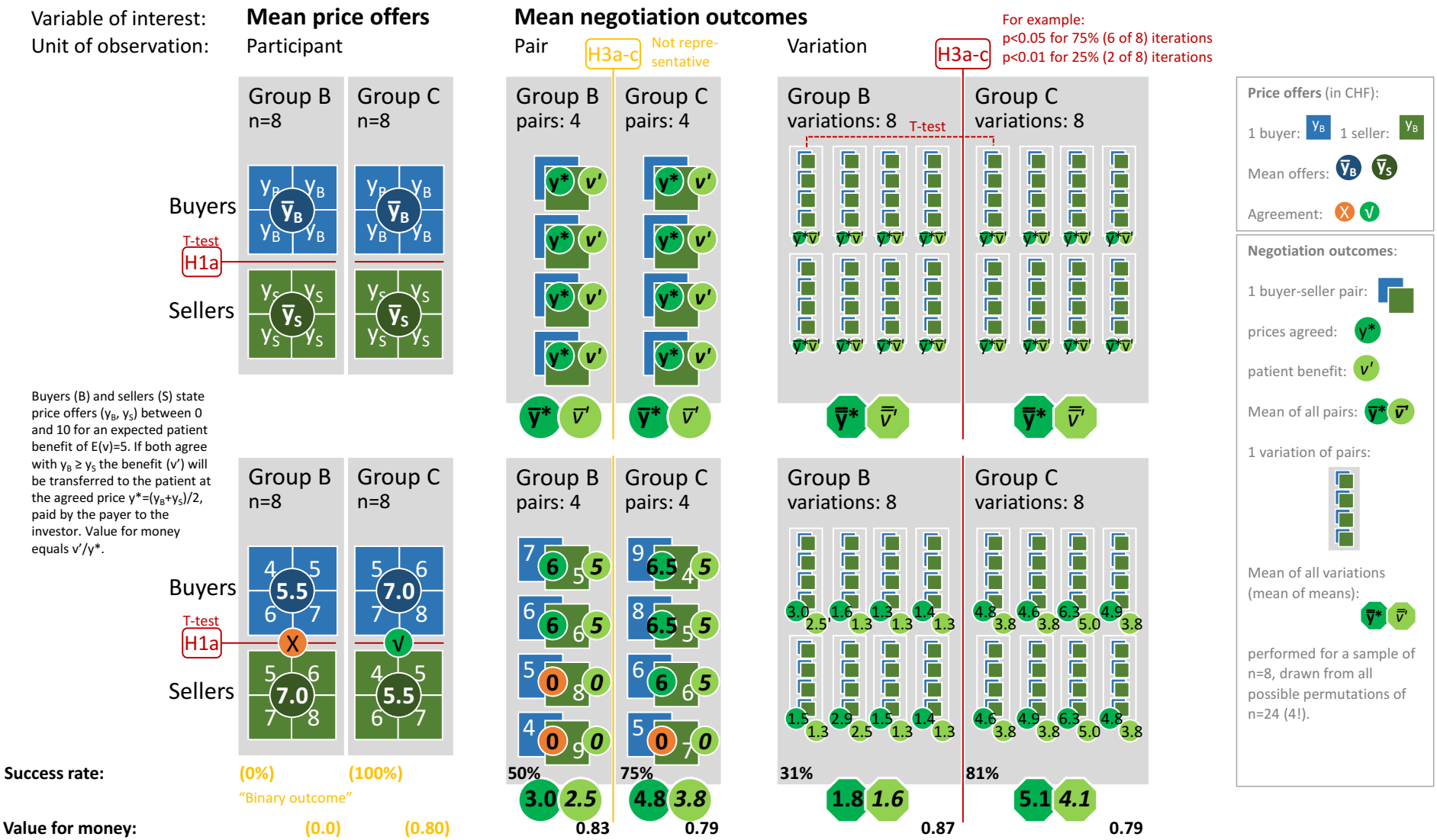
$\lambda_{1n} = \mu_{10} + \mu_{11} RG_n + \mu_{12} RS_n + \mu_{13} CB_n + u_{1n}$

Δv: expected incremental patient benefit of an agreement ($5 - v_0$).

For model 3 Δv is replaced with Δy.

2.3.4 Fictive example for the pairing method (with actual pairing)

Figure A37 Illustration of pairing method:



Details on study population (inclusion criteria)

The online experiment (n=367) was conducted with Swiss university students recruited over the University Registration Center for Study Participants (www.uast.uzh.ch) of the University of Zurich and the Swiss Federal Institute of Technology in Zurich. In recent years, conclusive evidence has been provided for the reliability of online experiments compared to laboratory and field experiments [2-10]. Participants had to be Swiss residents and at least 18 years of age. Demographic information and subjective concerns regarding the current COVID-19 pandemic were surveyed at the end of the experiment as additional control variables.

For online experiments, it is essential to distinguish those participants who have understood the instructions and follow them from those who did not [9,11,12]. To exclude biased price statements due to lack of understanding of the task or the monetary consequences, participants were tested regarding their understanding of the decision situation and consistent offer behaviour [11,13-15]. An appropriate understanding of the monetary consequences and consistency of the price offers with the stated reservation prices were considered necessary inclusion criteria.

Participants had to answer five comprehension questions during the introduction. The first four were related to conditions for and impact of negotiation success, the last on the concept of a reservation price (WTP, WTA). Since a learning effect during the introduction was expected, the last of the four comprehension questions was used as indicator for appropriate understanding of the monetary consequences. For robustness check, also overall performance was rated (number of the four comprehension questions on negotiations success that were answered correctly on the first attempt). The fifth question on WTP, WTA was not included, since inconsistency was tested separately (see below). To test for reduced attention, we implemented an attention screening question during the offer games. Both performance variables were checked for their robustness (ANOVA) to reduce standard deviation of price statements overall and their impact on overall price statements.

Consistency was not only an indicator for understanding of the decision situation. Inconsistent price offers would also have prevented the possibility to control results for differences in underlying stated preferences between treatment groups. Therefore, the price offers of the participants in game two (with no alternative) were examined for their compatibility with the stated absolute minimum or maximum price in game one. If the introduced concept (of which understanding had been tested) was violated, the participant was excluded from the analysis. To help participants remind their stated preferences, they were shown their reservation prices from game one in each offer game.

367 participants completed the experiment, of which 301 had consistent price offers as per inclusion criterion. The performance on the introductory comprehension questions had a significant negative influence on the standard deviation of the overall price statements ($p<0.05$). The same was true for the performance in detecting the attention screener ($p<0.05$). However, only the former also had a significant influence on the level of the overall price statements ($p<0.05$), whereas this

was not the case with the latter ($p>0.05$). Participants who scored higher during the introduction questions were also more likely to notice the attention screener during the offer game ($p<0.01$). In addition, existing recommendations were taken into account that screeners should only be used in combination with other survey measures to assess data quality, but that the targeted exclusion of inattentive participants can reduce the generalisability of the results [12]. Consequently, the introductory comprehension questions met our requirement for the performance control variable, while the attention screener did not. The proportion of participants who answered the third question correctly at the first attempt was 83.7% in the overall population and 86.0% among consistent players, while this proportion was 89.4% for the fourth question in both populations. Players in the overall population (n=367) who answered at least one or both correctly at the first attempt had a lower standard deviation in their price offers ($p<0.05$) and consistent players (n=301) who answered at least one or both correctly at the first attempt had higher mean price offers ($p<0.05$). 269 participants met the inclusion criteria, with n=87 for treatment group A, n=86 for treatment group B and n=97 for treatment group C.

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CHAPTER 5: Appendix 4 – details on results

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How value-based policy interventions influence price negotiations for new medicines: An experimental approach and initial evidence

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Appendix 4: Details on results

Details on results

A total of 269 participants met the inclusion criteria (see Appendix 3), with n=87 for treatment group A, n=86 for treatment group B and n=97 for treatment group C. Buyers stated higher reservation prices in game 1 than sellers ($p<0.01$), indicating a "preference range" between CHF 4.5 and 6.4 (means). Mean stated preferences did not differ between treatment groups ($p>0.05$), nor did they when looking at buyers and sellers separately ($p>0.05$). The stated preferences can be set in relation to the expected outcome to estimate the implicitly preferred (not explicitly stated) value for money. This can be done in two ways. First, the price preferences can be set in relation to the (realisable) expected value of the lottery (implicit VfM preference assuming rational expectation). Secondly, they can also be compared with the participants' stated guess about the outcome of the lottery (implicit VfM preference based on own guess). The implicit VfM preference ranged from CHF 0.8 (buyers) to 1.3 (sellers) assuming rational expectations and from 0.9 to 1.4 considering stated guesses about the lottery outcome ($p<0.01$). Mean implicit VfM preferences did not differ between treatment groups ($p>0.05$), nor did they when looking at buyers and sellers separately ($p>0.05$).

3.1 Potential for negotiation success (patient access)[1]

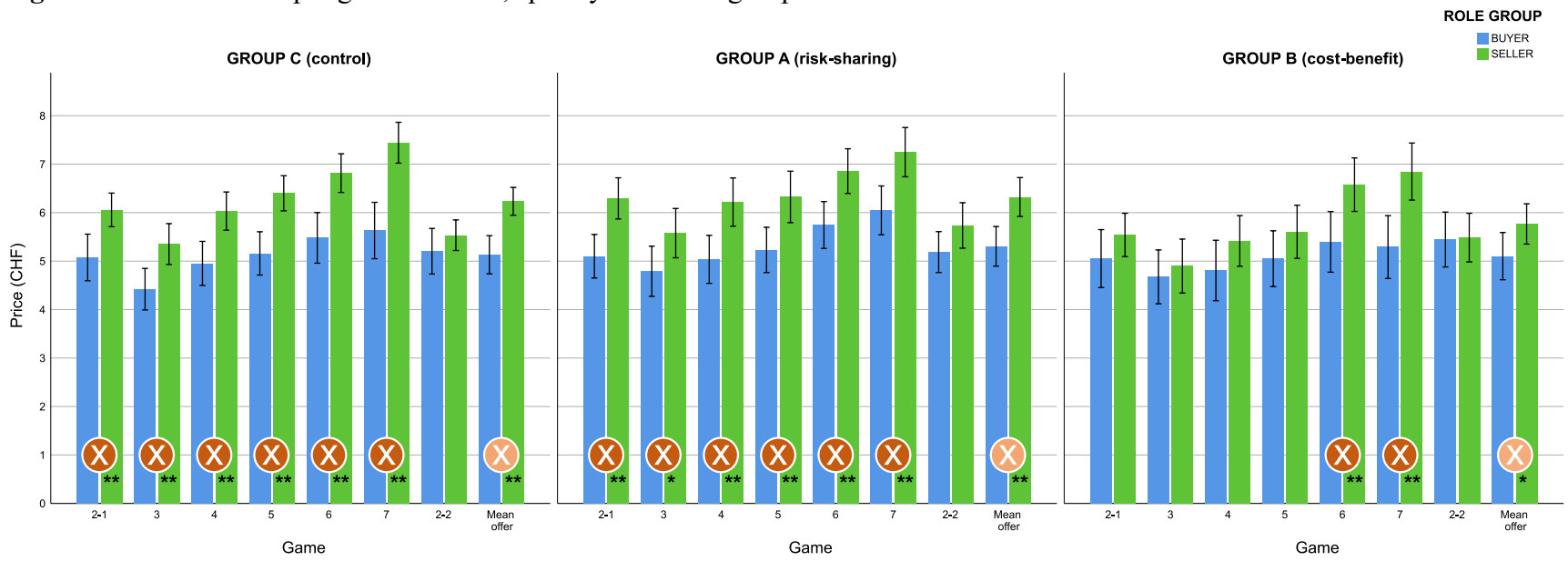
Null hypothesis 1a (potential for success) was rejected in the risk-sharing (RS) and control groups for all offer games ($p<0.01$, RS game 3 $p<0.05$), except for game 2 (round 2, $p>0.05$). Mean negotiators in the cost-benefit group, on the other hand, had no potential for an agreement only in the last two offer games with a given alternative ($p<0.01$). Details are displayed in Figure A38.

Null hypothesis 1b (success rate) was rejected ($p<0.01$)[2] for all games and overall. 41% of pairs in the CB group reached an agreement over all offer games, compared to 35% in the control and 20% in the RS group. To account for potential differences in stated preferences that might influence the possibility of an agreement even before an offer is made, we also analysed the number of successful pairs in relation to the number of pairs with matching preferences (WTA≤WTP on an individual basis). This represents the success rate in terms of trades possible. The null hypothesis was also rejected ($p<0.01$) if controlled for trades possible with 46% for the CB group, followed by the control (43%) and the RS group (24%). Details are displayed in Table A9 further below.

[1] Obviously, a majority of the failed negotiations would inevitably be repeated after a certain time in the real world. If parallel negotiations in other countries turn out to be successful or unsuccessful, the principal could adjust the internal price targets or provide additional information on the value of the product and its certainty. A longer negotiation period without success could also alter the mandate of the buyer, e.g., if pressure from patient groups or the general public increases or if alternative therapeutic options are proposed. However, in line with recent discussions and concern about timely access to essential new therapies for patients in Europe [1-7], patient access (rate of availability) is to be understood as a snapshot, to which the duration of reimbursement negotiations (time to access) and thus failed negotiation rounds make a significant contribution [6]. Since the preferred VfM was based on stated preferences which, from the perspective of the negotiators, would have allowed an agreement to be reached to the benefit of all parties concerned, an extension of the negotiation was suboptimal.

[2] The validity of the p-values for the success rate is limited, due to the high number of pairing variations (representativeness, see 2.3.2 in Appendix 3) based on a much smaller number of underlying pairs. While this was inevitable for the success rate (unit of observation pairing variation), it is remedied in the following analysis of the negotiation outcomes, where the unit of observation is the individual negotiation pairs.

Figure A38 Price offers per game and role, split by treatment group



Games marked with "**x**": mean buyers' price offer significantly lower than mean sellers' price offer; hence, no trade was possible between mean players.
** Difference between price offers significant at p<0.01, * difference between price offers significant at p<0.05, T-bars: 95% confidence intervals.
Differences were examined using both t-test and Mann-Whitney U-test for independent samples. The significance results presented were identical for both tests, except for the mean offer in group B (p<0.05 with t-test, p<0.01 with U-test).

3.2 Impact of the available alternative (comparator)

Table A7 below shows the results for the random effects model. The significant intercept at level 2 of the null model (variance parameter between participants) indicates the use of the two-level model. The interclass correlation (ICC) reveals that 56% of price offer variance is explained by differences between participants (level 2) and 44% by differences within subjects (level 1) if no additional predictors are investigated.

Null hypothesis 2a for no (within-subjects) impact of the varying alternative on players' price offers was rejected in all three models, as there was a positive effect of the alternative value for money as well as a negative effect of the expected incremental patient benefit and incremental price ($p<0.01$).

Null hypothesis 2b for no (between-subjects) influence of the treatments on the effect of the varying alternative was also rejected in all three models ($p<0.05$), as there was a lower sensitivity to the available alternative in players who did not have the cost-benefit tool and training. In model 2 (incremental patient benefit), however, the effect was not significant when controlling for potential other (unknown) effects between offer games (random slope).

Model 1b with the alternative VfM as predictor had the highest predictive power, with a 44% reduction in the error term compared to the null model, higher than the respective models with the incremental benefit (33%) or price (34%) as predictor.

Table A7 Hierarchical linear regression for price offers overall (two-level random effects model)

Model description (level 1 predictor)	Null model		Alternative value for money				Expected incremental benefit				Expected incr. cost (return)			
Random effects	intercept		intercept		intercept & slope		intercept		intercept & slope		intercept		intercept & slope	
	Model 0		*Model 1a*		*Model 1b*		*Model 2a*		*Model 2b*		*Model 3a*		*Model 3b*	
	Estim.	sig.	Estim.	sig.	Estim.	sig.	Estim.	sig.	Estim.	sig.	Estim.	sig.	Estim.	sig.
Estimates of fixed effects: explanatory variables														
Intercept	5.67	**	2.71	**	2.56	**	4.07	**	4.11	**	3.50	**	3.51	**
ROLE GROUP [=0][1] (buyer=0, seller=1)			-1.19	**	-1.29	**	-2.34	**	-2.27	**	-1.91	**	-1.91	**
TREATMENT A [=0] (risk-sharing=1)[2]			-0.14	-	-0.16	-	-0.10	-	-0.08	-	-0.12	-	-0.12	-
TREATMENT B [=0] (cost-benefit=1)[2]			-0.07	-	-0.08	-	0.41	*	0.41	*	0.24	-	0.24	-
Alternative value for money (v_0/y_0)			1.80	**	1.80	**								
Expected incremental benefit ($5-v_0$)							-0.26	**	-0.26	**				
Expected incremental cost or return ($5-y_0$)											-0.16	**	-0.16	**
Reservation price (x)[3]			0.53	**	0.58	**	0.53	**	0.49	**	0.53	**	0.52	**
Initial estimate of patient benefit[4]			-0.02	-	-0.01	-	-0.02	-	-0.01	-	-0.02	-	-0.02	-
ROLE GROUP [=0] × Alternative value for money			-1.64	**	-1.64	**								
TREATMENT A [=0] × Alternative value for money			0.05	-	0.05	-								
TREATMENT B [=0] × Alternative value for money			0.72	*	0.72	*								
ROLE GROUP [=0] × Expected incremental benefit							0.19	**	0.19	**				
TREATMENT A [=0] × Expected incremental benefit							-0.01	-	-0.01	-				
TREATMENT B [=0] × Expected incremental benefit							-0.08	*	-0.08	-				
ROLE GROUP [=0] × Expected incr. cost (return)											0.14	**	0.14	**
TREATMENT A [=0] × Expected incr. cost (return)											-0.01	-	-0.01	-
TREATMENT B [=0] × Expected incr. cost (return)											-0.06	*	-0.06	*
Estimates of fixed effects: control variables[4]														
age (10 percentile)			0.06	**	0.06	**	0.06	**	0.06	**	0.06	**	0.06	**
Gender			-0.24	-	-0.18	-	-0.24	-	-0.29	-	-0.24	-	-0.24	-
Covid-19 concern			0.17	-	0.16	*	0.17	-	0.16	-	0.17	-	0.17	-
Education			0.05	-	0.01	-	0.05	-	0.09	-	0.05	-	0.05	-
Field of study			-0.15	-	-0.18	-	-0.12	-	-0.12	-	-0.15	-	-0.15	-
Estimates of covariance parameters														
Residual	1.45	**	1.25	**	1.12	**	1.17	**	1.01	**	1.24	**	1.10	**
Intercept [subject][6], Variance	1.81	**	1.00	**	0.69	**	1.01	**	1.14	**	1.00	**	1.03	**
Alternative value for money [subject], Variance					1.98	**								
Expected incremental benefit [subject], Variance									0.03	**				
Expected incremental cost (return) [subject], Variance													0.02	**
Model summary														
Observations: price offers (participants)	1,345	(269)	1,345	(269)	1,345	(269)	1,345	(269)	1,345	(269)	1,345	(269)	1,345	(269)
Intraclass correlation (ICC)[6]	0.56		*0.44*		*0.38*		*0.46*		*0.53*		*0.45*		*0.48*	
Proportional reduction of error term (R2)[7]			0.31		0.45		0.33		0.34		0.31		0.35	
R2 level 1[8]			0.14		0.23		0.19		0.30		0.14		0.24	
R2 level 2[9]			0.45		0.62		0.44		0.37		0.45		0.43	

** Significant at p<0.01, * significant at p<0.05.

Dependent variable: price offer (y) in games 2 to 7 (game 2 round 2 only, since update of round 1, played after game 7).
Expected incremental benefit: Expected incremental patient benefit (CHF 5-v_0).
Expected incr. cost (return): Expected incremental payer cost respectively investor return of an agreement (CHF 5-y_0), assuming a rational or random counteroffer.
1: Variable [=1] not displayed, if redundant to [=0].
2: For price offers from participants in treatment group A, RS=1 and CB=0; for price offers from participants in treatment group B, RS=0 and CB=1; for price offers in the control group, RS=0 and CB=0.
3: Stated preferences from game 1 (round 2).
4: The control variable was not in the underlying model. It is used to control for different (constrained-rational) estimates of the outcome of the lottery. The inclusion of the variable only marginally changes the other estimators, without affecting the significance levels and the derived conclusions.
5: We ran all models with and without the control variables. The controls have no effect on the significance levels displayed and only minor effects on the estimates, with no impact on the general conclusions.
6: Due to the significant intercept at level 2 (subject or participant), the two-level model is indicated. The ICC shows for the null model that 56% of variance is explained by differences between subjects (level 2) and 44% by differences within subjects (level 1). For the other models, the ICC explains the remaining variance.
7: E.g., for Model 1, the proportional reduction of the predictive error is 31%.
8: E.g., for Model 1, the predictive power is 14% higher with the level 1 predictor compared to the null model.
9: E.g., for Model 1, the predictive power is 45% higher with the level 2 predictor compared to the null model.

