

## Family Medicine in Croatia: Past, Present, and Forthcoming Challenges

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The aim of this paper is to present the effects of the reform of primary care by privatization and direct contracting between general practitioners/family physicians and the Croatian Institute for Health Insurance, as well as to propose possible improvements. Using the data of the Croatian Institute of Public Health, we analyzed the coverage of population and accessibility of service, management of chronic illnesses, home visits, and preventive check-ups in the family medicine service. In 2001, 2,408 (30.8% vocationally trained) doctors worked in the family medicine service, taking care of 3,759,248 (84.7%) registered inhabitants of Croatia. There was an average of 6 office encounters, 0.1 home visits, 0.05 preventive check-ups and 1.4 referrals per patient per year. Within the Project of Health System Reform a working group of primary care experts proposed the following improvements: 1) the family medicine service should be organized in accordance with the fundamental principles of accessibility, continuity, and integrated care; and 2) a multilayered financing model should be used, containing a capitation fee payment, fee for service payment, and specific program payment. Taking into account the European Union recommendation, a project aimed at ensuring the specialization of family medicine for all doctors working in the family medicine service was started in 2003. This study indicates that there is a gap between proclaimed health system improvements and effects of the reform of primary care. In order to achieve evidence-based health policy, concerted action of all participants in the decision-making process is needed.

**Key words:** *health policy; health care reform; family practice*

In the period from 1990 to 1999, Eastern and Central European countries underwent substantial socio-economic changes, which affected the health status of their populations, as well as the organization and functioning of their health care systems (1). The health care system in Croatia was based on a model of national health insurance with a high level of solidarity but with a constant lack of financial resources for ensuring the proclaimed level of health rights for all citizens (2,3). In this period, the healthcare system was reformed in accordance with socio-economic and political changes. The main changes were the introduction of market principles and the strengthening of private initiatives as well as the responsibilities of health care users. According to the document "The Strategy and Plan of Health Care System and Health Insurance Reform" of the Ministry of Health of the Republic of Croatia from June 2001, the most important goals of this reform were: halting the increase in costs, improving health care system planning and management, reorganization of health care system financing and methods of payment, improving the efficacy and quality of health care, and strengthening preventive and primary care.

Primary health care in Croatia has a long tradition. It not only represents the patients' gateway to the health care system, but also provides a comprehensive level of health care.

Andrija Štampar, one of the founders of the World Health Organization (WHO) and the first president of the WHO Assembly, came up with the idea of a proper organizational model for efficient primary health care through health centers. Health centers were organized according to the principle of integrated health care. The first health center in Croatia was established in 1951, and this model was expanded in many different countries throughout the world. Postgraduate vocational training for general practitioners was organized in 1961 at the Andrija Štampar School of Public Health, Zagreb University School of Medicine, the first of its kind in the world. It also had a considerable influence on the introduction of similar training in many countries (4).

Before 1997, the state owned health center was the institution responsible for organizing and providing primary care through various primary care services for all citizens living in a given local community. Health professionals working in a health center were state employees and were salaried equally, irre-

spective of the number of patients, workload, or quality of work. In that system, there was no motivation or incentives to health care professionals for the rational usage of health care resources or for ensuring the appropriate professional standards of work. Primary health care was the first part of the health system in which partial privatization was introduced. According to the contract between the Croatian Institute for Health Insurance (CIHI) and contracting general practitioners (family physicians) the changes were aimed at achieving rationalization and cost reduction, as well as strict control of quality of health care. Furthermore, these changes were introduced to give general practitioners (GP) direct responsibility for the patients registered on their lists (5). Unfortunately, the changes were introduced abruptly, without effective engagement of the health care professionals, which is contrary to the principles of the management of highly structured systems. In a health care system, health professionals have a large degree of control and an ability to play a key role in the process of change. They have greater influence over decision-making on a day-to-day basis than those who are nominally in control at the top (bottom-up approach). Failure to recognize this fact could produce a negligible, or even the opposite, effect to the one intended (6). Despite the strict control by the CIHI and a lot of pressure on contracting doctors in the family medicine service to cut the costs, the overall health expenditures had been rising constantly. For example, according to the CIHI data, health care expenditure rose by 18.3% from 1999 to 2000. A considerable part of the increase of the overall health expenditure was attributed to the 46% increase in the cost of prescribed drugs which were covered by health insurance in this period (7). The increasing costs of prescribed drugs could be attributed to constantly rising drug prices, insufficient transparency of the process of drug registration and listing, and poor prescribing habits of GPs.

