Financial Monitoring of Medication Consumption in Bosnia and Herzegovina

Emira Kozarević, PhD  
Faculty of Economics, University of Tuzla  
Bosnia and Herzegovina  
emira.kozarevic@untz.ba

Sabina Đonlagić Alibegović, PhD  
Faculty of Economics, University of Tuzla  
Bosnia and Herzegovina  
sabina.djonlagic@untz.ba

Tatjana Krdžalić, MA  
Institute for Public Health of Tuzla Canton  
Bosnia and Herzegovina  
tatjana.krdzalic@zjztk.ba

Abstract: Healthcare spending is nowadays one of the key issues of healthcare system practice as its share in GDP has constantly increased during past decades, which is now above 10% of GDP in developed countries. However, very often it is more of an issue related to the current political and socio-economic situation in a country rather than the one managed by experts. Although one might expect that the increase in healthcare spending contributes to better health of the population, relevant indicators show that high healthcare spending in Bosnia and Herzegovina (BiH) does not result in better health of its population. Due to this reason, special attention needs to be paid to the economic analysis of healthcare spending. Irrational use of medications is just one of many problems associated with an inefficient health system, but one that heavily impacts on the health economics. In situations where it may not be easy to change the existing financing models, we should explore how to be more effective in spending within the existing structure. Better control of medication consumption could be one of the actions that helps improve the effectiveness of the available budget. Therefore, the general aim of the paper is to determine the effect that financial monitoring of medication consumption has on the control of increase in healthcare spending, which in turn might help establishing a financially sustainable healthcare system. Bearing in mind that irrational usage of medications influences the access to healthcare services, destabilizes country’s budget, and endangers the margin of social sustainability (endurance), the constant financial monitoring of medication consumption is important as it can help us recognize those segments where consumption deviates from standard and where prevention activities are needed. All this can result in the limitation of further increase in medication consumption.

Keywords: healthcare spending, healthcare spending control, (irrational) medication consumption, financial monitoring

JEL Classification: I-11, I-15, I-18

Article History  
Submitted: 22.1.2018  
Resubmitted: 12.2.2018  
Accepted: 26.2.2018  
http://dx.doi.org/10.14706/JE COSS17718
Introduction

Health is an economic potential, a segment of human capital that increases productivity and reduces treatment costs. However, in no way is health a free resource and it cannot be maintained without incurring costs. High quality healthcare protection is the most cost effective investment into human capital.

The need for healthcare is unpredictable, sudden and unexpected, and it is in society’s interest to recognize the real need for healthcare services. The characteristic of healthcare spending is that the consumer of healthcare goods, as a rule, is incapable of assessing their value. Unlike other goods, healthcare protection is specific, primarily due to the basic economic laws acting in the field of healthcare. The laws of demand and supply of healthcare services function in a specific market that includes several mutually related markets such as the market for various types of insurance (compulsory, additional) or different levels of treatment (outpatient clinics, polyclinics, hospitals), labor market for healthcare workers, market for medications, medical equipment, and so on. On the demand side, there are indicators of population health while on the supply side there are indicators of healthcare resources. When establishing the efficiency of healthcare market aimed at providing efficient healthcare protection for every citizen, the key role is given to the economic effects of deciding on the rational usage of ever limited financial resources.

From the macroeconomic point of view, the healthcare system creates a significant burden on any economy – rich or poor, so limiting the increase in healthcare spending is very important for everyone. Growing costs, irrational behavior, and dissatisfaction in the healthcare system are self-evident, with the main reasons for increased spending being: increased share of the elderly persons in the entire population, increased number of patients with chronic diseases, introduction of new medications (which, as a rule, are more expensive), influence of the pharmaceutical industry, growing pressure exerted by patients, and easy access to medications. Establishing the financial sustainability of healthcare system is by no means an easy task, which is why the healthcare system needs to be perceived from the economic perspective (the so called health economics). On the one side, some authors believe that the financing of healthcare needs to be changed so that the system becomes sustainable in the long run, while others think that the reduction of healthcare costs is needed. When it comes to the efficient functioning of the healthcare system, the economic analysis is given prominence over other types of analysis specific for the market of healthcare services.
Health economics always starts with the assumption that healthcare services can be analyzed as any other market activity. However, the process often ends in the explanation why the market activity fails to lead to the efficient resource allocation in healthcare. Economic analyses of healthcare spending in BiH are poorly represented partly due to the lack of full scale data and their transparency and partly due to a relative lack of economic experts’ interest in the research on health economics. The increase of financial resources in the healthcare sector cannot be expected and the room for savings which will not negatively affect the quality of healthcare protection needs to be identified. The starting point of discussion in BiH is the aspiration that the access to healthcare is universal, just, equal for all, and basically “free”. However, healthcare costs are constantly on the increase and in the last ten years they have been growing at an unsustainable rate. For example, in 2003, the total per capita healthcare spending in BiH Federation was BAM 345 while the amount per an insured person was BAM 417. According to the latest available data, in 2012 the total per capita healthcare spending reached the level of BAM 714 while the amount per an insured person was BAM 825 (Health Insurance and Reinsurance Fund of BiH Federation, 2013). The average spending per an insured person in Republic of Srpska in 2012 was BAM 714 (Health Insurance Fund of Republika Srpska, 2013).

The problem of monitoring healthcare spending in BiH is rather serious as there is no centralized system of monitoring spending on the state level. Monitoring is additionally complicated by the current administrative organization of the healthcare system. The data on healthcare are scarce and they are not systematized and unified. This is supported by the fact that BiH was first included in the European Health Consumer Index in 2014 and was positioned last due to an enormous lack of data on its healthcare protection, receiving 420 out of 1,000 points, less than Albania, Serbia, and Montenegro (Björnberg, 2015).

Medications are one of important items in the total healthcare spending. With limited financial resources, increasing medication consumption directly influences the access to healthcare services, destabilizes country’s budget, and endangers the margin of social sustainability (endurance). Medication consumption in world’s total healthcare spending is placed third, with 17%.

This paper brings the analysis of potential control of medication consumption and the financial aspect of medication consumption monitoring aimed at the reduction of healthcare spending. The main research hypothesis is postulated as follows: “Financial monitoring of medication consumption can contribute to the

---

1 The International Banking Code for BiH currency is BAM.
rationalization of medication consumption, reduction of healthcare spending, and the efficiency of the entire healthcare system.” Although the paper focuses on the healthcare system in BiH, some results and recommendations can be generalized and are potentially universal, taking into consideration the recent global socio-economic events (increased share of the elderly persons in the entire population, increased number of patients with chronic diseases, increased public expenditure following the crisis in 2008, slow economic growth, and so on).