3.1 Negotiation outcomes

3.1.1 Details of outcomes for the average game (per pair and variation)

Null hypothesis 3a for reimbursement prices overall (mean y' all games per pair and variation) was rejected, as there were higher prices in the CB and control groups than in the RS group ($\overline{y}'_{Grp\_B} > \overline{y}'_{Grp\_A}$ with $p<0.05$ in 59% and $p<0.01$ in 15% of variations, $\overline{y}'_{Grp\_C} > \overline{y}'_{Grp\_A}$ with $p<0.05$ in 89% and $p<0.01$ in 58% of variations). Differences between the CB and control groups were not significant in the majority of variations.

Null hypothesis 3b for overall patient benefit (mean v' all games) was rejected with a higher benefit in the CB group and the control group than in the RS group ($\overline{v}'_{Grp\_B} > \overline{v}'_{Grp\_A}$ with $p<0.05$ in 95% and $p<0.01$ in 71%, $\overline{v}'_{Grp\_C} > \overline{v}'_{Grp\_A}$ with $p<0.05$ in 64% and $p<0.01$ in 23% of variations). Differences between the CB and control groups were not predominantly significant.

Null hypothesis 3c for value for money overall (mean v'/y' all games) was rejected with a higher value in the CB group than in the RS group ($\overline{v'/y'}_{Grp\_B} > \overline{v'/y'}_{Grp\_A}$ with $p<0.05$ in 85% and $p<0.01$ in 37% of variations). Differences between the CB and control groups and between the control and RS groups were not predominantly significant. Details are displayed in Figure 3 and Table A8.

The Value for money (VfM) realized can also be set into relation to the implicitly preferred value for money in game 1.[3] All groups realized a much lower VfM than implicitly preferred ($p<0.01$). Assuming rational expectations, the CB group realized an overall higher percentage of its value for money preferred (72%) than the RS group (57%, with $p<0.05$ in 83% and $p<0.01$ in 45% of variations), while the difference from the control group (66%) was not predominantly significant. Assuming bounded rationality[4], the CB group realized 65%, the RS 57% and the control group 60% of its preferred VfM, with no significant differences between groups.

Differences were examined using both t-test and Mann-Whitney U-test for independent samples. The significance results presented were identical for both tests, except for reimbursement prices between group A and C ($p<0.05$ with U-test), reimbursement prices between group A and B ($p>0.05$ with U-test) and patient benefit between group A and B ($p<0.05$ with U-test).

Table A8 shows the result for both statistical tests in comparison with overall result in Table A9.

[3] See above page 2: The stated preferences can be set in relation to the expected outcome to estimate the implicitly preferred (not explicitly stated) value for money. This can be done in two ways. First, the price preferences can be set in relation to the (realisable) expected value of the lottery (implicit VfM preference assuming rational expectation). Secondly, they can also be compared with the participants' stated guess about the outcome of the lottery (implicit VfM preference based on own guess). This was conducted for couples whose price preferences allowed agreement.
[4] considering stated guesses about the uncertain patient benefit in game 1

Table A8 Results of random pairing, negotiation outcomes overall and over all pairing variations

Variables of interest (mean of means per variation)				**Statistical tests (pairs)**			
Treatment group	Mean			T-tests (pairs)		U-tests (pairs)	
	Overall	Difference	*% of variations with difference*	p<0.05	p<0.01	p<0.05	p<0.01
Negotiation outcomes							
Reimbursement price (y'): all pairs							
Control group (C)	**4.91 *(*)**	C>A	*100%*	89%	58%	73%	36%
Risk-sharing (A)	**4.47 (*)**	A<B	*100%*	59%	15%	44%	11%
Cost-benefit (B)	**4.88**	B<C	*64%*	0%	0%	0%	0%
Patient benefit (v'): all pairs							
Control group (C)	**3.35 ***	C>A	*100%*	64%	23%	61%	18%
Risk-sharing (A)	**2.92 *(*)**	A<B	*100%*	95%	71%	76%	47%
Cost-benefit (B)	**3.53**	B>C	*97%*	1%	0%	1%	0%
Value for money (v'/y'): all pairs							
Control group (C)	**0.56**	C>A	*100%*	17%	2%	27%	4%
Risk-sharing (A)	**0.50 ***	A<B	*100%*	85%	37%	76%	44%
Cost-benefit (B)	**0.64**	B>C	*100%*	7%	0%	10%	0%

** Difference between treatment groups significant at p<0.01 for the majority of variations (>50%)
* Difference between treatment groups significant at p<0.05 for the majority of variations (>50%)
(*) Significance level different between t-test and U-test

3.1.2 Details of individual games and outcomes (per pair and variation)

Negotiation success: The values displayed in Table A9 represent the mean per game and group (unit of observation: one variation). Differences between groups were all significant at p<0.01. Due to the high number of pairing variations (representativeness) based on a much smaller number of underlying pairs, p-values might be overstated.

Negotiation outcomes: Amounts displayed are in Swiss Francs (CHF). Values represent the mean of means per variable, game, group and variation (unit of observation: one pair). The null hypothesis was rejected at p<0.05 (p<0.01) if the majority of variations (>50%) showed a significant difference between groups (t-test). Looking at individual games and all pairs per variation, null hypothesis 3a (y') was rejected for game 2 (round 2), with higher prices in the CB (p<0.05 in 86%, p<0.01 in 53% of variations) and control groups (p<0.05 in 78%) than in the RS group. Null hypothesis 3b (v') was rejected for all games except game 6, as there was a higher benefit in the CB group than in the RS group (p<0.05 in 60%, 57%, 54%, 58%, 60%, 82% of variations). It was further rejected for game 2 (round 2), as there was a higher benefit in the control group than in the RS group (p<0.05 in 66% of variations). Null hypothesis 3c (v'/y') was rejected for games 2 (rounds 2) and 3, with higher values in the CB group than in the RS group (p<0.05 in 66% and 51% of variations).

Assuming rational expectations, VfM realized was below VfM preferred (paired t-test in majority of variations) for all offer games except game 7 in the RS group (p<0.01) and the control group (p<0.05, game 2 and 4 p<0.01). In the CB group, it was lower in games 2 (p<0.01), 4 and 6 (p<0.05) but not significantly lower in games 3, 5 and 7 (p<0.05 in the minority of variations with 23%, 37%, and 10%). Assuming bounded rationality, VfM realized was below VfM preferred for all games in the CB group (p<0.01, game 3 and 7 p<0.05) and for all games except game 7 for the RS

and control group (p<0.01, game 7 p<0.05 in the minority of 5% and 25% of variations for the CB and control group).

Table A9 Results of random pairing, negotiation success and outcomes over all pairing variations

Variables of interest (mean of means per variation)									**Statistical tests (t-test, mean pair)**			
Treatment group	Game								Overall (mean game)			
	2-1	**3**	**4**	**5**	**6**	**7**	**2-2**	**Overall**	Differ-ence	*% of varia-tions with difference*	% of these with significance[1] p<0.05	p<0.01
Negotiation success												
Successful agreements:	in % of pairs											
Control group (C)	35.8%	39.2%	34.1%	30.3%	31.0%	25.9%	48.2%	**34.9%**				
Risk-sharing (A)	22.1%	24.3%	21.3%	20.3%	18.2%	11.2%	25.2%	**20.4%**				
Cost-benefit (B)	43.8%	45.7%	42.0%	41.5%	34.2%	29.7%	51.5%	**41.2%**				
Successful agreements:	in % of trades possible[2]											
Control group (C)	44.0%	48.1%	41.9%	37.2%	38.0%	31.9%	59.2%	**42.9%**				
Risk-sharing (A)	26.1%	28.7%	25.2%	24.0%	21.5%	13.2%	29.7%	**24.1%**				
Cost-benefit (B)	49.1%	51.1%	47.1%	46.5%	38.3%	33.3%	57.6%	**46.1%**				
Negotiation outcomes												
Reimbursement price (y'):	successful pairs											
Control group	5.85	4.85	5.63	6.00	6.55	7.09	5.68	**5.81**	C>A	*100%*	63%	28%
Risk-sharing	5.33	5.07	5.27	5.28	5.52	4.81	5.28	**5.20**	A<B	*81%*	1%	0%
Cost-benefit	5.60	4.79	5.26	5.28	6.17	6.11	5.66	**5.37**	B<C	*100%*	21%	2%
Reimbursement price (y'):	all pairs											
Control group (C)	2.10	3.72	5.21	6.00	6.86	7.76	2.74	**4.91**	C>A	*100%*	89%	58%
Risk-sharing (A)	1.18	3.50	5.06	5.85	6.73	7.64	1.33	**4.47**	A<B	*100%*	59%	15%
Cost-benefit (B)	2.45	3.82	5.11	5.70	6.72	7.44	2.91	**4.88**	B<C	*64%*	0%	0%
Patient benefit (v')	all pairs											
Control group (C)	1.79	2.57	3.02	3.61	4.31	5.74	2.41	**3.35**	C>A	*100%*	64%	23%
Risk-sharing (A)	1.11	1.97	2.64	3.41	4.18	5.89	1.26	**2.92**	A<B	*100%*	95%	71%
Cost-benefit (B)	2.19	2.83	3.26	3.83	4.34	5.70	2.58	**3.53**	B>C	*97%*	1%	0%
Value for money (v'/y'):	all pairs											
Control group (C)	0.32	0.62	0.57	0.61	0.64	0.75	0.44	**0.56**	C>A	*100%*	17%	2%
Risk-sharing (A)	0.22	0.50	0.53	0.61	0.64	0.79	0.25	**0.50**	A<B	*100%*	85%	37%
Cost-benefit (B)	0.42	0.72	0.67	0.72	0.68	0.80	0.49	**0.64**	B>C	*100%*	7%	0%
Value for money (v'/y'):	all pairs, preferred value for money realized (assuming rational expectations for v)											
Control group (C)	43%	73%	66%	69%	72%	82%	59%	**66%**	C>A	*100%*	38%	11%
Risk-benefit (A)	28%	56%	58%	67%	70%	85%	33%	**57%**	A<B	*100%*	83%	45%
Cost-benefit (B)	51%	80%	75%	80%	75%	87%	59%	**72%**	B>C	*97%*	3%	0%
Value for money (v'/y'):	all pairs, preferred value for money realized (based on own guess for v in game 1)											
Control group (C)	39%	67%	61%	63%	65%	75%	54%	**60%**	C>A	*84%*	3%	0%
Risk-sharing (A)	28%	57%	59%	67%	72%	86%	31%	**57%**	A<B	*98%*	10%	1%
Cost-benefit (B)	46%	71%	67%	72%	67%	78%	53%	**65%**	B>C	*92%*	1%	0%
Available alternative												
Price (y0)	0	3	5	6	7	8	0					
Patient benefit (v0)	0	1	2	3	4	6	0					
Value for money (v0/y0)	0.00	0.33	0.40	0.50	0.57	0.75	0.00					

1: Significance (t-test) for indicated differences between treatment groups in each variation for the mean game (significance for individual games see 3.1.2 above). Null hypothesis was rejected at p<0.05 (p<0.01) if the majority of variations (>50%) showed a significant difference between groups.

2: Trades possible accounts for potential differences in stated preferences (successful pairs in relation to the number of pairs with matching preferences, WTA≤WTP).

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CHAPTER 5: Appendix 5 – complete instructions for the third run of the experiment

See following pages.

The appendix was referred to in the article published under:

Wettstein, D.J., Boes, S.: How value-based policy interventions influence price negotiations for new medicines: An experimental approach and initial evidence. Health Policy 126(2), 112-121 (2021). https://doi.org/10.1016/j.healthpol.2021.12.007

Intro_1

Browser Meta Info

This question will not be displayed to the recipient.
Browser: **Firefox**
Version: **77.0**
Operating System: **Windows NT 6.3**
Screen Resolution: **2560x1440**
Flash Version: **32.0.0**
Java Support: **0**
User Agent: **Mozilla/5.0 (Windows NT 6.3; Win64; x64; rv:77.0) Gecko/20100101 Firefox/77.0**

Informed consent

Dear participant,

You are about to take part in an economic experiment that was designed by the Department of Health Sciences and Medicine of the University of Lucerne, carried out in cooperation with the Decision Science Laboratory of the ETH Zurich.

This experiment is part of a scientific study interested in understanding price negotiations for new health technologies.

The experiment will take approximately 30 to 40 minutes. An average participant can expect 20 Swiss Francs (CHF) for the time invested, paid after the experiment.
During the experiment you and the other participants will have to make decisions that increase or decrease an initial capital. Your potential earnings therefore depend not only on your decisions but also on those of the other participants. Finally your decision will not only affect the financials of you and the other participants in the experiment, but also those of third parties, including patients, through monetary donations.

All participants will remain strictly anonymous. Once the experiment is finished, the responsible researchers will not know your identity in the real world and will not be able to associate your name with the decisions you made in the experiment. The data collected during the experiment will only be used for scientific purposes. This includes the publication of anonymised data, which supports the vision of open access in research.

Please indicate whether you would like to participate in this study and agree to the conditions described above:

- ○ yes
- ○ no

Are you at least 18 years old?

- ○ yes
- ○ no

Are you resident in Switzerland?

- ○ yes
- ○ no

Intro_2

General information about the experimental setting

Thank you very much in advance for your willingness to contribute to our research!
Please read carefully the instructions below.

1. Introduction

This experiment is part of a scientific study interested in understanding the valuation of new pharmaceutical products and specifically the related price negotiations.

A pharmaceutical product is a substance or combination of substances that is intended to treat, prevent or diagnose a disease. This includes therapeutics to treat a disease (commonly referred to as “medicines”), as well as vaccines to prevent a disease.

In the following you will take part in a price negotiation, comparable to the reimbursement situation for a new pharmaceutical product.

You will be asked to make decisions that affect the outcome of your negotiations and could have an impact on your own finances, but also on those of other participants and indirectly on patients in the real world.

We will comment on some parallels to the negotiation situation for new pharmaceuticals in the "real world" in the following introduction.

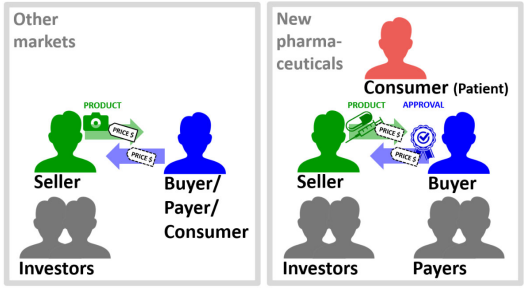
2. Background information

Price negotiations for new pharmaceutical products are in most countries very complex. While there is a “seller” and a “buyer”, like in other markets, both often have few to no alternative trade partners available to trade a new product: the pharmaceutical company is an exclusive seller of a patent-protected product, the health authority or health insurance is an exclusive “buyer”.

In addition to that, for some of the European countries the “buyer” (health authority) who decides on the price is not even the “payer” (health insurance). And most importantly, in most first world countries the “consumer” (patient) is neither the price setting “buyer” nor the “payer” for new patent-protected pharmaceuticals.

Below an illustration, including also the fifth player, the funding investor, who invested in the development of the new product and expects a return for the risk he/she took. Finally, since the consumer of these product is mostly also not the competent “decider”, there is even a very central sixth player involved, the treating physician, which we will however neglect for this experiment.

Patients or citizens will not benefit from a new promising therapy or vaccination, if the seller and buyer cannot agree on a price. And if they do agree, the payer has in general to pay the product (if medically indicated).



Last but not least, in many other markets the value of the traded products is much easier to assess and compare.In contrast, the value of a new pharmaceutical product is inherently complex and often uncertain when entering the market. This in addition to the fact that not every consumer might show the intended response and benefit from the substance as promised.

The value for the patient and the society as whole could for example be a prolonged

survival for cancer patients, protection against a viral infection, reduction of pain or less side effects, etc.

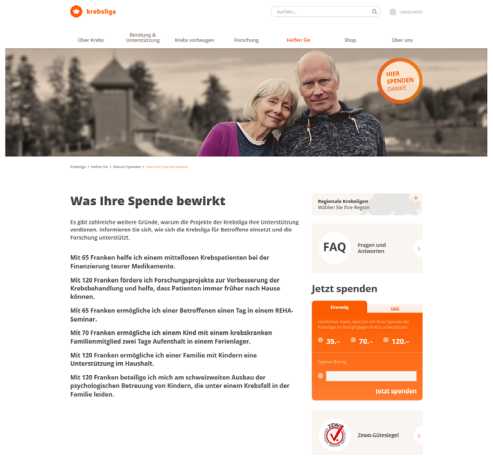
Group_1

---

3. The general setup of this experiment

You have been assigned to the role of the **buyer**. Your task will be to **buy a closed envelope** from the seller if you can agree on a price. The envelope contains a donation to the Swiss Cancer League "Krebsliga Schweiz" (www.krebsliga.ch). The association uses donations not only for research purposes but also to directly support patients (see here: https://participate.krebsliga.ch/purposes/direkthilfe).

The value of the donation inside the envelope lies between CHF 0 and 10. The "desirable" value would of course be CHF 10, as this represents the maximum health benefit possible. However, the envelope will only be opened at the end of the experiment to reveal its true value for patients. This means that you will have to negotiate a price for the envelope without knowing the true value of the donation inside.



