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Stakeholder preferences about policy objectives and measures of pharmaceutical pricing and reimbursement ☆, ☆ ☆



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Abstract

Objective: Policy objectives, such as cost-containment and reward for innovation, can be conflicting, and different stakeholders are likely to prioritise policy measures with regard to their objectives differently. The study elicits preferences of different stakeholders in European countries about policy objectives and pharmaceutical pricing and reimbursement measures in accordance with their preferred objectives.

Methods: Representatives of eight stakeholder groups (patients, consumers, competent authorities for pharmaceutical pricing and reimbursement, public payers, research-oriented industry, generic medicines industry, pharmacists, doctors) from the 28 EU Member States were invited to express their preferences about seven policy objectives and 16 measures in a web-based questionnaire. The replies were analysed through a Multi-Criteria Decision Analysis (MCDA), using an outranking method based on the ELECTRE III algorithm.

Results: Based on 81 valid responses showed that nearly all stakeholders attributed highest priority to equitable access to medicines. Overall, stakeholders considered pharmaco-economic evaluation as the most appropriate policy measure to achieve policy objectives in accordance with their preferences. Value-based pricing and a transparent reimbursement process were ranked second and third. Across all groups, low preference was given to external price referencing (EPR) and co-payments, whereas stakeholders had differences in assessment on tendering, generic substitution and differential pricing.

Conclusions: The overall negative assessment of the commonly used EPR policy suggests a possible need for change in current pricing practice. However, positions about alternative

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pricing options differ considerably across stakeholders. It is recommended to further explore the motivation of the stakeholders for their assessments in a qualitative research project.
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Introduction

At national level, policy-makers face several challenges when trying to design the most appropriate mix of pharmaceutical policy measures. These include an ageing population, managing the introduction of new, premium-priced medicines, the need to prescribe more rationally, ensuring equitable access to medicines, the balance between granting timely patient access to medicines and the need for sound pharmacoeconomic evaluations as basis for informed decisions. A rational selection of medicines to be reimbursed, based on cost-effectiveness criteria, added value and need, is required in order to ensure sustainable funding despite tight budgets in times of a global financial crisis [1-6].

Personalised, or targeted, medicines in which a medicine and its companion diagnostic, frequently a medical device, are applied [7,8], are, another challenge for policy-makers since medical devices are typically not addressed by pricing and reimbursement policies [9,10]. Furthermore, the increase in pharmaceutical innovation, particularly in high-income countries [11], is likely to be over-estimated, partially due to different methodological assumptions [12]. A World Health Organization (WHO) report highlighted several pharmaceutical gaps for which innovation would be needed [13].

In the light of these challenges, policy-makers are required to balance their policies to account for different, partially conflicting policy objectives. In the European Union, the policy objectives of '(1) timely and equitable access to pharmaceuticals for patients all in the European Union (EU), (2) control of pharmaceutical expenditure for Member States, and (3) reward for valuable innovation within a competitive and dynamic market that also encourages Research & Development' were defined as core values which need to be balanced when Member States implement pharmaceutical pricing and reimbursement policies [14].

Policy-makers can use a range of policy options that address different aims, different stakeholders and different products (e.g. orphan medicinal products, generics). A common pricing policy in European countries is external price referencing (EPR), which is defined as 'the practice of using the price(s) of a medicine in one or several countries in order to derive a benchmark or reference price for the purposes of setting or negotiating the price' [15]. As of early 2015, 25 of the 28 EU Member States (all except Denmark, Sweden and UK) and the European Free Trade Association (EFTA) countries Iceland, Norway and Switzerland apply EPR for a range of medicines in the out-patient sector (typically on-patent medicines) and/or as supplementary decision criteria in the pricing and reimbursement process [16-18]. In contrast, value-based pricing (VBP) is rarely used as an integrative pricing and reimbursement policy: it has been applied as a key pricing method in Sweden for more than a

decade but in no other European country [19]. England had planned to introduce it in 2014 [20] but eventually refrained from doing so. At the same time, VBP elements, such as pharmaco-economics and Health Technology Assessments (HTA), are increasingly being used in a supplementary way in European countries though EPR remains the major pricing policy there [21]. To grant access to new, often high-cost medicines with limited evidence, new arrangements such as managed-entry agreements (MEA) have been made in several European countries [22]. Other policies are applied for generics and biosimilars. A few countries (e.g. Denmark, Germany, Netherlands) introduced tendering and tendering-like models for generics, such as the preferential pricing policy in the Netherlands in which reimbursement is exclusively granted to the winning bidder of an active ingredient [23,24]. Tendering in the out-patient sector may also be applied to further medicines beyond generics, as this is the case in smaller countries (e.g. Cyprus) [25]. Pricing and reimbursement practices are supplemented by demand-side measures, to enhance a more rational use of medicines or to increase generics uptake. In the European Union, except for Austria, all Member States introduced either generic substitution or INN prescribing, and some countries have both policies in place [17,26].

The pharmaceutical industry has been calling for the implementation of differential pricing (DP). This policy, also known as 'tiered pricing', 'equity pricing' and 'Ramsey pricing', is 'the strategy of selling the same product to different customers at different prices - in the case of (reimbursable) medicines, prices would vary among the countries according to their ability to pay' [15]. DP is not applied within the EU market yet, also for legal limitations. Its experience has been limited to specific groups of medicines (particularly vaccines, contraceptives and anti-retrovirals) in low-income countries for which procurement is provided by international funds and organisations [27,28].

