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The Introduction of Biosimilar Medicines into Healthcare Systems as a Health Policy Measure to Save Resources: A Major Challenge to Improve the Efficiency of the Greek Healthcare System

Fragkiadakis F Georgios*

Department of Social Sciences, Hellenic Open University

***Corresponding author:** Fragkiadakis F Georgios, Ph.D, Health Economics, MSc, Ma, Collaborating Academic Staff, Hellenic Open University, Patra, Greece.

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Abstract

Data from the international bibliography show that biosimilar medicines enable considerable cost savings for healthcare systems, as they are offered at a lower price compared to biological reference products. The combination of supply and demand-side measures can increase the impact on the increased utilisation of biosimilars and the saving of resources in a healthcare system and consequently increase the efficiency of a healthcare system. According to recent data, biosimilars are 15-45% cheaper than reference biologics in both the EU and the US, with prices for biologics varying from country to country. In the Greek healthcare system, the acceptance of biosimilars is still low, mainly due to the time required for the authorisation of these drugs by the Greek Medicines Agency (EOF), as well as the lack of knowledge and incentives for pharmacists and doctors regarding their administration. The Greek healthcare system can improve spending on medicines by following the example of other countries and at the same time regulating citizens' equal access to new and more efficient medicines.

Keywords: Biosimilar Medicines, Healthcare Resources, Efficiency, Equity, Healthcare System

Introduction

Healthcare systems are an important component of social welfare in various countries and therefore account for a significant proportion of the expenditure required for their effective functioning. Looking at the policies of recent years aimed at limiting health expenditure, combined with the ageing population, the rising costs of life-threatening health problems and the recent health crisis caused by the coronavirus, it is easy to conclude that health systems are and will continue to be under economic pressure while trying to maintain their efficiency [1-3].

Biotechnology emerged in the early 20th century and can be broadly defined as the use of biological organisms, systems and processes to manufacture products or provide services [4]. It is a rapidly developing industry with applications in many areas, one of which is drug development. Millions of patients around the world have already benefited from approved biological medicines for the treatment of chronic diseases such as diabetes mellitus, autoimmune diseases and cancer [5]. However, their production is usually precise, time-consuming and complicated, giving the most cost-effective biologics an advantage [6].

A significant proportion of healthcare expenditure in all healthcare systems is attributable to the use of biological medicines [7] for diseases such as cancer [8], diabetes [9] and autoimmune diseases [10]. These preparations accounted for almost 50% of the country's drug expenditure in the US in 2019, while in Europe the cost of

the ten most common biologic drugs reached €16.5 billion in 2017 [11], which has a direct impact on healthcare systems as it is associated with poor patient adherence to therapeutic protocol [12].

The European Union (EU) was the first region in the world to create a legal framework for the regulation of biomedical medicinal products with the European Directive 2001/83/EC and subsequent amendments [13]. In 2006, Sandoz's movement convinced the European Commission and the way was paved for the authorisation of more and more biomedical drugs [14]. The EU guidelines are regularly revised and refer to the strict regulatory requirements of the European Medicines Agency in terms of biomedicine, comparability, immunogenicity, extension, pharmacovigilance and traceability [15]. Corresponding instructions have been issued by the World Health Organisation (WHO) and adopted by several members [16,17].

The Value of Introducing Biotechnology into Modern Healthcare Systems

The obvious advantage of using biomedical products is that their competitive price compared to biological products saves healthcare systems large sums of money [18,19]. However, saving these funds can lead to even better outcomes in terms of efficiency and biological therapies by refinancing them [20] and increasing the number of people eligible for biological treatment, so that it often becomes the first choice. This means that citizens' access to new treatments will increase, as they can be used for a larger proportion of the population (and thus for earlier stages of a disease) due to their lower cost and, on the other hand, savings for the healthcare system will be realised through the use of biosimilar [21]. These cost savings can be channelled back into the healthcare sector in various ways [22]. For example, more healthcare staff can be employed, waiting lists can be shortened, the system can make optimal use of its healthcare resources [23,24] and the infrastructure can be modernised [11]. In addition, the entry of biosimilar drugs into the pharmaceutical market has given doctors the opportunity to expand the treatment options in their quiver and ensure that patients have access to modern treatments, reducing the same expenditure previously required to treat their diseases. All of this seems to have a major social impact as it reduces the unacceptable need for medical care, especially in countries with a moderate to low standard of living [25].

