

Trends in Prescribing in Primary Care in Croatia, 2000–2012: Prescribing Volume, Costs and Regulatory Measures

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ABSTRACT

The rise of pharmaceutical costs is a significant burden to overall health care expenditure. The Croatian Health Insurance Fund (CHIF) in attempts of its containment, use administrative measures directed toward the two greatest generators: pharmaceutical industry, through negotiating prices and periodic revisions of basic and supplemental drug lists, and primary care physicians, through limits in the volume of prescriptions, and annual financial expenditure. The aim of the study was to determine trends in quantity of issued prescriptions and pharmaceutical expenditure from 2000 to 2012. Data were obtained from the CHIF annual reports. Results clearly demonstrate two trends: the increase in quantity of issued prescriptions, together with accompanying rates: number of prescriptions per inhabitants, and per patients, and the increase in total cost of prescriptions until 2004, with their maintenance and slight variations since then. Despite controversies in approach, CHIF succeeded in slowing down the costs, primarily by applying measures towards regulation of drug prices.

Key words: *number of prescriptions, pharmaceutical spending, cost containment*

Introduction

The costs of health care increase worldwide at much faster rate than income of health funds, with particularly rapid growth of pharmaceutical expenses. In the European Union (EU) countries, public and private outpatient spending on pharmaceuticals constitute around 16% of the total healthcare costs, or 1.6% of gross domestic product (GDP)^{1,2}. In most countries health insurance institutions, in charge of supervision of pharmaceutical costs, attempt, by various administrative and educational measures, to slow down (usually incessant) trend of growth, while free pricing is almost completely abandoned.

The first and most important step in their control is arbitrary setting of the highest price which health fund is able to pay (refund), and which is done by external reference pricing, (ERP), internal reference pricing (IRP), as well as health technology assessment projects, revisions

of positive drug lists, price reductions and »freezings«, procurements through public tendering and other modalities^{1,3}.

The health system in Croatia constantly changes since 1990-ies. Initially, the changes included organization of health care and functioning of health institutions^{4,5}. Since 2006, the cluster of reforms was focused on decreasing the growth of expenses, particularly those of prescription drugs. The main instrument in achieving this goal, as well as being one of the pillars of health reform, was a positive listing system, consisting of basic drug list (from 1991), and supplemental drug list (from 2004)⁶. Both of them included drug prices established through external reference pricing, and performed by Pharmaceutical Committee of the Croatian Health Insurance Fund (CHIF), following the Regulation on wholesale drug prices and Regulation for criteria on inclusion

of drugs on basic and supplemental lists of the CHIF^{7,8}. Additionally, the period from 2001, especially after 2004, was marked with the intense negotiations on price reduction between the state-run CHIF and representatives of pharmaceutical industry^{9–14}.

The second important cluster of measures was directed toward primary health care (PHC) physicians, as the only group inside the health system authorized in prescribing of medicines. Family physicians (FP) are the largest section and also the greatest prescribers, but paediatricians, gynecologists and stomatologists, accounting for around 20% of PHC teams, are also authorized in prescribing of medicines. Restrictive prescribing rules in contracting with the CHIF applied to all of them. There was, since 2003, a provision of average annual quantity of prescription and referral forms (5 prescription forms and 2 referral forms) per patients on the PHC physician's list, which in 2006 increased to 8 prescription forms^{15,16}. In addition to the fixed number of prescription forms, physicians were receiving them as quarterly supplies, and, if overspent, requesting any extra number from the local CHIF office together with an explanation. These administrative regulations produced a great strain to already overburdened PHC physicians, resulting in feeling of frustration and lack of motivation for improvements in quality of prescribing. A limit of annual financial spending was also introduced in 1998 – to around 254 Croatian kunas (HRK), or 33.5 EUR (1 EUR = 7.6 HRK, according to exchange rate from 16.06.2014), per patient on FP's lists (508,200 HRK or 67,000 EUR, for the list of 2000 insureds, in 1998)¹⁷. Since 2003, CHIF introduced rewarding of physicians who succeeded in saving financial means for prescription drugs throughout the year (with up to 25% of saved money), as well as penalties for those who overspent¹⁵. This strategy became soon inefficient, because of rewarding mostly primary pediatricians, having infants and pre-schoolers on their lists, against the insignificant number of chronic patients. But penalties for »big spenders« remained until now, although in different administrative form. In 2005 the annual limit substantially increased, from 365 HRK to 500 HRK (66 EUR) per patient on the FP's list, and also in 2009 to 665 HRK (87 EUR), staying on that approximate level until today (680 HRK per insured person, or 90 EUR, in 2012)^{18–20}. Repeated prescriptions were initiated only in 2009 (up to the period of six months) and since 2011 in electronic form²¹. However, the administrative regulation regarding obligatory use of generic drugs has never been declared.