Stakeholder preferences on pharmaceutical policy measures are solely known in an anecdotic, incomplete way, when, for instance, a stakeholder group advocates in favour or against specific policies. However, their preferences have never been analysed systematically.

Against this backdrop, this study aims to survey preferences of relevant stakeholders in European countries on policy objectives and pharmaceutical pricing and reimbursement measures in accordance with their preferred objectives and to analyse them with regard to similarities and differences across groups.

Methods

The study was performed in the framework of a Public Health Programme project funded by the European Commis-

sion. Some methodological aspects were predefined in the project's terms of reference, including the requirement to perform the stakeholder consultation through an online survey, to use a multi-criteria decision analysis (MCDA) and specifications related to some (but not all) of the defined stakeholder groups.

Selection of policy measures

In spring 2013, we performed a systematic literature review that aimed at identifying relevant measures in the out-patient sector as well as policy objectives (see below) through bibliometric analyses. We conducted a search of several databases (MedLine, Embase, Econlit, Organisation for Economic Co-operation and Development (OECD) Publications, Cochrane Effective Practice and Organisation of Care Group, WHO, National Health Services Economic Evaluation Database) to retrieve publications (in all EU languages) on pharmaceutical policies in all EU Member States (including Croatia) and EFTA countries published between 1995 and February 2013. Additionally, we searched grey literature via GoogleScholar, did a hand search of selected bibliographies and performed a Pharmaceutical Pricing and Reimbursement Information (PPRI) network query [29]. The literature review (cf. Figure 1 for the selection process) identified 23 policy measures. Applying selection criteria as displayed in Table 1, a list of 16 policy measures in the out-patient sector for stakeholder assessment was compiled (see results section, for definitions of the measures cf. A1 in Supplementary materials).

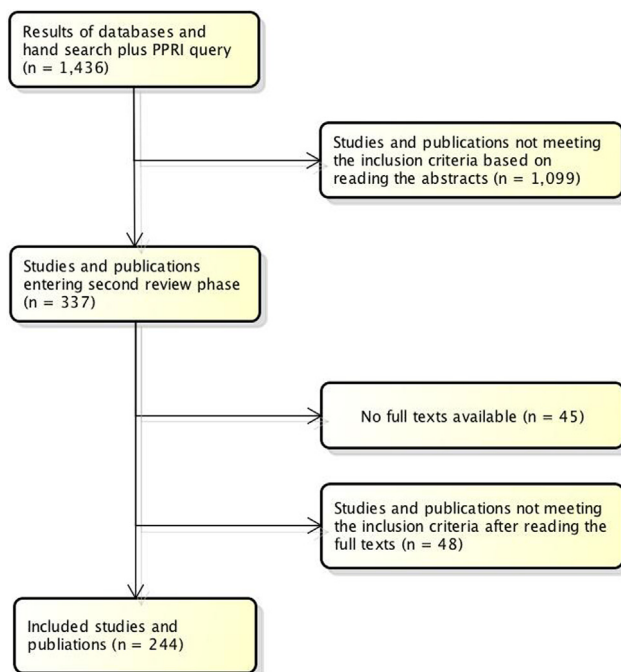


Figure 1 Selection process of studies and publications in the literature review.

Selection of policy objectives

We selected policy objectives that had been defined as major objectives by the High Level Pharmaceutical Forum [14] and were indicated in further (policy) documents by the European Commission, the WHO and OECD. Furthermore, the literature review helped identify policy objectives since publications were also analysed as to whether an objective of the described policies was mentioned, and which one. As a result, seven policy objectives were chosen for assessment (see results section, for definitions of the objectives cf. A1).

Selection of countries

In line with the scope of the EU study, we addressed all 28 EU Member States. In the analysis, we classified country-specific answers to geographic regions as well as to higher- and lower-income countries.

Selection of stakeholders

We elicited preferences from the following eight groups of stakeholders, that either actively decide on and/or are impacted by pharmaceutical policy measures: patients (i.e. people with diseases), consumers (i.e. citizens, tax payers), competent authorities for pharmaceutical pricing and reimbursement, public payers, the research-oriented pharmaceutical industry, the generic medicines industry, pharmacists and doctors.

We sought responses from official representatives of associations, not individual members of a stakeholder group. The associations at EU level were also invited to answer the questionnaire. All contacted associations reacted positively to our request as of August 2013 in which we pre-announced the survey and asked for contacts in their national associations. Concerning competent authorities, we used existing contacts of members of the PPRI and the Competent Authorities for Pharmaceutical Pricing and Reimbursement (CAPR) networks.

Survey tool and analysis methodology

We performed the stakeholder consultation via an online survey tool based on the software tool QuestBack[®]. For the MCDA, we chose an outranking approach using the ELECTRE III algorithm that we considered as most suitable for the purpose of the study, since ELECTRE III allows for the inclusion of the concept of weak preference (in addition to strong preference and indifference). The choice of this outranking approach influenced the design of the questionnaire: stakeholders were invited to attribute priority (on a scale from 50-high to 0-no priority) to the seven objectives and to assess whether the 16 measures were able to contribute to each of these policy objectives (again on a scale from 50 to 0). Furthermore, they were asked to indicate three thresholds about their preferences: (1) which value they consider as the minimum difference in order to

Table 1 Selection of policy measures.