The current legislation in the field of drug prescribing mandates that only primary care physicians working in the public sector under a CIHI contract are authorized to prescribe a drug covered by the health insurance. By legislation, primary care physicians are "free" to prescribe a drug according to their professional judgment, considering the recommendation of specialists or the patients' requests. However, at the same time, the portion of primary care expenditure within the overall health care expenditure decreased from 25% in 1989 to 18.6% in 1997, and 16.2% in 2000. The official data for 2001 were not available (8-10).

The aim of this paper is to present the effects of changes in the organization and financing of family medicine service which were introduced in the last decade. After evaluating the present situation in family medicine service and the experiences of the health care system reform in other countries, we will propose some recommendations for overcoming these serious problems in the family medicine service and for its further development in Croatia and countries with similar experiences.

## Methods

Within the Project of Health System Reform, which was led by the Ministry of Health of the Republic of Croatia and the World Bank, a working group of recognized primary care experts was established. The main task of the working group was to analyze the present situation in primary care based on the relevant data and their expertise. Furthermore, they were obliged to propose possible changes. The working group has been functioning for almost three years. Their activities also included an analysis of experiences from other countries and choosing the most promising solution for Croatia. One of the basic premises of the working group was that a health care system is a reflection of the society and values in which it is embedded. Bearing this premise in mind, the working group was aware that it would not be possible to exactly transfer even the most successful model from another country (11). The working group used the Delphi method to set the priorities (12). Their analysis also included the allocation of resources, identification of the strengths and weaknesses of the current model of family medicine service, and determining the ways in which these changes could be implemented (13). After these steps were accomplished, the working group presented its proposals to a professional audience. In January 2001, the Ministry of Health organized a conference, which was publicly advertised and open to all interested health professionals in primary care. During the conference, the proposed changes were presented by the panelists and critically reviewed by the audience. Based on this professional audit, the working group set the final priorities for reform. These were: 1) specialization in family medicine for all doctors working in family medicine service, 2) changing the model of payment, and 3) establishing group practices.

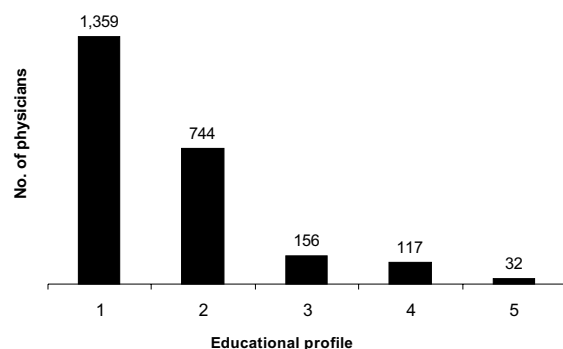
During the Conference "Health Insurance in Transition – Biotechnology and Public Health", which was held in Cavtat in October 2003, the working group organized a workshop titled "Performance-Based Payment to Improve the Performance of Primary Health Care in Croatia". Almost 50 experts (other than the members of the working group) participated in the workshop. They represented professional associations of family medicine, the Ministry of Health of the Republic of Croatia, the Croatian Institute for Health Insurance, the Croatian Medical Association, the Croatian Medical Chamber, and the Croatian Institute of Public Health. The first part of the workshop consisted of plenary sessions, which were aimed at presenting the proposal of the working group and facilitating the discussion. The topic of the second part of the plenary sessions was clarification of how different payment models could influence the realization of the chosen priorities. This was followed by deliberations by a subgroup of participants with a special interest in the topic. During this workshop, a new model of payment in family medicine service was defined and agreed upon, and the action plan for its implementation was developed.