Comparing the **envelope** ✉ in our experiment to a new **medicine** 💊 or **vaccine** 💉 in the real world, we have to consider two factors of uncertainty:

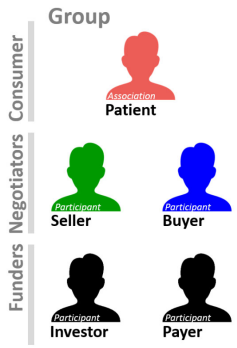
- **Uncertainty of response:** The pharmaceutical will most likely not show the same effectiveness in every patient/citizen. In other words, not every patient will respond to a medicine and a vaccine will not protect all citizens who receive it.
  Translated to our experiment: If the value of the donation in the envelope turns out to be CHF 5 (instead of the aspired maximum of CHF 10), you could compare this to a vaccine which prevents 50% of the citizens who were vaccinated against an infectious disease (like hepatitis C, seasonal influenza or Covid-19, etc.).
- **Uncertainty of the clinical benefit:** The promised effect reported from clinical studies might not translate to the real world and/or data on long-term effectiveness might not be available yet.
  Translated to our experiment: Neither the seller nor the buyer will know the real value of the final donation in the envelope. Still both of you will have to decide on a price for the envelope. In the most extreme case, you both agree on a price of CHF 0 for the envelope with a final donation of CHF 10, or vice versa, on a price of CHF 10 for a donation of CHF 0. Of course it is also possible, that you both cannot find an agreement, which will mean that the envelope will not be processed for a donation.

---

4. The roles

You and the other participants form a "society" with five different citizens:

- **The Patient** (or citizen to be protected) is the only actor who is not present during the experiment. Any patient value generated during this experiment will be donated to the "Relief Fund" of the Swiss Cancer League (https://participate.krebsliga.ch/purposes/direkthilfe) which provides direct help to cancer patients and their families.
- **The Seller** possesses the envelope containing a donation of an unknown value which he/she offers to the buyer at a proposed price *(comparable to a representative of a pharmaceutical company, offering a new medicine or vaccine with the promise to increase the health benefit)*.
- **The Buyer** is responsible to propose and approve a price for the envelope on behalf of the patient or citizen and the payer *(comparable to the representative of the public health authorities)*.
- **The Investor** is financer and owner of the envelope and will receive the market price, paid by the payer, if the seller and buyer find an agreement *(comparable to the shareholder of a pharmaceutical company)*.
- **The Payer** will have to pay the negotiated price at the end of the experiment, if the seller and buyer find an agreement *(comparable to the premium payers of a health insurance)*.



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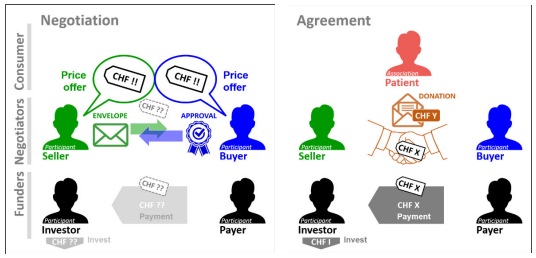
5. The trade

The negotiating **seller** and the **buyer (you)** have to negotiate a price for the closed envelope. The **seller** possesses the envelope at the beginning. If he or she asks for a price beyond the buyer's proposed price, the **buyer** will refuse to approve the potential donation for the patient. Vice versa, if the buyer askes for a lower price than the seller's expectation, the latter will not agree to trade the envelope.

If the negotiators find an agreement, the patient association will receive the donation in the envelope. The assigned **payer** will have to pay the market price of the envelope to the assigned **investor**. The real value of the donation will be determined at the end of the experiment.



6. The initial capital

Each player starts with an initial capital of CHF 20. For your **active role** you have already

been randomly assigned to the role of the **buyer** of the envelope.

At the end of the experiment you will additionally be randomly assigned to a **passive role** of either the **investor** or the **payer**. The investors' initial capital will be reduced by an amount (between CHF 0 and 10) only known to them, representing the acquisition or investment cost for their envelope (which has a currently unknown value between CHF 0 and 10 for the patient, also unknown to the investor). The initial investment costs and the final donation in the envelope are independent of each other.

The active and the passive assignment are independent from each other: **your current active role does not determine your later passive role**.

---

7. The final payoffs

For the final payoffs you will first be **randomly paired with a player who played the opposite role**. One of the games you both played will be randomly selected. The prices you both submitted in that particular game will determine the negotiation outcome: agreement or disagreement plus the final market price (average of both offers) if successful. Two other players are then randomly assigned to both of you, one as the investor, the other as the payer. If you and your counterpart reached an agreement, the market price will be transferred from the payer to the investor. The envelope with the donation will be transferred to the supervisor of the experiment.

In parallel, you will be randomly assigned as either investor or payer to a second group (independently of your active role). Depending on the negotiation outcome of this group and your passive role, your capital will either increase, decrease or remain the same.

Finally the donations of the successful pairs will be revealed (value between CHF 0 and 10) and transferred for payment to the patient association.

You will receive information on your final payoff in CHF within 5 working days after your session took place, along with instructions on how to submit your bank details. This information will not be transferred to the researchers. The DeSciL will handle the money transfer to your bank account.

8. The structure of the experiment

The experiment will start with a first, introspective part. After this you will play the described negotiation game in different formats. In the third part you will slip into the role of one of the two funders. In the end, you will be asked some final questions. After the experiment, one of the games you played will be implemented to determine the cash payments as described above.

Control questions

Before we begin the experiment, let's quickly go through some control questions.

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: only one answer is correct)

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
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- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: two answers are correct)

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Correct!

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: two answers are correct)

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: only one answer is correct)

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Correct! You did great.

First part of the experiment

The objective of this first part of the experiment is to find out the "true value" that you assign to an opportunity to increase "value for patients".

You are the responsible **buyer** in your group.

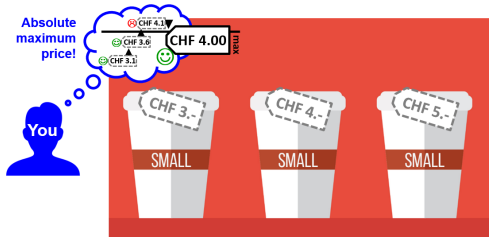
In the following experiment, the **seller** will offer you a product (the envelope) at a proposed price.

Before you enter into a price negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the product. Above this "walk-away price" you would never agree to buy it.
This valuation is **"private" and only known to you**, but not to your counterpart.

Let's illustrate this quickly with an example:
Let us assume that you are a real coffee lover (if not, you can replace coffee with soda or else). Let us further assume that despite your passion for coffee, CHF 4.00 represents the maximum price you still consider reasonable and fair for a small cup.

Which of the following offers from a coffee shop owner would you accept?

- ☐ 3.- for a cup,
- ☐ 4.- for a cup,
- ☐ 5.- for a cup.



Please check again! (hint: two answers are correct)

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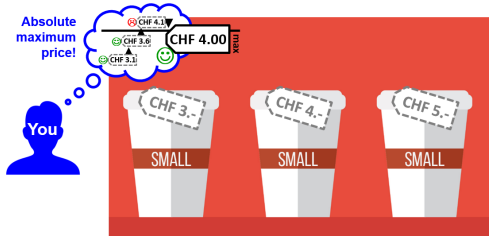


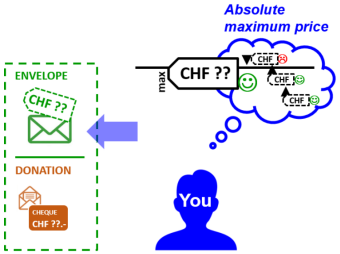
Correct!

Back to our experiment.

The “product” you will be offered is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **buyer** you will be responsible to propose a price for the envelope to the **seller**.

Before you enter into a negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the envelope. Above this “walk-away price” you would never approve a payment for the envelope.



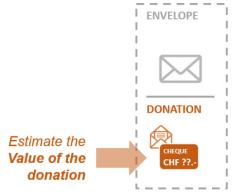
This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies.** There is no “correct” answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

Please enter your **maximum price** (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

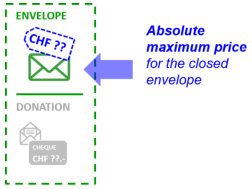
Let’s amend the decision situation slightly. Aim is still to find out **your private valuation** of the potential patient benefit. You still do not have to reflect on any negotiation tactics or strategies. But now, we want you to reflect on the expected value of the unknown donation. Which you've probably already done anyway. If not: this might help you to get a better picture on the appropriate price for the envelope.

It might for example be, that you successfully propose a price of CHF 2 and the donation turns out to be CHF 8. Or that the envelope turns into a donation of CHF 2 while you successfully proposed a price of CHF 8.



Please **estimate or guess the value of the donation** in the closed envelope.
Please enter your estimate (one decimal place from CHF 0.0 to 10.0) in the field below.

If you want, you can also adjust your **absolute maximum price, which you would still consider reasonable and fair** for the envelope.



This is an update of the previous game. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is selected at the end. If you do not want to update your price submitted before, please simply enter the same amount again.

Be aware that your decision might have financial consequences on other players and the patient association. You will not be able to change your decision anymore after submission.

Please enter your maximum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

First part done!

That was the introspective part of the experiment. Now let us switch to a more interactive mode. Are you ready?

Second part of the experiment

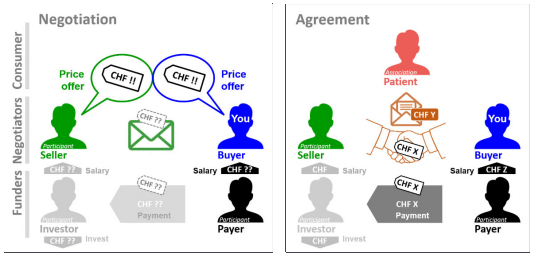
The general setting stays the same. Again, the game will potentially be selected for implementation at the end of the experiment. But now you will **engage in a price negotiation**. Your counterpart is another participant, randomly selected after the experiment.

You are the responsible **buyer** in your group. Your task is to state an actual price expectation for the envelope to the **seller**. The seller himself will do the same.

This time you will not receive just a fixed salary. Instead, the **payer** will decide at the end, what **salary he/she considers appropriate for your performance**. The payer will have to pay your salary from his/her total capital:

CHF 20 – market price CHF X (if an agreement is reached) – your salary CHF Z.

If your price offer is **higher or equal to the price offer of the seller, you will both agree**. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). If no agreement is reached, the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer will keep all of his/her initial capital.



Recall your absolute maximum price from the previous game. You might want to propose a price equal or lower. If you propose a higher price than your stated preference in the previous game, this means that your price offer lies above what the envelope is worth to you.
Below the slider you will see your stated maximum price from the first part of the experiment.

At the end of the experiment your payer will enter your salary for different market prices you might have agreed upon. He/she will furthermore decide which salary you should get in case of no agreement reached.

Ok? Let us start!

Be aware that your decision might have financial consequences on other players and the patient association.

Please inform the seller about your price offer for the

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

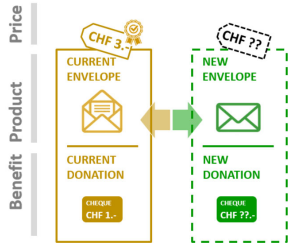
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
The seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

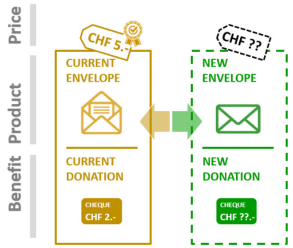
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 2** ready at an already fixed price of **CHF 5**.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 2** will be transferred to the patient association. The investor will receive **CHF 5** and the payer will have to pay **CHF 5**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

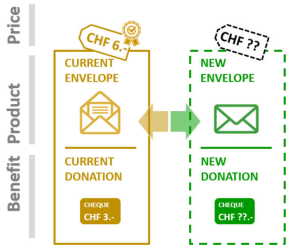
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 3** ready at an already fixed price of **CHF 6**.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 3** will be transferred to the patient association. The investor will receive **CHF 6** and the payer will have to pay **CHF 6**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

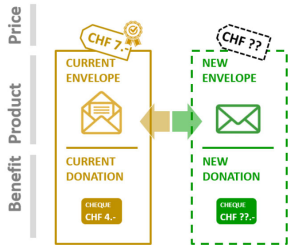
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 4** ready at an already fixed price of **CHF 7**.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 4** will be transferred to the patient association. The investor will receive **CHF 7** and the payer will have to pay **CHF 7**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

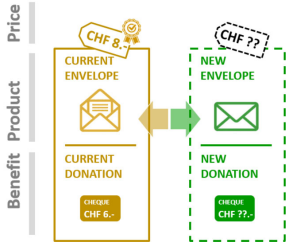
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 6** ready at an already fixed price of **CHF 8**. Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 6** will be transferred to the patient association. The investor will receive **CHF 8** and the payer will have to pay **CHF 8**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

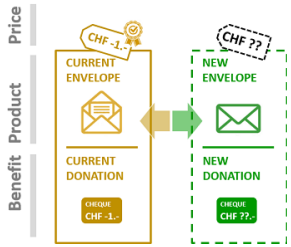
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF -1** ready at an already fixed price of **CHF -1**.
This obviously makes no sense. We just need to test, whether participants pay attention and read the relevant information. If you did so, please click on the green envelope in the picture below, ignore the rest of the text and press 'submit'.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF -1** will be transferred to the patient association. The investor will receive **CHF -1** and the payer will have to pay **CHF -1**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

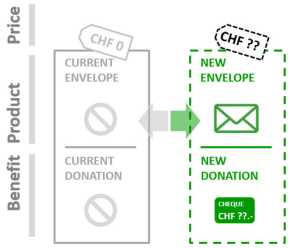
Finally let's revisit the first offer game, where no alternative was available.

There is no adjustment to the game you have already played. You are just given a chance to update your price, if you want. You however don't have to. If you do not want to update your price submitted before, please simply enter the same amount again.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

You have to state a price for the envelope the seller offers to you. There is no alternative available.

If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer retains its entire initial capital.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price (if an agreement is reached) – your salary.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID894/ChoiceNumericEntryValue/1}.

Second part done!

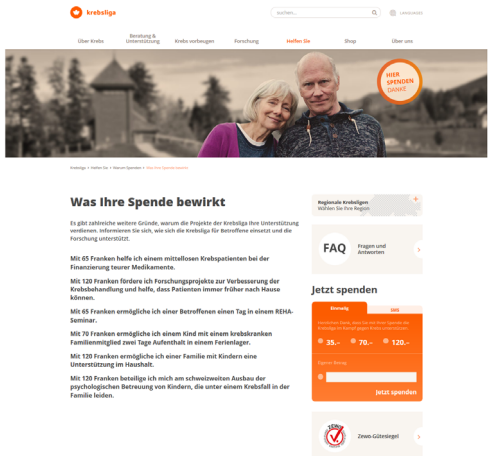
Now let's turn to the final part of the experiment where you will play a different role.

Group_2

3. The general setup of this experiment

You have been assigned to the role of the **seller**. Your task will be to **sell a closed envelope** to the buyer if you can agree on a price. The envelope contains a donation to the Swiss Cancer League "Krebsliga Schweiz" (www.krebsliga.ch). The association uses donations not only for research purposes but also to directly support cancer patients (see here: https://participate.krebsliga.ch/purposes/direkthilfe).

The value of the donation inside the envelope lies between CHF 0 and 10. The “desirable” value would of course be CHF 10, as this represents the maximum health benefit possible. However, the envelope will only be opened at the end of the experiment to reveal its true value for patients. This means that you will have to negotiate a price for the envelope without knowing the true value of the donation inside.



Comparing the **envelope** in our experiment to a new **medicine** or **vaccine** in the real world, we have to consider two factors of uncertainty:

- **Uncertainty of response:** The pharmaceutical will most likely not show the same effectiveness in every patient/citizen. In other words, not every patient will respond to a medicine and a vaccine will not protect all citizens who receive it.
  Translated to our experiment: If the value of the donation in the envelope turns out to be CHF 5 (instead of the aspired maximum of CHF 10), you could compare this to a vaccine which prevents 50% of the citizens who were vaccinated against an infectious disease (like hepatitis C, seasonal influenza or Covid-19, etc.).
- **Uncertainty of the clinical benefit:** The promised effect reported from clinical studies might not translate to the real world and/or data on long-term effectiveness might not be available yet.
  Translated to our experiment: Neither the seller nor the buyer will know the real value of the final donation in the envelope. Still both of you will have to decide on a price for the envelope. In the most extreme case, you both agree on a price of CHF 0 for the envelope with a final donation of CHF 10, or vice versa, on a price of CHF 10 for a donation of CHF 0. Of course it is also possible, that you both cannot find an agreement, which will mean that the envelope will not be processed for a donation.

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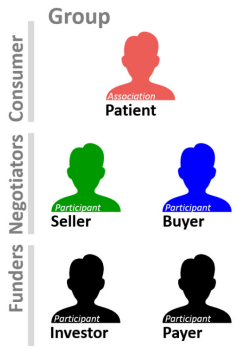
4. The roles

You and the other participants form a “society” with five different citizens:

- **The Patient** (or citizen to be protected) is the only actor who is not present during the experiment. Any patient value generated during this experiment will be donated to the "Relief Fund" of the Swiss Cancer League (https://participate.krebsliga.ch/purposes/direkthilfe) which provides direct help to cancer patients and their families.
- **The Seller** possesses the envelope containing a donation of an unknown value which he/she offers to the buyer at a proposed price *(comparable to a representative of a pharmaceutical company, offering a new medicine or vaccine with the promise to increase the health benefit)*.
- **The Buyer** is responsible to propose and approve a price for the envelope on behalf of the patient or citizen and the payer *(comparable to the representative of the public health authorities)*.

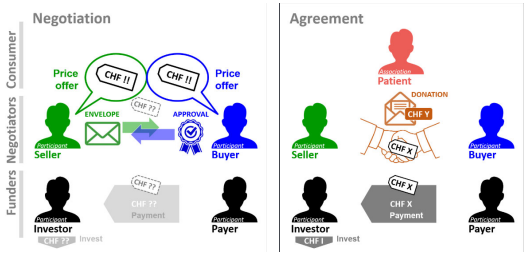
- **The Investor** is financer and owner of the envelope and will receive the market price, paid by the payer, if the seller and buyer find an agreement *(comparable to the shareholder of a pharmaceutical company)*.
- **The Payer** will have to pay the negotiated price at the end of the experiment, if the seller and buyer find an agreement *(comparable to the premium payers of a health insurance)*.



5. The trade

The negotiating **seller (you)** and the **buyer** have to negotiate a price for the closed envelope. The **seller** possesses the envelope at the beginning. If he or she asks for a price beyond the buyer's proposed price, the **buyer** will refuse to approve the potential donation for the patient. Vice versa, if the buyer askes for a lower price than the seller's expectation, the latter will not agree to trade the envelope.

If the negotiators find an agreement, the patient association will receive the donation in the envelope. The assigned **payer** will have to pay the market price of the envelope to the assigned **investor**. The real value of the donation will be determined at the end of the experiment.



6. The initial capital

Each player starts with an initial capital of CHF 20. For your **active role** you have already been randomly assigned to the role of the **seller** of the envelope.