Patients' participation in drug costs has also been part of an effort to facilitate the sustainability of CHIF. Co-payments, initiated from early 1990ies, has never presented a financial burden to patients, nor achieved any important reductions, as expected, due to their relatively low level and exclusion of large parts of the population. A higher rate of co-payment or »administrative tax«, from 2005, resulted with the increased number of population accessing complementary health insurance (apart from compulsory insurance, conveyed by the CHIF),

which covered all categories of health service, including drugs²². The largest proportion of complementary health insurance users were usually high health service consumers, older people and pensioners.

Several studies on pharmaceutical spending were published in Croatia, with considerable diversity in scope and time frame^{23–25}, while the CHIF produced mostly administrative reports on activity and financial turnover, without applying the ATC DDD methodology of drug consumption^{26,27}. This study was, therefore, undertaken with the aim of analyzing trends in quantity of issued prescriptions and structure of prescribing in regard to number of prescriptions per inhabitants and per patients annually visiting PHC, from 2000 to 2012, based on the CHIF data. Secondary objective was to estimate the possible impact of health care reforms implemented in control of pharmaceutical expenditure.

Methods

This is observational longitudinal investigation, based on publicly available, routinely collected data. The main source of information were Reports on activity of the Croatian Health Insurance Fund, and Reports on financial turnover of the CHIF, from 2002 to 2012^{26,27}. Data on annual number of insured persons, number of health care consumers, issued prescriptions (without hospital care, and over-the-counter segment), and financial spending on prescription drugs were available from the Reports.

Number of insured persons, together with rates of prescriptions per insured person could be approximated to the entire Croatian population because of the universal health insurance coverage by the state-owned CHIF (a combination of Beverage and Bismark model). The insured persons will, therefore, be considered simply as inhabitants. The primary health care consumers (visiting persons) will be named as patients. From the basic data, the annual average number of prescriptions per inhabitant and per patient, annual average financial expenses per inhabitant and per patient, as well as differences in these rates between regional CHIF offices situated in 20 Croatian counties, were calculated. Information on administrative measures introduced for containment of drug spending and other aspects of control were taken from contracts between primary care physicians and the CHIF, and checked subsequently and updated from the administrative paper Narodne Novine.

The data were analysed using the Microsoft Office (Excel and Access) software. Results are presented in absolute numbers, frequency rates and graphically, and trends are displayed as line charts.

Results

The total number of issued prescriptions was 29,213.229 in 2000, and 52,943.026 in 2012; 23,729.797 prescriptions or 81.2% more than in the first year. At the same time, variations in the number of patients annually visiting PHC were less than 10% (Figure 1).

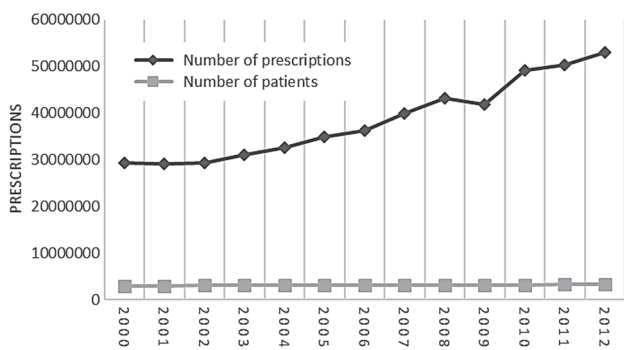


Fig. 1. Number of issued prescriptions and patients receiving primary care in Croatia, 2000–2012.

