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Trends in Preventive Activities for the Adult Population in Family Medicine in Croatia: 1995–2012

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ABSTRACT

A few preventive activities were recorded in Croatian family medicine (FM) from 1995 until 2003, and then in 2004, additional fee-for-service reimbursement for general check-ups for people aged 45 to 65 years was introduced. The aim of this study was to investigate the trends in preventive activities before and after the introduction of those measures by using the Croatian Health Service Yearbooks for 1995–2012 as the main database. Data on the number of preventive, general, and total number of check-ups were collected. The results showed that the total number of check-ups registered in FM was low, suggesting that the additional reimbursement did not bring any improvements. In fact, the trend in the number decreased after 2004. These results are not unexpected because of the ineffectiveness of general check-ups as indicated in the literature. General check-ups should be replaced by targeted preventive interventions with evidence-based effectiveness.

Key words: family medicine, general health check-ups, prevention, reimbursement, Croatia

Introduction

The main characteristic of family medicine (FM) as a scientific and professional medical discipline is comprehensiveness—implementing health promotion, prevention, disease management, and follow-up activities in an integrated way^{1,2}. Preventive activities are recognized as an important segment of the FM scope of work by the Plan and programme of health care measures as the established Croatian standard of health care provisions³.

However, according to research published between 1990 and 2003, only a few preventive check-ups occurred annually in FM^{4,5}. Therefore, in 2004, preventive check-ups for persons older than 45 years became a contractual obligation between family doctors (FDs) and the Croatian Institute for Health Insurance (CIHI). After billing, contracting FDs were reimbursed according to the price of the individual check-up⁶. In 2005, the age

limitation increased to 50 years, again for persons who had not visited their chosen FDs in the previous three years. Single payment was replaced by a share in the capitation fee of up to 10% if the FDs examined more than 50% of persons older than 50 years on their lists who fulfilled the criteria⁷. In 2007, the contract specifications remained the same for age but changed for persons who had not visited their FD in the last two years and had had no clinical examination and/or diagnostic procedures similar to those scheduled for preventive check-ups. The content scheduled for preventive check-ups encompassed a complete medical history with questions specific to malignant disease, a complete physical examination with anthropometric measures, blood pressure measurement, breast examination, digital rectal examination, and laboratory tests of cholesterol, hemoglobin, blood glucose,

and semi-quantitative urine analyses⁸. Until 2012, preventive check-ups remained an obligation to FDs and were reimbursed by a share to the capitation fee, usually 5–10%, regardless of the contractual years.

Several studies have tried to evaluate the impact of the stimulus measures on preventive activities^{9,10}. However, the scope of these studies was narrow and the follow-up period was short. Therefore, this study was performed to address whether those measures had any influence on the number and structure of preventive check-ups in FM. The aim was to investigate trends in preventive check-ups in FM in Croatia between 1995 and 2012 and to compare the two time periods, before (1995–2003) and after the introduction of the stimulus measures (2004–2012).

Methods

The study was observational and longitudinal, based on routinely collected data. The main source of data was the Croatian Health Service Yearbooks from 1995 to 2012, issued by the Croatian National Institute of Public Health¹¹. The data were collected in the manner they were presented in the yearbooks: the number of preventive, systematic, and the total check-ups. Based on the Instructions for data collection, a number of systematic, targeted, follow-up, and other periodic check-ups for persons of all ages were registered for preventive check-ups. General check-ups, especially aimed at persons in the 45-year-old age group and persons in the 65-year-old age group, were registered as systematic check-ups. The total of all preventive check-ups and all systematic check-ups were registered under the total number of check-ups¹². The total number of check-ups were presenting in the yearbooks within two age groups, age 20–64 years and over 65 years. The data were collected separately by the years of follow-up for the different counties and for all of Croatia. The data on the number of Croatian FDs were collected from the same source. The average number of check-ups *per* one FD and *per* one year, were calculated.

Data were analyzed using Microsoft Office (Excel and Access) and presented graphically and as a table of frequencies, and trends were displayed as line charts.

Results

Results are presented for Croatia as a whole and then separately for the counties. The total number of check-ups increased from 1995 (61,682 check-ups) until 2002 (84,636 check-ups), with a continual decrease in the number until 2012 (15,887). The trend was almost the same for both age groups; 20–64 and over 65 years (Figure 1).

The trend in preventive check-ups was similar to the total number of check-ups, increasing until 2001 then sharply declining after 2004. More preventive check-ups were done for the age group 20–64 years than in the age group over 65 years (Figure 2).

