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XXIV/4/2020; pp. 3-10

COST-CONTAINMENT MECHANISMS FOR PUBLIC PHARMACEUTICAL SPENDING

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Pharmaceutical spending continues to ascend. Very expensive pharmaceutical products have been introduced on the market in recent years, thus increasing decision makers' concerns regarding the patient access to innovative treatments, and sustainability of their reimbursement systems. Despite the multitude of tools for containing public pharmaceutical spending, solutions have to take into account many factors in order to ensure both equitable access for consumers, and an acceptable budgetary balance. In Romania, public expenditures for compensated drugs were between 15% up to 25% of the National Social Health Insurance Fund during las decade, while medicines reached 26% of total health expenditures (according to OECD data). In order to cover the patient needs and face considerable challenges and pressure of pharmaceutic industry, comprehensive knowledge and rationally selection of those tools are needed to limit public pharmaceutical spending within available funds without obstructing the access to innovation.

Key words: pharmaceutical spending, EU, public health policies, sustainability.

BACKGROUND

Pharmaceutical industry is significantly different from others, while pharmaceutical market is not entirely comparable with other usual competitive markets. Besides the manufacturer and the final consumer of a new medicine, other „third parties" are involved, as the ones responsible with the approval, distribution, financing and availability of pharmaceuticals on the market:

- authorities / agencies in charge with market approval and withdrawal of the medicines, based on regulatory set of information, criteria and conditions;
- third-party payers (the government, national or social health insurance funds, private health insurance funds) play a role in financing the medicines; they act on behalf of the consumer or patient, and participate in making decisions related to drug reimbursement, compensation and access;
- wholesale suppliers are in charge with distribution of pharmaceutical products from source to retail points (for example pharmacies), and their interest is to purchase these products at the lowest price;
- prescribers are those doctors who make decision for their patients, as the patients have no knowledge nor information needed to decide which one is the most appropriate medicine for their own health problem or condition;
- pharmacists who dispense medicines usually follow the medical prescription of doctor on what they have to deliver, but their behavior might be influenced by various incentives related to the payment methods;
- finally, the Ministry of Finance frequently collects the VAT (usually lower than the standard VAT for other products), or any other tax / charge applicable to medicines prescribed and consumed.

Thus, it is self-explanatory that each one of the parties mentioned above has a legitimate interest in regard of pharmaceutical industry and its products. And the state intervenes on this market in several ways in order to protect the patients in terms of clinical efficacy and effectiveness, safety, quality and efficiency of medicines, as well as to promote and secure a proper and rational use.

On one hand, total spending for medicines constantly increases. On the other hand, new medicines tend to enter the markets at the highest prices as acceptable by the authorities and insurers, although the real costs of drug development, authorization, manufacture, marketing and distribution within the final accepted price, are not exactly known. (table 1)

According to latest OECD available data, average pharmaceutical expenditure per capita in the European Region varied between USD 310 in Russian Federation

Table 1. Pharmaceutical spending in several countries in European Region, 2018/2019 **[1]**

Country	USD per capita	% of health spending	% of GDP
Austria	665	12%	1,24%
Bulgaria	625	35,4%	2,6%
Cehia	508	16%	1,23%
Danemarca	318	6,4%	0,65%
Estonia	413	17,4%	1,16%
Franța	671	13%	1,47%
Germania	884	14,2%	1,63%
Ungaria	578	26,9%	1,8%
Italia	655	18%	1,55%
Norvegia	473	7,1%	0,75%
Olanda	430	7,5%	0,74%
Polonia	440	20,8%	1,32%
România	**416**	**24,7%**	**1,37%**
Rusia	310	18,2%	0,97%
Spania	598	15,3%	1,38%
Suedia	534	9,8%	1,07%

and USD 339 in Denmark, up to USD 894 in Switzerland and USD 884 in Germany. While total pharmaceutical spending accounted for 0.6^ of GDP in Luxemburg and 0.65% of GDP in Denmark, up to 2.02% of GDP in Greece and 2.6% of GDP in Bulgaria.[1]

METHOD

This paper is a review of the relevant literature and a brief analysis on this subject of interest for all the stakeholders involved: main policies, methods and tools for containing the public spending for pharmaceutical consumption across the EU region, including specific advantages and limitations.