**Review of Previous Research on Health-Related Spending**

Medications are third most common cause of mortality in the USA and Europe, following heart diseases and cancer. Patients trust their physicians and physicians trust the pharmaceutical industry although these relations are not free from difficulties (medication testing is sometimes inadequately conducted, for example). It is expected that medication allocations are to increase in the coming years. The USA data indicate that direct costs of cardiovascular diseases would triple between 2010 and 2030, from USD 273 billion to 818 billion, while indirect costs would increase in the same period by 61%, from USD 172 billion to 276 billion (Vitezić, 2013, p. 246-251). The annual number of deaths in the European Union (EU) resulting from patients’ not taking medication correctly or not cooperating with their physicians was 194,500, which costs the EU the amount of EUR 125 billion a year (Pharmaceutical Group of the European Union, 2012).

Decreased spending in healthcare requires the checks and controls of executed interventions and diagnostic and therapeutic services as well as the checks of whether they are really needed. That is why a unified system of expense list needs to be made that would include five important categories: hospitals, prescription-only medicines, diagnostic procedures, treatment costs, and home treatment costs (Ott et al., 2000).

Polić-Vižintin, Tripković, Štrban-Štok, Štimac, and Čulig (2006) analyzed healthcare indicators and non-hospital medication consumption by using the data gathered from the vital statistics and healthcare-statistics research. They concluded that in order to rationalize medication consumption, treatment should be focused on primary healthcare protection, which is why constant education of family doctors needs to be made regarding proper therapy based on professional guidelines. As specified by the EU/WHO Working Group (2008), the primary healthcare protection, as a rule, should be able to solve at least 80% of all health problems. Gajski (2009), for example, stated that most medications prescribed for the treatment of cardiovascular diseases in Croatia are actually unnecessary and serve for the medicalization of the society and the profit of pharmaceutical company with
pharmaceutical therapy costs in Croatia amounting to some HRK 7 billion, which is a waste of money.

Vlahović-Palčevski (2000) stated that the analysis of medication consumption gives us the data on the rationality of their use, indicates the segments where efforts should be made so as to improve the current situation, and tells us about therapy tradition, irrationalities, and abuse. Monitoring and analyzing medication consumption was the main reason for the development of the so called ATC (Anatomical, Therapeutic, and Chemical)/DDD (Defined Daily Dose) methodology. It was proved useful for the comparison of medication consumption at a national and international level as well as for long-term evaluation of consumption. A study conducted some 20 years ago by the Drug Utilization Research Group (DURG) showed the lack of universal methodology of medication consumption monitoring, which preceded the establishment of a unique Anatomical Therapeutic Chemical (ATC) classification system. This resulted in the introduction of defined daily dose as a statistical unit for medication consumption monitoring instead of packages, prescriptions, and financial units, which allowed for a detailed analysis of medication consumption (Čulig, 2004).

Polypragmasy (i.e. parallel application of three or more medications) is recognized as an increasingly serious problem in the existing systems of healthcare protection. It can increase the complexity of healthcare protection and its costs. Apart from the elderly persons, some groups of patients have a higher risk of polypragmasy, such as psychiatric patients and patients who constantly take five or more types of medications, patients treated by several physicians, recently hospitalized patients, patients with concurrent comorbidity, patients with lower education, visually impaired patients or those with decreased physical activity and ability in daily activities. Polypragmasy is indicated as one of the main problems in modern world pharmacotherapy and its solutions require the education of both physicians and patients. Regular analysis of prescription issuance practice proved to be efficient in reducing unnecessary medications. A study in which the patients brought all the medications they use, with their physicians being given directions on polypragmasy, resulted in 42% of the patients being under the risk of polypragmasy, for 20% of them the medication use was suspended and for 30% of them the medication dose was changed. In addition, pharmacists sent the list of medications to the physicians whose patients use potentially harmful medications, which reduced the issuance of prescriptions by 12.5%. Furthermore, consulting a clinical pharmacologist reduced

---

2 http://www.genera.hr/hr/36/propisivanje-lijekova/#.VbN3Z8vsZdg
polypragmasy and the number of medications from 7.9 to 4.1/1000 cases (Kašuba Lazić, 2015).

Monitoring and control of medication consumption is also important from the aspect of environment protection as medication residues are often found in the environment in small concentrations. During the procedure of authorization of a medication, most regulatory agencies specify the assessment of potential risk that a medication can make on the environment (Čogelja Ćajo et al., 2010).

The amount pharmaceutical companies spend on physicians is still not precisely known. However, according to the financial reports of nine leading US medication manufacturers, this amount is estimated to be dozens of billions of US dollars a year. This actually means that the pharmaceutical industry strictly regulates the ways their medications are prescribed and this includes not only physicians but also university professors that affect research results, medical practices, and even disease definition (Angell, 2009). The research conducted by Consumers International, the international organization for consumer protection, showed that pharmaceutical companies spend twice as much on persuading physicians to prescribe their medications than on researching new medications (Republic of Serbia Anti-Corruption Agency, 2012).

In 2011, with the assistance of the World Bank (WB), aimed at increasing transparent prices of medications in BiH, a survey was made into the retail sale prices at pharmacies for 36 frequently used medications. The selected medications included essential medications used for frequent diseases (cardiovascular diseases, nerve diseases, diabetes, and respiratory diseases). The data were collected from 82 pharmacies randomly selected in eight cantons/regions in the entire BiH. It became evident that brand name medications are not common in BiH as they were registered in only 27% of the cases, which is why the data refer primarily to generic medications (WB, 2012).