Policy measures		Frequency in the literature review	In place in European countries (EU Member States, EEA countries)	Clear definition	Scope of product groups	Stakeholders targeted	Implementation at national level	Selected
Overall system	Reimbursement process	xx	Standard	Yes	Several	>1	Yes	✓
	• HTA (as supportive tool)	a xx	Used for specific medicines (e.g. high-cost medicines)	Yes	Focus on new medicines	1		Yes
	• Pharmacoeconomic evaluation	xx	Used for specific medicines (e.g. high-cost medicines)	Yes	Focus on new medicines	1		Yes ✓
	Reimbursement review	xx	Done in a few countries (systematically or ad-hoc)	No	Several, focus on new medicines	>1		Yes ✓
	• Delisting	x	A common measure, particularly in recent years	Yes	Several	>1		Yes
	Profit control	x	A few countries	Yes	Several	1		Yes
Pure reimbursement tools	Reimbursement list	xxx	All countries	Yes	Several	>1	Yes	
	• Positive list	xxx	Majority of countries	Yes	Several	>1		Yes ✓
	• Negative list	xx	Few countries	Yes	Several	>1		Yes
	Reimbursement rates	xxx	All but 5 EU Member States	Yes	Several	>1		Yes ✓
	Co-payment	xxx	All countries, different design and extent	Yes	Several	>1		Yes ✓
	Managed-entry agreements	x	New measure, some countries	No	Focus on new medicines	>1		Yes ✓
Pricing policy linked to reimbursed medicines	Reference price systems	price xxx	21 of 28 EU Member States	Yes	Focus on medicines with competitors	>1	Yes	✓
	Value-based pricing	x	Very few countries	No	Focus on new medicines	>1		Yes ✓
	Discounts/rebates/price negotiations/clawback	x	Commonly applied, different design	No	Several	>1		Yes ✓
	Auction-like systems	x	A few countries	Yes		>1		Yes

	Tendering	xx	Few countries (out-patient sector)	Yes	Focus on medicines with competitors Several	>1	Yes ✓
	Differential pricing	x	Not applied	Yes	Several	>1	Yes ✓
	External price referencing	xxx	24 of 28 EU Member States	Yes	Several	>1	Yes ✓
Prescribers	Pharmaceutical budgets	x	A few countries	Yes	Several	>1 Yes	✓
	INN prescribing	xx	Several countries	Yes	Focus on medicines with competitors	>1	Yes ✓
	Prescription guidelines	x	Majority of countries	No	Several	>1	Yes
	Prescription monitoring	x	Majority of countries	Yes	Several	1	Yes
Pharmacists	Generic substitution	xx	Majority of countries	Yes	Focus on medicines with competitors	>1 Yes	✓

EEA=European Economic Area, EU=European Union

Notes: Frequency in literature: x=low frequency (in less than 4% of the identified publications), xx=medium frequency (in 4-9% of the identified publications), xxx=high frequency (in more than 10% of the identified publications)

assess two alternative policies as different (indifference threshold); (2) which value they consider as the minimum difference in order to interpret one of two alternative policies as a preference (preference threshold); and (3) the maximum value by which an alternative is allowed to be worse than another alternative and can still be regarded as the better overall alternative when the overall score is the better one (veto threshold). We analysed the responses through the MCDA and achieved a ranking of the measures, overall and per subgroup. The MCDA methodology allows linking measures to prioritised policy objectives: the ranking of measures thus reflects a preferred mix of policies which stakeholders believe will be able to achieve their policy objectives best. The questionnaire contained definitions for the policy objectives and measures (in writing and via an audio tool), and a fact sheet for each EU Member State about the current status and design of implementation of the measures.

Performing the survey and analyses

In August/September 2013, we piloted the survey with representatives of all stakeholder groups. The roll-out of the revised questionnaire (cf. A2 in the [Supplementary material](#)) took place on 26 September 2013, when we sent personalised links to 266 institutions in the 28 EU Member States. The deadline was extended twice, with personalised reminders sent to non-respondents. On 12 November 2013, we closed the online survey. Data validation started as soon as the first data were entered in the online tool. In November/December 2013 data were analysed, and several sensitivity analyses were run (e.g. concerning the impact of the thresholds on the results) that confirmed the validity and robustness of the selected methodology.

Results

Response rate

Out of the 266 contacted institutions, we received 85 completed questionnaires (thereof 9 of the pilot). Four questionnaires were excluded due to data quality problems. The 81 questionnaires included in the analysis (response rate of around 30%) primarily came from the research-oriented industry (23%) and competent authorities (22%). Pharmacists, generic medicines industry and public payers had response shares of 15%, 14% and 11% respectively. Consumers (7%) and patients (6%) were less represented. The results from doctors are excluded in the stakeholder-specific analysis due to their low response rate (1%), but they are included in the overall and country-specific analysis. A3 provides an overview of responses per stakeholder and country.