RESULTS, DISCUSSIONS

Amongst the most important reasons for health authorities to intervene on the pharmaceutical expenses, to be mentioned are the following:

- Fear of price monopoly to be installed by the side of the patented medicine products. Apparently, these medicines have no direct competitors, but most of the time there is a competition between the original products in the same therapeutic class, and apparently this competition became increasingly important in recent years. Therefore, time span between occurrence on the market of the first original medicine of a therapeutic class, and the next one in the same class, is becoming shorter, from near 10 years in the '70s, currently to less than one year - Figure 1. [2]
- Fear of demand excess for medicines because, although the physician prescribes and the patient consumes, payment of medicines is mostly made by the government and thus there is no direct relation between demand and reimbursement;
- Legitimate concerns for equitable access to medicines – the government may intervene on the pharmaceutical market in order to make medicines as available as possible on a social equitable base.

Total expenditures for medicines in a country is the number of medicines dispensed multiplied by their sales prices. Spending goes up when the price increases, the volume increases, or when combination of prescribed medicines is changed. Demographic factors are reflected in the volume of healthcare demand, especially for pharmaceutical products, that increases faster than the number of population. Thus, pharmaceutical expenditures increase even if prices remain the same.[3] Although the prices of drugs generally do not rise after entering the market, the initial price per unite of medicines increases in real terms, while combination of existing medicines on the market changes by the occurrence of newer and more expensive products. Overall, the increasing demand for medicines is important.

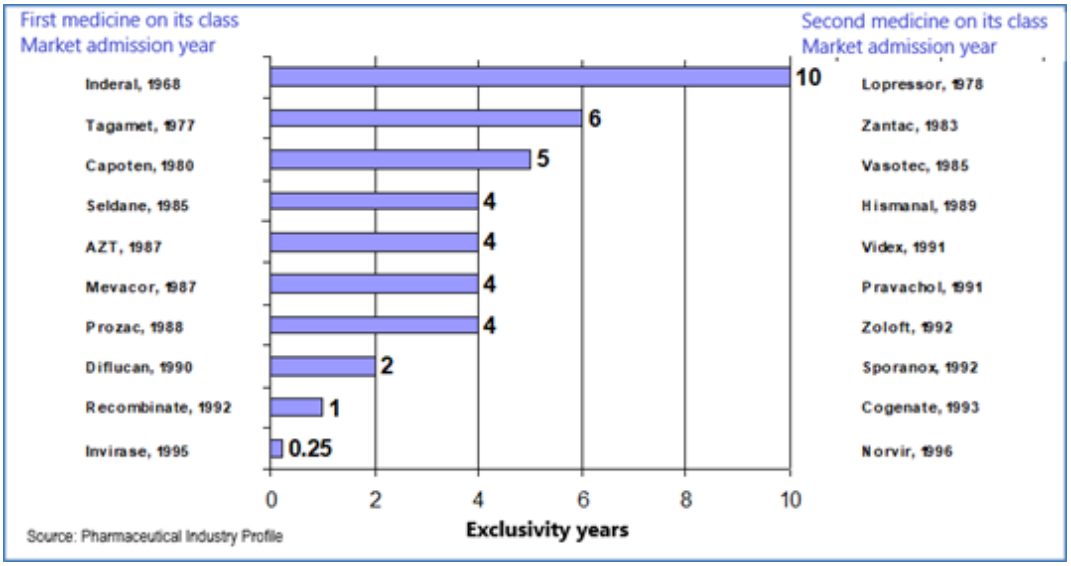
EU Member States use a set of various policies and regulatory tools in order to control the costs of medicines reimbursed from public funds. These instruments address specifically the different sectors and segments of pharmaceutical market, i. e. *the demand side*, and *the supply side*.

All the health authorities in European countries try to implement measures for control as well as incentives in order to influence both the provision of medicines (the supply), generated by the pharmaceutical manufacturers, and also the need or demand for medicines generated by the distributors, pharmacists, physicians and patients (the demand). While many countries focus on influencing the provision/ supply side, an increasing attention is paid to influence the demand. There is an unanimous agreement that, in order to achieve a more efficient use of resources for health care, including medicines, control of both demand and supply is needed, although it is harder to influence demand then to regulate the supply side, focusing on price agreements and/or price-volume ratio.

Supply control is intended to limit the cost paid by the authorities for compensated medicines, by price controlling and limiting their availability through positive and negative lists.

Medicines consumption can be controlled by the government through several mechanisms (figure 2). These mechanisms might be classified in three categories:

Figure 1. – Time interval for occurrence of second medicine in the same therapeutic class



- control the price of medicines;
- control the volume of medicines sold;
- control public expenses with medicines.