Good practice in creating and managing sustainable healthcare system is evidenced by Singapore with excellent results in high quality of its healthcare system and in control of healthcare protection costs. The per capita cost of healthcare protection in that country or the cost of healthcare protection presented as the GDP percentage is lower than in all high income countries in the world. There are three crucial reasons for achieving available excellence – first of all, long-term political unity, then the ability to recognize and establish national priorities, and finally constant aspiration for collective welfare and social harmony in the country (Haseltine, 2013).
The importance of reliable data and information is confirmed by Benković (2009), who aimed at checking whether the results of the research conducted by the Croatian Health Interview Survey (CHIS) were used in planning the resources at the level of country’s public health institutes. The usage of reliable data and information that serve as the basis for making fiscal and strategic decisions is the main support in healthcare management. It is also the key to strategic management that uses necessary information needed for setting the focus, selecting priorities, and establishing good “macro policy at the micro level”. The results showed that only 32% of the subjects used the results of the CHIS in their plans, which led to the conclusion that such a percentage would make efficient local level planning and planned budget savings difficult to achieve. Recognizing the importance of using data such as those collected by the CHIS is an extremely important factor in local and national healthcare planning and the factor that enables significant budget savings in healthcare.

Ott, Kesner-Škreb, Bajo, Bejaković, and Bubaš (2000) underlined that even though healthcare and health insurance reform is not easy to implement, potential changes aimed at the improvement of health and healthcare are multiple while costs would be significantly lower than potential savings. The reform of the existing health insurance system directed towards higher reliance on private insurance and strengthening market elements is required for the long-term sustainability of the system. Consequently, it might reduce the excessive role of the state, limit its paternal behavior, and create the conditions for income increase.

Theoretical Framework of Medication Consumption Monitoring and its Financial Aspect, with the Focus on Bosnia and Herzegovina

Healthcare is one of the most complex systems in every country and it is a sub system of the entire socio-economic system. Its organization functionally consists of (Salihbašić, 2009):

• Primary healthcare that includes outpatient clinics;
• Polyclinics, general and specialized hospitals, specialized institutes, medical centers;
• Other institutions including public health institutes, emergency rescue teams, and pharmacies.

The main problem in this field is financing. Several models of financing are used in the world, the most known being (Salihbašić, 2009):

• The Bismarck model, which functions on the principle of solidarity and reciprocity, as is the case with BiH;
The Beveridge model by which healthcare is financed through taxes paid by citizens (for example, Great Britain, Norway, Sweden, Ireland);

The Semaškov model emerged in the Soviet Union and was provided for the entire population. Insurance is financed from the central state budget whereby the government is responsible for making decision on the rights and obligations of the insured persons. As a rule, this means that healthcare protection is free although there is the problem of users having excessive expectations without additional payments. Nowadays, this model is present is some Asian countries (China, Mongolia, North Korea, Vietnam) and in Cuba;

Private financing that includes the basic insurance with the payment of additional insurance according to individual needs and purchasing power.

The cost associated with the healthcare sector is significant from the macroeconomic point of view, so the limitation of increase in healthcare spending is particularly important as the increasing healthcare spending is a burden to both developing and developed countries. Growing costs, irrational behaviour, and dissatisfaction within the healthcare system are self-evident and the main reasons for increased spending are: increased share of the elderly persons in the entire population, increased number of patients with chronic diseases, introduction of new medications (which, as a rule, are more expensive), influence of the pharmaceutical industry, growing pressure exerted by patients and easy access to medications.

It is important to note that, while medication consumption is one of the main generators of healthcare spending, it is also the item that could be more easily controlled and rationalized. The increase in pharmaceutical costs raises the issue of possible need for financing healthcare systems in the future. Every country should be interested in protecting itself against uncontrolled increase of medication spending, aiming to reduce it and make it more rational. Providing the population with high quality, safe, and efficient medications that would be rationally used is only one of the basic goals of every healthcare system. Hence, one of the measures for rational spending on medications is a systematic (national) policy of medication consumption monitoring as well as creation of a unique information system that would integrate all the data relevant for medication consumption, from both hospitals and non-hospital institutions, including the data on individual medication consumption.

However, BiH has a fragmented internal organization with centralized Republic of Srpska (RS), decentralized BiH Federation (F BiH), and Brčko District, which further complicates successful conduct of fiscal policy. This leads to an unsatisfactory level of efficiency in improving country’s economic growth. As reported by the WB
Financial Monitoring of Medication Consumption in Bosnia and Herzegovina

(2014), the potentials of BiH economy for mid-term growth are limited by poor business environment that still requires essential reforms and prevents investment and growth, with the fiscal policy still focused on the distribution of revenue rather than growth.

Healthcare and health insurance system in F BiH is, pursuant to the Constitution and legal regulations, based on the principles of shared competence between the federal and cantonal authorities. Pursuant to the provisions of Law on Healthcare³, Law on Health Insurance⁴, and other acts based on these laws, the federal government is in charge of creating the policy and adopting laws while the cantonal government implements laws and establishes and adapts cantonal healthcare policy with the policy at the level of F BiH. Cantonal public health institutes function with difficulties, healthcare spending increases while the structure of the insured persons is unfavorable.

Similar to other South East European countries, BiH has the model of social insurance with employees and employers paying contributions to the public health funds which finance the majority of healthcare services. That is why healthcare financing heavily relies on salary taxation and the capacities of tax authorities to collect payments⁵. The existing model of healthcare financing in BiH is based on the past times as the remnants of the Bismarck model. Healthcare insurance contributions were never a part of the state budget but were directly paid to health insurance funds. The contributions for compulsory health insurance are based on the taxation of the amounts registered in the pay sheet rather than by health insurance premium or general taxation.

The healthcare sector in BiH does not function on economic prices but on the solidarity system that implies that the rich show their solidarity with the poor, the young with the old, the healthy with the sick, and individuals with the family. This is what makes the total income of the Health Insurance and Reinsurance Funds which stand for the main source of funding for healthcare protection in both BiH entities. What is evident in the healthcare system is a rather non-transparent flow of resources between different non-budget funds that are supposed to pay contributions on behalf of their users (pensioners, registered unemployed persons) and the limited government contributions on behalf of some users exempt from paying contributions. Consequently, the state invests, or is supposed to invest, extreme efforts to provide as efficient healthcare protection as possible for its users with the

---

³ Official Gazette of BiH Federation No. 46/10
⁴ Official Gazette of BiH Federation No. 30/97, 07/02, and 70/08
available resources. Even though it sounds easy, it is very difficult to implement this in practice.

Looking at the data on some financial indicators in BiH, one can notice a very high share of healthcare spending in GDP when observed in the context of the economic development of the state. Healthcare-related public spending is constantly on the increase; in 2002 it was 62.5% while in 2012 it was 71.1% of the total healthcare spending. On the other hand, social health insurance has a downward trend while private health insurance, present since 2009, has a very low percentage of 0.8% to 1% of the total health insurance. The very fact that some ten years ago, per capita spending was USD 122 and that the number increased to USD 447 in 2012 indicates that healthcare system becomes more expensive year after year.