Stakeholder assessment of policy objectives

Overall, stakeholders gave highest priority to the objective of equitable access to medicines (46 on a scale from 0/no priority to 50/high priority), followed by long-term sustainability (43) and timely access to medicines (42). Least priority was given to reward for innovation and increased competition (both 32). [Figures 2](#) and [3](#) show the assessment of the policy objectives by stakeholders and by country groups respectively.

Stakeholder assessment of policy measures

Overall, stakeholders considered pharmaco-economic evaluation as the most appropriate measure (rank 1) to achieve their policy objectives. VBP and a transparent reimburse-

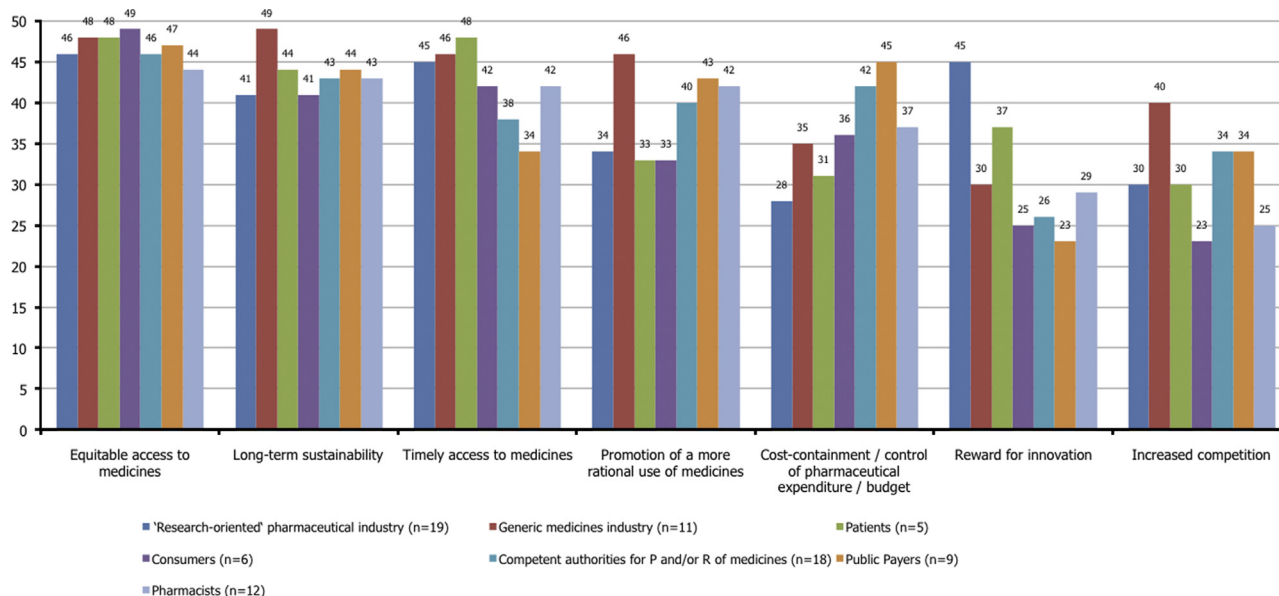


Figure 2 Preferences of policy objectives per stakeholder group.

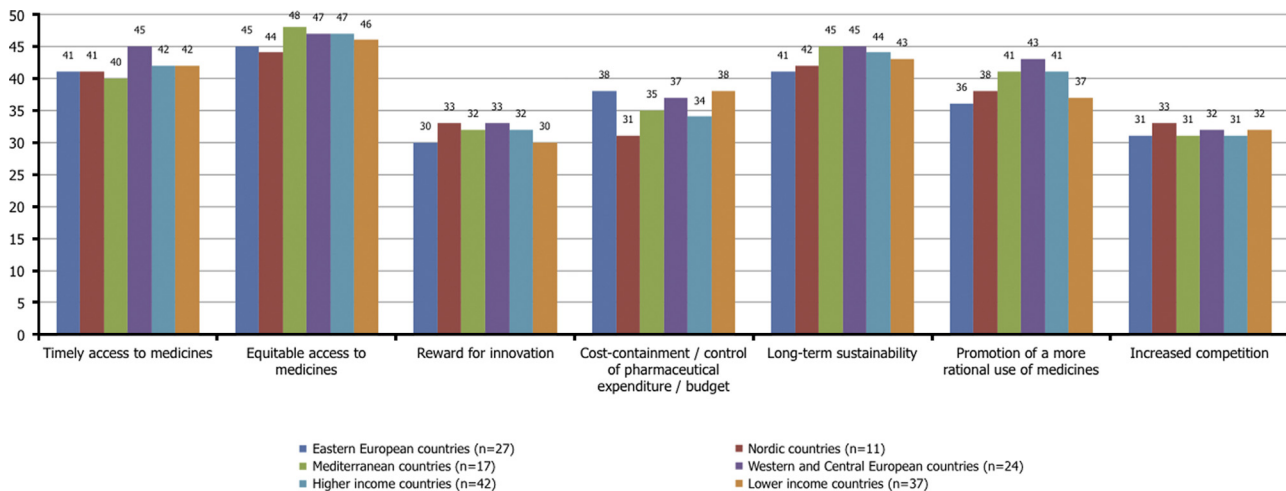


Figure 3 Preferences of policy objectives per country group.

