Trends in Referrals from Croatian Family Practice in Relation to Specialists’ Consultations: A Longitudinal Observational Study from 1995 to 2012

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ABSTRACT

Drug prescribing and referrals to specialists’ consultations, as the indicators of the quality of health care, were not so often monitored in Croatian family medicine. The aims of the study are to determine the trends of referrals from family doctors to specialists’ consultations and the trends of specialists’ consultations utilization. The study is based on routinely collected data from the Croatian Health Service Yearbooks, 1995–2012. The results indicate that from 1995 to 2012 the visits to family doctors almost doubled, while the number of referrals increased by 60%. The referral rate only slightly increased, from 24 to 29% of the total number of visits. The number of specialists’ consultations showed continuous growth and exceeded the number of referrals. The observed trends are not sufficient to explain referral patterns and utilization of specialists’ services; therefore, a far more complex research is required.

Key words: referrals, specialists’ consultations, trends, family medicine, Croatia

Introduction

Drug prescribing and referrals to specialists’ consultations are indicators of the quality of health care that are regularly monitored in family medicine (FM) 1,2. The growing costs of health care are recognized as an additional reason3. Regulation of the referral procedure and introductions of family doctors (FDs) as »gate keepers« in the health care system are the interventions that are usually implemented4. However, a referral rate that is »desirable« in terms of the quality of health care and a rate that is »acceptable« in terms of the costs of health care are hard to define, mostly due to the high variability of the referral rates5,6.

The referral rate is a complex parameter, certainly dependent on the characteristics of the patients, referring doctors, specialists and the characteristics of health care system7,8.

The situation in Croatia is further complicated because of the lack of systematic research regarding referrals, as well as the frequent changes in regulations that are being implemented in order to make the health care system more efficient and effective. Studies conducted during the 1970s and 80s have shown a 24% increase in referrals from 1978 to 1984. Variations in referrals rates were between 9 and 37%9,10. The most complex study, also a part of the European study, was conducted in early 1990s. According to this survey, Croatia was in the fourth place, regarding the referral rate11. Ten European countries had lower referral rates12. Since then, only one small scale research has been published13.

It is believed that the changes in the healthcare system, usually called »mini health care (HC) reforms«, influenced the phenomenon of referrals and utilization of
specialists’ consultations. In the period studied here, five such mini HC reforms in Croatia were introduced. The first and the most important reform was the process of «privatization», started in 1996\textsuperscript{14}. FDs and other primary health care (PHC) providers became private entrepreneurs, with the obligation of contracting with the Croatian Health Insurance Found (CHIF). According to that contract, FDs are obliged to provide health care for the patients on their lists, being reimbursed mainly through the capitation fees\textsuperscript{15}. Around 20\% of FDs continued working within health centers as employees, but with the same contractual rights and obligations.

The second measure aimed at rationalizing referrals were the contractual obligations of the FDs to follow-up on certain referral rules. In 2003, the number of referral blank forms was limited to two per year and per patient on the list. In 2006, this limit was changed to three referral forms\textsuperscript{16,17}. In 2010, the limitation of the number of referral forms was replaced by financial limitations, i.e., the average financial value of referrals per patient and per year. This reform was followed by the implementation of penalties if the financial limitations were exceeded\textsuperscript{18}. In addition, some sort of collateral referrals were introduced in a sense that consultants were given the opportunity to refer a patient to another consultant or diagnostic test\textsuperscript{19}.

The third group of measures used to maintain appropriate referral rates was the introduction of the higher rate of co-payment. Patients’ financial participation has been, for a long time, an effort to rationalize access to health care services in Croatia, including the specialists’ consultations. However, participation has not presented a financial barrier as expected, since it was small in amount and the large parts of the population were released. Therefore, in 2005, a relatively high rate of co-payment or «administrative tax» was introduced\textsuperscript{20}.

The fourth attempt at keeping specialists’ consultations rational was the introduction of the standard number of inhabitants per one specialist under the CHIF contract, in 2002\textsuperscript{21}. The standard numbers remained almost the same to date. Reimbursement modalities were the fifth measure for keeping specialists consultations rational. Reimbursement has always been based on the fee for services, but changed on a way that procedures were, by complex calculations, converted into points, and the points into payment sums. In addition, limitations in the number of points which could be obtained were also introduced\textsuperscript{22}.

The lack of well-designed research, especially in relation to the HC reforms mentioned earlier, was the impetus for this research. The main aims of the study were: 1) to determine the trends (and structure) of referrals from FM to specialists’ consultations; 2) to determine the trends of specialists’ consultations utilization; 3) to estimate if the HC reforms might have any influence on the referral trends on specialists’ consultations utilization in Croatia from 1995 to 2012.