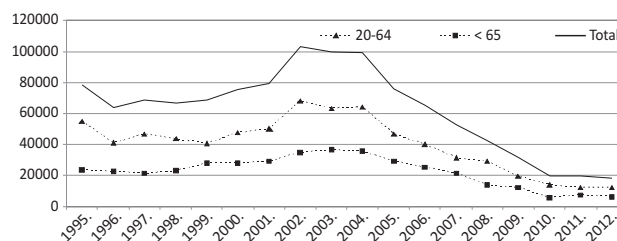


Fig. 1. Trend in total number of check-ups performed in family medicine in Croatia in relation to the patient's age (20–64 years, over 65 years), 1995–2012.

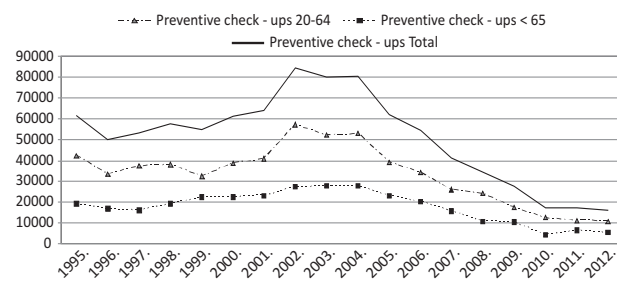


Fig. 2. Trend in the number of preventive check-ups performed in family medicine in Croatia in relation to age, 1995–2012.

The trend was similar to the total number, increasing until 2002 and decreasing after 2004. A larger number of systematic check-ups were performed for the 45-year-old age group than for the age group at 65 years (Figure 3).

The average number of total check-ups *per* one FD fluctuated from 43 in 2002 to eight in 2012 (Figure 4). Differences among counties are shown in Tables 1 and 2.

The number of preventive check-ups performed in FM were slightly higher in Sisačko-moslavačka, Istarska

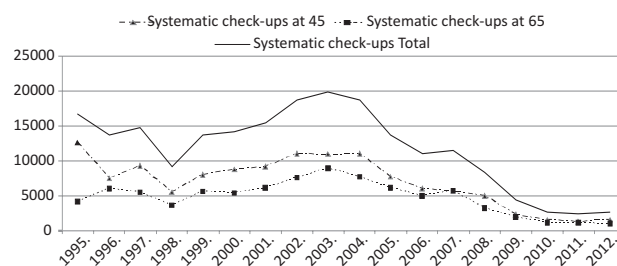


Fig. 3. Trend in the number of systematic check-ups performed in family medicine in Croatia in relation to age, 1995–2012.

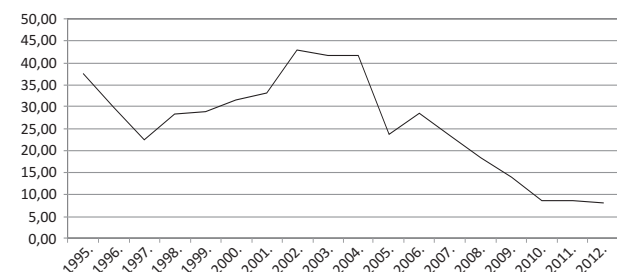


Fig. 4. Trend in the average number of total check-ups per one family doctor per year in Croatia, 1995–2012.

TABLE 1
THE NUMBER OF PREVENTIVE CHECK-UPS PERFORMED IN FAMILY MEDICINE IN CROATIA AND IN THE COUNTIES, 1995–2012

Counties	1995	1998	2001	2004	2007	2010	2011	2012
Croatia – total	61682	57465	64109	80879	41400	16930	17192	15893
Bjelovarsko-bilogorska	226	274	464	746	129	39	10	66
Brodsko-posavska	0	9043	2132	1319	1981	535	791	1120
Dubrovačko-neretvanska	3273	1680	3575	2478	3425	1150	2296	1349
Istarska	3440	14582	5771	7432	5775	906	1058	795
Karlovačka	83	1066	1191	1205	785	11	3	0
Koprivničko-križevačka	2964	2438	1381	1523	751	375	336	131
Krapinsko-zagorska	5280	110	359	1652	1105	589	131	1215
Ličko-senjska	0	0	0	184	9	5	14	28
Međimurska	391	1354	733	539	41	16	48	36
Osječko-baranjska	1071	2141	163	728	671	34	51	92
Požeško-slavonska	724	2929	1421	1876	1496	212	7	24
Primorsko-goranska	888	1017	912	6280	725	327	439	49
Sisačko-moslavačka	7586	1153	1662	2880	1305	420	332	338
Splitsko-dalmatinska	352	926	1197	2266	1740	117	94	151
Šibensko-kninska	0	1585	1200	2976	1602	46	0	720
Varaždinska	2394	184	1440	2362	1160	2820	1028	2154
Virovitičko-podravska	43	0	4577	2708	1988	7	32	64
Vukovarsko-srijemska	1628	1	130	849	251	68	73	77
Zadarska	112	57	134	548	377	83	15	29
Grad Zagreb	0	10006	26628	24839	8671	3132	4338	3711
Zagrebačka	9681	6919	9037	16489	7311	6038	5847	2858

and Dubrovačko-neretvanska counties, but these still showed a trend of continuous decline. Brodsko-posavska, Ličko-senjska, and Šibensko-kninska counties had a lower number of check-ups and also with a continuous decline.