Table 2 Ranking of preferences of policy measures, overall and per stakeholder group.

Policy measures	Overall	Research-oriented industry	Generic med. industry	Patients	Consumers	Competent authorities	Public payers	Pharmacists
Pharmaco-economic evaluation	1	1	4	6	5	2	2	1
Value-based pricing	2	2	5	11	1	7	3	8
Reimbursement process	3	2	6	10	6	1	3	3
Managed-entry agreements	4	2	6	5	6	6	10	6
Reimbursement review	5	5	7	9	4	7	5	6
Positive list	5	7	2	9	7	4	4	9
Reimbursement rates	5	3	3	6	6	8	8	4
Generic substitution	5	8	1	1	3	5	1	2
Reference price system	6	9	9	2	8	3	6	4
Pharmaceutical budgets	6	6	11	9	11	7	7	7
Differential pricing	7	4	6	4	9	11	12	11
INN prescribing	7	10	8	3	7	4	3	5
Co-payment	8	6	10	8	10	9	9	8
Discounts/rebates/price negotiations/clawback	8	7	12	4	11	10	11	13
Tendering	9	9	12	12	2	4	6	12
External Referencing	10	10	12	7	11	11	11	10

med. = medicines

Notes: The selected Multi-Criteria Decision Analysis approach (ELECTRE III) allows ranking policy measures on equal positions.

ment process based on clear rules were ranked second and third, followed by MEA. Discounts/rebates/price negotiations/clawback (rank 8), tendering (rank 9), and EPR (rank 10) were ranked last. All stakeholders agree in giving low preference to EPR and co-payments. There is some consensus in preferences related to pharmaco-economic evaluations (generally high acceptance) and policies around discounts and similar financial (price reducing) arrangements (low preference by most stakeholder groups). Across stakeholders, there are differences in the assessment of

tendering (lowest priority of all measures attributed by the generic medicines industry, patients and pharmacists, whereas it is considered as an appropriate policy by consumers and authorities), generic substitution (ranked first by the generic medicines industry, patients and public payers, whereas ranked rather low by the research-oriented industry), and DP (ranked last or second last by authorities, payers and pharmacists, but ranked fourth by the research-oriented industry and patients). Table 2 presents the results of the assessment of measures in total and

per stakeholder group, and Table 3 presents the assessment by country groups. Figure 4 shows preferences of aggregated stakeholder groups.

Discussion

To our best knowledge, this study was the first that surveyed stakeholder preferences related to policy objectives and measures in the field of pharmaceutical pricing and reimbursement.

Policy objectives

The concept of solidarity in European welfare systems appears to be reflected by the overall high preference for equitable access to medicines, with no major differences among stakeholder and country groups. Respondents apparently agree that long-term sustainability of the system is required to ensure access to medicines: so this

objective ranks second in the overall prioritisation. Related to the assessment of long-term sustainability, there are no great differences between country groups and only minor differences among stakeholders, with respondents from the generic medicines industry strongly supporting this objective, and the research-oriented industry doing this to a comparably lower degree. The generic medicines industry's focus on long-term sustainability can be seen in line with the medicines they produce, since generics (and biosimilars) are typically considered as a way to financially help sustain health care systems [26,30-32]. Cost-containment and reward for innovation were objectives that were, not surprisingly, prioritised differently by the research-oriented industry than by payers and authorities. Also consumers expressed low preference for cost-containment. Respondents of lower-income countries, particularly from the Eastern European region, are less opposed to cost-containment which might be attributable to existing financial constraints, particularly in times of an on-going crisis [4,6,33].

Table 3 Ranking of preferences of policy measures, overall and per country group.

Policy measures	Overall	Eastern European countries	Nordic countries	Mediterranean countries	Western and Central European countries	Higher income countries	Lower income countries
Pharmaco-economic evaluation	1	3	2	1	1	1	1
Value-based pricing	2	1	2	3	4	2	2
Reimbursement process	3	4	2	2	2	1	2
Managed-entry agreements	4	2	4	6	3	2	3
Reimbursement review	5	7	5	4	5	3	4
Positive list	5	5	3	5	7	4	4
Reimbursement rates	5	4	6	3	6	5	3
Generic substitution	5	6	1	6	2	2	5
Reference price system	6	8	6	9	9	7	6
Pharmaceutical budgets	6	5	8	9	10	7	5
Differential pricing	7	5	10	10	14	9	7
INN prescribing	7	10	11	8	8	6	8
Co-payment	8	8	10	7	11	8	6
Discounts/rebates/price negotiations/clawback	8	11	8	11	13	9	10
Tendering	9	9	7	12	12	10	9
External Referencing	Price 10	12	9	12	14	11	11