Biosimilars are now an integral part of the biopharmaceutical market. Global spending is growing by 11% annually and accounts for 25% of the pharmaceutical market. In 2018, spending totalled 233 billion euros, while it is expected to reach 388 billion euros in 2022 [26]. This category of drugs is available at a price that is at least 15-45% lower than that of reference drugs, with Humira achieving a price advantage of 80% [26,27]. The savings from biosimilar are therefore considerable and are confirmed by a large number of studies [11,28,29]. Although the Covid-19 pandemic has affected the prescription of biosimilar drugs in the EU, they have continued to generate significant savings, estimated at over €5.7 billion [30]. In fact, the extent of savings is largely determined by pricing, reimbursement and the demand side of policy. The European Commission is authorised to take policy measures to facilitate their further use [31].

Policy Measures to Regulate the Market Entry of Biomedical Drugs: Introduction and Pricing

The market entry of biomedical drugs started slowly over the last decade and already in June 2020 we have reached the point where 58 of these preparations have been authorised in the European Union and 29 by the US Food and Drug Administration. Two months later, 25 biomedicals from 12 reference drugs received the corresponding authorisation in Canada, while 27 preparations were only approved in Australia in 2020. Widespread access to biologics is not only a prerequisite for their market development, but in the example of Europe, which was the first to launch biologics, the mood of stakeholders played a very important role. of the healthcare system, physicians and patients [32]. Attempts to expand the use of these competitive products therefore also require strategic planning for their promotion [33]. Education of healthcare professionals [34] and the provision of comprehensive information to patients about the potential advantages, benefits and mode of action of biomedical drug preparations [35] are very important. A key role can be played by the clinical pharmacist [36], on whom this information campaign will be based for all stakeholders, both patients and healthcare systems and their officials.

More specifically, in several countries, the price of a new biomedicine is set as a percentage of the price of the reference medicine or based on another biomedicine, while some of them have a pricing policy that also reduces the price of the reference medicine. In addition, some countries include biomedicals in the reference prices by grouping products with the same active substance or therapeutically interchangeable medicinal products and setting a maximum amount of compensation per group (reference price), thus indirectly regulating prices. The equalisation payments can be determined on the basis of prices within the country or taking into account the prices of other countries [37]. In Germany, it was estimated that the maximum savings would be achieved if the lower prices were used by a sample of countries. The next economic scenario appeared to be pricing based on other countries' prices, followed by in-country pricing, a 30 % reduction and a 15 % reduction for reference medicines, and finally a reduction of only 30 % for biomedical medicines [38].

An equally widespread practise is the tendering of biomedical offers. It mainly refers to the inpatient sector and is usually organised at hospital level or even locally (e.g. Italy, Sweden) or centrally (e.g. Norway, Portugal) [38]. In some countries it is also implemented with good results. In the Netherlands, a preferential pricing policy is implemented, i.e. the insurance company bids and selects the product with the best price for each active substance. The preferred product is distributed by the pharmacies and reimbursed for the duration of the contract, while patients who prefer another medicine have to pay the difference themselves. In Denmark, manufacturers inform the Danish Medicines Agency every fortnight about the

planned prices for all their products. The products with the lowest price per active ingredient are considered the first choice, are secured in sufficient quantities and are covered by the public healthcare system for this period [39].

However, it should be emphasised that maximising savings requires a functioning market that enables sustainable competition. Although single-winner competitions achieve greater price reductions, they have been shown to disrupt market forces by excluding non-winners. On the other hand, multi-winner contests that are not solely based on price generate more resources in the long run by achieving price reductions on all products offered for all uses, providing alternatives to regulations, incentivising manufacturers to innovate by investing in new products and thus ensuring long-term profitability. This is particularly important as more and more original medicines fall out of patent protection [40].

A key criterion to ensuring that the market remains attractive to manufacturers is the willingness to attract a large number of patients for whom they can compete, which is done by making existing patients and those being treated for the first time eligible for biomedical prescriptions (P.. Norway, Denmark) [41]. Demand measures play an important role and are directly related to the interchangeability of medicines, i.e. the exchange of a reference medicine for a biomedicine or a biomedicine for another biomedicine, either by the doctor himself or by automatic exchange at the pharmacy. [While in many countries prescribing under an international community name (INN) applies, most countries do not have specific biomedical provisions and some exclude it [37].

Doctors are expected to prescribe sensibly, but the motives for doing so vary from country to country. In the retail sector, incentives are created by prescription or quota indicators (e.g. in Belgium). In the hospital sector, the motives are related to performance indicators and internal reference criteria (e.g. in Belgium) or to indirect financial incentives when funding is determined by homogeneous diagnostic categories (DRGs) and a fixed amount is paid per patient and case (e.g. in Norway). At the same time, there is also a notable instrument for information and training campaigns for physicians about biomes and the possibilities arising from the existence of additional therapeutic options (e.g. Germany) [41-42].