From the traditional aspect of efficiency, safety, and quality as well as from the aspect of financial cost effectiveness, medication consumption monitoring in developed countries started 40 years ago, mainly due to the fact that the funds for these purposes are always limited and the needs are increasingly higher. A constant lack in financial resources is registered in all spheres of life and in the healthcare protection system in particular. New medications, development of medical technology, new methods of treatment, constant education and training of healthcare workers, introduction of information systems, and so on, all require additional resources that are almost always limited. The country is given a serious task – to provide additional resources when the current ones are insufficient even for the present costs of healthcare protection.

In addition, increased number of patients suffering from various diseases of modern times (such as cardiovascular diseases, cancer, diabetes) results in increased need for medications. Medication consumption has been rapidly growing for years, which is a problem threatening sustainable and stable financing of the healthcare system. A systemic approach to this problem is not evident in practice since mentioning finances in the context of health and treatment is considered inappropriate and unethical. Besides, the issue of pharmacotherapy has escalated recently, when it reached the level the society cannot bear. Moreover, medication manufacturers that are highly influential in the medical science, education, politics along with the media have no interest in putting this topic in the discussion focus (Gajski, 2009). Prescribed medications cover 10% to 20% of the total healthcare costs and are the fastest growing segment of the total spending, which raises concerns over medication consumption. In order to resolve this issue, we must first discuss the potential causes of the increase in medication consumption.
One of the reasons of increased medication consumption is definitely medication abuse which can cause various side effects, resulting in the need for additional treatment and reflecting on the increase in healthcare spending. According to the World Health Organization (WHO, 2008), in some countries the costs of medication side effects, including hospitalization, surgeries, and lost productivity, are higher than medication costs.

Also, the studies conducted on the territory of the EU showed that some 200,000 people die every year due to nonadherence (not taking the prescribed therapy or taking it inappropriately). Annual nonadherence costs in the EU amount to EUR 125 billion and they include the treatment of chronic disease complications as a consequence of not taking medications. Low adherence for the patients suffering from hypertension correlates to the increased risk of vascular diseases, hospitalization, and increased costs of healthcare protection, while a higher level of adherence for the patients suffering from hypertension results in better health of individuals and net economic profit (Dragomir, 2010). Adherence reduces the total annual healthcare spending for the patients with chronic vascular diseases by the lower number of hospital days and lower hospital costs. The effects of adherence are more evident for the patients over the age of 65 (Roebuck et al., 2011).

Very often, influenced by marketing activities of the pharmaceutical industry, patients purchase medications on their own and increasingly use alternative medicine. Consequently, medication becomes a merchandise article and medication prescription becomes a routine activity made in silence with very little written or oral information provided (Stević et al., 2011). Besides, inappropriate package of certain medications can result in increased financial spending, mainly due to the package content which does not correlate with the length of treatment. This could be easily overcome if physicians prescribed the exact quantity needed for therapy treatment and if pharmacies would supply medications per piece.

One of the specific features of BiH medication market is related to the conditions under which pharmacies function. The legal regulations, among other things, cover pharmacy margins – maximum up to 8% for wholesale and up to 25% in retail sale. Very often, retail sale margins go above the highest limit and are as much as 30%. It seems that this is still not enough for pharmacists as they mainly dealt with this issue at the meeting held at the beginning of 2016. One of the suggestions was that the margin increases to the record high 40%, which is not in accordance to the legal regulations.

---

6 Rulebook on Medication Wholesale and Retail Sale Margin, Official Gazette of BiH Federation No. 40/02, 50/02, 15/06, and 9/08
The Rulebook on Price Monitoring, Calculating Medication Prices and Reporting on Medication Prices in BiH\textsuperscript{7} would be an excellent instrument for monitoring medications in BiH, which seems to be inoperative in practice. As recommended by the WB, the new rulebook on regulating medication prices is under preparation, which, if strictly followed, could lead to significant savings. Medications are cheaper in RS than in F BiH, mainly due to the centralized system of medication procurement, which allows for lower prices. Although the F BiH Government is under pressure to reduce medication costs, pharmacists are of the opinion that the government should “cut the costs” in other segments, such as waiving the value-added tax (VAT) on medications instead of reducing pharmacy margins. It was stated that some reductions would amount from 25\% to 30\%, which, as claimed by the pharmaceutical chambers, pharmacies would not be able to bear. Major dissatisfaction was expressed as the representatives of professional associations were not given the opportunity to comment the proposed wording of the rulebook. They clearly rejected to support the proposal that Serbia be the reference country for establishing the prices of pharmaceutical services as the prices in that country are specified through administrative procedures. The representatives of professional pharmaceutical associations agree that the medication market needs to be regulated but not by replicating the experiences of other countries without taking into consideration the specific characteristics of the medication market in BiH.\textsuperscript{8}

Many European countries introduced a series of measures to combat the growth of pharmaceutical spending. Some of these measures include reduction of prices of pharmaceutical products, which can be achieved through negotiations with pharmaceutical manufacturers, reduction of pharmaceutical margins, introduction of quotation price, application of obligatory discount, reduction of VAT on pharmaceutical products, centralized public procurement of pharmaceutical products, promotion of usage of generic medications, increase of obligatory contribution for households, and so on. For example, as of 2010 Spain has introduced a general discount applicable to all the medications prescribed, after which it introduced the mandate for the reduction of generic medication prices, which is certainly one of the factors that explains the increase in the consumption of generic medications in that country. In Germany, the obligatory discounts for manufacturers were raised in 2011 and the prices were frozen until 2013. As of 2011, pharmaceutical companies are obliged to negotiate with health insurance

\textsuperscript{7} Official Gazette of BiH No. 82/11

\textsuperscript{8} The minutes of the meeting of the presidents of cantonal pharmaceutical chambers, the Pharmaceutical Association in BiH Federation, and general managers of larger pharmaceutical healthcare institutions in BiH Federation. Retrieved from http://www.farmaceutisarajevo.ba/index.php/25-obavijesti/89-sastanak-farmaceuta-u-sarajevu-dan-posjete
funds about innovative medications, which ended the former free pricing regime. The reduction of consumption in Italy can be attributed to a rather reduced budget for pharmaceutical products per Italian regions as well as to the reduced pharmaceutical wholesale margins and lower prices of generic medications based on quotation prices. The introduction of new obligatory public offer procedures for medication procurement in Hungary resulted in reduced costs, while in Denmark, as in many other countries, the negative trend can be explained partly due to the expiration of patents for large scale protected medications and very expensive medications (OECD & the European Commission, 2014).