Notes: The selected Multi-Criteria Decision Analysis approach (ELECTRE III) allows ranking policy measures on equal positions. 'Eastern European countries' (11 countries, 27 included questionnaires)=Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic, Slovenia; 'Nordic countries' (3 countries, 11 included questionnaires)=Denmark, Finland, Sweden; 'Mediterranean countries' (6 countries, 17 included questionnaires)=Cyprus, Greece, Italy, Malta, Portugal, Spain; 'Western and Central European countries' (8 countries, 14 included questionnaires)=Austria, Belgium, Germany, France, Ireland, Luxemburg, Netherlands, UK; 'higher income countries' (14 countries, 42 included questionnaires)=countries with GDP/capita in Euro above the median of the 28 EU Member States, based on Eurostat figures as of November 21, 2013, i.e. Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Spain, Sweden, UK; 'lower income countries' (14 countries, 37 included questionnaires)=countries with GDP/capita in Euro above the median of the 28 EU Member States, based on Eurostat figures as of November 21, 2013, i.e. Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovenia, Slovak Republic; No answers from Luxembourg and France. Results from 2 questionnaires of organisations at EU level are not individually but were included in the overall analysis.

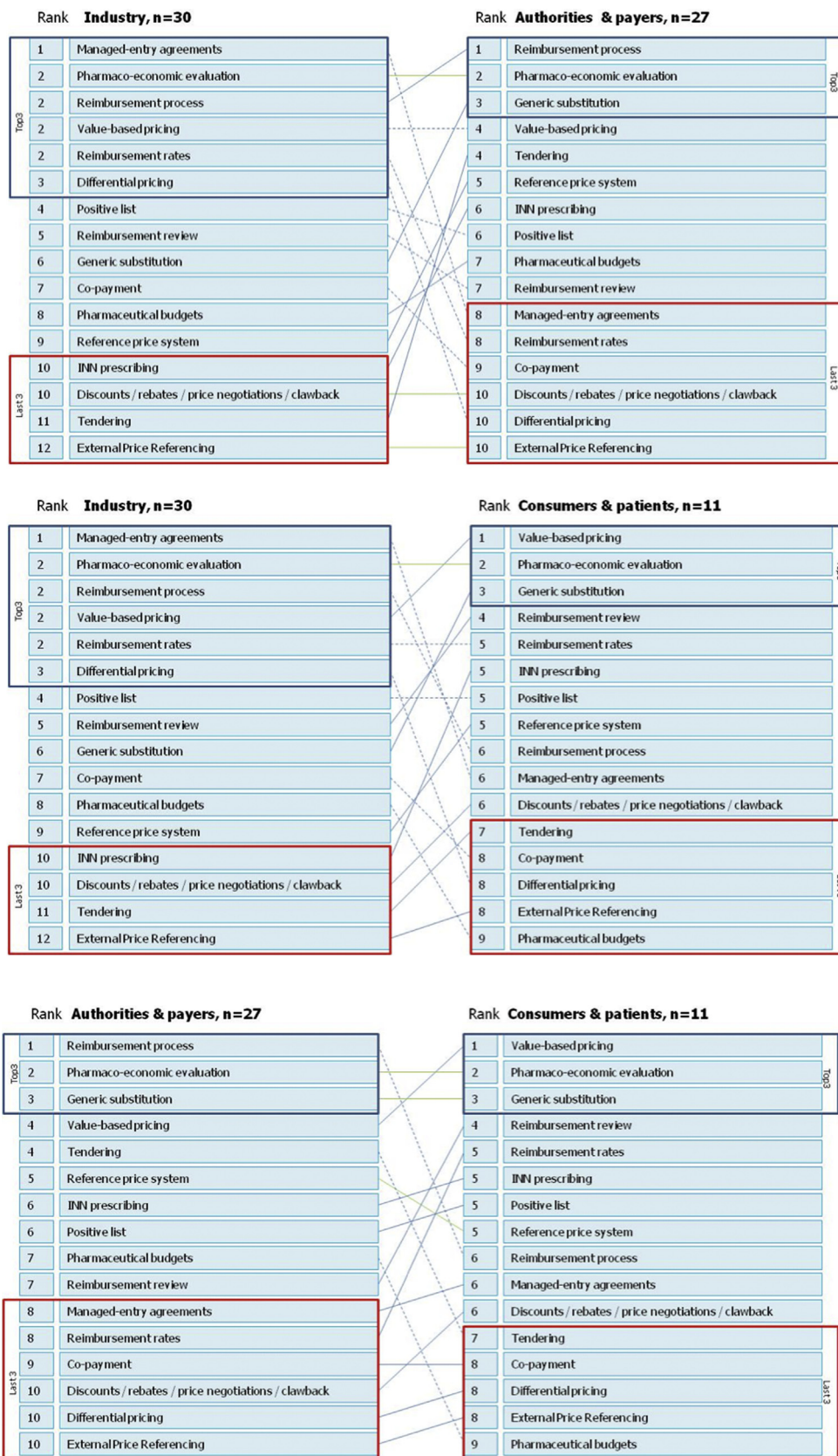


Figure 4 Comparison of the rankings of policy measures between aggregated stakeholder groups. Upper panel: pharmaceutical industry and authorities & payers Middle panel: pharmaceutical industry and consumers & patients. Lower panel: authorities & payers and consumers & patients. Notes: industry=research-oriented and generic medicines industry, authorities & payers=competent authorities for pharmaceutical pricing and reimbursement and public payers. The selected Multi-Criteria Decision Analysis approach (ELECTRE III) allows ranking policy measures on equal positions.