In this paper, the official data of the Croatian Institute of Public Health and the data obtained by research projects were used to analyze the organization and functioning of the family medicine service. We chose the following indicators for the analysis: coverage of the population by the family medicine service (and its accessibility), management of chronic illnesses, home visits, and preventive check-ups.

## Analysis of the Present Situation in Family Medicine Service

### *Population Coverage in Family Medicine Service*

Out of 2,408 doctors who worked in the family medicine service in the year 2001, only 744 (30.9%) were family medicine specialists (Fig.1). Only 491 (20.4%) were still employed in health centers and the majority – 1,989 (79.6%) were individual contractors with the CIHI. Out of 4.437,460 inhabitants of Croatia, 3.759,248 (84.7%) were registered in the family medicine service (14). The total number of registered persons in both family medicine and pediatric service was 4.100,413, which represented 92.4% of the Cro-



**Figure 1.** Distribution of physicians working in the Family Medicine Service in Croatia in 2001 according to the education profile. 1 – medical doctor without specialization; 2 – general practice/family medicine specialist; 3 – occupational medicine specialist; 4 – school medicine specialist; and 5 – other specialty.

atian population. The majority of preschool children are registered with pediatricians working in primary care. Because of various factors, such as the availability of pediatricians, rural environment or the possibility of choosing a family doctor, preschool aged children may register with a GP. Out of 322,165 preschool children, 82,147 (25.5%) were registered in family medicine service. Previous studies have shown that primary health care for children was of equal quality in primary care services led by pediatricians and those led by family medicine doctors (15). It is expected that the number of children under the care of GPs will rise as the family medicine specialists will become more educated in providing primary care for children. However, depending on local conditions and interests of partners in group practice, pediatricians working in primary care service could become equal partners in the group practice. According to the Constitution and the Health Care Law, every Croatian citizen has the right to health care. Nevertheless, the data of the Croatian Institute of Public Health showed that more than 300,000 citizens were not registered in primary health care services. This fact is a warning that a significant part of the Croatian population does not have a primary care doctor or a regular point of entry to the health care system. One of the most important characteristics of the national health system is enabling equity and accessibility (16). The coverage of the population and equal accessibility of health care were basic principles of the organization of the primary health care achieved in Croatia through the health center model. Patients stated that the accessibility of primary care doctors played a major role in satisfaction with care (17).

The data on registration of patients on the GPs' lists emphasized the problem of capturing and channeling the primary care financial means from the CIHI. In the former system, all Croatian citizens had accessible primary care, which was organized territorially, through the health centers. Even in the era of strict distribution of primary care by place of work, school, or neighborhood, every citizen was able to reach a health provider in a clinic close to his or her

home or in health center clinics on call. This was possible because doctors were not reimbursed only for the care of their own patients. In the present system, if a patient is not able to reach his chosen primary care doctor, he or she may seek emergency help from the nearest doctor. Doctors are individually contracted with CIHI and are responsible and paid only for patients registered on their own lists. It follows that additional patient care diminishes the care for registered patients. Because of this, most "emergency" patients are transferred to clinics that are still part of a health center, or to on-call clinics in hospitals. This represents a serious problem for most patients and doctors.

Primary health care is financed only by the capitation fee price model, which, although different for age groups, does not represent the real burden of disease. Payment through capitation fees only stimulates doctors to accumulate patients on their list because each doctor's income is proportional to the number of registered patients. By the same token, they are stimulated to have more young and healthy patients, and those who do not frequently need or seek family medicine services. Doctors can benefit financially by avoiding registration of patients with increased needs (e.g. chronically ill and elderly). With this model of financing, doctors become financially dependent on patients, so their professional decisions may reflect patients' wishes more than professional standards. A consequence of this is an increase in unnecessary diagnostic procedures, specialist consultations, and unnecessary therapy. For example, 5,429,287 referrals from family medicine service were recorded during 2001. The referral rate per visit was 25%.