Methodology of the Empirical Research: The Case of Tuzla Canton, Bosnia and Herzegovina

The sources used for this paper include the publications and statistical data of the relevant international and domestic organizations (WHO, WB, EUROSTAT, OECD, Agency for Medicinal Products and Medical Devices of BiH, Agency for Statistics of BiH, Health Insurance and Reinsurance Fund of F BiH, Health Insurance Fund of RS, Health Insurance Fund of Brčko District, Institute for Public Health of F BiH, Institute for Public Health of RS, and Health Insurance Fund of Tuzla Canton). Based on these sources, the paper presents selective and relevant macroeconomic and healthcare indicators for BiH as well as the basic indicators of healthcare financing and healthcare spending in BiH. More specifically, the focus is made on the elaboration of detailed parameters of medication related spending in the most populated BiH canton – Tuzla Canton – so as to obtain a clear view of medication consumption and its potentially influential factors. In order to achieve this, we opted for using the ten year period data (2004-2013), which allowed for the summary of the data and their comparison with the previous periods.

Results and Discussion

The medication market in BiH is worth over BAM 500 million, out of which 18% belongs to domestic medication manufacturers. The data on the leading medications in the total turnover cannot be regarded as relevant as it is known that medication consumption in BiH is not monitored by the standardized ATC/DDD methodology. Since medication prices vary and are rather different when compared to the neighboring countries, we do not have the appropriate data on the actual consumption of medications but rather the amount specified in the budget. Medication consumption in RS is monitored by the ATC/DDD methodology, which is not the case in F BiH. For example, “Pantoprazol” is the leading medication in the total turnover in BiH (some BAM 11 million) and its price in F BiH is
around BAM 15 while at the same time its price in the neighboring Serbia is BAM 3.5. The similar situation is with the frequently prescribed medications such as those for the treatment of cardiovascular diseases.

The WB (2014) also pointed to the unbalanced prices of medications in BiH in comparison to the neighboring countries, which is particularly evident for the medications for frequent diseases (see Table 1). For example, the medications for cardiovascular diseases are up to 200% more expensive than in Croatia and even more than in Serbia. The main reasons for such situation are the inefficient system of pricing and purchasing medications, a non-transparent system of pricing for individual medications as well as rather fragmented system of medication procurement which results in different prices in cantons. As stated in the report, the Ministry of Health of F BiH is not able to force the cantons to follow the regulations when they create the positive lists of medications.

Table 1. Prices of Sampled Medications in FBiH and Serbia in 2016

| Ordinal number | Medication                                      | Manufacturer                          | Package          | Price in BAM  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Serbia\textsuperscript{9}</th>
<th>F BiH\textsuperscript{10}</th>
<th>Price higher by %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vesicare - symptomatic treatment of immediate incontinence</td>
<td>Astelles Pharma Europe B.V Holland</td>
<td>5 g (30 pills)</td>
<td>59</td>
<td>79</td>
<td>33.90</td>
</tr>
<tr>
<td>2</td>
<td>Nimulid – painkiller</td>
<td>PANACEA BIOTEC LTD. India</td>
<td>100 mg (20 pcs)</td>
<td>3.3</td>
<td>7</td>
<td>112.12</td>
</tr>
<tr>
<td>3</td>
<td>Letrox - thyroid hormone</td>
<td>BERLIN-CHEMIE AG Germany</td>
<td>100 mg (100 pcs)</td>
<td>5.2</td>
<td>8.5</td>
<td>63.46</td>
</tr>
<tr>
<td>4</td>
<td>Atoris - cholesterol lowering medicine</td>
<td>KRKA dd Slovenia</td>
<td>20 mg (30 pills)</td>
<td>8.5</td>
<td>14.6</td>
<td>71.76</td>
</tr>
<tr>
<td>5</td>
<td>Pantoprazol - gastric distress treatment</td>
<td>Hemofarm doo Banjaluka</td>
<td>40 mg (28 pcs)</td>
<td>3.6</td>
<td>15.5</td>
<td>330.56</td>
</tr>
<tr>
<td>6</td>
<td>Tritace - ACE inhibitor</td>
<td>Sanofi-Aventis S.p.A. Italy</td>
<td>5 mg (28 pills)</td>
<td>3.4</td>
<td>10.5</td>
<td>208.82</td>
</tr>
<tr>
<td>7</td>
<td>Lorista – hypertension treatment</td>
<td>KRKA dd Slovenia</td>
<td>50 mg (28 pills)</td>
<td>5</td>
<td>11</td>
<td>120.00</td>
</tr>
<tr>
<td>8</td>
<td>Roswera - cholesterol lowering medicine</td>
<td>KRKA dd Slovenia</td>
<td>40 mg (28 pills)</td>
<td>16</td>
<td>35</td>
<td>118.75</td>
</tr>
<tr>
<td>9</td>
<td>Truspot eye drops - ocular hypertension treatment</td>
<td>Laboratories Merck Sharp&amp;Dohme-France</td>
<td>2% (5 ml)</td>
<td>12</td>
<td>20</td>
<td>66.67</td>
</tr>
<tr>
<td>10</td>
<td>Plavix – prevention of atherothrombotic events</td>
<td>Sanofi Winthrop Industrie France</td>
<td>75 mg (28 pills)</td>
<td>10.5</td>
<td>32.5</td>
<td>209.52</td>
</tr>
</tbody>
</table>

\textsuperscript{9} Prices as indicated in the price list of the pharmacy “Zdravlje 2”, Mali Zvornik, Serbia, May 15-June 15, 2016
\textsuperscript{10} Prices as indicated in the price list of the pharmacy “Ibn Sina”, Tuzla, on June 16, 2016
There is no unique, state-level system of medication consumption monitoring (including commercial medications as well as those prescribed in the compulsory health insurance), except for the health spending data created by the national health accounts methodology. It is known that in 2013, the costs of medicinal devices for non-hospital patients (including medications) were BAM 711,221 million, of which public expenses amount to 43.2% and private expenses amount to 56.68%, which indicates rather high payments made by citizens for this type of medicinal devices. Analytically speaking, it is not known how much of this amount is spent on medications charged to health insurance, be they commercial or those given on prescription.