Policy measures

The low preference for EPR across all stakeholder and country groups was surprising given the wide-spread use of this policy in European countries, as was the rather high preference for VBP. However, discussions about the future pricing policies have been on-going among policy-makers of European countries for some time (e.g. the CAPR network maintained by the European Commission, with policy reports [22,24,34] done by the EMINet consortium supporting this network, and the PPRI network [29]). This indicates an interest in alternative pricing policies and, possibly, a need for change. Policy discussions and literature highlight limitations and negative effects of currently existing pricing schemes: EPR tends to incentivize marketing authorisation holders to launch medicines first in countries with high price levels to achieve high prices in further referencing countries whereas market entry in low-priced countries is likely to be delayed in order not to lower the international benchmark [4,19,33-37]. The OECD described EPR as a policy that is 'readily gameable by the pharmaceutical industry and - by reducing firms' willingness to price to market - contributes to access and affordability problems' [33]. Delays in availability and medicine shortages that have increasingly been observed in European countries are partially also attributed to pricing policies such as EPR [38]. EPR is often considered as a cost-containment tool, particularly by industry spokespersons that oppose this policy and has, as shown in our survey, also have low priority for cost-containment. Studies indicated the policy's potential to drive prices down if designed appropriately [39-41]. The methodological approach is, however, an issue because EPR is not the simple technical tool as it is often called [37]. Getting access to comparable price data and interpreting them appropriately is a challenge; recent networking and cooperation initiatives, including the European medicine price database Euripid, have helped to build the capacity of authorities and payers [19,29]. But EPR's capacity to contain costs is limited since referencing is done to the officially published 'list prices' in other countries, which are not the actual discounted prices [16,19,33,34]. In practice, in nearly all European countries public payers negotiate, at least for a range of medicines, discounts, rebates and other price reductions with the pharmaceutical industry [42]. Since discounted prices are confidential, authorities are required to refer to the higher list prices and thus risk overpaying. In the long run, the potency of EPR might be generally questioned - in particular given the expected convergence of medicine prices following the cross-referencing among European countries. However, studies could not confirm a convergence in recent times since upward and downward developments of medicine prices were observed in Germany and Greece, respectively [37,43].

One explanation as to why EPR continues to be widely used in spite of these limitations could be the lack of alternatives, or the non-agreement on alternatives. In the survey, the research-oriented industry and patients expressed their preference for DP which is being discussed

as a possible alternative to EPR. All other stakeholders rank DP low, often second last before EPR. This assessment might be influenced by the current legal framework in the EU which does not allow DP [19,37], and therefore respondents do not consider this policy as a feasible alternative. Additionally, we assume that several respondents were not familiar with the concept, and this might have contributed to their low preference for DP. The pharmaceutical industry, however, has experience with DP due to their use of this practice in the context of low- and middle-income countries. Patients, also favourable of this policy, might consider DP as an instrument to get more timely and equitable access to medicines, which were their most highly prioritised policy objectives. Respondents from lower-income countries (particularly Eastern European countries) express higher preference for DP than from higher-income countries; this would support the argument that DP is a policy favouring less affluent countries. But, again, it depends on the design of the policy: a major issue in the context is whether discounted prices under DP could be disclosed, or if they continue to be confidential. Confidential discounts are said to be an instrument for lower-income countries to achieving lower prices (thus allowing a kind of DP in Europe) [13], but there is no evidence as to whether price discrimination does, in fact, benefit these countries.

Discounts, rebates and similar financial arrangements that tend to be confidential have been given low preference across all stakeholder groups (except patients) and countries. Even the research-oriented industry is not very favourable to these arrangements though they tend to offer discounts to public payers. Apart from payers, stakeholders, particularly the research-oriented industry, tend to have higher preference for MEA. The general acceptance for MEA might be attributable to MEA's ability to grant access to new medicines of limited evidence on effectiveness [22]. But the frequent use of (confidential) discounts linked to MEA might have contributed to payers' reluctance to favour this measure.

An alternative policy for new medicines is VBP which reflects the added value of medicines and the willingness-to-pay concept [5,20,21,34]. Overall, stakeholders give high preferences to this policy, independent from their country background. However, authorities (but not payers), pharmacists and patients rank VBP low in accordance to their preferred policy objectives. A possible explanation might be that VBP needs a lot of investment. The practical application of VBP requires the knowledge of the money utility equivalent gain from health care [1]. Countries need to build substantial capacity in order to take informed decisions [19]; particularly smaller countries might not have the resources to do so though the study of Petrou and Talias 2014 [44] has shown the feasibility of VBP for a small European country (Cyprus) despite its complexity. The low preference of authorities for VBP and its actual low implementation rate in European countries might be linked to practical issues on how to implement it, which may also explain why England refrained from implementing VBP recently. However, even if VBP is implemented as a fully integrated pricing and reimbursement policy in only a few

countries world-wide, elements of VBP such as pharmacoeconomic evaluations and HTA are increasingly being used in European countries [5,21].