The rates of prescriptions per patient and per inhabitant also increased, in proportion to the number of issued prescriptions. Prescriptions per patient rose from 9.9 in 2000 to 16.4 in 2012 (increase of 6.5 prescriptions/patient, or 65%), while the number of prescriptions per inhabitant rose from 6.98 in 2000 to 12.2 in 2012 (5.2 prescriptions/inhabitant or 74%). The average annual per capita prescription rate in Croatia (in all age groups, outpatient segment) was approximately 12.4 prescriptions per inhabitant (Figure 2).

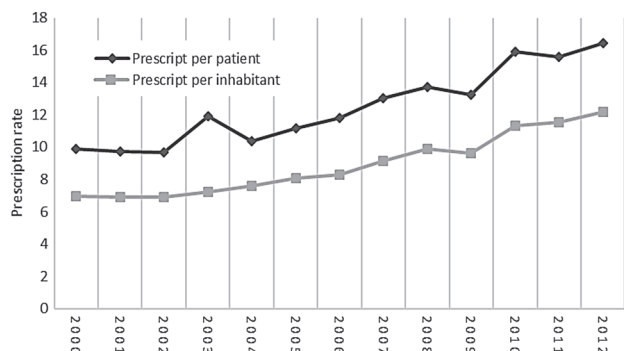


Fig. 2. Trends in the number of issued prescriptions per patient visiting primary care and per inhabitant, in Croatia, 2000–2012.

Financial expenditure on prescription medicines rose from 1.9 billions of HRK in 2000 to 3.03 billions in 2012, or 71%. There was a relatively rapid reaching of a plateau in the last decade, of around 3.2 billions of HRK in 2004, which stayed unchanged until present, with a slight decrease of 14.6% in 2010 (Figure 3).

Average financial spending per patient increased from 655.5 HRK in 2000 (85.6 EUR according to exchange rate from 16.06.2014) to 1023.9 HRK (135.2 EUR) or 56.2%, while spending per inhabitant rose from 461.4 HRK (60.9 EUR) in 2000 to 758.2 HRK (100.1 EUR) in 2012, or 63.5%. Average financial expenditure per patient and per inhabitant increased until 2006, remaining stable until now, except for a decrease of 12% in 2010 (Figure 4).

Regional offices of CHIF situated in county capitals recorded greater number of prescriptions, with the larg-

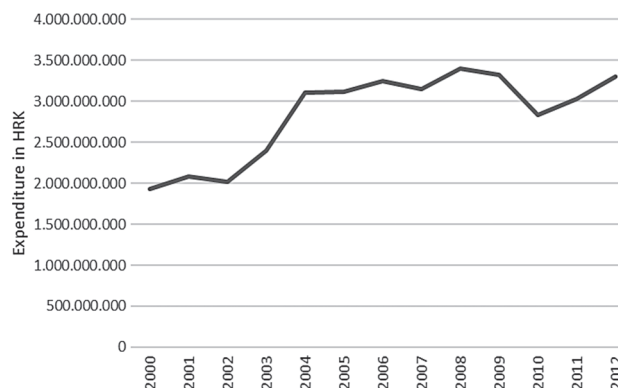


Fig. 3. Overall financial expenditure on prescribed medicines in Croatia, 2000–2012.