Regulating the supply/ procurement

Methods applied to supply side are mainly related to price or profit regulation, by regulatory systems on drug price control, or on profit of pharmaceutical manufacturers based on their sales to health insurance institutions.

Management in health
XXIV/4/2020; pp. 3-10

Price control is achieved on basis of several criteria:

- Cost approach, as the compensation price for a certain product is regulated on the basis of cost information provided by the manufacturing company;
- Comparisons with other countries in order to identify dominating prices for the same product, as a tool to establish the transfer price for active substance of the new product;
- Explicit system for setting an average price: manufacturer price in a certain country is set based on average prices from a group of countries selected by similar GDP per capita or by predominant price. Price is usually the mean value of prices in the group, or a certain percentage from this mean value, implying adjustments according to the budget; (figure 2)
- Negotiation between regulatory institutions and drug manufacturers, based on a set of criteria including clinical, therapeutic objectives, and also economic, budgetary and industrial policy;
- Direct correlation between price and volume of medicines consumed (price-volume negotiation), where prices varies inversely with volume consumed; payback stipulations have been established in recent years, and each manufacturer or their associations returns to the health insurance institutions the amounts earned over the agreed budgets;
- Reference price (of compensation) approach, when products are classified in categories on their molecular structure base, or their therapeutic similarity base.

Besides these methods, national decision makers have implemented, often ad hoc, a series of other measures, usually aimed to control public pharmaceutical spending and their escalation. Additional tools are:

- Limit the price revisions, primarily controlling price increase;
- Introduce price reductions;
- Price freeze;
- Correlate allocated drug budget growth with real economic growth rate (gross growth corrected by inflation);
- Set fixed budgets for expensive products;
- Set similar price („me-too pricing"), when a product automatically gets a low price as its similar product already on the market;

Settle the maximum threshold for retail prices is in contrast with maximum threshold of manufacturer price. Price control methods may be applied to all medicines (patented, generics, prescribed, OTCs), either compensated or not compensated.

- ***Price control***

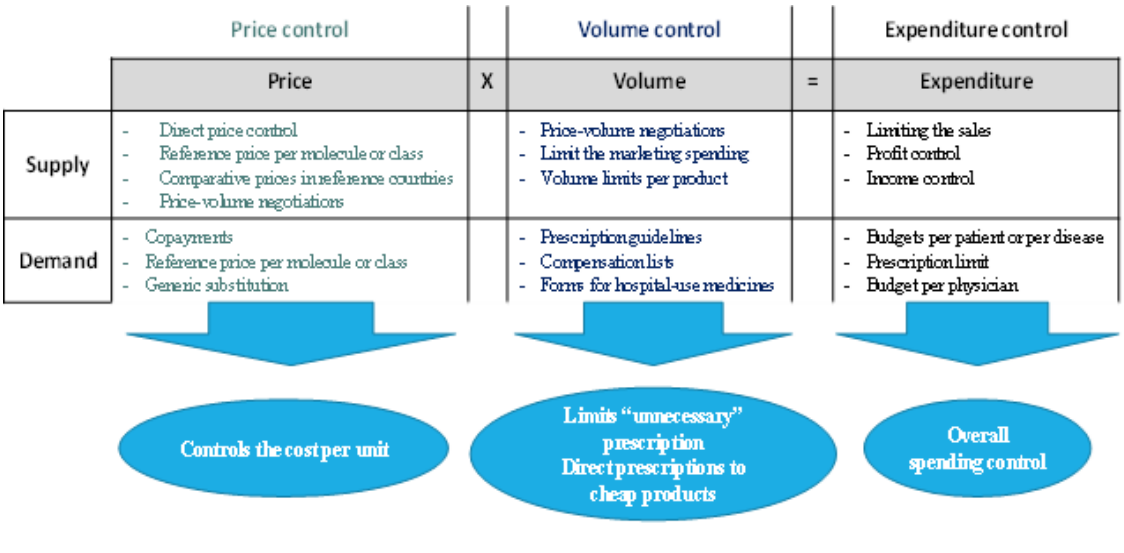
Price control limits the product sale price on the market, regardless the compensation or to whom it is sold. Amounts to be paid by the health funds and patients are based on the interdependence between price, compensation and copayment. Of course, there is a strong motivation to control the amount that has to be compensated.

In most countries, a maximum amount for drug compensation is still included in a positive list. It is calculated based on a current price of the medicine, or in relation to the price of other similar medicines on market, or considering explicit comparative prices from neighboring countries (average price). Patients has to pay any difference between this amount and the medicine price if this is higher, and if allowed to be higher.