At the end of the experiment you will additionally be randomly assigned to a **passive role** of either the **investor** or the **payer**. The investors' initial capital will be reduced by an amount (between CHF 0 and 10) only known to them, representing the acquisition or investment cost for their envelope (which has a currently unknown value between CHF 0 and 10 for the patient, also unknown to the investor). The initial investment costs and the final donation in the envelope are independent of each other.

The active and the passive assignment are independent from each other: **your current active role does not determine your later passive role**.

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7. The final payoffs

For the final payoffs you will first be **randomly paired with a player who played the opposite role**. One of the games you both played will be randomly selected. The prices you both submitted in that particular game will determine the negotiation outcome: agreement or disagreement plus the final market price (average of both offers) if successful. Two other players are then randomly assigned to both of you, one as the investor, the other as the payer. If you and your counterpart reached an agreement, the market price will be transferred from the payer to the investor. The envelope with the donation will be transferred to the supervisor of the experiment.

In parallel, you will be randomly assigned as either investor or payer to a second group (independently of your active role). Depending on the negotiation outcome of this group and your passive role, your capital will either increase, decrease or remain the same.

Finally the donations of the successful pairs will be revealed (value between CHF 0 and 10) and transferred for payment to the patient association.

You will receive information on your final payoff in CHF within 5 working days after your session took place, along with instructions on how to submit your bank details. This information will not be transferred to the researchers. The DeSciL will handle the money transfer to your bank account.

8. The structure of the experiment

The experiment will start with a first, introspective part. After this you will play the described negotiation game in different formats. In the third part you will slip into the role of one of the two funders. In the end, you will be asked some final questions. After the experiment, one of the games you played will be implemented to determine the cash payments as described above.

Control questions

Before we begin the experiment, let's quickly go through some control questions.

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: only one answer is correct)

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: two answers are correct)

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Correct!

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: two answers are correct)

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- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: only one answer is correct)

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- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Correct! You did great.

First part of the experiment

The objective of this first part of the experiment is to find out the "true value" that you assign to an opportunity to increase the "value for patients".

You are the responsible **seller** in your group.

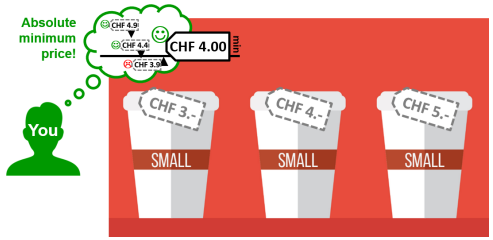
In the following experiment, you will be responsible to sell a product (the envelope) to the **buyer**.

Before you enter into a price negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the product. Below this "walk-away price" you would never agree to sell it.
This valuation is **"private" and only known to you**, but not to your counterpart.

Let's illustrate this quickly with an example:
Let us pretend that you are a coffee shop owner. We further assume that your customers are real coffee lovers. Let us further assume that CHF 4.00 represents the minimum price you still consider reasonable and fair for a small cup.

Which of the following offers from your customer would you accept?

- ☐ 3.- for a cup,
- ☐ 4.- for a cup,
- ☐ 5.- for a cup.



Please check again! (hint: two answers are correct)

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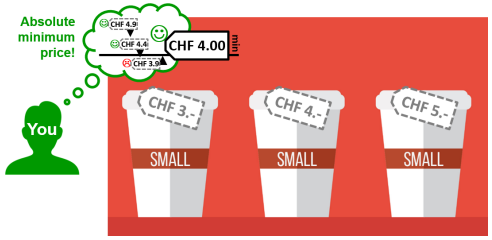


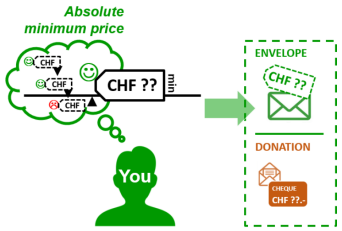
Correct!

Back to our experiment.

The “product” you have to sell is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **seller** you will be responsible to propose a price for the envelope to the **buyer**.

Before you enter into a negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the envelope. Below this “walk-away price” you would never agree to sell the envelope.



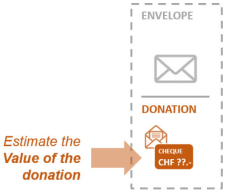
This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies**. There is no “correct” answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

Please enter your **minimum price** (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

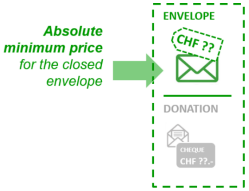
Let’s amend the decision situation slightly. Aim is still to find out **your private valuation** of the potential patient benefit. You still do not have to reflect on any negotiation tactics or strategies. But now, we want you to reflect on the expected value of the unknown donation. Which you've probably already done anyway. If not: this might help you to get a better picture on the appropriate price for the envelope.

It might for example be, that you successfully propose a price of CHF 2 and the donation turns out to be CHF 8. Or that the envelope turns into a donation of CHF 2 while you successfully proposed a price of CHF 8.



Please **estimate or guess the value of the donation** in the closed envelope.
Please enter your estimate (one decimal place from CHF 0.0 to 10.0) in the field below.

If you want, you can also adjust your **absolute minimum price, which you would still consider reasonable and fair** for the envelope.



This is an update of the previous game. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is selected at the end. If you do not want to update your price submitted before, please simply enter the same amount again.

Be aware that your decision might have financial consequences on other players and the patient association. You will not be able to change your decision anymore after submission.

Please enter your minimum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

First part done!

That was the introspective part of the experiment. Now let us switch to a more interactive mode. Are you ready?

Second part of the experiment

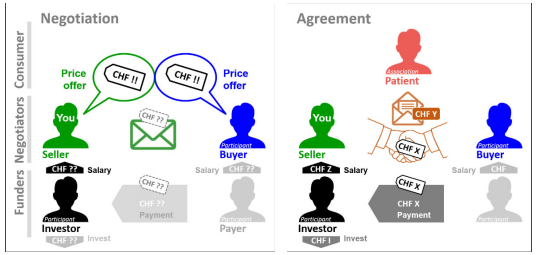
The general setting stays the same. Again, the game will potentially be selected for implementation at the end of the experiment. But now you will **engage in a price negotiation**. Your counterpart is another participant, randomly selected after the experiment.

You are the responsible **seller** in your group. Your task is to state an actual price expectation for the envelope to the **buyer**. The buyer himself will do the same.

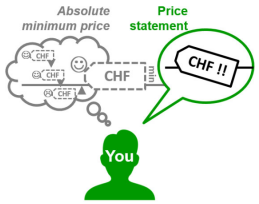
This time you will not receive just a fixed salary. Instead, the **investor** will decide at the end, what **salary he/she considers appropriate for your performance**. The investor will have to pay your salary from his/her total capital:

CHF 20 – investment costs for the envelope CHF I (known only to him/her) + market price CHF X (if an agreement is reached) – your salary CHF Z.

If your price offer is **lower or equal to the price offer of the buyer, you will both agree**. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). If no agreement is reached, the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer will keep all of his/her capital.



Recall your absolute minimum price from the previous game. You might want to propose a price equal or higher. If you propose a lower price than your stated preference in the previous game, this means that your price offer lies below what the envelope is worth to you.
Below the slider you will see your stated minimum price from the first part of the experiment.



At the end of the experiment your investor will enter your salary for different market prices you might have agreed upon. He/she will furthermore decide which salary you should get in case of no agreement reached.

Ok? Let us start!

Be aware that your decision might have financial consequences on other players and the patient association.

Please inform the buyer about your

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

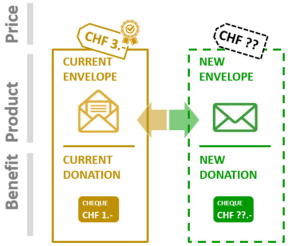
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
You received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.

If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

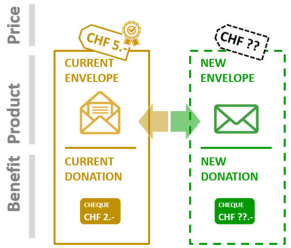
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 2** ready at an already fixed price of **CHF 5**.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.

If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 2** will be transferred to the patient association. The investor will receive **CHF 5** and the payer will have to pay **CHF 5**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

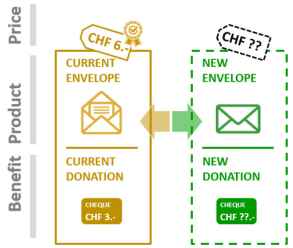
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 3** ready at an already fixed price of **CHF 6**.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.

If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 3** will be transferred to the patient association. The investor will receive **CHF 6** and the payer will have to pay **CHF 6**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

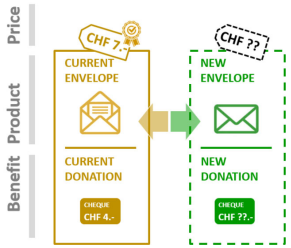
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 4** ready at an already fixed price of **CHF 7**.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.

If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 4** will be transferred to the patient association. The investor will receive **CHF 7** and the payer will have to pay **CHF 7**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

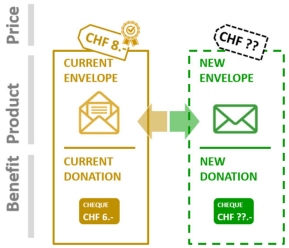
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 6** ready at an already fixed price of **CHF 8**.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.

If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 6** will be transferred to the patient association. The investor will receive **CHF 8** and the payer will have to pay **CHF 8**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

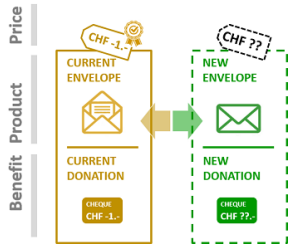
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF -1** ready at an already fixed price of **CHF -1**.
This obviously makes no sense. We just need to test, whether participants pay attention and read the relevant information. If you did so, please click on the green envelope in the picture below, ignore the rest of the text and press 'submit'.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a pricef **for this new alternative offer** to the buyer.

If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF -1** will be transferred to the patient association. The investor will receive **CHF -1** and the payer will have to pay **CHF -1**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

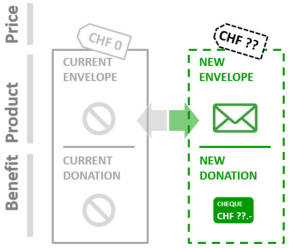
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

Finally let's revisit the first offer game, where no alternative was available.

There is no adjustment to the game you have already played. You are just given a chance to update your price, if you want. You however don't have to. If you do not want to update your price submitted before, please simply enter the same amount again.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

You have to state a price for the envelope you are offering to the buyer. There is no alternative available.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer retains its entire initial capital.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price (if an agreement is reached) – your salary.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID942/ChoiceNumericEntryValue/1}.

Second part done!

Now let's turn to the final part of the experiment where you will play a different role.

Group_3

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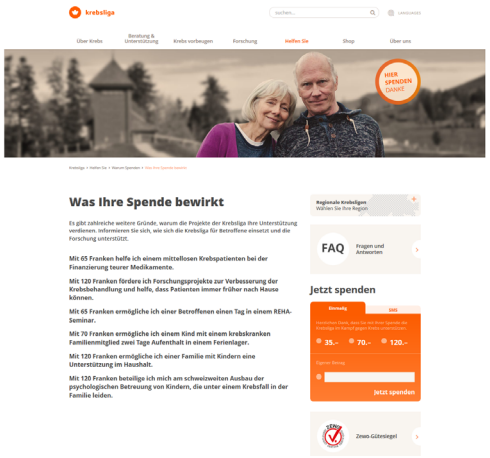
3. The general setup of this experiment

You have been assigned to the role of a **buyer**. Your task will be to **buy a closed envelope** from the seller if you can agree on a price. The envelope contains a donation to the Swiss Cancer League "Krebsliga Schweiz" (www.krebsliga.ch). The association uses donations not only for research purposes but also to directly support cancer patients (see here: https://participate.krebsliga.ch/purposes/direkthilfe).

The value of the donation inside the envelope lies between CHF 0 and 10. The "desirable" value would of course be CHF 10, as this represents the maximum health benefit possible. However, the envelope will only be opened at the end of the experiment to reveal its true value for patients. This means that you will have to negotiate a price for the envelope without knowing the true value of the donation inside.



Comparing the **envelope** in our experiment to a new **medicine** or **vaccine** in the real world, we have to consider two factors of uncertainty:

- **Uncertainty of response:** The pharmaceutical will most likely not show the same effectiveness in every patient/citizen. In other words, not every patient will respond to a medicine and a vaccine will not protect all citizens who receive it.
  Translated to our experiment: If the value of the donation in the envelope turns out to be CHF 5 (instead of the aspired maximum of CHF 10), you could compare this to a vaccine which prevents 50% of the citizens who were vaccinated against an infectious disease (like hepatitis C, seasonal influenza or Covid-19, etc.).
- **Uncertainty of the clinical benefit:** The promised effect reported from clinical studies might not translate to the real world and/or data on long-term effectiveness might not be available yet.
  Translated to our experiment: Neither the seller nor the buyer will know the real value of the final donation in the envelope. Still both of you will have to decide on a price for the envelope. In the most extreme case, you both agree on a price of CHF 0 for the envelope with a final donation of CHF 10, or vice versa, on a price of CHF 10 for a donation of CHF 0. Of course it is also possible, that you both cannot find an agreement, which will mean that the envelope will not be processed for a donation.

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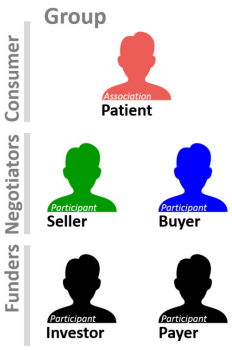
4. The roles

You and the other participants form a "society" with five different citizens:

- **The Patient** (or citizen to be protected) is the only actor who is not present during the experiment. Any patient value generated during this experiment will be donated to the "Relief Fund" of the Swiss Cancer League (https://participate.krebsliga.ch/purposes/direkthilfe) which provides direct help to cancer patients and their families.
- **The Seller** possesses the envelope containing a donation of an unknown value which he/she offers to the buyer at a proposed price *(comparable to a representative of a pharmaceutical company, offering a new medicine or vaccine with the promise to increase the health benefit)*.
- **The Buyer** is responsible to propose and approve a price for the envelope on behalf of the patient or citizen and the payer *(comparable to the representative of the public health authorities)*.

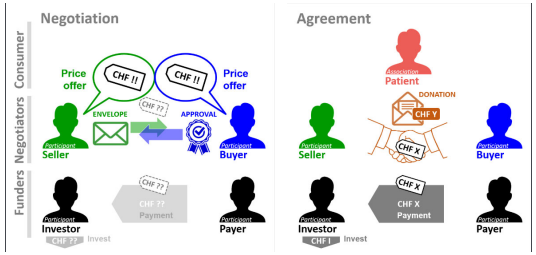
- **The Investor** is financer and owner of the envelope and will receive the market price, paid by the payer, if the seller and buyer find an agreement *(comparable to the shareholder of a pharmaceutical company)*.
- **The Payer** will have to pay the negotiated price at the end of the experiment, if the seller and buyer find an agreement *(comparable to the premium payers of a health insurance)*.



5. The trade

The negotiating **seller** and the **buyer (you)** have to negotiate a price for the closed envelope. The **seller** possesses the envelope at the beginning. If he or she asks for a price beyond the buyer's proposed price, the **buyer** will refuse to approve the potential donation for the patient. Vice versa, if the buyer askes for a lower price than the seller's expectation, the latter will not agree to trade the envelope.

If the negotiators find an agreement, the patient association will receive the donation in the envelope. The assigned **payer** will have to pay the market price of the envelope to the assigned **investor**. The real value of the donation will be determined at the end of the experiment.



6. The initial capital

Each player starts with an initial capital of CHF 20. For your **active role** you have already been randomly assigned to the role of the **buyer** of the envelope.

At the end of the experiment you will additionally be randomly assigned to a **passive role** of either the **investor** or the **payer**. The investors' initial capital will be reduced by an amount (between CHF 0 and 10) only known to them, representing the acquisition or investment cost for their envelope (which has a currently unknown value between CHF 0 and 10 for the patient, also unknown to the investor). The initial investment costs and the final donation in the envelope are independent of each other.

The active and the passive assignment are independent from each other: **your current active role does not determine your later passive role**.

7. The final payoffs

For the final payoffs you will first be **randomly paired with a player who played the opposite role**. One of the games you both played will be randomly selected. The prices you both submitted in that particular game will determine the negotiation outcome: agreement or disagreement plus the final market price (average of both offers) if successful. Two other players are then randomly assigned to both of you, one as the investor, the other as the payer. If you and your counterpart reached an agreement, the market price will be transferred from the payer to the investor. The envelope with the donation will be transferred to the supervisor of the experiment.

In parallel, you will be randomly assigned as either investor or payer to a second group (independently of your active role). Depending on the negotiation outcome of this group and your passive role, your capital will either increase, decrease or remain the same.

Finally the donations of the successful pairs will be revealed (value between CHF 0 and 10) and transferred for payment to the patient association.

You will receive information on your final payoff in CHF within 5 working days after your session took place, along with instructions on how to submit your bank details. This information will not be transferred to the researchers. The DeSciL will handle the money transfer to your bank account.

8. The structure of the experiment

The experiment will start with a first, introspective part. After this you will play the described negotiation game in different formats. In the third part you will slip into the role of one of the two funders. In the end, you will be asked some final questions. After the experiment, one of the games you played will be implemented to determine the cash payments as described above.

Control questions

Before we begin the experiment, let's quickly go through some control questions.

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: only one answer is correct)

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: two answers are correct)

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Correct!

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: two answers are correct)

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: only one answer is correct)

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Correct! You did great.

First part of the experiment

The objective of this first part of the experiment is to find out the “true value” that you assign to an opportunity to increase “value for patients”.

You are the responsible **buyer** in your group.

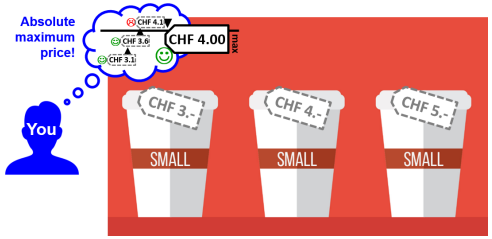
In the following experiment, the **seller** will offer you a product (the envelope) at a proposed price.

Before you enter into a price negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the product. Above this “walk-away price” you would never agree to buy it.
This valuation is **“private” and only known to you**, but not to your counterpart.

Let’s illustrate this quickly with an example:
Let us assume that you are a real coffee lover (if not, you can replace coffee with soda or else). Let us further assume that despite your passion for coffee, CHF 4.00 represents the maximum price you still consider reasonable and fair for a small cup.

Which of the following offers from a coffee shop owner would you accept?

- ☐ 3.- for a cup,
- ☐ 4.- for a cup,
- ☐ 5.- for a cup.



Please check again! (hint: two answers are correct)

First part of the experiment

The objective of this first part of the experiment is to find out the “true value” that you assign to an opportunity to increase “value for patients”.

You are the responsible **buyer** in your group.

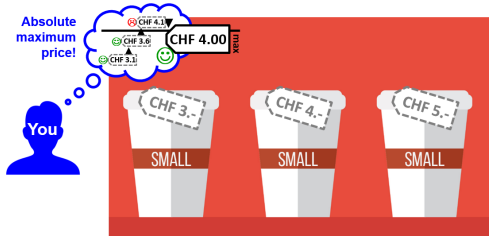
In the following experiment, the **seller** will offer you a product (the envelope) at a proposed price.