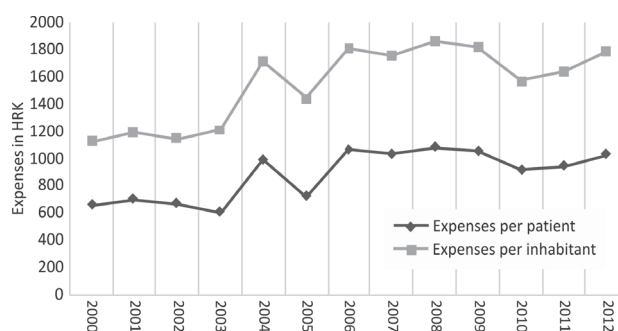


Fig. 4. Trends in financial expenditure on prescribed medicines per patient and per inhabitant, in Croatia, 2000–2012.

est share of recipies in the City of Zagreb and Zagrebačka-county (24.9% of the total number of items), as the greatest and most populated urban area (1.1 million inhabitants or 25.8% of the total population in 2011). The number of issued prescriptions was, therefore, directly correlated with the number of inhabitants in certain area (Figure 5).

The growth of prescription volume in larger counties oscillated moderately between 61 % (Split), 68.8% (Os-

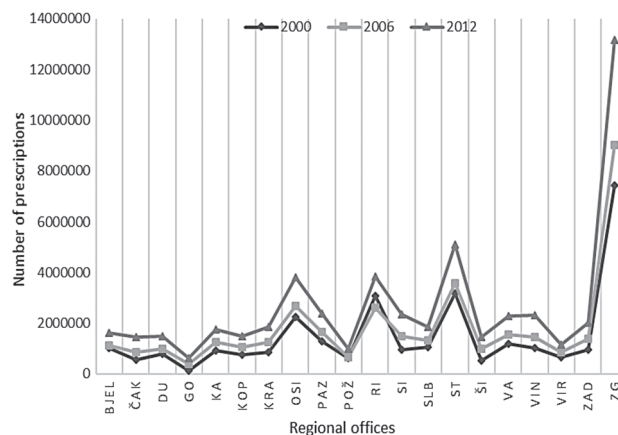


Fig. 5. Trends in total number of prescriptions between CHIF regional offices, in Croatia, 2000, 2006 and 2012.

jek), and 77% (Zagreb) while in smaller counties varied greatly. The lowest rise was in Primorsko-goranska county, centre Rijeka (24.8%), the highest in Šibensko-kninska county, centre Šibenik (183.5%), and Međimurska-county, centre Čakovec (167%) (Figure 6).

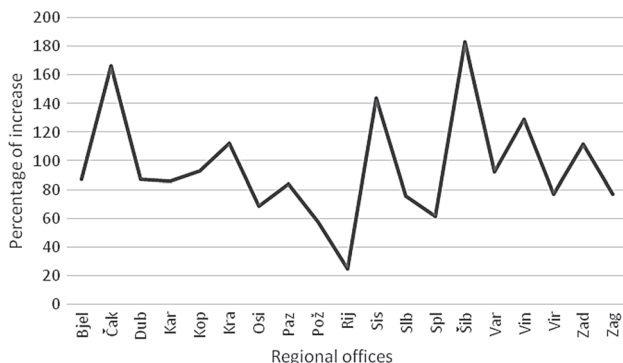


Fig. 6. Growth of prescriptions issued in 2000 and 2012 between CHIF regional offices in Croatia.

Number of prescriptions per capita (per inhabitant) between counties fluctuated in 2002 more than in 2012. Primorsko-goranska county (centre Rijeka) recorded 10.2 prescriptions/inhabitant (the uppermost value), while in Ličko-senjska (centre Gospić), it was only 4.5 prescriptions/inhabitant. The rates in 2012 became more equal, but generally at higher level comparing with the previous decade. That year Krapinsko-zagorska county (centre Krapina) was leading with 13.8 prescriptions/inhabitant, against 11.2 prescriptions/inhabitant in Splitsko-dalmatinska county (centre Split). The difference between the two was, therefore, only 2.6 prescriptions/inhabitant, against 5.7 prescriptions/inhabitant in 2002. Average annual prescription per inhabitant for the entire Croatia grew from 6.6 in 2002 to 12.4 in 2012; a difference of 5.7 prescriptions per capita or 86.6% (Figure 7).