In other countries, a compensation price has to be calculated if medicine has to be compensated. It usually becomes the market price, because regulations in most countries stipulate that the medicine can be marketed at a single price, and access without compensation is severely restricted. If medicines are 100% compensated, price control is the only one to limit the amount paid by the health insurance.

Price is important also in the countries where patients pay the difference between the drug price and maximum amount compensated. Authorities are motivated to make that the patients are not burdened more than the amount they are able to pay, according to public health basis, social solidarity and economic efficiency. On the market where usual supply-and-demand laws do not work because of the above-mentioned reasons, price control appears to be justified.

Figure 2. Drug consumption controlling mechanisms **[4]**



Source: The Boston Consulting Group: Ensuring Cost-effective Access to innovative Pharmaceuticals", April 1999, p.11

- ***Price revision***

Price revision process is traditionally based on the →

same principles as initial price or compensation price are set. However, almost each European country has negotiated or decided a freeze or a reduction of prescribed medicine prices in recent years. In some states, fixed percentage decrease of price is applied for all the products. In other countries, pharmaceutical companies are allowed, to some extent, to modulate prices reduction for their products, on condition that overall cost reduction to be at least the same (for example, Great Britain and Ireland). In Sweden, price increase is not allowed for two years after the release of product compensated by insurance fund (2005). Moreover, any price increase over 10% must be approved by the health insurance institutions. In France, Government uses direct price control for certain medicines. Drug price and compensation decisions are negotiated between the pharmaceutical companies and Comité Economique de Produits de la Santé - CEPS (former Comité Economique du Medicament). [5]

Price-volume agreements

Once the compensation price is approved, authorities in charge have to pay for a medicine for as long as it is appropriately prescribed. If this obligation was not bound by other conditions in the past, more and more price-volume agreements are presently negotiated. Agreements between manufacturers and authorities stipulate both volume of medicines to be sold within a given time period, based on sales' prevision, and the price to be paid by authorities for the medicines in question. If the sales volume is exceeded, agreements may provide discounts on drug prices or payments made by manufacturers to the authorities. Difficulties in implementing this mechanism are related to the criteria for settle the price, volume, and discount within agreements, that ultimately represent the subject of negotiation between authorities and manufacturers, and can be more or less subjective. [6]

Another measure is related to periodic price reductions, in case that manufacturers had access on the market and compensation at high prices, but concomitantly they had to accept a steady reduction of price, according to regulatory provisions.

- ***Reference price***

Some European countries use various reference price versions, in which pharmaceutical products are grouped on basis of equivalence or similarity with other products, for purpose of compensation. Reference price system is commonly used in Belgium, Czech Republic, Germany, Hungary, Italy, Spain and Sweden. Besides Netherlands, using therapeutic reference price, all the other countries apply reference prices only at molecule level (INN).

Another alternative is the reference price per therapeutic class, meaning the lowest price of a medicine in a therapeutic class.

- ***Economic evaluations of health services***

In many countries, compensation price is negotiated according to various factors. Therapeutic benefit of one product against its competitors is often mentioned as an argument. If one product is of superior therapeutic effectiveness, it will be compensated regardless of any economic evaluation results. On the contrary, if therapeutic benefit is marginal, a price over its value at its competitors is difficult to be justified, and economic evaluation is unlikely to be useful. Target allocation of resources is discussed in terms of compensation applied to those cost-efficient medicines compared to QALY (e.g. a threshold per QALY starting with 15.000 EUR). [7]

Health Technology Assessment (HTA) and Horizon scanning

As European states are interested especially in long-term clinic impact of the new treatments, as well as to identify existing ineffective and inefficient medicines, complex tools have been developed with the purpose of attaining appropriate scientific evidence that allow informed decisions regarding prescription, resource allocation, procurement and reimbursement of new medicines. Collaborative efforts of many countries, with EU support (EUnetHTA Project), have been performed to set and implement a comprehensive core model for HTA, inclusive medicines, as following: collaborative level - rapid relative effectiveness assessment, health problem, medical technology currently used, description and technical features, safety, clinical effectiveness; national level - costs and economic efficiency, ethics, organizational aspects, patient and social elements, legal aspects. Therefore, gather and transform HTA efforts into a European (sur-national) competence, essential for exchanging methodologies, methods, good practices, data and public policies between the Member States, especially for pharmaceuticals, are discussed.