Before you enter into a price negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the product. Above this “walk-away price” you would never agree to buy it.
This valuation is **“private” and only known to you**, but not to your counterpart.

Let’s illustrate this quickly with an example:
Let us assume that you are a real coffee lover (if not, you can replace coffee with soda or else). Let us further assume that despite your passion for coffee, CHF 4.00 represents the maximum price you still consider reasonable and fair for a small cup.

Which of the following offers from a coffee shop owner would you accept?

- ☐ 3.- for a cup,
- ☐ 4.- for a cup,
- ☐ 5.- for a cup.



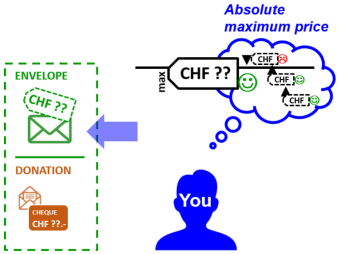
Correct!

Back to our experiment.

The “product” you will be offered is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **buyer** you will be responsible to propose a price for the envelope to the **seller**.

Before you enter into a negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the envelope. Above this “walk-away price” you would never approve a payment for the envelope.



This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies.** There is no “correct” answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

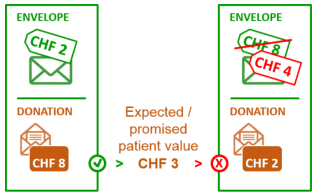
Please enter your maximum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

Let’s amend the decision situation slightly. Aim is still to find out **your private valuation** of the potential patient benefit. You still do not have to reflect on any negotiation tactics or strategies. But now, we want you to reflect on the expected value of the unknown donation. Which you've probably already done anyway. If not: this might help you to get a better picture on the appropriate price for the envelope.

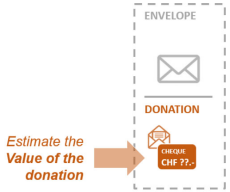
It might for example be, that you successfully propose a price of CHF 2 and the donation turns out to be CHF 8. Or that the envelope turns into a donation of CHF 2 while you successfully proposed a price of CHF 8.

How do you think would the payer and the investor feel in the first example? It might well be that the investor would be disappointed, feeling that he/she wasn’t compensated appropriately for the risky investment. On the other hand in the second example the payer might feel disappointed likewise, since he/she paid a lot for a relatively small donation.

Payers and investors could however **"share the risk"** of a “too low” donation (patient benefit) at a “too high” price (payer costs). For example **by cutting the agreed price in half, if the final donation lies below an agreed expectation** (say CHF 3).

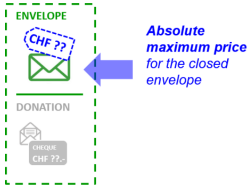


To seal such a “risk-sharing agreement” the buyer and seller need to agree not only on a **price**, but also on a **minimum value** of the unknown donation.



Please **estimate or guess the value of the donation** in the closed envelope.
Please enter your estimate (one decimal place from CHF 0.0 to 10.0) in the field below.

If you want, you can also adjust your **absolute maximum price, which you would still consider reasonable and fair** for the envelope.



This is an update of the previous game. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is selected at the end. If you do not want to update your price submitted before, please simply enter the same amount again.

Be aware that your decision might have financial consequences on other players and the patient association. You will not be able to change your decision anymore after submission.

Please enter your maximum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

First part done!

That was the introspective part of the experiment. Now let us switch to a more interactive mode. Are you ready?

Second part of the experiment

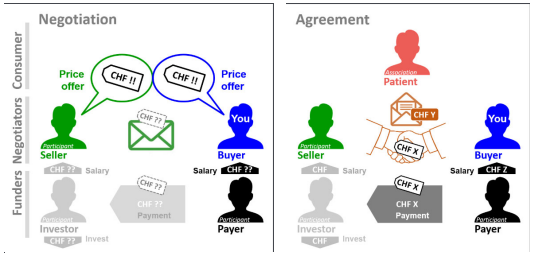
The general setting stays the same. Again, the game will potentially be selected for implementation at the end of the experiment. But now you will **engage in a price negotiation**. Your counterpart is another participant, randomly selected after the experiment..

You are the responsible **buyer** in your group. Your task is to state an actual price expectation for the envelope to the **seller**. The seller himself will do the same.

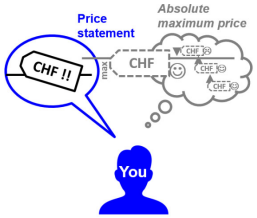
This time you will not receive just a fixed salary. Instead, the **payer** will decide at the end, what **salary he/she considers appropriate for your performance**. The payer will have to pay your salary from his/her total capital:

CHF 20 – market price CHF X (if an agreement is reached) – your salary CHF Z.

If your price offer is **higher or equal to the price offer of the seller, you will both agree**. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). If no agreement is reached, the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer will keep all of his/her initial capital.



Recall your absolute maximum price from the previous game. You might want to propose a price equal or lower. If you propose a higher price than your stated preference in the previous game, this means that your price offer lies above what the envelope is worth to you.
Below the slider you will see your stated maximum price from the first part of the experiment.



To make it a bit more challenging, please recall also the concept of a "risk-sharing agreement": buyer and seller need to agree not only on a **price**, but also on a **minimum value** of the unknown donation.

Together with your price you have to state your **expected** minimum value of the donation in the closed envelope.
The seller will do the same by "**promising**" a minimum value. If his/her promise is equal or higher than your expectation, you will both agree – given that you agree on a price as well. The contracted expectation will lie in the middle (average) of both numbers. For any final donation at the end below this expectation the agreed price will be halved. Hence payers will in this case pay only 50% of the agreed price to the investors.

At the end of the experiment your payer will enter your salary for different market prices you might have agreed upon. He/she will furthermore decide which salary you should get in case of no agreement reached.

Ok? Let us start!

Be aware that your decision might have financial consequences on other players and the patient association.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

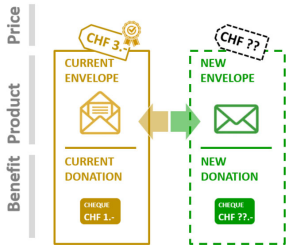
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
The seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

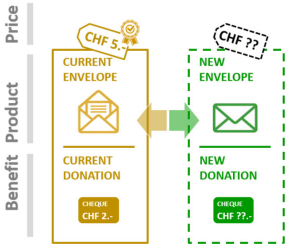
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 2** ready at an already fixed price of **CHF 5**.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 2** will be transferred to the patient association. The investor will receive **CHF 5** and the payer will have to pay **CHF 5**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

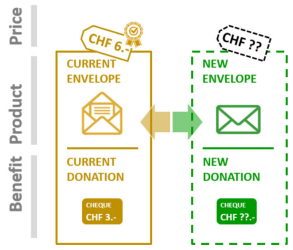
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 3** ready at an already fixed price of **CHF 6**.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 3** will be transferred to the patient association. The investor will receive **CHF 6** and the payer will have to pay **CHF 6**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

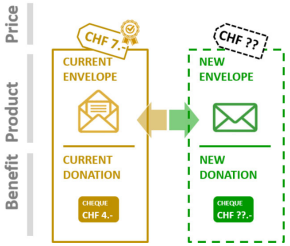
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 4** ready at an already fixed price of **CHF 7**.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 4** will be transferred to the patient association. The investor will receive **CHF 7** and the payer will have to pay **CHF 7**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

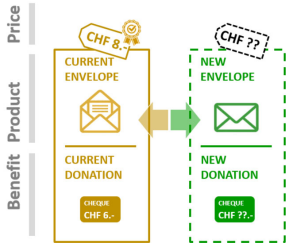
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 6** ready at an already fixed price of **CHF 8**.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 6** will be transferred to the patient association. The investor will receive **CHF 8** and the payer will have to pay **CHF 8**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

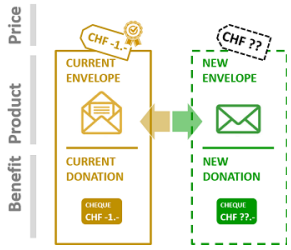
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF -1** ready at an already fixed price of **CHF -1**.
This obviously makes no sense. We just need to test, whether participants pay attention and read the relevant information. If you did so, please click on the green envelope in the picture below, ignore the rest of the text and press 'submit'.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF -1** will be transferred to the patient association. The investor will receive **CHF -1** and the payer will have to pay **CHF -1**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

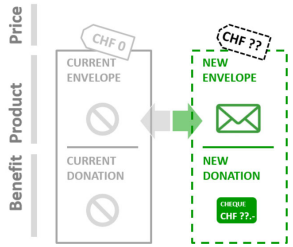
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Finally let's revisit the first offer game, where no alternative was available.

There is no adjustment to the game you have already played. You are just given a chance to update your price, if you want. You however don't have to. If you do not want to update your price submitted before, please simply enter the same amount again.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

You have to state a price for the envelope the seller offers to you. There is no alternative available.
If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer retains its entire initial capital.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price (if an agreement is reached) – your salary.

First, please inform the seller about your expected minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID1129/ChoiceNumericEntryValue/1}.

Second part done!

Now let's turn to the final part of the experiment where you will play a different role.

Group_4

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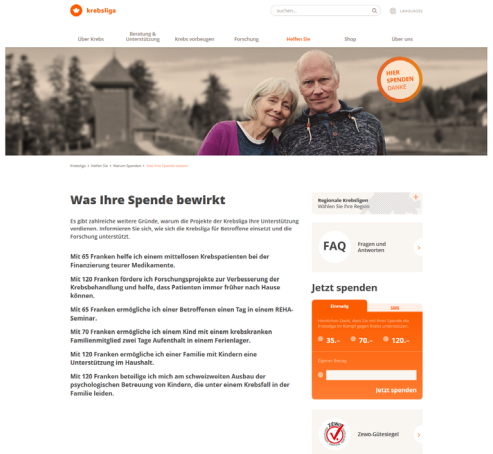
3. The general setup of this experiment

You have been assigned to the role of the **seller**. Your task will be to **sell a closed envelope** to the buyer if you can aree on a price. The envelope contains a donation to the Swiss Cancer League "Krebsliga Schweiz" (www.krebsliga.ch). The association uses donations not only for research purposes but also to directly support cancer patients (see here: https://participate.krebsliga.ch/purposes/direkthilfe).

The value of the donation inside the envelope lies between CHF 0 and 10. The "desirable" value would of course be CHF 10, as this represents the maximum health benefit possible. However, the envelope will only be opened at the end of the experiment to reveal its true value for patients. This means that you will have to negotiate a price for the envelope without knowing the true value of the donation inside.



Comparing the **envelope** ✉ in our experiment to a new **medicine** 💊 or **vaccine** 💉 in the real world, we have to consider two factors of uncertainty:

- **Uncertainty of response:** The pharmaceutical will most likely not show the same effectiveness in every patient/citizen. In other words, not every patient will respond to a medicine and a vaccine will not protect all citizens who receive it.

Translated to our experiment: If the value of the donation in the envelope turns out to be CHF 5 (instead of the aspired maximum of CHF 10), you could compare this to a vaccine which prevents 50% of the citizens who were vaccinated against an infectious disease (like hepatitis C, seasonal influenza or Covid-19, etc.).

- **Uncertainty of the clinical benefit:** The promised effect reported from clinical studies might not translate to the real world and/or data on long-term effectiveness might not be available yet.
  Translated to our experiment: Neither the seller nor the buyer will know the real value of the final donation in the envelope. Still both of you will have to decide on a price for the envelope. In the most extreme case, you both agree on a price of CHF 0 for the envelope with a final donation of CHF 10, or vice versa, on a price of CHF 10 for a donation of CHF 0. Of course it is also possible, that you both cannot find an agreement, which will mean that the envelope will not be processed for a donation.

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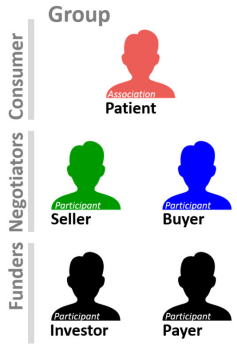
4. The roles

You and the other participants form a "society" with five different citizens:

- **The Patient** (or citizen to be protected) is the only actor who is not present during the experiment. Any patient value generated during this experiment will be donated to the "Relief Fund" of the Swiss Cancer League (https://participate.krebsliga.ch/purposes/direkthilfe) which provides direct help to cancer patients and their families.
- **The Seller** possesses the envelope containing a donation of an unknown value which he/she offers to the buyer at a proposed price *(comparable to a representative of a pharmaceutical company, offering a new medicine or vaccine with the promise to increase the health benefit)*.
- **The Buyer** is responsible to propose and approve a price for the envelope on behalf of the patient or citizen and the payer *(comparable to the representative of the public health authorities)*.
- **The Investor** is financer and owner of the envelope and will receive the market price, paid by the payer, if the seller and buyer find an agreement *(comparable to the shareholder of a pharmaceutical company)*.
- **The Payer** will have to pay the negotiated price at the end of the experiment, if the seller and buyer find an agreement *(comparable to the premium payers of a health insurance)*.



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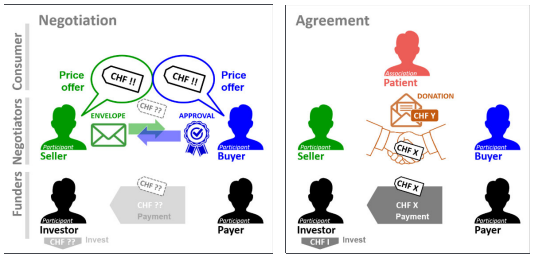
5. The trade

The negotiating **seller (you)** and the **buyer** have to negotiate a price for the closed envelope. The **seller** possesses the envelope at the beginning. If he or she asks for a price beyond the buyer's proposed price, the **buyer** will refuse to approve the potential donation for the patient. Vice versa, if the buyer askes for a lower price than the seller's expectation, the latter will not agree to trade the envelope.

If the negotiators find an agreement, the patient association will receive the donation in the envelope. The assigned **payer** will have to pay the market price of the envelope to the assigned **investor**. The real value of the donation will be determined at the end of the experiment.



6. The initial capital

Each player starts with an initial capital of CHF 20. For your **active role** you have already been randomly assigned to the role of the **seller** of the envelope.

At the end of the experiment you will additionally be randomly assigned to a **passive role** of either the **investor** or the **payer**. The investors' initial capital will be reduced by an amount (between CHF 0 and 10) only known to them, representing the acquisition or investment cost for their envelope (which has a currently unknown value between CHF 0 and 10 for the patient, also unknown to the investor). The initial investment costs and the final donation in the envelope are independent of each other.

The active and the passive assignment are independent from each other: **your current active role does not determine your later passive role**.

7. The final payoffs

For the final payoffs you will first be **randomly paired with a player who played the opposite role**. One of the games you both played will be randomly selected. The prices you both submitted in that particular game will determine the negotiation outcome: agreement or disagreement plus the final market price (average of both offers) if successful. Two other players are then randomly assigned to both of you, one as the investor, the other as the payer. If you and your counterpart reached an agreement, the market price will be transferred from the payer to the investor. The envelope with the donation will be transferred to the supervisor of the experiment.

In parallel, you will be randomly assigned as either investor or payer to a second group (independently of your active role). Depending on the negotiation outcome of this group and your passive role, your capital will either increase, decrease or remain the same.

Finally the donations of the successful pairs will be revealed (value between CHF 0 and 10) and transferred for payment to the patient association.

You will receive information on your final payoff in CHF within 5 working days after your session took place, along with instructions on how to submit your bank details. This information will not be transferred to the researchers. The DeSciL will handle the money transfer to your bank account.

8. The structure of the experiment

The experiment will start with a first, introspective part. After this you will play the described negotiation game in different formats. In the third part you will slip into the role of one of the two funders. In the end, you will be asked some final questions. After the experiment, one of the games you played will be implemented to determine the cash payments as described above.

Control questions

Before we begin the experiment, let's quickly go through some control questions.

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: only one answer is correct)

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

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- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: two answers are correct)

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
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Correct!

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: two answers are correct)

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
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- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: only one answer is correct)

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Correct! You did great.

First part of the experiment

The objective of this first part of the experiment is to find out the "true value" that you assign to an opportunity to increase the "value for patients".

You are the responsible **seller** in your group.

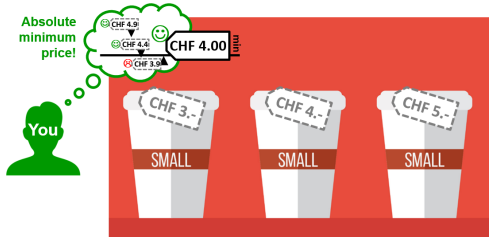
In the following experiment, you will be responsible to sell a product (the envelope) to the **buyer**.

Before you enter into a price negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the product. Below this "walk-away price" you would never agree to sell it.
This valuation is **"private" and only known to you**, but not to your counterpart.

Let's illustrate this quickly with an example:
Let us pretend that you are a coffee shop owner. We further assume that your customers are real coffee lovers. Let us further assume that CHF 4.00 represents the minimum price you still consider reasonable and fair for a small cup.

Which of the following offers from your customer would you accept?

- ☐ 3.- for a cup,
- ☐ 4.- for a cup,
- ☐ 5.- for a cup.



Please check again! (hint: two answers are correct)

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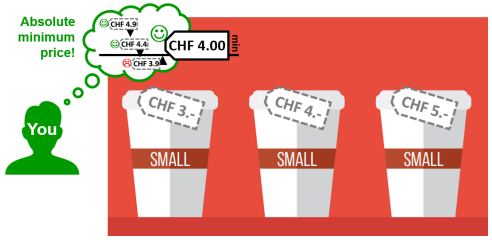


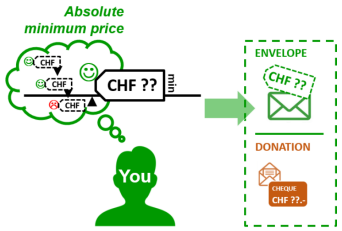
Correct!

Back to our experiment.

The “product” you have to sell is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **seller** you will be responsible to propose a price for the envelope to the **buyer**.

Before you enter into a negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the envelope. Below this “walk-away price” you would never agree to sell the envelope.



This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies**. There is no “correct” answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

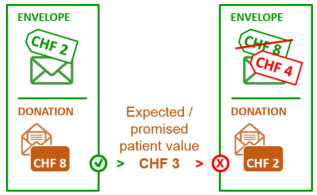
Please enter your minimum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

Let’s amend the decision situation slightly. Aim is still to find out **your private valuation** of the potential patient benefit. You still do not have to reflect on any negotiation tactics or strategies. But now, we want you to reflect on the expected value of the unknown donation. Which you've probably already done anyway. If not: this might help you to get a better picture on the appropriate price for the envelope.

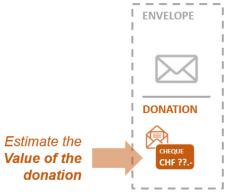
It might for example be, that you successfully propose a price of CHF 2 and the donation turns out to be CHF 8. Or that the envelope turns into a donation of CHF 2 while you successfully proposed a price of CHF 8.