Stakeholders assess tendering in the out-patient sector differently. Industry, particularly the generic medicines industry, pharmacists and patients oppose this policy: industry probably because of the savings in public budgets, at least documented in the short run, and pharmacists and patients are likely reluctant given the observed medicine shortages following the implementation of this practice [19,23-45]. Authorities and, to a lesser extent, payers appear to be more favourable to tendering. Some respondents of these groups were from (smaller) countries with good practice experience of tendering for medicines in the out-patient sector (e.g. Cyprus, Baltic countries) [4,25]. The high administrative burden, the negative reaction of patients and other stakeholders and lower savings in the long run than expected might be possible explanations for authorities' and payers' reluctance to favour this policy.

Generic substitution is highly preferred by most stakeholder groups (except the research-oriented industry); the generic medicine industry, patients and public payers rank it first. While industry's and payers' assessment is likely linked to financial implications of that policy (sales and savings [4,30] respectively), the preference expressed by patients, and also consumers, is somewhat contradictory with regard to research about patients' reluctance to use generics. Interestingly, except for one consumer association in Sweden, responding patient and consumer representatives tended to be from countries with developing generic markets (cf. A3). Their high preference could be interpreted as a call for enhanced generic policies. But some data could be interpreted so that a successful implementation of a policy could have resulted in higher preference: Respondents from the Nordic countries, where generic substitution is seen as a 'good practice' [26], rank generic substitution first. We can only speculate as to why overall, stakeholders including the generic medicines industry attribute more preference to generic substitution than to INN prescribing. One reason could be that applying generic substitution successfully will make INN prescribing redundant. Another explanation could be that these two policies address different stakeholders, and pharmacists appear to be more open towards generics than doctors [31,32,46].

Patients' and consumers' preference for generic substitution suggests that they consider generics as an option for contributing to savings for public payers: this would allow investments into funding new medicines. Their reluctance to co-payments (shared with all other stakeholder groups except for the research-oriented industry) could be an indication to confirm this assumption. Our results regarding co-payments are similar to the findings related to user charges in another stakeholder survey on financial sustainability of health care systems according to which user charges were considered among the most politically unfeasible policy options, with industry being more in favour of them compared to other stakeholders [47]. However, the fact that in our survey stakeholders from lower-income countries are less reluctant to accept co-payments could be interpreted that these respondents, who also give comparably higher priority to the policy objective of cost-

containment, consider private funding as a necessity to ensure sustainability in situations of low economic growth.

Apart from the research-oriented and generic medicine industries with their clear business models and preferences for specific policies, all other stakeholders give high preference to measures addressing new high-cost medicines as well as generics. This suggests that a mix of different policies, addressing different products, is considered as the most appropriate approach to achieve the preferred policy objectives. This reflects common practice since countries have tended to move towards pricing and reimbursement practices that are adapted to distinct categories of medicines [13].

Limitations

The study has limitations. Despite the comprehensive strategy to contact, motivate and remind respondents, the response rate was rather low compared to the number of stakeholders invited. Therefore, we could only analyse either per stakeholder group, or per country group, but the low coverage did not allow for cross-country stakeholder comparisons. The low response rate can be attributed to two factors. First, the selected MCDA approach required stakeholders to indicate thresholds as a prerequisite for linking measures to preferred policy objectives. This was definitively a challenging task for many respondents, and some stakeholders might have decided not to respond or not completing the survey. Second, we addressed all stakeholder groups that we considered relevant, i.e. all those affected by pharmaceutical policies. Despite clear definitions some groups (particularly consumers, patients and doctors) had difficulty to understand the policy measures and did not complete the survey. Additionally we cannot exclude possible misinterpretations by respondents.

This study was intended to elicit stakeholder preferences, which are subjective. A survey of the rationale behind stakeholders' assessment was not the scope of this study. We acknowledge that the study did not consider the effectiveness of the measures, so, in principle, stakeholders might have prioritised measures that have limited effectiveness.

Conclusions

All stakeholders attribute high priority to equitable access to medicines, and there is comparably high concordance among stakeholder and country groups with regard to further policy objectives (e.g. long-term sustainability). Stakeholder preferences vary related to some, but not all measures. Stakeholders have different preferences on tendering, generic substitution and DP. However, all stakeholders express a low preference for EPR and co-payments and give value to pharmacoeconomic evaluations and, with one exception, to a clear, transparent reimbursement process.

Our findings suggest an interest in, and, possibly, a need for change, particularly related to pricing policies since the commonly used EPR policy is generally not considered appropriate to achieve the intended policy objectives. Since

opinions about alternative pricing options such as DP and, to a lesser extent, also VBP differ across stakeholders, a dialogue is needed about future pricing systems that would be able to achieve 'fair' prices for all. This is of particular relevance in the light of new high-cost medicines coming to the market that challenge public budgets.

The study brought insight into stakeholder preferences. To follow up, it is recommended to continue research in order to understand the motivation of the stakeholders behind their assessments. This could be done through qualitative research such as focus groups, for instance. Furthermore, since the study related to the out-patient sector but new high-cost medicines are likely to be predominantly used in hospitals, a similar study is suggested for the in-patient sector. These studies about preferences should be linked with research about the effectiveness of measures.

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Competing interests

The sponsor of the study was not involved in the authors' decision to produce and submit the article for publication. No separate funding was provided for the writing of the manuscript.

Ethical approval

Not required.

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Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.hlpt.2016.03.009>.

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