Horizon Scanning is an exploratory, quantitative systematic review developed to determine potential issues, side effects, opportunities, threats, good practices and trends of the new health technologies of pharmaceutical interest. If solid, this research type is able to provide the necessary documentation for prioritizing important technologies, developing drug strategies, anticipating evolution and influence trends in a certain context. Several European states currently use this tool within their package of information and criteria used to project their budgets for medicines and control mechanisms.

Demand side regulation

Pharmaceutic therapy prescribed by the family physicians is generally recognized as a cost-effective method to insure health care for most people. Authorities are aware of the possibility that, if there are limited categories of compensated treatments, or the cost is too high for the patients, to issue repercussions on the public health and cost implications, while more and more patients request hospital admission.

- ***Influencing the prescriber***

Physicians prescribe medicines for their patients. In Europe, primarily criteria used for selection of medicines are the therapeutic needs, and choice is carefully defended. There are some restrictions regarding the

medicines that can be prescribed, although not all medicines can be compensated. Usually, duration of treatment for prescription and, sometimes, the number of medicines which can be prescribed, are regulated. Usually, patients are not involved in decision making, even if this becomes more frequent in several countries, especially when therapeutic alternatives have significant financial implications for the patient, or if the doctor considers that additional benefits provided by the best medicine do not count more than an increased cost for social health insurance funds.

There are three categories of provisions influencing the medical prescription. Two of them are used most of the times, but in some countries all three of them are used:

- The most important one is to restrict prescribed or compensated medicines, by using positive or negative lists;
- The second category, widespread, is to adopt and publish guidelines mainly based on therapeutic reasons; these guidelines influence the medication prescribed by physicians and, in some countries, the way the medical prescription is written;
- Third category refers to budgets introduced to motivate physicians to consider the costs when choosing between the treatment alternatives.

- ***Positive or negative lists***

By definition, all the medicines need approval for registration, as required according to regulations, before they are placed on the market. However, the authorization for the market is not equivalent with the coverage from the social health care system. All the European countries use restrictive lists. National regulations related to compensation use exclusion or inclusion forms. In the countries operating an inclusion system, medicinal products receiving marketing authorization shall be automatically compensated, while the drugs excluded from compensation are on the "negative list". In those countries using an exclusion system, pharmaceutical companies apply to obtain the status of "compensated medicine" for their products. If approved, these medicines are included on a "positive list".

Inclusion criteria for a medicine in the compensation system, and mechanisms for evaluation of its eligibility, differ across the European countries. Therapeutic benefit is usually an extremely important consideration, taken into account in many countries, more frequently next to the cost-efficiency evaluation. Sometimes, inclusion on the compensated medicines list is used by the authorities as an instrument to delay the entry of new medicines into the market, in order to limit the expenditures. On the other hand, faster approval of the marketing authorization for new products infers facilitating access to the newest medicines, at the risk of not having enough data regarding the safety on long term use. Interest of the FDA to extend post-marketing follow-up, facilitating the faster entrance of new medicines on the market, while physicians are urged to flag any side effect of those medicines, it is a sign of tipping the balance towards the access by accepting a higher risk.[8]

- ***Prescription guidelines***

Purpose of drug-prescribing guidelines is to set up, as much as possible, a rational utilization of medicines, consistent with their indications and therapeutic needs of patients. Guidelines are usually elaborated by, or in collaboration with professional organizations (College of Physicians), and recommend the steps to be followed when addressing different pathologies and the treatments to be administrated. Physicians are generally sensitive regarding their freedom to prescribe treatments for their patients. Therefore, they need to be encouraged to avoid excesses and make decisions, leading by the most recent scientific consensus, i.e. international guidelines. Their role is to inform and assist the physicians in making the best decisions for their patients.

- ***Prescription budgets***

This is about settling budgets for physicians, limits per prescription, limits per patient or budgets for medicines, or total health expenditure amounts per regions. Budgets set for doctors apparently limit spending with pharmaceutical prescribed in ambulatory, but often lead to increased expenditures in hospitals, where treatments for the same diseases are far more costly. Germany was the first country to adopt reference price in 1989, then Netherlands in 1991, and New Zeeland in 1993. Introducing budgets per physician in Germany in 1989 did not limit drug spending. [9]

- ***Dispense of prescriptions in pharmacies***

Freedom of the pharmacist in drug prescription dispense is established by the national regulations, depending to the way of prescription writing and the right to substitute. If therapeutic substitution, or substitution with similar medicines, is allowed, the right to substitute may include many options. Brand-name prescription (based on market denomination) is the most frequent one in Europe, while the prescription based on international nonproprietary names (INN) is not so common.