Varaždinska and Dubrovačko-neretvanska counties had more systematic check-ups and Ličko-senjska, Šibensko-kninska, and Vukovarsko-srijemska fewer; all these counties showed a continuous decline.

Discussion

The results indicated that the number of preventive activities registered in FM and recorded in the yearbooks was low, with a declining trend. On average there were 43 activities *per* FD in 1995 and eight activities in 2012. It seems that the introduced stimulus measures did not have any influence on preventive check-ups. After a slight growth from 1995 to 2003, a sudden drop occurred after 2004. The year 2004 was when preventive check-ups became contractual obligations for FDs and when FDs were additionally reimbursed as a fee-for-service. The difference by counties was also notable; in some counties there were more preventive check-ups, regardless of the financial incentives, while in other counties there were less.

There are two possible explanations for these findings. The first is that financial incentives as the only form of stimulus are not effective, especially in the long term^{13,14}. Our results indicate that there was not even a short-term positive effect, probably because the stimulus measures were limited. Initially, it was only 35 kunas *per* check-up, which is not sufficient to cover the costs of the check-up. Another possible explanation is that the stimulus was achieved under certain conditions, usually as a 5–10% share of the capitation, and the capitation was easily realizable. However, administrative obligations for the realization of such a stimulus exceeded its financial value; in addition, the FDs complained about too much bureaucracy. Essentially, the issue of prevention is too complex to be solved only through health service measures^{15,16}.

However, the most important aspect of this study is the idea of introducing general preventive examinations as an obligation for FDs. Considering that the efficiency of general check-ups is questionable, as indicated in the literature, and possibly even harmful, general check-ups do not lead to a reduction in mortality^{17–20}. A Cochrane systematic analysis and meta-analysis of 16 randomized trials (follow-up of 182,880 participants with a median follow-up time of nine years) showed no difference in total mortality or in specific mortality in cardiovascular and malignant diseases between the experimental and

TABLE 2
TOTAL NUMBER OF SYSTEMATIC CHECK-UPS PERFORMED IN FAMILY MEDICINE IN CROATIA AND IN THE COUNTIES, 1995–2012

Counties	1995	1998	2001	2004	2007	2010	2011	2012
Croatia – total	16763	9166	15374	18702	11429	2674	2368	2606
Bjelovarsko-bilogorska	0	0	648	348	58	21	40	35
Brodsko-posavska	0	417	530	314	166	151	95	129
Dubrovačko-neretvanska	1574	658	343	550	547	150	272	113
Istarska	565	1561	3332	4020	3610	553	424	168
Karlovačka	181	338	701	472	34	1	3	0
Koprivničko-križevačka	224	279	257	542	256	126	134	339
Krapinsko-zagorska	0	64	119	551	197	66	82	62
Ličko-senjska	0	0	0	38	0	5	7	4
Međimurska	37	623	570	400	46	0	103	5
Osječko-baranjska	142	203	43	402	197	13	32	4
Požeško-slavonska	650	769	992	733	187	151	7	2
Primorsko-goranska	417	188	708	408	390	209	200	5
Sisačko-moslavačka	463	435	695	1055	761	158	86	72
Splitsko-dalmatinska	0	50	104	661	178	20	23	32
Šibensko-kninska	0	39	884	166	384	14	19	9
Varaždinska	10037	233	723	422	542	233	231	712
Virovitičko-podravska	12	0	95	374	294	65	43	0
Vukovarsko-srijemska	0	0	0	220	11	5	9	10
Zadarska	135	22	30	342	170	136	54	82
Grad Zagreb	0	1369	2573	18702	2674	338	400	377
Zagrebačka	2326	1925	2027	4436	727	342	104	446

control groups. However, the number of new diagnoses increased by 20% in the experimental group as did the number of people who subjectively reported ill health. The authors emphasized that the biggest drawback of the studies was that they did not pay attention to the adverse effects of general check-ups on patients' health or the effects of increased use of health care resources²¹. Unfortunately, we do not have adequate knowledge about the adverse effects of screening programs because this problem is rarely reported in the literature²². For this reason, the professional community in the UK reacted sharply to two attempts from policy makers to introduce general health check-ups in FM^{23–25}. One question is why general check-ups are constantly being implemented in everyday practice in spite of the growing number of findings on their inefficiencies? According to Gervas and associates, physicians and patients instinctively accept them; the former because of the feeling of guilt that something might be missed and the latter due to the constant fear that something is wrong with their health²⁶.