Materials and Methods

This is an observational longitudinal study, based on publicly available, routinely collected data. The data was obtained from the Croatian Health Service Yearbooks, issued by Croatian National Institute of Public Health. The data related to referrals from PHC and those related to the utilization of specialists’ services were collected for the period of 1995–2012\textsuperscript{23}. First, the number of visits to FDs, the number of referrals and the number of specialists’ consultations were extracted for each year. After that, the referral rate was calculated as the percentage of referrals to specialist in relation to the number of visits. In addition, the percentage of consultations for each specialty in relation to the total number of specialists’ consultations was computed.

In order to establish a relationship between the PHC referrals and utilization of specialists’ consultations, the number of primary pediatricians’ referrals was added to the FD referrals, because according to the Health Care Act, primary care pediatricians and gynecologists belong to the PHC and are considered gate-keepers. The data on primary care gynecologists’ referrals were missing in the Yearbooks; therefore, they were not added to the sum of referrals from PHC to specialists’ consultations. All data were collected for the period of 1995–2012.

One of the aims of this study was to investigate the structure of referrals by a particular specialty. However, these data were not presented in the Yearbooks. It was assumed that CHIF as contractor might have this information because an invoicing review and payment of specialists’ consultations is usually made on the basis of referral. However, these data were not publicly available. Instead, in response to our request, the number of referrals from some hospitals and for a period 01/09/2012 to 20/01/2013 and from 01/09/2013 to 20/01/2014, were obtained\textsuperscript{24}.

To investigate whether the agreed upon standards regarding the number of patients per one specialist were applied; the number of specialists signing the contract for the period of 2010–2012 were obtained from the publicly available CHIF web page\textsuperscript{25,26}. Based on these data and the data from the 2011 Census, the average numbers of inhabitant per one contracted doctor in each particular specialty were computed\textsuperscript{27}.

The collected data were analyzed using Microsoft Excel 2010. The results are displayed as a table of frequencies and percentages and trends are represented in line charts.

Results

Characteristics of the referrals

The number of patients visiting FDs was relatively constant throughout the observed period and averaged 3.1 million per year. In contrast, the number of FDs visits in the same period increased markedly (from 17.7 million in 1995 to 31.4 million in 2012). Similarly, the number of referrals increased from 4.3 million in 1995 to slightly over 7 million in 2008 (a 69\% increase). After 2008, how-
ever, a constant decrease in referrals was noted. Neverthe-
less, at the end of the observed period the total num-
ber of referrals was still 49% higher compared to 1995
(Figure 1).

A similar pattern was noted regarding the number of
referrals per patient. This indicator peaked in 2007 when
2.3 referrals per patient were reported. After that, a slow
decline was observed. Similarly, an almost parallel in-
crease in the number of visits and referrals from 1995 to
2008 resulted in a slight increase in the referral rate for
that period (from 24 to 29%). By contrast, over the next 4
years, the referral rate dropped by almost a third (to
20%) (Figure 2).

In relation to FD referrals, only 6.2 to 7.6% of the to-
tal number of referrals was attributed to primary pedi-
atricians. The sum of referrals from FDs and pediatri-
cians and the number of specialists’ consultations show simi-
lar trends over the largest part of the period studied (Fig-
ure 3). At the beginning of the observed period, the num-
ber of specialists’ consultations equaled the number of
referrals from primary care. However, over the largest
part of the observed period, the number of specialists’
consultations surpassed the number of referrals, with
the difference ranging from 3 to 21%. Moreover, in the
last year of the observed period, this difference amoun-
ted to as much as 40% (Figure 3).

According to the CHIF data, 4,803,961 referrals were
issued and 3,691,611 were utilized (76.8% utilization)
from 01/09/2012 to 20/01/2013. From 01/09/2013 to 20/
01/2014, 4,699,142 referrals were issued and 3,160,908
were utilized (67.3% utilization).

Characteristics of specialists’ consultations

The ten specialties with the highest frequency of con-
sultations in this study were: surgery, internal medicine,
ophtalmology, physical medicine and rehabilitation,
psychiatry, otorhinolaryngology, orthopedics, dermatol-
yogy, pediatrics, and neurology. During the study period,
the number of consultations showed a substantial in-
crease in all specialties, with the smallest increase being
noted in orthopedics (25%) and the largest in pediatrics
and physical and rehabilitation medicine (247 and 243%,
respectively) (Figure 4).