Generally, pharmacists have to dispense exactly the medicine as prescribed. In most of the European countries, substitution is allowed only in exceptional circumstances and with consent of the prescriber physician; but EU trend is to encourage use of generics and this implies either INN prescription or generic substitution. There are countries where INN prescription has dramatically increased in last 20-30 years. For example, 4/5 of medical prescriptions in the United Kingdom are on INN, comparatively with only 1/5 at the beginning of 80's (from 20% in 1976 up to 84% in 2013), leading to important savings for the NHS. [10]

When substitution is allowed, doctor should tick the box of consent for substitution in the prescription form, and the pharmacist decides what medicine dispenses; in this situation, there are no penalties if the pharmacist replace the drug with a cheaper product. In few cases, financial incentives are provided – usually a percentage of the difference between the cost of prescribed product and the cost of dispensed one. An example is France, where pharmacists

receive financial incentives for generic substitution - regulation introduced within the health reform since 2004. [11]

- ***Influence demand through the distribution chain, including pharmacies***

EU directives specifies the terms/conditions to be fulfilled by wholesales pharmaceutical distributor in order to activate, and requirements imposed by the public services. National authorities set the distribution margin. In some cases, both whole sales and retail distribution margins are, while in other cases, total distribution margin is set. Several countries have introduced regressive margins, especially for the pharmacies. Discounts for distributors or pharmacies are allowed, but with limits.

In all European countries, gross income of distributor (difference between sales prices and buying prices) is financed to a large extent from health insurance funds. Therefore, authorities are not interested to allow distributor a margin larger than necessary, because it increases the costs of compensation. In the same time, distributor has little influence on the volume or selection of medicines, and no influence on the price.

Pharmacies charge a percentage added to the drug price, or a fixed add per each cutie de medicine sold or, in some cases, a combination between the two.

Pharmacists may determine or influence the dispense of medicines. In order to favor the sales of certain products, pharmacists may receive financial incentives from authorities, pharmaceutical companies or distributors.

- ***Patient copayment***

Patient copayment can be set as following:

- as a fixed amount (per product, per prescription, or depending on the medicine pack);
- as a percentage of value of prescribed drug;
- as a deductible amount up to a certain limit;
- as a combination between the above methods, usually a fixed amount or a deductible amount plus a percentage of the drug cost.

Patient copayments can be supplemented, as they are settled, with exemptions, exceptions or reductions, for example: for chronic or severe diseases, medicines with high effectiveness, social disadvantaged groups, or persons from certain age groups.

Copayments are to be used in two situations: when the health expenditures are low (because of insufficient funding sources) in order to generate additional funds, and paradoxically, when health expenditures are high, for modelling the demand and costs. [12] Increasing the patient copayment could be a way to reduce the costs of health care system, but it should be carefully used in the cost controlling strategy. In the Netherlands, introducing a copayments of 1.15 EUR per prescription led to a decrease in the number of prescriptions, concomitantly with increasing the number of medicines per prescription, then leading to the cancelling of this regulation. Currently, maximum copayment allowed is EUR 250 per patient for the medicines exceeding the reimbursement limit/ceiling, while insurers are to cover the rest of the cost. [13]

In case of transferring the financial burden to the patient, this could lead to increasement of the health care costs by raising the expenditures for hospitalization.

Taxes

The VAT value applied to the pharmaceutic products may vary. Some countries have standard taxes or reduced taxes for all marketed drugs, while other countries differentiate between prescribed or compensated medicines, and those not prescribed and not compensated.

Pharmacies pay or compensate the medicine price as regulated, including VAT. Compensation expenses are covered by the health insurance fund, while the fees applied to compensated medicines increase these expenses. Therefore, many countries set a low for the medicines on prescription. Taxes pe goods and services financed from public funds represent a transfer of funds from a public institution to the central treasury. The deficit of the health care budget can be reduced by reducing the VAT.

Other additional taxes applied specifically in pharmaceutical industry are rare. Taxes on sales of the compensated medicines, as a component of the cost containment policy, may be applied. An example is the clawback tax, when medicine manufacturers (not distributors, nor pharmacies) have to return to the state a share of the profit from the sales of compensated drugs exceeding their amount allocated from the state budget or from the national/social health insurance fund, for a given period of time (one year). This kind of tax was introduced also in Romania.