How do you think would the payer and the investor feel in the first example? It might well be that the investor would be disappointed, feeling that he/she wasn’t compensated appropriately for the risky investment. On the other hand in the second example the payer might feel disappointed likewise, since he/she paid a lot for a relatively small donation.

Payers and investors could however "**share the risk**" of a “too low” donation (patient benefit) at a “too high” price (payer costs). For example **by cutting the agreed price in half, if the final donation lies below an agreed expectation** (say CHF 3).

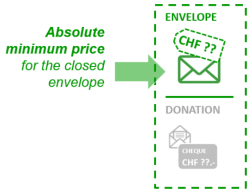


To seal such a “risk-sharing agreement” the buyer and seller need to agree not only on a **price**, but also on a **minimum value** of the unknown donation.



Please **estimate or guess the value of the donation** in the closed envelope.
Please enter your estimate (one decimal place from CHF 0.0 to 10.0) in the field below.

If you want, you can also adjust your **absolute minimum price, which you would still consider reasonable and fair** for the envelope.



This is an update of the previous game. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is selected at the end. If you do not want to update your price submitted before, please simply enter the same amount again.

Be aware that your decision might have financial consequences on other players and the patient association. You will not be able to change your decision anymore after submission.

Please enter your minimum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

First part done!

That was the introspective part of the experiment. Now let us switch to a more interactive mode. Are you ready?

Second part of the experiment

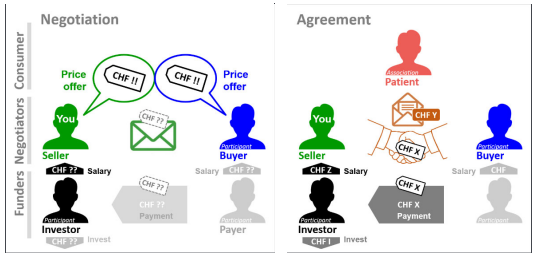
The general setting stays the same. Again, the game will potentially be selected for implementation at the end of the experiment. But now you will **engage in a price negotiation**. Your counterpart is another participant, randomly selected after the experiment.

You are the responsible **seller** in your group. Your task is to state an actual price expectation for the envelope to the **buyer**. The buyer himself will do the same.

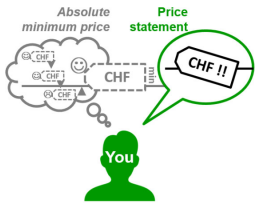
This time you will not receive just a fixed salary. Instead, the **investor** will decide at the end, what **salary he/she considers appropriate for your performance**. The investor will have to pay your salary from his/her total capital:

CHF 20 – investment costs for the envelope CHF I (known only to him/her) + market price CHF X (if an agreement is reached) – your salary CHF Z.

If your price offer is **lower or equal to the price offer of the buyer, you will both agree**. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). If no agreement is reached, the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer will keep all of his/her initial capital.



Recall your absolute minimum price from the previous game. You might want to propose a price equal or higher. If you propose a lower price than your stated preference in the previous game, this means that your price offer lies below what the envelope is worth to you.
Below the slider you will see your stated minimum price from the first part of the experiment.



To make it a bit more challenging, please recall also the concept of a “risk-sharing agreement”: buyer and seller need to agree not only on a **price**, but also on a **minimum value** of the unknown donation.

Together with your price you have to state your **promised** minimum value of the donation in the closed envelope.
The buyer will do the same by stating his/her **expected** minimum value. If your promise is equal or higher than the buyer’s expectation, you will both agree – given that you agree on a price as well. The contracted expectation will lie in the middle (average) of both numbers. For any final donation at the end below this expectation the agreed price will be halved. Hence payers will in this case pay only 50% of the agreed price to the investors.

At the end of the experiment your investor will enter your salary for different market prices you might have agreed upon. He/she will furthermore decide which salary you should get in

case of no agreement reached.

Ok? Let us start!

Be aware that your decision might have financial consequences on other players and the patient association.

First, please inform the buyer about your “promised” minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

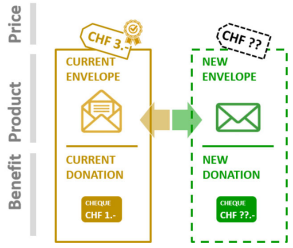
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Let’s change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

But this time, there is already a revealed donation (“current donation”) ready for the patient. The price of this **donation of CHF 1** has already been agreed at **CHF 3**.
You received from the investor an alternative, “**new envelope**” to sell with an unknown “**new donation**” in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available **“current donation”** of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:

CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please inform the buyer about your “promised” minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

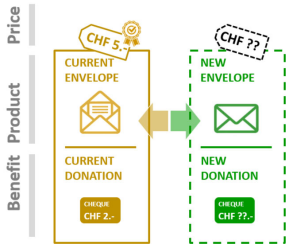
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Let’s change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed “current donation” of **CHF 2** ready at an already fixed price of **CHF 5**.
Again you received from the investor an alternative, “**new envelope**” to sell with an unknown “**new donation**” in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available **“current donation”** of **CHF 2** will be transferred to the patient association. The investor will receive **CHF 5** and the payer will have to pay **CHF 5**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please inform the buyer about your “promised” minimum value of the donation in the

closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

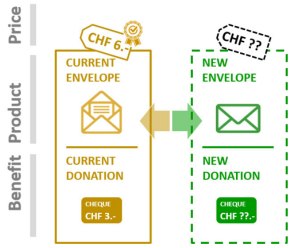
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 3** ready at an already fixed price of **CHF 6**.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 3** will be transferred to the patient association. The investor will receive **CHF 6** and the payer will have to pay **CHF 6**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please inform the buyer about your "promised" minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

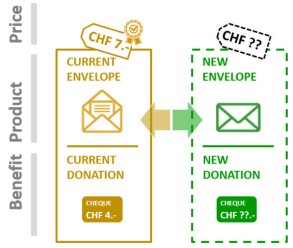
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 4** ready at an already fixed price of **CHF 7**.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 4** will be transferred to the patient association. The investor will receive **CHF 7** and the payer will have to pay **CHF 7**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please inform the buyer about your "promised" minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

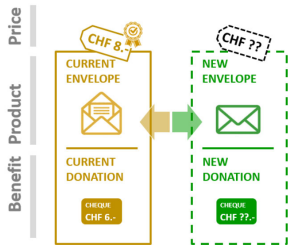
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 6** ready at an already fixed price of **CHF 8**.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 6** will be transferred to the patient association. The investor will receive **CHF 8** and the payer will have to pay **CHF 8**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please inform the buyer about your "promised" minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

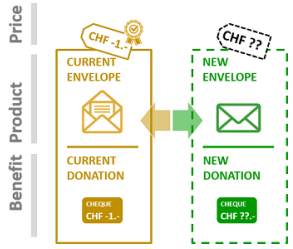
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF -1** ready at an already fixed price of **CHF -1**.
This obviously makes no sense. We just need to test, whether participants pay attention and read the relevant information. If you did so, please click on the green envelope in the picture below, ignore the rest of the text and press 'submit'.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree on a price, the already available "**current donation**" of **CHF -1** will be transferred to the patient association. The investor will receive **CHF -1** and the payer will have to pay **CHF -1**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please inform the buyer about your "promised" minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

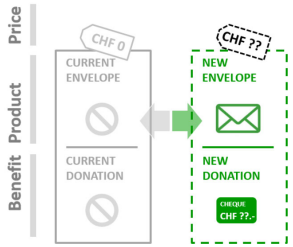
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Finally let's revisit the first offer game, where no alternative was available.

There is no adjustment to the game you have already played. You are just given a chance to update your price, if you want. You however don't have to. If you do not want to update your price submitted before, please simply enter the same amount again.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

You have to state a price for the envelope you are offering to the buyer. There is no alternative available.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). Remember that both of you also need to agree on a minimum value of the unknown donation. If the final donation is lower, the agreed price will be halved ("risk sharing").



If both of you cannot agree the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer retains its entire initial capital.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price (if an agreement is reached) – your salary.

First, please inform the buyer about your "promised" minimum value of the donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1231/ChoiceNumericEntryValue/1}.

Second part done!

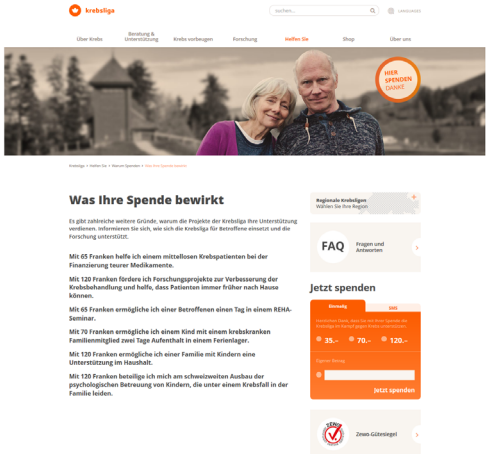
Now let's turn to the final part of the experiment where you will play a different role.

Group_5

3. The general setup of this experiment

You have been assigned to the role of the **buyer**. Your task will be to **buy a closed envelope** from the seller if you can agree on a price. The envelope contains a donation to the Swiss Cancer League "Krebsliga Schweiz" (www.krebsliga.ch). The association uses donations not only for research purposes but also to directly support cancer (see here: https://participate.krebsliga.ch/purposes/direkthilfe).

The value of the donation inside the envelope lies between CHF 0 and 10. The "desirable" value would of course be CHF 10, as this represents the maximum health benefit possible. However, the envelope will only be opened at the end of the experiment to reveal its true value for patients. This means that you will have to negotiate a price for the envelope without knowing the true value of the donation inside.



Comparing the **envelope** in our experiment to a new **medicine** or **vaccine** in the real world, we have to consider two factors of uncertainty:

- **Uncertainty of response:** The pharmaceutical will most likely not show the same effectiveness in every patient/citizen. In other words, not every patient will respond to a medicine and a vaccine will not protect all citizens who receive it.

Translated to our experiment: If the value of the donation in the envelope turns out to be CHF 5 (instead of the aspired maximum of CHF 10), you could compare this to a vaccine which prevents 50% of the citizens who were vaccinated against an infectious disease (like hepatitis C, seasonal influenza or Covid-19, etc.).

- **Uncertainty of the clinical benefit:** The promised effect reported from clinical studies might not translate to the real world and/or data on long-term effectiveness might not be available yet.
  Translated to our experiment: Neither the seller nor the buyer will know the real value of the final donation in the envelope. Still both of you will have to decide on a price for the envelope. In the most extreme case, you both agree on a price of CHF 0 for the envelope with a final donation of CHF 10, or vice versa, on a price of CHF 10 for a donation of CHF 0. Of course it is also possible, that you both cannot find an agreement, which will mean that the envelope will not be processed for a donation.

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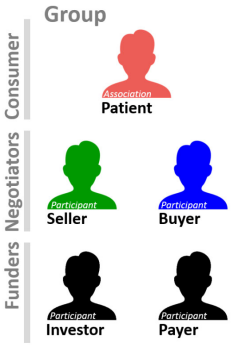
4. The roles

You and the other participants form a “society” with five different citizens:

- **The Patient** (or citizen to be protected) is the only actor who is not present during the experiment. Any patient value generated during this experiment will be donated to the "Relief Fund" of the Swiss Cancer League (https://participate.krebsliga.ch/purposes/direkthilfe) which provides direct help to cancer patients and their families.
- **The Seller** possesses the envelope containing a donation of an unknown value which he/she offers to the buyer at a proposed price *(comparable to a representative of a pharmaceutical company, offering a new medicine or vaccine with the promise to increase the health benefit)*.
- **The Buyer** is responsible to propose and approve a price for the envelope on behalf of the patient or citizen and the payer *(comparable to the representative of the public health authorities)*.
- **The Investor** is financer and owner of the envelope and will receive the market price, paid by the payer, if the seller and buyer find an agreement *(comparable to the shareholder of a pharmaceutical company)*.
- **The Payer** will have to pay the negotiated price at the end of the experiment, if the seller and buyer find an agreement *(comparable to the premium payers of a health insurance)*.



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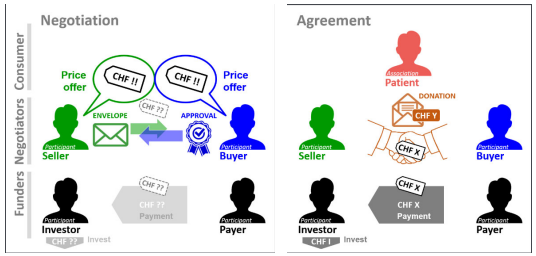
5. The trade

The negotiating **seller** and the **buyer (you)** have to negotiate a price for the closed envelope. The **seller** possesses the envelope at the beginning. If he or she asks for a price beyond the buyer’s proposed price, the **buyer** will refuse to approve the potential donation for the patient. Vice versa, if the buyer askes for a lower price than the seller’s expectation, the latter will not agree to trade the envelope.

If the negotiators find an agreement, the patient association will receive the donation in the

envelope. The assigned **payer** will have to pay the market price of the envelope to the assigned **investor**. The real value of the donation will be determined at the end of the experiment.



6. The initial capital

Each player starts with an initial capital of CHF 20. For your **active role** you have already been randomly assigned to the role of the **buyer** of the envelope.

At the end of the experiment you will additionally be randomly assigned to a **passive role** of either the **investor** or the **payer**. The investors’ initial capital will be reduced by an amount (between CHF 0 and 10) only known to them, representing the acquisition or investment cost for their envelope (which has a currently unknown value between CHF 0 and 10 for the patient, also unknown to the investor). The initial investment costs and the final donation in the envelope are independent of each other.

The active and the passive assignment are independent from each other: **your current active role does not determine your later passive role**.

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7. The final payoffs

For the final payoffs you will first be **randomly paired with a player who played the opposite role**. One of the games you both played will be randomly selected. The prices you both submitted in that particular game will determine the negotiation outcome: agreement or disagreement plus the final market price (average of both offers) if successful. Two other players are then randomly assigned to both of you, one as the investor, the other as the payer. If you and your counterpart reached an agreement, the market price will be transferred from the payer to the investor. The envelope with the donation will be transferred to the supervisor of the experiment.

In parallel, you will be randomly assigned as either investor or payer to a second group (independently of your active role). Depending on the negotiation outcome of this group and your passive role, your capital will either increase, decrease or remain the same.

Finally the donations of the successful pairs will be revealed (value between CHF 0 and 10) and transferred for payment to the patient association.

You will receive information on your final payoff in CHF within 5 working days after your session took place, along with instructions on how to submit your bank details. This information will not be transferred to the researchers. The DeSciL will handle the money transfer to your bank account.

8. The structure of the experiment

The experiment will start with a first, introspective part. After this you will play the described negotiation game in different formats. In the third part you will slip into the role of one of the two funders. In the end, you will be asked some final questions. After the experiment, one of the games you played will be implemented to determine the cash payments as described above.

Control questions

Before we begin the experiment, let's quickly go through some control questions.

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: only one answer is correct)

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: two answers are correct)

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Correct!

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: two answers are correct)

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
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- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: only one answer is correct)

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Correct! You did great.

First part of the experiment

The objective of this first part of the experiment is to find out the “true value” that you assign to an opportunity to increase “value for patients”.

You are the responsible **buyer** in your group.

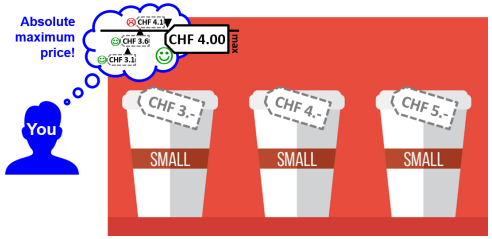
In the following experiment, the **seller** will offer you a product (the envelope) at a proposed price.

Before you enter into a price negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the product. Above this “walk-away price” you would never agree to buy it.
This valuation is **“private” and only known to you**, but not to your counterpart.

Let’s illustrate this quickly with an example:
Let us assume that you are a real coffee lover (if not, you can replace coffee with soda or else). Let us further assume that despite your passion for coffee, CHF 4.00 represents the maximum price you still consider reasonable and fair for a small cup.

Which of the following offers from a coffee shop owner would you accept?

- ☐ 3.- for a cup,
- ☐ 4.- for a cup,
- ☐ 5.- for a cup.



Please check again! (hint: two answers are correct)

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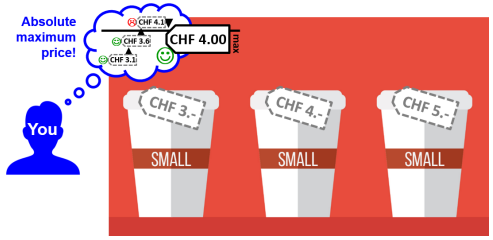


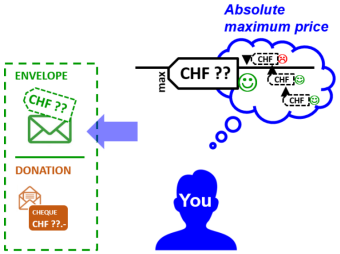
Correct!

Back to our experiment.

The “product” you will be offered is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **buyer** you will be responsible to propose a price for the envelope to the **seller**.

Before you enter into a negotiation, you should decide on the **absolute maximum price, which you would still consider reasonable and fair** for the envelope. Above this “walk-away price” you would never approve a payment for the envelope.



This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies.** There is no “correct” answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

Please enter your **maximum price** (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click ‘submit’.

Let’s amend the decision situation slightly. Aim is still to find out **your private valuation** of the potential patient benefit. You still do not have to reflect on any negotiation tactics or strategies. But now, we want you to reflect on the expected value of the unknown donation. Which you've probably already done anyway. If not: this might help you to get a better picture on the appropriate price for the envelope.

It might for example be, that you successfully propose a price of CHF 2 and the donation turns out to be CHF 8. Or that the envelope turns into a donation of CHF 2 while you successfully proposed a price of CHF 8.

How do you think would the payer and the investor feel in the first example? It might well be that the investor would be disappointed, feeling that he/she wasn’t compensated appropriately for a potentially risky investment. On the other hand in the second example the payer might feel disappointed likewise, since he/she paid a lot for a relatively small donation.

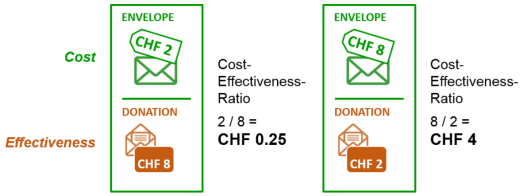
The relative price or “cost” proportional to the final value or “effect” for the patient is often

referred to as the “cost-effectiveness ratio”. It calculates in our case as follows:

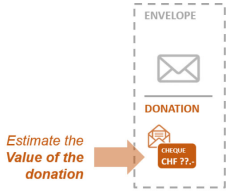
Cost (price in CHF) / Effect (donation in CHF).

The "**cost-effectiveness**" of your price decision will only be known at the end of the experiment when the envelope will be opened and the real value of the donation is revealed. If you have however a defined estimate of the final donation, you can also estimate the potential cost-effectiveness of any target price.