Although the most frequently utilized specialties we-
re almost the same throughout the entire follow-up pe-
riod, their rank did change (Table 1). For example, sur-
ery led the list of most frequently utilized consultations
until 2004, with more than 16% of total number of all
specialists’ consultations. In 2004, it was replaced by in-

ternal medicine with 15.9% of total number of consultations. In 2012, physical medicine and rehabilitation had the highest proportion of consultations (14.7%), taking the first rank. Ophthalmology has always been taking the third or the fourth rank, while psychiatry and otorhinolaryngology shared the fifth and the sixth rank.

According to the CHIF data from 2012, the discrepancies between the standard numbers of inhabitants per one contracted specialist were present in all five specialties with the highest number of consultations. For example, for internal medicine the standard number is 18,000 inhabitants and the average number per one specialist of internal medicine contracted by CHIF was 13,058. For surgery, the standard number is 60,000 and the contracting number was 28,765, and for ophthalmology the standard number is 35,000 and the contracting number was 26,073 inhabitants.

### Discussion

The results of this study indicate that the visits to family doctors (FDs) in Croatia almost doubled during the 18-year follow-up period. At the same time, a 60% increase in the number of referrals was observed. From 1995 to 2008 an almost parallel increase in the number of visits to FDs and referrals was noted, but after that the number of referrals started to decrease while the number of visits continued to increase. Consequently, in the first 13 years of the observed period the referral rates increased only slightly, from 24% to 29% of the total number of visits. On the other hand, in the last 5 years referral rates dropped markedly, to 20%. The number of referrals per patient also increased, from 1.2 to 2.0, while the annual number of patients coming to FDs was unchanged.

The observed trend in the growing number of referrals from 1995 to 2008, the time when the majority of HC reforms were implemented, indicate that they might not have had any influence. Previous research has shown that the introduction of patients’ co-payments, unless if it is too high, cannot solve the problem of over-utilization of health services. In Croatia, the co-payment has always been acceptable to the average patient. In addition, the great part of the population was exempt from it. When the larger co-payment, administrative tax, was introduced in 2005, most patients opted for the additional health insurance. Additional health insurance was very affordable to the patients, especially to retired patients, very frequent health service users. Having additional health insurance the patients were relieved of any additional health service costs. Furthermore, it seems that the restriction on the number of referral forms did not affect referral patterns. Such restriction has not thus far been recorded in the available literature making any comparison impossible. The introduction of the standard number of inhabitants per one contracting specialist seemingly was not implemented in an appropriate way. For example, in surgery, the standard was set to 60,000 inhabitants.

### Table 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Internal medicine</th>
<th>Surgery</th>
<th>Physical and rehabilitation medicine</th>
<th>Ophthalmology</th>
<th>Psychiatry</th>
<th>Pediatrics</th>
<th>Otorhinolaryngology</th>
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<td>1995</td>
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<td>16.5%</td>
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<tr>
<td>2006</td>
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<tr>
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References


The results of this study have shown that it would be reasonable to consider referrals and specialists’ consultations as two partly different phenomena. In other words, the number of specialists’ consultations did not match the number of referrals: there was typically 1.1 specialists’ consultation per referral. Furthermore, preliminary results of CHIF data show that only three quarters of referrals were utilized which makes the differences between referrals and specialists’ consultations even greater. While the number of referrals decreased, especially after 2010, the number of specialists’ consultations continuously increased. This discrepancy might be caused by the already mentioned possibility of collateral referrals from one specialist to another; by referrals from emergency departments or by a failure of the gate-keeping function. Still, the study results do not allow drawing any finite conclusions about the possible causes and future research is needed, especially because the referral procedures were changed once again in 2013. Specifically, the consultants were given the opportunity to refer a patient to another consultant or diagnostic test.

The strength of this study is in routinely collected data on which the official health statistics are based and which are usually used for various types of planning at the national and local levels. Consistency in routine data collection enabled the monitoring of trends for a long period of time. The data are suitable for investigating trends but they are not suitable for analyzing the deep causal relationships between referrals and specialists’ consultations. The main limitation of this study is the lack of data on the structure of referrals. Unfortunately, no such data are publicly available.

Despite this shortcoming, the results of this research can help participants in the health care system develop strategies for reasonable utilization of specialists’ services. The results also left a lot of unanswered questions for further research in order to understand the utilization of specialists’ services in Croatia.

Conclusion

This study demonstrated that a large percentage of referrals still exist within Croatian FM, despite a decreasing trend. The number of specialists’ consultations is showing continuous growth and exceeding the number of referrals. The observed trends are not sufficient to explain referral patterns and utilization of specialists’ services; therefore, additional research – far more comprehensive than this study – is required. The study also indicated the necessity for reliable and publicly available data, such as those from CHIF, upon which important decisions are usually made by the policy makers.

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