Average annual expenses of prescriptions per capita between counties in 2012 reflected similar trends as in the total volume of recipies: the highest expenditure was, again, in Krapinsko-zagorska county, with 861 HRK/pre-

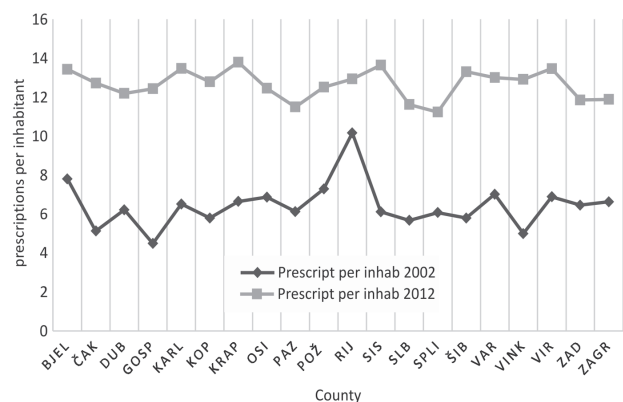


Fig. 7. Trends in prescription per inhabitant rates between Croatian counties, in 2002 and 2012.

scription/inhabitant (113.8 EUR), the lowest in Splitsko-dalmatinska county, with 701.3 HRK/prescription/inhabitant (92.7 EUR), making a difference of 159.7 HRK/prescription/inhabitant (21.1 EUR). The average cost of individual prescription in 2012 was 62.4 HRK/prescription/inhabitant (8.3 EUR) (Figure 8).

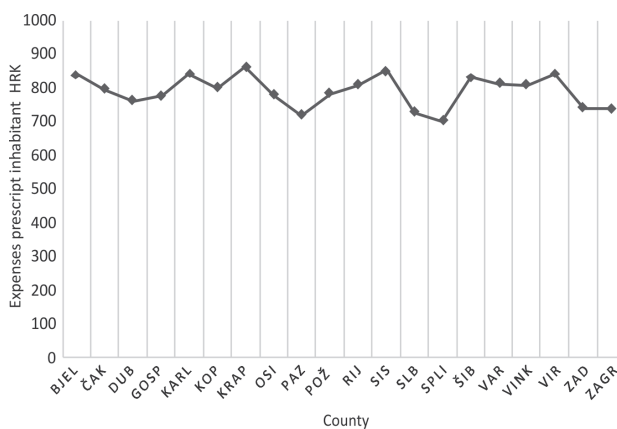


Fig. 8. Annual financial expenses per prescription per inhabitant, between Croatian counties, in 2012.

Discussion

The obtained results clearly indicate two trends: firstly a rise of the quantity of issued prescriptions, together with accompanying rates of prescriptions per inhabitant, and per patient, and secondly an increase in the total cost of prescriptions until 2004, with some variations afterwards. The overall tendencies proved that only measures towards regulation of drug prices had certain influence on drug spending while administrative measures aimed at restraining of PHC physician's prescribing volume and patients' co-payment, were clearly inadequate. Furthermore, the financial costs per inhabitant – 758.2 HRK (100.1 EUR) in 2012, overcome the limits of 680 HRK (90 EUR), set by the CHIF for the contractual year 2012. As the quantity of recipies almost doubled during the twelve year period, the number of patients visiting PHC remained relatively stable. The rise in total volume of recipies together with accompanied rates per patients under care, and per inhabitants followed similar tendencies in other countries. Average annual number of prescriptions per head of population was 12.4 in Croatia (2012), 12.9 in the USA (2010), 7.3 in Italy (2010), 8.57 in Germany (2012, prescription-only), 18.7 in the United Kingdom (2012, community pharmacies + general practices)^{28–31}. Because of different methodology of measurement of pharmaceutical consumption, direct comparisons between countries are difficult to perform.