Healthcare spending of F BiH makes 10.2% of GDP, out of which a quarter, somewhat over BAM 416 million, is used for medications. Over BAM 182 million was spent on medications charged to health insurance, which makes around 11% of the total healthcare spending. On average, a citizen of F BiH spends around BAM 178, while the insured person spends BAM 90 on prescribed medications, somewhat less than in RS where an insured person spends BAM 99. The average consumption of prescribed medications per cantons in F BiH in 2013 ranged from BAM 46 in Posavina Canton to BAM 167 in Sarajevo Canton, which implies huge cantonal differences in the rights of insured persons to prescribed medications. The average consumption of prescribed medications is a relative indicator for F BiH as it is highly influenced by a huge average consumption in Sarajevo and Tuzla Cantons. Although the prices of most prescribed medications show a downward trend, the increased consumption of prescribed medications is partly caused by the facts that cantonal medication lists are harmonized with the federal essential list of medications and that some cantons have more medications on their lists than on the one made by F BiH. Although Sarajevo Canton has by 78% higher consumption of medications per insured person than Tuzla Canton, when the total healthcare spending per cantons is observed, consumption of medications as a part of healthcare spending is the highest in Tuzla Canton as it is the most populated one.

The leading cause of death in Tuzla Canton is essential hypertension (86/100,000 people). Stroke, cardiomyopathy, acute myocardial infarction, essential hypertension, cardiac arrest, and chronic heart ischemic disease make 71% of the ten leading causes of death in Tuzla Canton. In total, the population in 2013 suffered

<table>
<thead>
<tr>
<th></th>
<th>Trimetakor – prevention of angina pectoris attacks</th>
<th>Cipla Limited India</th>
<th>35 mg (60 pcs)</th>
<th>4.5</th>
<th>19.8</th>
<th>340.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Byol – hypertension treatment</td>
<td>Lek dd Slovenia</td>
<td>5 mg (30 pills)</td>
<td>3.5</td>
<td>13.2</td>
<td>277.14</td>
</tr>
</tbody>
</table>

Source: Authors’ research based on selected BiH and Serbian pharmacies price lists
from acute infections of upper respiratory tract, hypertension, acute bronchitis and bronchiolitis, diabetes, and spinal diseases. Diseases in the primary healthcare follow hospital treatment data in Tuzla Canton, where five leading diseases make for 56.79% of the total number of hospital days. Some of the most often prescribed medications by the ATC classification are those for cardiovascular diseases, digestive tract and metabolism, nervous system, and medications for the treatment of system infections and respiratory system, which indicates that cardiovascular diseases, metabolic disorders, and respiratory diseases are the major health problems in Tuzla Canton. In the last ten years, there has been an increase in the number of patients suffering from circulatory system diseases, diabetes, cancer, and mental disorders (Table 2). This increased number of patients causes higher healthcare costs and consequently increased medication consumption. The treatment of these diseases, except for cardiovascular diseases, requires the medications that belong to a group of more expensive medications, which is why the growth of financial spending does not come as a surprise.

<table>
<thead>
<tr>
<th>Number of patients in Tuzla Canton since Year</th>
<th>Increase in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circulatory system diseases 2004 2013</td>
<td>57.7</td>
</tr>
<tr>
<td>Diabetes 2004 2013</td>
<td>126.4</td>
</tr>
<tr>
<td>Malignant neoplasms 2004 2013</td>
<td>115.4</td>
</tr>
<tr>
<td>Mental disorders 2004 2013</td>
<td>66.3</td>
</tr>
</tbody>
</table>

Source: Authors’ research based on Institute for Public Health of Tuzla Canton database

Generally speaking, medication consumption increases year after year, including both commercial as well as prescribed medications charged to health insurance. The increased costs of commercial medications point to the fact that citizens invest more of their personal resources to purchase medications, even though essential lists of medications for cantons have been expanded.

Medication consumption monitoring in Tuzla Canton is administered by the Health Insurance Fund and it includes the data basis that includes the information on insured person (national ID number), medication, authorized physician, outpatient clinic where the prescription was issued, prescription, contracting pharmacy where medication was taken, date of prescription issuance and individual invoice for
medication/prescription issued by the number and date of invoice, but not the ATC/DDD methodology, as recommended by the WHO.

In the period 2004-2013, health insurance expenditures constantly increased. By analogy, expenditures grew in all segments of healthcare protection, especially for the program of medications charged to the Health Insurance Fund of Tuzla Canton (HIF TC), as it is shown in Table 3. The total health insurance expenditures grew over the period of ten years by 85.55%, from BAM 244 to BAM 439 per insured person.

Table 3. Review of Financial Expenditures for the Program of Medications in Compulsory Health Insurance in the Period 2004-2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Total expenditures of HIF TC</th>
<th>Number of prescriptions</th>
<th>Expenditures for the Program of medications charged to the HIF TC</th>
<th>Expenditures for the Program of other medications 12</th>
<th>Total medication expenditures (including those paid by citizens)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>105,790,488</td>
<td>1,731,657</td>
<td>13,393,726</td>
<td>355,890</td>
<td>13,749,616</td>
</tr>
<tr>
<td>2005</td>
<td>112,669,255</td>
<td>1,852,401</td>
<td>15,095,216</td>
<td>309,165</td>
<td>15,404,381</td>
</tr>
<tr>
<td>2006</td>
<td>126,318,607</td>
<td>2,328,082</td>
<td>22,212,764</td>
<td>476,627</td>
<td>22,689,391</td>
</tr>
<tr>
<td>2007</td>
<td>148,000,043</td>
<td>2,389,473</td>
<td>24,524,035</td>
<td>789,677</td>
<td>25,313,712</td>
</tr>
<tr>
<td>2008</td>
<td>174,941,709</td>
<td>2,521,478</td>
<td>28,227,413</td>
<td>955,415</td>
<td>29,182,828</td>
</tr>
<tr>
<td>2009</td>
<td>178,171,804</td>
<td>2,226,677</td>
<td>32,888,217</td>
<td>1,339,930</td>
<td>34,228,146</td>
</tr>
<tr>
<td>2010</td>
<td>184,048,334</td>
<td>2,363,402</td>
<td>32,881,082</td>
<td>1,219,381</td>
<td>34,100,463</td>
</tr>
<tr>
<td>2011</td>
<td>192,099,520</td>
<td>2,556,079</td>
<td>37,137,026</td>
<td>633,554</td>
<td>37,770,580</td>
</tr>
<tr>
<td>2012</td>
<td>195,954,753</td>
<td>2,359,443</td>
<td>37,863,086</td>
<td>869,901</td>
<td>38,732,987</td>
</tr>
<tr>
<td>2013</td>
<td>196,299,420</td>
<td>2,377,010</td>
<td>38,768,888</td>
<td>1,109,749</td>
<td>39,878,637</td>
</tr>
</tbody>
</table>