The cumulative knowledge of the inefficiencies of general check-ups should be a reason for seriously reconsidering some changes in Croatia. The first is to withdraw the general check-ups, including the special reimbursement for this service, from the FD's contract with the CIH because it is a waste of money. The second is to withdraw the general check-up provision from the Plan and program of the health care measures, the Croatian

standard for health care provision. General check-ups should be replaced by preventive measures with proven effectiveness, such as those recommended by the Canadian Task Force on Preventive Health Care and the U.S. Preventive Task Force^{27,28}. With minor differences, both agencies suggest only targeted preventive measures for the adult population, such as measuring weight and height and the registration of risky behaviors (smoking, physical activity, diet, alcohol consumption, and risky living and working conditions) – but only if they are accompanied with brief interventions for those observed as having an individual risk factor. According to the recommendations, other preventive measures should be targeted, e.g., screening the specific risk in specific age groups or in specific patients. In FM, they are usually performed as opportunistic screenings^{27,28}.

Everyday preventive activities performed by FDs are usually not recorded as separate activities, which is an additional problem for researchers of this issue²⁹. There are two possible reasons for this. The first is the conceptual understanding of prevention as an integral part of each patient contact in FM, and consequently it is not recorded as separate procedure. According to Vrcić Kegljević, at least one piece of advice can be classified as preventive in almost all recorded consultations³⁰. Tiljak also found, that over 90% of FDs offer patients advice in relation to smoking, diet, and alcohol abuse independently of the reasons for encounters. The same situation applies to

cholesterol measurements in patients with increased risk. FDs performed fewer blood pressure measurements and breast examinations. However, these activities were in general less represented by Croatian FDs than by FDs from nine European countries where identical studies were conducted³¹. A second reason why preventive activities are not usually recorded is a lack of classification. Although the international classification of diseases and classification in primary health care are well developed, such classification on preventive interventions is missing.

The strengths of this study are that it is based on routinely collected data from official national statistics. The data are collected consistently, which allows for comparisons over a long period of time. However, the quality of the data restricts the conclusions that can be drawn on prevention in FM. Therefore, the results of this study can be viewed only in terms of trends and are not suitable for a deeper analysis. Furthermore, the inconsistency of the data shown in the yearbooks is most likely due to the methods for recording and reporting. The lack of agreement on how to record the results, especially after the central information system introduction, is an on-going discussion. Since this is an important public health problem and an important segment of the work of

FDs, further research is needed on why there is such a low number of preventive activities in FM.

Conclusions

Our results showed that there are few preventive activities performed and/or recorded in Croatian FM. It appears that the contractual reimbursement stimulus has not brought any improvements. In fact, a declining trend in the number of preventive activities was clearly visible after its introduction. However, the results are not unexpected because general check-ups have been shown to be ineffective. Policy makers should take into consideration strategies on the introduction of evidence-based stimulus measures for effective preventive intervention in the daily work of FDs.

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TREND KRETANJA PREVENTIVNIH AKTIVNOSTI ZA ODRASLU POPULACIJU U OBITELJSKOJ MEDICINI U HRVATSKOJ: 1995.–2012.

S A Ž E T A K

Broj preventivnih pregleda zabilježenih u hrvatskoj obiteljskoj medicini (OM) od 1995. do 2003. godine je sukladno istraživanju bio malen, te su 2004. godine uvedene poticajne mjere, individualno plaćanje općih preventivnih pregleda za osobe u dobi od 45 do 65 godina. Cilj je bio istražiti trendove u provođenju preventivnih pregleda prije i nakon uvođenja tih mjera korištenjem Hrvatskih zdravstveno-statističkih ljetopisa od 1995. do 2012. godine kao osnovne baze podataka. Prikupljeni su podaci o broju preventivnih, sistematskih, te ukupnom broju pregleda. Rezultati pokazuju da je ukupan broj preventivnih pregleda zabilježenih u OM bio malen što upućuje na zaključak da dodatne poticajne mjere nisu dovele do poboljšanja. Štoviše, broj pregleda opada nakon 2004. godine. Ovi rezultati nisu neočekivani jer se radi o općim sistematskim pregledima koji su i, sukladno literaturi, dokazano neučinkoviti. Opći preventivni pregledi trebali bi biti zamijenjeni sa ciljanim preventivnim aktivnostima znanstveno dokazane učinkovitosti.