Generic substitution

Generic drug is a substitute of the original medicine with expired patent. Generic drugs must follow the quality standards required by the agencies in charge with pharmaceutical control in each country, and to prove the bioequivalence with the original drug., after entering the market, population access to that therapy increases because of its lower price, and in the same time price competition increases, thus generating savings to the pharmaceutical budget, even if for short term.

In the USA, first generic drug tends to enter the market with 40% up to 70% off the price of the original drug. [14] As other medicines appear on the market, the price decreases to 29% when there are 10 competitors, or even to 17% when there are 20 competitors.

Mechanism of price reduction is mainly due to the fact that the cheapest generic of an original drug is considered the reference price, and compensated, which stimulates the price competition between generics, and implicitly, reduction of price. Competition on generics produced a significant effect of reduction of drug prices, in countries where generics have been encouraged through compensation systems with reference prices (e.g. Germany), or where various schemes of incentives for physicians

to release prescription per INN have been used, such as in the United Kingdom. [15]

In Europe, policies for reference price of generic drugs differ from country to country, but generally are favorable because they artificially set price limits but concomitantly create higher basic prices generics. [16]

At the EU level, recommendations for containment and control of the public spending with pharmaceuticals are based on the following considerations and instruments:

- Decisions regarding the public pharmaceutical spending / reimbursement should to be transparent, based on relevant criteria (scientific evidence-based, using HTA) and periodically reviewed. Implementation of a comprehensive regulatory framework promoting transparence (including on prices), at the level of each EU Member State, would significantly contribute to control and reduction of the public pharmaceutical spending.
- External reference price, in parallel with incentives for rational use of pharmaceutical products, provide the authorities with a tool for price control and implicitly a potential level set for drug expenditures.
- Introducing specific measures to limit the drug costs using rabat, recovery and clawback tax, might also influence the predictability of pharmaceutical spending.
- Internal reference price, utilized to favor the generics on competitive market, generates increasement of the market share of these medicines and, consequently, savings.
- Generic substitution in pharmacies leads to reductions in pharmaceutical spending and even in the market prices of some pharmaceutical products.
- In order to encourage the consumptions of generics, both their market authorization/approval and the regulations on their price and reimbursement, should be achieved in a reasonable period of time.
- Sale was adequate and efficient for purchasing medicines in hospitals on the first place, but also in ambulatory care, because it conducted to reductions in price and consequently substantial scale savings. International systematic sale organized by many countries from a region or group, is a certain opportunity.
- Cost sharing encourages a more rational use of medicines, determining patients to be more aware of drug costs and, implicitly, to ask for cheaper generics, but it should secure the use of effective and profitable products without affecting the use of essential pharmaceutical products and the patient health, while vulnerable groups should benefit of full coverage.
- There are also tools to influence medical prescriptions of doctors to a more rational use of medicines, through electronic prescription, monitored electronic system, with guides and feedback for physicians who prescribe. These instruments help to control the costs of medicines, and to avoid over-prescription and incorrect combination of drugs in cases of more coexisting conditions and diseases. [17] (Table 2)

***Table 2. Information and criteria considered for projection of pharmaceuticals use and expenditures in several European countries* [18]**

Information / Criteria	Austria	France	Nether-lands	Czech Rep.	Norway	Estonia	Sweden
Demographic data and trends	X	X		X			X
Population burden of diseases	X	X		X			X
New medicines expected to obtain market authorization and to be covered by insurance	X	X	X	X			X
Previous trends in the pharmaceutical spending	X	X	X	X	X	X	X
Estimated budgetary impact assessed for coverage or reimbursement		X		X	X	X	
Changes in generics / biosimilars	X	X			X	X	X
Changes in prices of medicines	X				X	X	X
Modifications in prescription / treatment models	X						
Horizon scanning (systematic examination)	X	X	X		X	X	X

CONCLUSIONS

National pharmaceutical policy needs to meet the following main objectives: patient **accessibility** to the medicines they need (as prescribed), **quality** assurance, and also **safety and effectiveness** of all medicines, and not the least, **rational use** promoted according to therapeutic indications and cost-effectiveness of medicines.

Appropriate legislative framework creates the legal basis for activities of drug manufacture, import/ export, distribution, marketing, inclusion in compensation list, prescription and dispense. It ensures the implementation and support of the national health policies through the laws and regulations settling rights and responsibilities of all actors of the health care system, including the medical doctors, pharmacists and national agencies for medicines.