Source: Authors’ research based on HIF TC database

Over the ten year period observed, it is evident that the largest financial expenditures refer to the medications for cardiovascular diseases (35%), digestive tract and metabolism medications (26%), and medications affecting the nervous system (16%). As specified by the second level of the ATC classification, almost 84% of the

11 Report on the Realization of Medication Program for the period January-June 2015 (p. 4), Health Insurance Fund of Tuzla Canton

12 Program of other medications includes: medications applied within or under the control of hospital, ampoule medications, special food for children, and priority medication program for pain relief therapy.
total expenditures on medications cover the ten leading groups of medications (Table 4), including those for the treatment of hypertension, diabetes, asthma, and so on.

Table 4. Financial Costs for Medications in the 10 Leading Groups by ATC Classification in 2013

<table>
<thead>
<tr>
<th>ATC</th>
<th>Group of medications</th>
<th>Amount in BAM</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>C09</td>
<td>Agents acting on the rennin-angiotensin system</td>
<td>8,766,544</td>
<td>22.61</td>
</tr>
<tr>
<td>A10</td>
<td>Drugs used in diabetes</td>
<td>7,328,994</td>
<td>18.90</td>
</tr>
<tr>
<td>R03</td>
<td>Drugs for obstructive airway diseases</td>
<td>3,407,972</td>
<td>8.79</td>
</tr>
<tr>
<td>N06</td>
<td>Psychoanaleptics</td>
<td>3,051,384</td>
<td>7.87</td>
</tr>
<tr>
<td>A02</td>
<td>Drugs for acid related disorders</td>
<td>2,209,906</td>
<td>5.70</td>
</tr>
<tr>
<td>J01</td>
<td>Antibacterial drugs</td>
<td>2,178,272</td>
<td>5.62</td>
</tr>
<tr>
<td>C07</td>
<td>Beta blocking agents</td>
<td>2,091,092</td>
<td>5.39</td>
</tr>
<tr>
<td>N05</td>
<td>Psycholeptics</td>
<td>1,326,363</td>
<td>3.42</td>
</tr>
<tr>
<td>C08</td>
<td>Calcium channel blockers</td>
<td>1,118,142</td>
<td>2.88</td>
</tr>
<tr>
<td>N03</td>
<td>Antiepileptics</td>
<td>1,053,397</td>
<td>2.72</td>
</tr>
<tr>
<td></td>
<td>Ten leading groups of medications in total</td>
<td>32,532,066</td>
<td>83.91</td>
</tr>
<tr>
<td></td>
<td>Year total</td>
<td>38,768,888</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Authors’ research based on HIF TC database

The ten leading medications in terms of the resources charged to HIF TC make 42% of the total value and 27% of the total number of prescriptions. The most frequent medication prescribed by family doctors in Tuzla Canton is “Enalapril” for hypertension treatment with the average value per prescription of BAM 18 (Table 5). Out of ten leading medications in terms of financial expenditure, the most expensive is “Insulin glargin” (BAM 126 per prescription), which is prescribed for all types of diabetes. Within all the medications in the positive list, the medication with the highest financial value per prescription is “Ciklosporin”, prescribed to patients for the prevention of transplant rejection (BAM 283 per prescription on average). These facts depend primarily on medication prices which is why the real consumption cannot be specified.
Table 5. Ten Leading Medications in 2013 Per Their Total Value Charged to HIF TC

<table>
<thead>
<tr>
<th>Group</th>
<th>Medication</th>
<th>Disease</th>
<th>BAM charged to HIF TC</th>
<th>%</th>
<th>Number of prescriptions</th>
<th>%</th>
<th>BAM/prescription</th>
</tr>
</thead>
<tbody>
<tr>
<td>C09</td>
<td>Enalapril-hidrohlortiazid</td>
<td>Hypertension</td>
<td>2,574,774</td>
<td>6.64</td>
<td>140,153</td>
<td>5.90</td>
<td>18</td>
</tr>
<tr>
<td>C10</td>
<td>Lisinopril-hidrohlortiazid</td>
<td>Hypertension</td>
<td>2,076,581</td>
<td>5.36</td>
<td>112,219</td>
<td>4.72</td>
<td>19</td>
</tr>
<tr>
<td>R03</td>
<td>Salmeterol+flutikazon</td>
<td>Obstructive airway diseases</td>
<td>1,842,592</td>
<td>4.75</td>
<td>21,715</td>
<td>0.91</td>
<td>85</td>
</tr>
<tr>
<td>A10</td>
<td>Insulin aspart</td>
<td>All types of diabetes</td>
<td>1,822,633</td>
<td>4.70</td>
<td>18,286</td>
<td>0.77</td>
<td>100</td>
</tr>
<tr>
<td>A02</td>
<td>Pantoprazol</td>
<td>Gastric and duodenal ulcers</td>
<td>1,402,931</td>
<td>3.62</td>
<td>60,428</td>
<td>2.54</td>
<td>23</td>
</tr>
<tr>
<td>A10</td>
<td>Insulin glargin</td>
<td>All types of diabetes</td>
<td>1,382,965</td>
<td>3.57</td>
<td>11,011</td>
<td>0.46</td>
<td>126</td>
</tr>
<tr>
<td>N06</td>
<td>Paroksetin</td>
<td>Depression</td>
<td>1,346,954</td>
<td>3.47</td>
<td>46,563</td>
<td>1.96</td>
<td>29</td>
</tr>
<tr>
<td>C07</td>
<td>Karvedilol</td>
<td>Hypertension</td>
<td>1,295,488</td>
<td>3.34</td>
<td>100,546</td>
<td>4.23</td>
<td>13</td>
</tr>
<tr>
<td>A10</td>
<td>Insulin humani</td>
<td>All types of diabetes</td>
<td>1,214,310</td>
<td>3.13</td>
<td>18,606</td>
<td>0.78</td>
<td>65</td>
</tr>
<tr>
<td>A10</td>
<td>Metformin</td>
<td>Diabetes</td>
<td>1,176,392</td>
<td>3.03</td>
<td>119,034</td>
<td>5.01</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Ten leading medications</td>
<td></td>
<td>16,135,618</td>
<td>41.62</td>
<td>648,561</td>
<td>27.28</td>
<td>25</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>38,768,888</td>
<td>100.00</td>
<td>2,377,010</td>
<td>100.00</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: Authors’ research based on HIF TC database