When a model of financing restricts the variety of diagnostic procedures or therapies available, many unwanted repercussions can emerge. These include the restriction of continued care of the chronically ill, restricted preventive activities and psychological support, restricted amounts of time and interest a doctor can spend on research or education, and greater risk of ethical conflicts (18). There is strong evidence that improving primary care, particularly family medicine, is a possible approach to mitigating at least some of the deleterious health effects due to social inequalities. This is probably because family medicine practitioners are the most accessible to patients, particularly those from vulnerable populations, and because they take care of the most essential health needs of the population. Well-developed and functional primary care was found to be associated with better health outcome (19).

#### *Morbidity Registration in Family Medicine Service*

Health policy must be based on evidence collected through research on the prevalence, incidence, and etiology of important health problems and evaluation of population-based interventions implemented to solve these problems (20). Morbidity recorded in family medicine practice provides the most valuable data about the prevalence of chronic diseases. An increase in the prevalence of chronic diseases and resulting greater demands for health care resources em-

phasizes the importance of the family doctors' continual care of the chronically ill.

**Table 1.** Most common chronic diagnoses recorded in family medicine service in Croatia 1996 and 2001

Diseases	Diseases in year			
	1996*		2001†	
	No.	prevalence	No.	prevalence
Cardiovascular diseases, total	747,709	16.3	783,960	17.7
Hypertension	395,983	8.6	417,155	9.4
Osteo-muscular diseases	642,592	14.0	672,672	15.2
Chronic respiratory diseases	172,310	3.7	186,977	4.2
Diabetes	93,132	2.0	102,344	2.3
Malignant neoplasms	41,682	0.9	39,872	0.9

\*Total number of inhabitants was 4,572,474.

†Total number of inhabitants was 4,437,460.

Table 1 contains data about most common chronic diseases recorded in family medicine service in Croatia in 1996 and 2001. Although respiratory infections caused most of the nonhospital morbidity, chronic respiratory diseases comprised a minor part of the total. In 1996 (21) 5,817,985 different diseases were recorded, and 6,664,234 in 2001. Recorded chronic disease prevalence was lower than is stated in international literature. For instance, the hypertension prevalence rate was lower than 10%. This could be partially explained by insufficient coverage of the population by the family medicine service. It is logical that among 300,000 nonregistered persons there were some patients with chronic diseases. Caring for the chronically ill patient is a constant challenge for the GP. Research points out the importance of organized and planned care for the chronically ill patients. Registration of chronic diseases and keeping a careful record is a basic prerequisite for permanent, organized, and efficient care (22). Insufficient recording of chronic diseases is partially a reflection of family medicine's orientation toward providing "health services" for patients who actively seek it. GPs are neither financially stimulated nor recognized in their field for the active care of the chronically ill patients. The method of financing, CIHI control over contract obligations, and especially the "reward" for rational spending, are oriented to cutting costs, which is most easily achieved by decreasing active care for the chronically ill patients. Inauguration of combined ("multilayered") model of payment would enable fair compensation of GPs for services they perform. Furthermore, a multilayered model of payment could simultaneously improve control over the agreed measures of health care provision.

Studies of different health insurance systems point to benefits and faults of every common model: salary, capitation fee, fee for service, and paying for additional services (17,23), so most countries select a combination of some or all models in a different ratio.

#### Home Visits

Home visits are a prominent part and a characteristic of GPs' work. Providing health care for patients at the place where they live or work is one of the basic differences between hospital doctors and GPs. Dur-

ing a home visit, the doctor and the patient meet each other more directly, and the doctor has a unique opportunity for collecting additional information about the patient, his or her family, their lifestyle, and lifestyle habits. Increasing prevalence of chronic diseases and a concomitant decrease in functional abilities in the older population increase the need for home care. Home visits are a major part of care for the elderly, especially less mobile or bedridden patients (24,25). Data on home visits in Croatia show different trends from the ones expected in the present demographic situation (8,10,14,21,26-28). The number of office encounters has been continuously increasing, but the number of home visits was lower in 2001 than in 2000 (Table 2). There was twice as more home visits in 1990 than in 1997, a consequence of wartime conditions in Croatia (29). But in the period from 1996 to 2001, the number of home visits remained unchanged despite an increase in the number of elderly people and patients with chronic diseases. Some additional factors should be considered when analyzing the decrease in home visits. A portion of home visits are made during "on call duties" and are recorded by the emergency units. But the most important cause of this dramatic decrease in the number of home visits appears to be the capitation model of financing by which doctors are paid the same regardless the quality and quantity of their work. As home visits are included in the capitation fee, a doctor does not have any financial incentive to perform that demanding task. At the same time, doctors are prohibited from charging patients for any services covered by their contractual obligations.