Decisions made by health authorities in order to make health policy more efficient au complex implications

and thus it is important to evaluate short- and long-term impact of each action. Instruments recently developed at European level for systematic HTA allow informed, evidence-based decisions related to market release, marketing, prescription, sales, use and reimbursement of the new medicines. On the other hand, it is very important for national policies and decisions related to medicines to be transparent, based on relevant data, scientific evidence and criteria, and using proper instruments for spending control and limitation, with periodical revisions, prioritizing population needs objectively assessed. Realistic projection of the pharmaceutical consumption and public spending need to consider demographic, morbidity and mortality trends, as well as changing tendencies of drug prices, and good practice models utilized for drug prescription and treatment.

References

1. OECD, Date privind cheltuielile farmaceutice, 2018-2019, accesate în februarie 2021 https://data.oecd.org/healthres/pharmaceutical-spending.htm
2. Pricewaterhouse Coopers, *Survey on Pharmaceutical Industry Profile data regarding occurrence of new medicines*, November 2000
3. Michael Mandel. *The 'prescription escalator' may be to blame for rising out-of-pocket drug spending*. STAT, November 13, 2020, https://www.statnews.com/2020/11/13/drug-spending-increase-for-many-americans-prescription-escalator/
4. The Boston Consulting Group, *Ensuring Cost-effective Acces to Innovative Pharmaceuticals*, April 1999, p.11, cit. in Price Controls and the Evolution of Pharmaceutical Markets, by Kevin Hassett, WHO, 2004
5. Comité Économique de Produits de la Santé (CEPS) – organism interministerial cu două secțiuni - secțiunea Medicamentului și secțiunea Dispozitivelor medicale, sub autoritatea ministerelor sănătății, securității sociale și economiei.
6. Hui Zhang, Gregory Zaric, Tao Huang. *Optimal Design of a Pharmaceutical Price–Volume Agreement Under Asymmetric Information About Expected Market Size*, POMS Wiley, Vol.20, Issue 3, p.334-346, 20 January 2011
7. David Cameron, Jasper Ubels, Fredrik Norstrom. *On what basis are medical cost-effectiveness thresholds set? Clashing opinions and an absence of data: a systematic review*, in Global Health Action, 2018 Mar 22; vol. 11(1): 1447828, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5930346/
8. FDA, Post-Market Drug Safety Monitoring. *Guidance for Industry - Reports on the Status of Postmarketing Study Commitments — Implementation of Section 130 of the Food and Drug Administration Modernization Act of 1997*, February 2006, https://www.fda.gov
9. Katarina E. Fischer, Taika Koch, Karel Kostev, Tom Stargardt. *The impact of physician-level drug budgets on prescribing behavior*, in European Journal of Health economics, 2018 Mar; vol.19(2): p.213-222
10. NHS, GMMMG: *Generic Prescribing Guidelines,* version 2.0, February 2019
11. Jacques Rottembourg, Jessica Nasica-Labouze. *The implementation of generics in France*, in Generics and Biosimilars Initiative Journal, 2015, vol. 4 (Issue 3), p.136-140
12. WHO. *Medicines Reimbursement Policies in Europe*, 2018, Regional Office for Europe of the WHO, Copenhagen, https://www.euro.who.int/__data/assets/pdf_file/0011/376625/pharmaceutical-reimbursement-eng.pdf?ua=1
13. Government of Netherlands, Medicines – *Keeping medicines affordable*, https://www.government.nl/topics/medicines/keeping-medicines-affordable
14. Ryan Conrad, Randall Luther. *Generic Competition and Drug Prices: New Evidence Linking Greater Generic Competition and Lower Generic Drug Prices*, FDA Report, MD, USA, December 2019
15. Generics and Biosimilar Initiative, *United Kingdom Policies and Legislation*, 16.04.2015, https://www.gabionline.net/Country-Focus/United-Kingdom/Policies-and-Legislation
16. Cecile Remuzat, Duccio Urbinati, Olfa Mzoughi, Emna El Hammi, Wael Belgaied. *Overview of external reference pricing systems in Europe*, in Journal of Market Access & Health Policy 10 Sept. 2015, 3: 27675
17. Giuseppe Carone, Christoph Schwierz, Ana Xavier. *Cost-containment policies in public pharmaceutical spending in the EU.* Economic Papers 461 | September 2012, EC, Bruxelles, https://ec.europa.eu/economy_finance/publications/economic_paper/2012/pdf/ecp_461_en.pdf
18. OECD, *Pharmaceutical Expenditure Tracking, Budgeting and Forecasting in 23 OECD and EU countries*, 2019, https://ec.europa.eu/health/sites/health/files/policies/docs/pharmaceutical-expenditure-country-notes-april-2019_en.pdf