At the pharmacy level, the exchange of biomedicines rarely takes place (e.g. in the Czech Republic). Only a few countries have taken limited steps to create a corresponding legal framework (e.g. Germany). On the other hand, in exceptional cases, financial criteria for the distribution of biomedicines are not included in the reference prices by calculating pharmacies profit margins of pharmacies based on the price of the reference medicines so that pharmacists distributing medicines for medicines are not penalised by lower values [37].

The market uptake of biosimilar medicines is directly linked to patient acceptance. The EU endeavours to provide them with valid information on the safety and efficacy of biosimilars [43]. Adequate information will eliminate the NOCEBO phenomenon and patients will understand the benefits that can result from the use of biosimilars, which are not limited to their lower value [44].

The Advantages of Using Biomedicine in Healthcare

Biomedicine improves the cost-efficacy ratio and ensures that patients have access to appropriate treatments with better outcomes. In Sweden, the use of G-CSF in febrile neutropenia was increased by half after prescription restrictions on fillers were relaxed, emphasising the need for this particular treatment [45]. In the UK, G-CSF has been included in the first line of therapy through the revision of indications, allowing a greater number of patients to benefit early in the treatment cycle [41]. In addition, it has been estimated that the use of the most economical biomes, such as filrastim, may allow access to other targeted therapies (e.g. antineoplastic) [41].

However, the cost savings can be recouped for the benefit of healthcare systems in general [11]. The use of biomedical infliximab in Belgium and the UK has resulted in savings that have been used to hire additional healthcare staff, reducing waiting times for patients and providing a better service and higher quality of care [23]. At the same time, some of the money is being invested in the development of innovative medicines in terms of composition, route of administration and mode of action, as well as in products to combat rare or emerging diseases, making these costs more affordable [11,41].

It is estimated that global expenditure on pharmaceuticals will amount to 1.3 trillion euros in 2020, while savings of 50 to 100 billion euros can be achieved through imports into the organic market [46]. Specifically, in 5 countries in Europe and the USA, the potential savings from the use of biomoids were estimated to be between 49 and 98 billion euros in the period 2015-2020, depending on the price discount that biomoids will have compared to the original biomaterials.

The Benefits for the Greek Healthcare System

In the period 2009-2015, a series of measures were implemented in Greece, focussing on the waste of medicines and leading to a reduction in healthcare expenditure. Since then, spending has gradually increased but is still below the EU average. Of particular concern is that Greece recorded the third highest share of direct private payments in healthcare expenditure in the EU in 2019 (35%), more than double the EU average (15.4%), meaning that a large number of households are facing catastrophic healthcare costs. Direct private expenditure on pharmaceuticals accounts for 13% of total healthcare expenditure in Greece, compared to less than 4% in the EU, and accounts for more than a third (36%) of total direct private expenditure [47].

In Greece, the cost savings resulting from the increased use of biomedical medicines and the benefits described above could help to address several weaknesses in the Greek healthcare system (NHS). Given the cutbacks in the NHS in recent years and the reduction in healthcare staff, some of the funds saved could be invested in the recruitment of additional healthcare staff and in the market-orien-

tated development of a modern medical technology infrastructure that would improve the level of healthcare services for citizens. Since the participation in the cost of medicines is respected by most insured persons of the Greek social security system, the consolidation of the use of biomedicines preparations makes the newer treatments proposed by science more accessible to many patients, which would improve the health status of the country's population and thus the burden on the healthcare system. We should not forget that the main reason for the unnecessary need for medical care in Greece is economic factors [48]. This becomes even clearer when we consider that the reduction in the prices of treatments and the savings in the expenses of the healthcare system increase the accessibility for citizens in this system by improving social equity, which is especially true for other Eastern European countries [25].

Conclusion

The above data emphasise the need to use all available means to make the healthcare system more efficient, including biomes. To summarise, the development and promotion of biomedical drugs is a crucial step for the viability of the health systems of the different states, as the continuous progress of science leads to new, more expensive treatments that often increase the required costs of the different health authorities. Most countries in the world are facing a tight economic environment. Choosing appropriate pricing policy for these drugs, as well as educating healthcare professionals with adequate information for patients, will ensure the widespread use of these drugs and thus expand the potential benefits of their use.

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