You can decide for yourself what value of cost-effectives you consider appropriate. In the first example above the cost-effectiveness ratio would correspond to CHF 2/8=0.25, meaning that the payer has to pay CHF 0.25 for CHF 1 patient value (donation). In the second example above the cost-effectiveness ratio would correspond to CHF 8/2=4, meaning that the payer has to pay CHF 4 for CHF 1 patient value (donation).

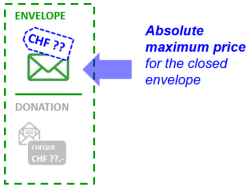


Don't worry, you don't have to pull out your calculator now. We've built in an automatic cost effectiveness calculation for you. Once you have entered your expected value of the donation in the envelope, you will see the resulting cost-effectiveness ratio (below the slider) for any of your potential target prices.



Please **estimate or guess the value of the donation** in the closed envelope.
Please enter your estimate (one decimal place from CHF 0.0 to 10.0) in the field below.

If you want, you can also adjust again your **absolute maximum price, which you would still consider reasonable and fair** for the envelope.



This is an update of the previous game. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is selected at the end. If you do not want to update your price submitted before, please simply enter the same amount again.

Be aware that your decision might have financial consequences on other players and the patient association. You will not be able to change your decision anymore after submission.

Please enter your **maximum price** (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

First part done!

That was the introspective part of the experiment. Now let us switch to a more interactive mode. Are you ready?

Second part of the experiment

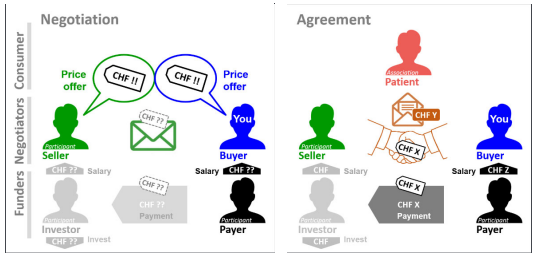
The general setting stays the same. Again, the game will potentially be selected for implementation at the end of the experiment. But now you will **engage in a price negotiation**. Your counterpart is another participant, randomly selected after the experiment.

You are the responsible **buyer** in your group. But now you can state an actual price expectation for the envelope to the **seller**. The seller himself will do the same.

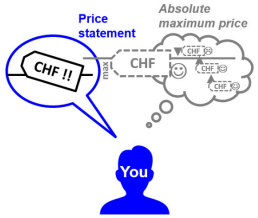
This time you will not receive just a fixed salary. Instead, the **payer** will decide at the end, what **salary he/she considers appropriate for your performance**. The payer will have to pay your salary from his/her total capital:

CHF 20 – market price CHF X (if an agreement is reached) – your salary CHF Z.

If your price offer is **higher or equal to the price offer of the seller, you will both agree**. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). If no agreement is reached, the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer will keep all of his/her initial capital.



Recall your absolute maximum price from the previous game. You might want to propose a price equal or lower. If you propose a higher price than your stated preference in the previous game, this means that your price offer lies above what the envelope is worth to you.
Below the slider you will see your stated maximum price from the first part of the experiment.



At the end of the experiment your payer will enter your salary for different market prices you might have agreed upon. He/she will furthermore decide which salary you should get in case of no agreement reached.

Ok? Let us start!

Be aware that your decision might have financial consequences on other players and the patient association.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

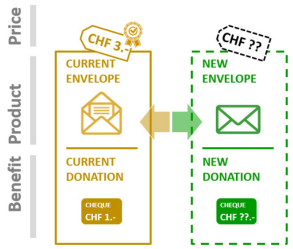
Let's change the decision situation slightly. Again, the game will potentially be selected for

implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this donation of CHF 1 has already been agreed at CHF 3 (cost-effectiveness ratio of 3/1=3).
The seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of CHF 1 will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

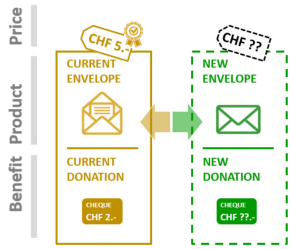
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price

expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of CHF 2 ready at an already fixed price of CHF 5 (cost-effectiveness ratio of 5/2=2.5).
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of CHF 2 will be transferred to the patient association. The investor will receive **CHF 5** and the payer will have to pay **CHF 5**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

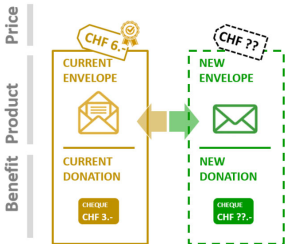
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of CHF 3 ready at an already fixed price of CHF 6 (cost-effectiveness ratio of 6/3=2).

Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 3** will be transferred to the patient association. The investor will receive **CHF 6** and the payer will have to pay **CHF 6**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

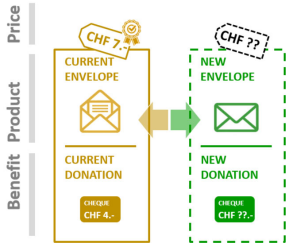
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 4** ready at an already fixed price of **CHF 7** (cost-effectiveness ratio of 7/4=1.75).
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer

is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 4** will be transferred to the patient association. The investor will receive **CHF 7** and the payer will have to pay **CHF 7**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary w.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

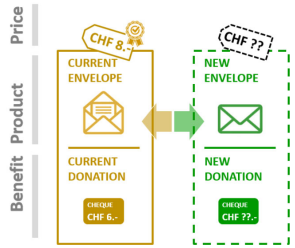
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF 6** ready at an already fixed price of **CHF 8** (cost-effectiveness ratio of 8/6=1.33).
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 6** will be transferred to the patient association. The investor will receive **CHF 8** and the payer will have to pay **CHF 8**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

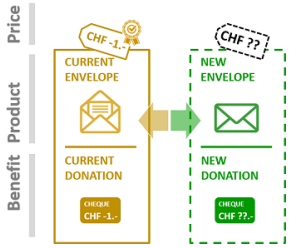
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

This time, there is a revealed "current donation" of **CHF -1** ready at an already fixed price of **CHF -1** (cost-effectiveness ratio of -1/1=-1).
This obviously makes no sense. We just need to test, whether participants pay attention and read the relevant information. If you did so, please click on the green envelope in the picture below, ignore the rest of the text and press 'submit'.
Again, the seller proposes to you an alternative, "**new envelope**" with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the seller. If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF -1** will be transferred to the patient association. The investor will receive **CHF -1** and the payer will have to pay **CHF -1**.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

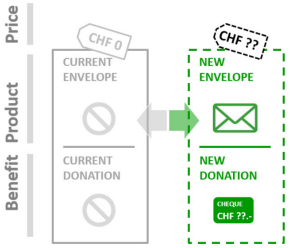
Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

Finally let's revisit the first offer game, where no alternative was available.

There is no adjustment to the game you have already played. You are just given a chance to update your price, if you want. You however don't have to. If you do not want to update your price submitted before, please simply enter the same amount again.

You are still the responsible **buyer** in your group and responsible to state a price expectation for the envelope to the **seller**.

You have to state a price for the envelope the seller offers to you. There is no alternative available.
If your price offer is **higher or equal** to the price offer of the seller, you will both agree. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer will retain all its initial capital.

Again, the payer will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – market price (if an agreement is reached) – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the seller about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) maximum price in the first part of the experiment was CHF ${q://QID993/ChoiceNumericEntryValue/1}.

Second part done!

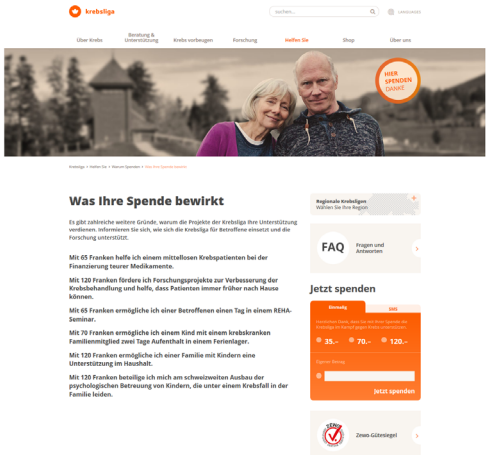
Now let's turn to the final part of the experiment where you will play a different role.

Group_6

3. The general setup of this experiment

You have been assigned to the role of the **seller**. Your task will be to **sell a closed envelope** to the buyer if you can agree on a price. The envelope contains a donation to the Swiss Cancer League "Krebsliga Schweiz" (www.krebsliga.ch). The association uses donations not only for research purposes but also to directly support cancer patients (see here: https://participate.krebsliga.ch/purposes/direkthilfe).

The value of the donation inside the envelope lies between CHF 0 and 10. The "desirable" value would of course be CHF 10, as this represents the maximum health benefit possible. However, the envelope will only be opened at the end of the experiment to reveal its true value for patients. This means that you will have to negotiate a price for the envelope without knowing the true value of the donation inside.



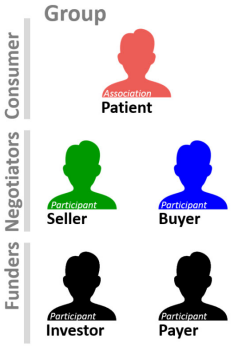
Comparing the **envelope** in our experiment to a new **medicine** or **vaccine** in the real world, we have to consider two factors of uncertainty:

- **Uncertainty of response:** The pharmaceutical will most likely not show the same effectiveness in every patient/citizen. In other words, not every patient will respond to a medicine and a vaccine will not protect all citizens who receive it.
  Translated to our experiment: If the value of the donation in the envelope turns out to be CHF 5 (instead of the aspired maximum of CHF 10), you could compare this to a vaccine which prevents 50% of the citizens who were vaccinated against an infectious disease (like hepatitis C, seasonal influenza or Covid-19, etc.).
- **Uncertainty of the clinical benefit:** The promised effect reported from clinical studies might not translate to the real world and/or data on long-term effectiveness might not be available yet.
  Translated to our experiment: Neither the seller nor the buyer will know the real value of the final donation in the envelope. Still both of you will have to decide on a price for the envelope. In the most extreme case, you both agree on a price of CHF 0 for the envelope with a final donation of CHF 10, or vice versa, on a price of CHF 10 for a donation of CHF 0. Of course it is also possible, that you both cannot find an agreement, which will mean that the envelope will not be processed for a donation.

4. The roles

You and the other participants form a "society" with five different citizens:

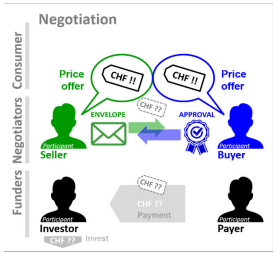
- **The Patient** (or citizen to be protected) is the only actor who is not present during the experiment. Any patient value generated during this experiment will be donated to the "Relief Fund" of the Swiss Cancer League (https://participate.krebsliga.ch/purposes/direkthilfe) which provides direct help to cancer patients and their families.
- **The Seller** possesses the envelope containing a donation of an unknown value which he/she offers to the buyer at a proposed price *(comparable to a representative of a pharmaceutical company, offering a new medicine or vaccine with the promise to increase the health benefit)*.
- **The Buyer** is responsible to propose and approve a price for the envelope on behalf of the patient or citizen and the payer *(comparable to the representative of the public health authorities)*.
- **The Investor** is financer and owner of the envelope and will receive the market price, paid by the payer, if the seller and buyer find an agreement *(comparable to the shareholder of a pharmaceutical company)*.
- **The Payer** will have to pay the negotiated price at the end of the experiment, if the seller and buyer find an agreement *(comparable to the premium payers of a health insurance)*.

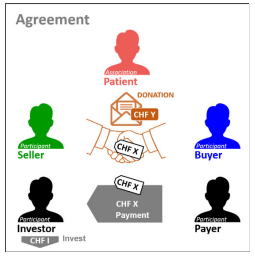


5. The trade

The negotiating **seller (you)** and the **buyer** have to negotiate a price for the closed envelope. The **seller** possesses the envelope at the beginning. If he or she asks for a price beyond the buyer's proposed price, the **buyer** will refuse to approve the potential donation for the patient. Vice versa, if the buyer askes for a lower price than the seller's expectation, the latter will not agree to trade the envelope.

If the negotiators find an agreement, the patient association will receive the donation in the envelope. The assigned **payer** will have to pay the market price of the envelope to the assigned **investor**. The real value of the donation will be determined at the end of the experiment.





6. The initial capital

Each player starts with an initial capital of CHF 20. For your **active role** you have already

been randomly assigned to the role of the **seller** of the envelope.

At the end of the experiment you will additionally be randomly assigned to a **passive role** of either the **investor** or the **payer**. The investors' initial capital will be reduced by an amount (between CHF 0 and 10) only known to them, representing the acquisition or investment cost for their envelope (which has a currently unknown value between CHF 0 and 10 for the patient, also unknown to the investor). The initial investment costs and the final donation in the envelope are independent of each other.

The active and the passive assignment are independent from each other: **your current active role does not determine your later passive role**.

7. The final payoffs

For the final payoffs you will first be **randomly paired with a player who played the opposite role**. One of the games you both played will be randomly selected. The prices you both submitted in that particular game will determine the negotiation outcome: agreement or disagreement plus the final market price (average of both offers) if successful. Two other players are then randomly assigned to both of you, one as the investor, the other as the payer. If you and your counterpart reached an agreement, the market price will be transferred from the payer to the investor. The envelope with the donation will be transferred to the supervisor of the experiment.

In parallel, you will be randomly assigned as either investor or payer to a second group (independently of your active role). Depending on the negotiation outcome of this group and your passive role, your capital will either increase, decrease or remain the same.

Finally the donations of the successful pairs will be revealed (value between CHF 0 and 10) and transferred for payment to the patient association.

You will receive information on your final payoff in CHF within 5 working days after your session took place, along with instructions on how to submit your bank details. This information will not be transferred to the researchers. The DeSciL will handle the money transfer to your bank account.

8. The structure of the experiment

The experiment will start with a first, introspective part. After this you will play the described negotiation game in different formats. In the third part you will slip into the role of one of the two funders. In the end, you will be asked some final questions. After the experiment, one of the games you played will be implemented to determine the cash payments as described above.

Control questions

Before we begin the experiment, let's quickly go through some control questions.

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: only one answer is correct)

Control question 1: What happens, if the **seller** proposes the envelope at a price higher than the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was lower, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: two answers are correct)

Control question 2: What happens, if the **buyer** proposes a price for the envelope higher than the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was lower, in favour of lower payer costs (at expense of the investor).

Correct!

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Please check again! (hint: two answers are correct)

Control question 3: What happens, if the **seller** proposes the envelope at a price below the **buyer's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The seller could have asked even for a higher price, since the buyer's expectation was higher, in favour of a higher return for the investor (at expense of the payer).

Correct!

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Please check again! (hint: only one answer is correct)

Control question 4: What happens, if the **buyer** proposes a price for the envelope below the **seller's** expectation? Please select all correct answers below:

- ☐ The negotiators will agree, the envelope will be opened and the revealed value of the donation will be transferred to the patient association.
- ☐ The patient association won't get a donation, since the negotiators will not agree on a price and the envelope will not be transferred.
- ☐ The buyer could have asked even for a lower price, since seller's minimum price was higher, in favour of lower payer costs (at expense of the investor).

Correct! You did great.

First part of the experiment

The objective of this first part of the experiment is to find out the "true value" that you assign to an opportunity to increase the "value for patients".

You are the responsible **seller** in your group.

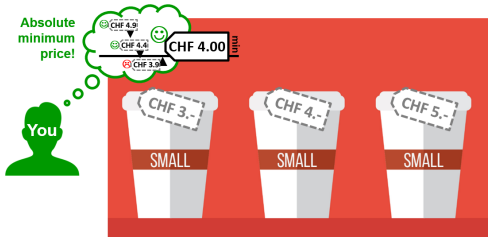
In the following experiment, you will be responsible to sell a product (the envelope) to the **buyer**.

Before you enter into a price negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the product. Below this "walk-away price" you would never agree to sell it.
This valuation is **"private" and only known to you**, but not to your counterpart.

Let's illustrate this quickly with an example:
Let us pretend that you are a coffee shop owner. We further assume that your customers are real coffee lovers. Let us further assume that CHF 4.00 represents the minimum price you still consider reasonable and fair for a small cup.

Which of the following offers from your customer would you accept?

- ☐ 3.- for a cup,
- ☐ 4.- for a cup,
- ☐ 5.- for a cup.



Please check again! (hint: two answers are correct)

First part of the experiment

The objective of this first part of the experiment is to find out the "true value" that you assign to an opportunity to increase the "value for patients".

You are the responsible **seller** in your group.

In the following experiment, you will be responsible to sell a product (the envelope) to the **buyer**.

Before you enter into a price negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the product. Below this "walk-away price" you would never agree to sell it.
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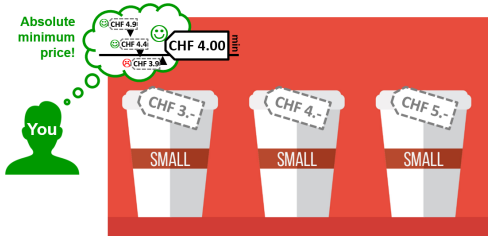


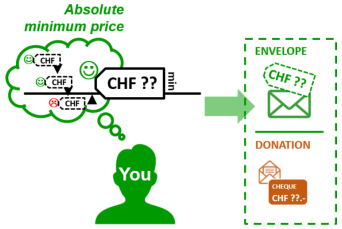
Correct!

Back to our experiment.

The "product" you have to sell is an envelope containing a donation for cancer patients. You will not know the real value of the donation in the envelope yet.

As **seller** you will be responsible to propose a price for the envelope to the **buyer**.

Before you enter into a negotiation, you should decide on the **absolute minimum price, which you would still consider reasonable and fair** for the envelope. Below this "walk-away price" you would never agree to sell the envelope.



This part of the experiment focuses only on your private valuation of the potential patient benefit. **You do not have to reflect on any negotiation tactics or strategies**. There is no "correct" answer; your decision should be based solely on your personal preferences.

Please consider, that the price you enter, will already be one that can be selected at the end of the experiment for implementation. Hence your decision might have **financial consequences on other players and the patient** association. However, since the price of yours in this game represents your private valuation, it will not be compared to a counterpart. If selected, your decision will directly be implemented. The payer will have to pay your price to the investor and the patient will get the unknown donation in the envelope. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is randomly selected at the end.

Please enter your minimum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

Let's amend the decision situation slightly. Aim is still to find out **your private valuation** of the potential patient benefit. You still do not have to reflect on any negotiation tactics or strategies. But now, we want you to reflect on the expected value of the unknown donation. Which you've probably already done anyway. If not: this might help you to get a better picture on the appropriate price for the envelope.

It might for example be, that you successfully propose a price of CHF 2 and the donation turns out to be CHF 8. Or that the envelope turns into a donation of CHF 2 while you successfully proposed a price of CHF 8.

How do you think would the payer and the investor feel in the first example? It might well be that the investor would be disappointed, feeling that he/she wasn't compensated appropriately for a potentially risky investment. On the other hand in the second example the payer might feel disappointed likewise, since he/she paid a lot for a relatively small donation.