Restrictions directed to PHC doctors, from average annual number of prescriptions per persons on the list, through punishing attempts in 2003, and financial limits on prescription medicines in 1998, 2003 and 2005, were

therefore, unsuccessful in containing both trends^{15–21}. The efforts oriented toward restraining of PHC doctors should, therefore, be re-directed toward improvement of rational prescribing through the programs of continuing professional development. Regional differences in the total volume of medicines consumed between the Croatian counties are proportional with the number of inhabitants, while the rates of increase and the number of prescriptions per capita showed dissimilarities that could not be explained with the results of this study. Further research, aimed at analyzing interregional patients' office visits, number of patients that begun new chronic therapy or morbidity patterns would probably shed more light to this problem and at least partially explain differences. The overall financial expenditure increased too, but stabilized after 2004, to around 3 billions of HRK. Comparing the increase in volume of recipes with the balanced levels of financial spending, it is understandable that not only the average cost per prescription decreased in the last several years, but the average cost of drugs dropped as well. This was, probably, the result of efficient negotiating between the CHIF and pharmaceutical industry, aimed at lowering of drug prices, and favorizing generics on the basic drug list.

Holding the prescription costs into check from the year 2004, and their maintenance since then, indicate that the CHIF quickly recognized the correctness of turning measures towards pharmaceutical industry and distributors. It became clear, in a relatively short period of time, that the future strategies in management of expanding health care prices stand in that domaine, and that restrictions in the side of demands (patients, prescribers), although important, are not as substantial as those on the side of offers.

This study is, until now, the first in Croatia investigating time-line trends of the quantity and regional distribution of prescription items. Additional strenghts are in the use of official data (CHIF annual reports), which are utilized for health system organizational planning,

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Conclusion

Both the total prescription volume and the cost of prescriptions expanded rapidly in Croatia from the year 2000, despite insignificant changes in demographic indicators. Costs of prescribed medications, however, stabilised from 2004, most probable because of negotiating of drug prices, maintaining strict rules on inclusion of new medicines on the basic drug list and introducing of generics. In contrast, the number of prescriptions issued by the PHC physicians rapidly accelerated in spite of restrictive measures imposed from CHIF to moderate financial expenses. This study only demonstrated trends, therefore the future research detailing the structure of therapeutic consumption together with employment of indicators of medication appropriateness would probably explain factors influencing pharmaceutical volume and costs, as well as patterns of drug utilization in Croatia.

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TRENDVI KRETANJA IZDAVANJA RECEPATA I FARMACEUTSKE POTROŠNJE U HRVATSKOJ: OPSERVACIJSKA STUDIJA NA TEMELJU RUTINSKI PRIKUPLJENIH PODATAKA OD 2000–2012

SAŽETAK

Rast farmaceutskih troškova značajno opterećuje sveukupnu zdravstvenu potrošnju. Hrvatski Zavod za Zdravstveno Osiguranje, pokušavajući ograničiti troškove, koristi administrativne mjere usmjerene ka dvama najvećim potrošačima: farmaceutskoj industriji, putem pregovaranja o cijenama lijekova i periodičnim revizijama osnovne i dopunske liste lijekova, te liječnicima primarne zdravstvene zaštite, putem ograničavanja najvećeg broja recepata koji se mogu prepisati tijekom jedne godine te njihove financijske potrošnje. Cilj je ove studije utvrđivanje kretanja količine izdanih recepata te farmaceutske potrošnje, od 2000 do 2012. Podatci su preuzeti iz godišnjih izvještaja HZZO. Rezultati jasno pokazuju dva trenda: porast količine izdanih recepata, zajedno s pratećim stopama broja recepata po stanovniku i po pacijentu, te porast troškova lijekova izdanih na recept do 2006. godine te njihovo održavanje uz neznatne varijacije, do danas. Unatoč kontroverzama u pristupu, HZZO je uspješno osporio rast troškova, u prvom redu primjenom mjera usmjerenih ka regulaciji cijena lijekova.