In 2013, the medications for the cardiovascular system made somewhat less than a half (46.81%) of all the prescriptions issued during that year and they cost almost BAM 14 million. The increased consumption is further confirmed by the fact that the expenditures for these medications in 2013 were by BAM 400,000 higher that the expenditures for the entire program of medications charged to HIF TC ten years ago. Among the ten most often prescribed medications there are seven of them for the treatment of hypertension. Some 40% of all the prescriptions realized in 2013 were for these medications, which makes 34% of the total value charged to HIF TC.

Medications for the treatment of diabetes are also an important segment of the financial consumption of medications charged to HIF TC. This is confirmed by the fact that the value of these medications grew on average by 15.5% in the period 2004-2013. These medications make 10% of the total amount charged to HIF TC and 19% of the total number of prescriptions realized in 2013. On average, every patient uses 15 prescriptions a year, with the average value of BAM 470 per patient, which is significantly higher than in 2004 when this amount was BAM 267 per patient. On the whole, medication consumption matches the morbidity data for the territory of Tuzla Canton.
Concluding Remarks

Besides a number of problems evident in the inefficient healthcare system and public spending control, irrational use of medications that directly reflects on the financial burden of healthcare system economy is one of the burning issues if not the most important one. When health spending reaches a certain level, it is difficult to return it to the previous values as it increases year after year. It is difficult to reduce health spending but it can be constantly monitored and gradually controlled.

The analysis of the data presented in the paper leads to the conclusion that the key problem of the healthcare sector in BiH is its sustainable financing which is primarily evident in the lack of appropriate system of collection of financial resources and in the lack of a transparent system for monitoring health spending. The core of the problem might be found in the way BiH is organized as a state and in its fragmentation to centralized RS, decentralized F BiH, and Brčko District, with various legal regulations that complicate successful conduct of fiscal policy. The situation is even more complicated by the fact that every entity has its own health insurance fund that operates with difficulties due to the finance-related problems but also due to accumulated arrears. In addition, serious problems of BiH healthcare system are certain inequalities in terms of exercising the right to healthcare. In the long term, the healthcare system organized in this way shall not survive; the collected resources are almost always limited while the demand for healthcare services surpasses the available funds. There are no new sources of financing and the collection of regular revenue is problematic, which means that the time has come to implement whole scale reforms aimed at improving the conditions under which the healthcare system functions. It is not yet known when these changes might happen but something can be done regardless of the fact that there is no political will at the moment for any changes. In the situations when we cannot change the existing financing models, we can start with a better control of the ways in which the collected resources are spent and medication consumption is precisely the segment of health spending which can be controlled and rationalized in a simple way.

The rational consumption of medications means giving a patient the appropriate medication in the dosage defined by the clinical and individual needs so that the patient and the society as a whole pay the lowest possible price. It is not known to what extent these principles are followed in terms of dosage specification based on patient’s clinical and individual needs but the research results indicate that in BiH both the society and the patients pay medications at a too high price. Sometimes, the state itself contributes to over consumption of medications through its inactive and bad decisions in legislation and executive power. Instead of serving solely to limit the
unnecessary consumption, the laws regulating manufacture, trade and price of medications, their additions on health insurance lists, sales regime, patients’ participation in the price, and marketing often stimulate consumption. The pharmaceutical industry might be seen as one of the main drives of medication consumption and its constant growth. The role of pharmaceutical industry has changed over history – while in the past the cure was sought for as many diseases as possible, it seems as if today the goal is to find as many diseases as possible for the cure.

Primary healthcare is also the segment where increased medication consumption emerges. Although the concept of primary healthcare is as a rule devised so as to unburden secondary healthcare, this seems not to be the case. Physicians in primary healthcare face crowd at their practices, work under pressure, and so on. Also, consulting clinical pharmacologists reduces over issuance of medication prescription, which consequently results in reduced expenditure for medications. Drug abuse seems to be one of the reasons for the increased medication consumption. Nowadays every home obviously has certain medications in stock, which are used at one’s own opinion.

Increased financial expenditure on medication is affected by medication selling prices. While some of the surrounding countries have zero VAT rate on medications, with 17% VAT rate BiH is one of the most expensive countries in terms of medication prices. This is caused by a small market, many levies, rigid law on medicinal products and medical devices, and high pharmacy margins which directly affect patients’ budgets. The Rulebook on Price Monitoring, Calculating Medication Prices and Reporting on Medication Prices in BiH would be an excellent instrument of medication control in BiH. The VAT rate is not the only reason for expensive medications in the country as medication prices generally vary in the entities, which is probably caused by the decentralized system of medication procurement. However, some medications are as much as 400% more expensive than in the neighboring Serbia, where many BiH citizens buy medications, which confirms the allocation of financial resources outside BiH borders and the potential grey market (medication smuggling). What is equally important is the need for the establishment of the unique system of medication consumption monitoring on a state level based on the ATC/DDD methodology, with the aim of gaining the real insight into medication consumption so as to identify the causes and consequences of irrational consumption. Also, constant education in the field of health economics is needed as raising awareness of the budget limitations in the healthcare system is an extremely long and difficult process for both patients and healthcare workers. This can only be
done by appropriate education of the general public, healthcare workers, creators of healthcare policies, and so on.

The presented theoretical elaboration of the problem as well as the empirical research conducted in BiH and Tuzla Canton, as the most populated BiH canton, indicate that the central research hypothesis is accepted. Future research interest might focus on monitoring medication consumption within hospital capacities, since it is not monitored analytically, in order to establish the real consumption and define potential causes of (non)increase in the use of medications charged to health insurance. Besides, it would be interesting to conduct a research into the usage of medications from the aspect of physician habits related to medication prescription, with a particular emphasis on the problems they face in their practice. One might find useful to investigate the perception and habits of the patients as those who consume medications, in order to detect important factors that influence increased demand for medications and establish the actual financial burden imposed on citizens by healthcare costs, and so on.

References