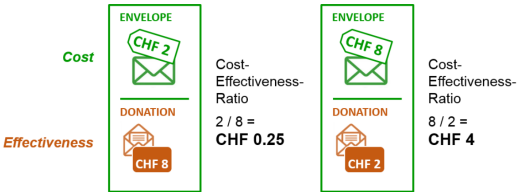
The relative price or "cost" proportional to the final value or "effect" for the patient is often

referred to as the “cost-effectiveness ratio”. It calculates in our case as follows:

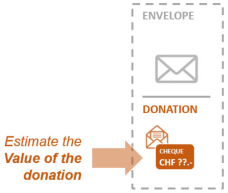
Cost (price in CHF) / Effect (donation in CHF).

The "**cost-effectiveness**" of your price decision will only be known at the end of the experiment when the envelope will be opened and the real value of the donation is revealed. If you have however a defined estimate of the final donation, you can also estimate the potential cost-effectiveness of any target price.

You can decide for yourself what value of cost-effectives you consider appropriate. In the first example above the cost-effectiveness ratio would correspond to CHF 2/8=0.25, meaning that the payer has to pay CHF 0.25 for CHF 1 patient value (donation). In the second example above the cost-effectiveness ratio would correspond to CHF 8/2=4, meaning that the payer has to pay CHF 4 for CHF 1 patient value (donation).

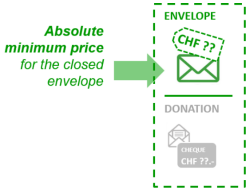


Don't worry, you don't have to pull out your calculator now. We've built in an automatic cost effectiveness calculation for you. Once you have entered your expected value of the donation in the envelope, you will see the resulting cost-effectiveness ratio (below the slider) for any of your potential target prices.



Please **estimate or guess the value of the donation** in the closed envelope.
Please enter your estimate (one decimal place from CHF 0.0 to 10.0) in the field below.

If you want, you can also adjust again your **absolute minimum price, which you would still consider reasonable and fair** for the envelope.



This is an update of the previous game. You will be compensated with a **fixed salary** of CHF 5 for the thorough completion of this task, if this game is selected at the end. If you do not want to update your price submitted before, please simply enter the same amount again.

Be aware that your decision might have financial consequences on other players and the patient association. You will not be able to change your decision anymore after submission.

Please enter your minimum price (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

First part done!

That was the introspective part of the experiment. Now let us switch to a more interactive mode. Are you ready?

Second part of the experiment

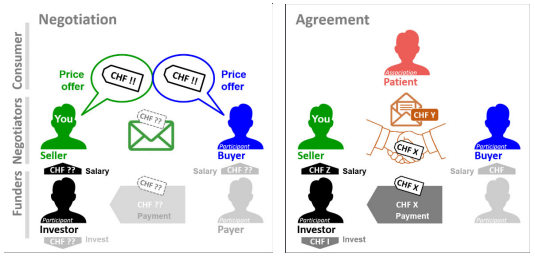
The general setting stays the same. Again, the game will potentially be selected for implementation at the end of the experiment. But now you will **engage in a price negotiation**. Your counterpart is another participant, randomly selected after the experiment.

You are the responsible **seller** in your group. But now you can state an actual price expectation for the envelope to the **buyer**. The buyer himself will do the same.

This time you will not receive just a fixed salary. Instead, the **investor** will decide at the end, what **salary he/she considers appropriate for your performance**. The investor will have to pay your salary from his/her total capital:

CHF 20 – investment costs for the envelope CHF I (known only to him/her) + market price CHF X (if an agreement is reached) – your salary CHF Z.

If your price offer is **lower or equal to the price offer of the buyer, you will both agree**. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost). If no agreement is reached, the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer will keep all of his/her initial capital.



Recall your absolute minimum price from the previous game. You might want to propose a price equal or higher. If you propose a lower price than your stated preference in the previous game, this means that your price offer lies below what the envelope is worth to you.
Below the slider you will see your stated minimum price from the first part of the experiment.

At the end of the experiment your investor will enter your salary for different market prices you might have agreed upon. He/she will furthermore decide which salary you should get in case of no agreement reached.

Ok? Let us start!

Be aware that your decision might have financial consequences on other players and the patient association.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

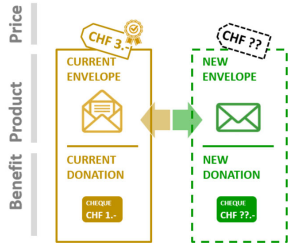
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

But this time, there is already a revealed donation ("current donation") ready for the patient. The price of this donation of **donation of CHF 1** has already been agreed at **CHF 3** (cost-effectiveness ratio of 3/1=3).
You received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 1** will be transferred to the patient association. The investor will receive **CHF 3** and the payer will have to pay **CHF 3**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

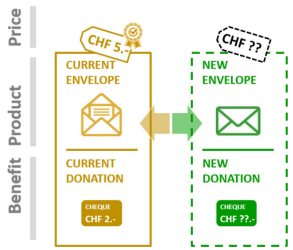
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 2** ready at an already fixed price of **CHF 5** (cost-effectiveness ratio of 5/2=2.5).
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 2** will be transferred to the patient association. The investor will receive **CHF 5** and the payer will have to pay **CHF 5**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

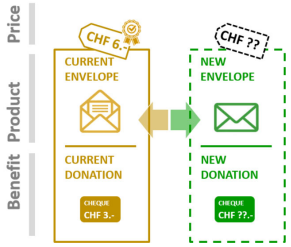
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 3** ready at an already fixed price of **CHF 6** (cost-effectiveness ratio of 6/3=2).
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 3** will be transferred to the patient association. The investor will receive **CHF 6** and the payer will have to pay **CHF 6**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

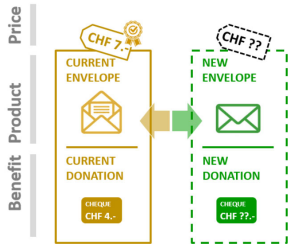
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 4** ready at an already fixed price

of **CHF 7** (cost-effectiveness ratio of 7/4=1.75).
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 4** will be transferred to the patient association. The investor will receive **CHF 7** and the payer will have to pay **CHF 7**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

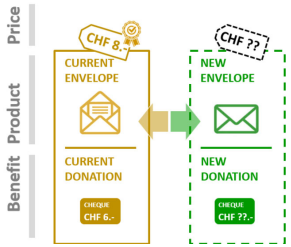
Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF 6** ready at an already fixed price of **CHF 8** (cost-effectiveness ratio of 8/6=1.33).
Again you received from the investor an alternative, "**new envelope**" to sell with an

unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF 6** will be transferred to the patient association. The investor will receive **CHF 8** and the payer will have to pay **CHF 8**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

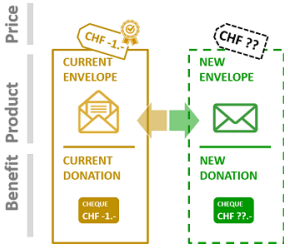
Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

Let's change the decision situation slightly. Again, the game will potentially be selected for implementation at the end of the experiment.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

This time, there is a revealed "current donation" of **CHF -1** ready at an already fixed price of **CHF -1** (cost-effectiveness ratio of -1/1=-1).
This obviously makes no sense. We just need to test, whether participants pay attention and read the relevant information. If you did so, please click on the green envelope in the picture below, ignore the rest of the text and press 'submit'.
Again you received from the investor an alternative, "**new envelope**" to sell with an unknown "**new donation**" in it (see picture below).

You have to state a price **for this new alternative offer** to the buyer.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the new envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree on a price, the already available "**current donation**" of **CHF -1** will be transferred to the patient association. The investor will receive **CHF -1** and the payer will have to pay **CHF -1**.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) minimum price in the first part of the experiment was

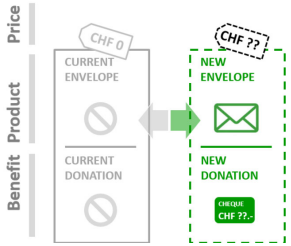
CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

Finally let's revisit the first offer game, where no alternative was available.

There is no adjustment to the game you have already played. You are just given a chance to update your price, if you want. You however don't have to. If you do not want to update your price submitted before, please simply enter the same amount again.

You are still the responsible **seller** in your group and responsible to state a price expectation for the envelope to the **buyer**.

You have to state a price for the envelope you are offering to the buyer. There is no alternative available.
If your price offer is **lower or equal** to the price offer of the buyer, you will both agree. In consequence, the patient association will get the donation inside the envelope. The investor will receive the market price (revenue) and the payer will have to pay the price (cost).



If both of you cannot agree the donation will not be transferred to the patient association, the investor will receive no compensation for his/her investment and the payer retains its entire initial capital.

Again, the investor will decide at the end, what **salary** he/she considers appropriate for your performance, paid from his/her total capital:
CHF 20 – investment costs for the envelope (known only to him/her) + market price (if an agreement is reached) – your salary.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please inform the buyer about your price offer for the envelope (one decimal place from CHF 0.0 to 10.0) by moving the slider below, then click 'submit'.

The cost-effectiveness ratio of your decision would be [x] / [v] = [CE].

Your defined (private) minimum price in the first part of the experiment was CHF ${q://QID1174/ChoiceNumericEntryValue/1}.

Second part done!

Now let's turn to the final part of the experiment where you will play a different role.

Group_7

Third part of the experiment

You have been randomly assigned to one of the two funder roles: **you are the payer** in your second payoff-group.

The buyer and seller of this group proposed prices to each other, as you did before. They played exactly the same games as you did.

Now it is your turn, to decide, with **how much money you want to reward the performance of your buyer**.

You will have to pay his or her salary from your total capital. So far your known assets amount to **CHF 20** (initial capital).
From this capital you will first have to pay the market price of one of the games your buyer played. Then your reward to the buyer will be deducted.
Not yet included is your potential salary from your previous role in your first payoff-group (revealed at the very end of the experiment).

Hence you can expect at the end:
CHF 20,
minus the market price (if any),
minus the reward for your buyer (your choice),
plus the salary from your first role (if any).

Be aware that your decision has a direct impact on the payoff of another participant (the buyer in your second payoff-group). You will not be able to change your decision anymore after submitting.

Please enter for each possible market price your buyer might have agreed on the salary you want to reward him/her. Further, please also indicate, how much you want to reward him/her, if no agreement was possible. Please type in the values in the table below (one decimal place from CHF 0.0 to 10.0), then click 'submit'.

Market price (CHF):

	Salary for your buyer (CHF):
0.0-0.9	
1.0-1.9	
2.0-2.9	
3.0-3.9	
4.0-4.9	
5.0-5.9	
6.0-6.9	
7.0-7.9	
8.0-8.9	
9.0-10	
No agreement with no alternative	

You did great – thank you!!

We are almost done. May we please ask you a few final questions?

Group_8

Third part of the experiment

You have been randomly assigned to one of the two funder roles: **you are the investor** in your second payoff-group.

The buyer and seller of this group proposed prices to each other, as you did before. They played exactly the same games as you did.

Now it is your turn, to decide, with **how much money you want to reward the performance of your seller**.

You will have to pay his or her salary from your total capital. So far your known assets amount to CHF 20 (initial capital), minus CHF 1 (investment costs for the envelope, **known only to you**) = **CHF 19**.
On top of this capital you will first receive the market price of one of the games your seller played. Then your reward to the seller will be deducted.
Not yet included is your potential salary from your previous role in your first payoff-group (revealed at the very end of the experiment).

Hence you can expect at the end:
CHF 19,
plus the market price (if any),
minus the reward for your seller (your choice),
plus the salary from your first role (if any).

Be aware that your decision has a direct impact on the payoff of another participant (the seller in your second payoff-group). You will not be able to change your decision anymore after submitting.

Please enter for each possible market price your seller might have agreed on the salary you want to reward him/her. Further, please also indicate, how much you want to reward him/her, if no agreement was possible. Please type in the values in the table below (one decimal place from CHF 0.0 to 10.0), then click 'submit'.

Market price (CHF):

	Salary for your seller (CHF):
0.0-0.9	
1.0-1.9	
2.0-2.9	
3.0-3.9	
4.0-4.9	
5.0-5.9	
6.0-6.9	
7.0-7.9	
8.0-8.9	
9.0-10	
No agreement with no alternative	

You did great – thank you!!

We are almost done. May we please ask you a few final questions?

Group_9

Third part of the experiment

You have been randomly assigned to one of the two funder roles: **you are the payer** in your second payoff-group.

The buyer and seller of this group proposed prices to each other, as you did before. They played exactly the same games as you did.

Now it is your turn, to decide, with **how much money you want to reward the performance of your buyer**.

You will have to pay his or her salary from your total capital. So far your known assets amount to **CHF 20** (initial capital).
From this capital you will first have to pay the market price of one of the games your buyer played. Then your reward to the buyer will be deducted.
Not yet included is your potential salary from your previous role in your first payoff-group (revealed at the very end of the experiment).

Hence you can expect at the end:
CHF 20,
minus the market price (if any),
minus the reward for your buyer (your choice),
plus the salary from your first role (if any).

Be aware that your decision has a direct impact on the payoff of another participant (the buyer in your second payoff-group). You will not be able to change your decision anymore after submitting.

Please enter for each possible market price your buyer might have agreed on the salary you want to reward him/her. Further, please also indicate, how much you want to reward him/her, if no agreement was possible. Please type in the values in the table below (one decimal place from CHF 0.0 to 10.0), then click 'submit'.

Market price (CHF):

	Salary for your buyer (CHF):
0.0-0.9	
1.0-1.9	
2.0-2.9	
3.0-3.9	
4.0-4.9	
5.0-5.9	
6.0-6.9	
7.0-7.9	
8.0-8.9	
9.0-10	
No agreement with no alternative	

You did great – thank you!!

We are almost done. May we please ask you a few final questions?

Group_10

Third part of the experiment

You have been randomly assigned to one of the two funder roles: **you are the investor** in your second payoff-group.

The buyer and seller of this group proposed prices to each other, as you did before. They played exactly the same games as you did.

Now it is your turn, to decide, with **how much money you want to reward the performance of your seller**.

You will have to pay his or her salary from your total capital. So far your known assets amount to CHF 20 (initial capital), minus CHF 1 (investment costs for the envelope, **known only to you**) = **CHF 19**.
On top of this capital you will first receive the market price of one of the games your seller played. Then your reward to the seller will be deducted.
Not yet included is your potential salary from your previous role in your first payoff-group (revealed at the very end of the experiment).

Hence you can expect at the end:
CHF 19,
plus the market price (if any),
minus the reward for your seller (your choice),
plus the salary from your first role (if any).

Be aware that your decision has a direct impact on the payoff of another participant (the seller in your second payoff-group). You will not be able to change your decision anymore after submitting.

Please enter for each possible market price your seller might have agreed on the salary you want to reward him/her. Further, please also indicate, how much you want to reward him/her, if no agreement was possible. Please type in the values in the table below (one decimal place from CHF 0.0 to 10.0), then click 'submit'.

Market price (CHF):

	Salary for your seller (CHF):
0.0-0.9	
1.0-1.9	
2.0-2.9	
3.0-3.9	
4.0-4.9	
5.0-5.9	
6.0-6.9	
7.0-7.9	
8.0-8.9	
9.0-10	
No agreement with no alternative	

You did great – thank you!!

We are almost done. May we please ask you a few final questions?

Group_11

Third part of the experiment

You have been randomly assigned to one of the two funder roles: **you are the payer** in your second payoff-group.

The buyer and seller of this group proposed prices to each other, as you did before. They played exactly the same games as you did.

Now it is your turn, to decide, with **how much money you want to reward the performance of your buyer**.

You will have to pay his or her salary from your total capital. So far your known assets amount to **CHF 20** (initial capital).
From this capital you will first have to pay the market price of one of the games your buyer played. Then your reward to the buyer will be deducted.
Not yet included is your potential salary from your previous role in your first payoff-group (revealed at the very end of the experiment).

Hence you can expect at the end:
CHF 20,
minus the market price (if any),
minus the reward for your buyer (your choice),
plus the salary from your first role (if any).

Be aware that your decision has a direct impact on the payoff of another participant (the buyer in your second payoff-group). You will not be able to change your decision anymore after submitting.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please enter for each possible market price your buyer might have agreed on the salary you want to reward him/her. Further, please also indicate, how much you want to reward him/her, if no agreement was possible. Please type in the values in the table below (one decimal place from CHF 0.0 to 10.0), then click 'submit'.

Market price (CHF) (Cost-effectiveness ratio(CHF)):

	Salary for your buyer (CHF):
0.0-0.9 (NA-CE)	
1.0-1.9 (CE-CE)	
2.0-2.9 (CE-CE)	
3.0-3.9 (CE-CE)	
4.0-4.9 (CE-CE)	
5.0-5.9 (CE-CE)	
6.0-6.9 (CE-CE)	
7.0-7.9 (CE-CE)	
8.0-8.9 (CE-CE)	
9.0-10 (CE-CE)	
No agreement with no alternative	

You did great – thank you!!

We are almost done. May we please ask you a few final questions?

Group_12

Third part of the experiment

You have been randomly assigned to one of the two funder roles: **you are the investor** in your second payoff-group.

The buyer and seller of this group proposed prices to each other, as you did before. They played exactly the same games as you did.

Now it is your turn, to decide, with **how much money you want to reward the performance of your seller**.

You will have to pay his or her salary from your total capital. So far your known assets amount to CHF 20 (initial capital), minus CHF 1 (investment costs for the envelope, **known only to you**) **= CHF 19**.
On top of this capital you will first receive the market price of one of the games your seller played. Then your reward to the seller will be deducted.
Not yet included is your potential salary from your previous role in your first payoff-group (revealed at the very end of the experiment).

Hence you can expect at the end:
CHF 19,
plus the market price (if any),
minus the reward for your seller (your choice),
plus the salary from your first role (if any).

Be aware that your decision has a direct impact on the payoff of another player in the room (the seller in your second payoff-group). You will not be able to change your decision anymore after submitting.

First, please enter your estimate of the final donation in the closed envelope (one decimal place from CHF 0.0 to 10.0) in the field below.

Please enter for each possible market price your seller might have agreed on the salary you want to reward him/her. Further, please also indicate, how much you want to reward him/her, if no agreement was possible. Please type in the values in the table below (one decimal place from CHF 0.0 to 10.0), then click 'submit'.

Market price (CHF) (Cost-effectiveness ratio(CHF)):

	Salary for your seller (CHF):
0.0-0.9 (NA-CE)	
1.0-1.9 (CE-CE)	
2.0-2.9 (CE-CE)	
3.0-3.9 (CE-CE)	
4.0-4.9 (CE-CE)	
5.0-5.9 (CE-CE)	
6.0-6.9 (CE-CE)	
7.0-7.9 (CE-CE)	
8.0-8.9 (CE-CE)	
9.0-10 (CE-CE)	
No agreement with no alternative	

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Selbstständigkeitserklärung

Ich bestätige, dass ich die eingereichte Dissertation selbstverständig verfasst habe, bei der Abfassung der Dissertation nur die angegebenen Hilfsmittel benutzt habe und wörtlich oder inhaltliche übernommene Stellen als solche gekennzeichnet habe.

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Datum: 16. September 2021

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Datum: 16. September 2021

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