**Table 2.** Number of office encounters and home visits in family medicine service in Croatia 1990-2001

Year	No. of		Home visits in overall encounters (%)
	office encounters	home visits	
1990	15,907,836	543,759	3.4
1992	13,538,797	379,086	2.8
1994	14,329,660	222,228	1.6
1996	18,184,220	318,150	1.7
1998	21,445,225	354,720	1.6
2000	22,060,088	406,740	1.8
2001	22,730,802	405,609	1.7

In addition, there is no professional stimulation for doctors who make home visits in terms of being recognized as a good physician. A lack of oversight of whether or not home visits are made makes this an almost entirely optional task for GPs.

Also, doctors may not record home visits, unlike many other activities, even if they perform them. Doctors often think that if they are not compensated for a task, they do not need to record it. However, it must not be forgotten that projects and future plans are made on the basis of these records.

Yet another cause for this rather small number of home visits performed by family doctors could be attributed to the introduction of private home care service in that period. Private home care service (service independent from primary health care) operates on the basis of a contract with the CIHI and is paid by a fee for service payment model. For instance, during

2001, 1.746,018 house calls were recorded in home care service, 1.286,021 in patronage service (health visitors service), but there were only 405,609 recorded doctors' home visits. It bears repeating that service paid by a fee for service payment model stimulates an increasing number of services which are not always professionally justified. Because of that, many measures for leveling down the extensive increase of services in family medicine practices and other services paid by that model were implemented in Germany (30).

#### *Preventive General Examinations and Check-ups*

Prevention is one of the basic tasks of family medicine doctors. These doctors are in a privileged position when the implementation of preventive activities is concerned because they are in permanent contact with the patients. Studies show that 90% of registered patients visit their family doctor at least once in three years.

The doctor/patient contacts offer a variety of opportunities for preventive activities, such as counseling, education about healthy lifestyle, reduction of invalidism, prevention of premature death, and improvement in the quality of life.

A GPs' position as a gatekeeper to the health system makes these functions easier because he or she is the doctor who is first contacted for any health problem.

Studies in many countries show that preventive activities are not common in the family medicine service (31,32). Analysis of preventive general examinations and check-ups in Croatian family medicine service for the years 1996 and 2001 shows that they were done for only one out of every 21 patients in the family medicine service (Table 3). In the same period, doctors performed over 22 million office encounters, or an average of 6 patient encounters per patient per year. Such a large number of contacts with patients provide an opportunity for preventive activities, especially "opportunistic screening." Efficacy of opportunistic screening is well documented for high blood pressure, breast exam, and Pap smear (33). A great shortcoming of opportunistic screening is that it is not comprehensive enough – only those patients who visit the office are included. An obvious route to improvement would be to create a comprehensive, meticulously updated patient database, so that those patients who were not included in opportunistic screening could be easily called up.

#### **Conclusion**

On the basis of the analysis of the chosen indicators of GPs' work and the data obtained from literature we propose the following suggestions for the improvement of family medicine. Because primary care is the cornerstone of any functioning health care system, it is imperative to consider an appropriate way to set it up. Family Medicine is a fundamental part of primary care and many studies conclude that it should be organized into group practices or health centers. Health centers deliver community-based primary care to a considerable and growing proportion of the nation's most vulnerable citizens and have produced significant health improvements, especially for women and children (34). Nonetheless there are several obstacles which could threaten the good functioning of health centers: there is a hidden threat of bureaucratization, where health centers lose their basic functions, such as facilitating professional communication among physicians, improving the quality of work, or establishing professional audits. On the other hand, a group practice would also be able to provide adequate coverage of the population, a wide range of activities, and ensure accessibility, equality in using primary health care, and its adequate quality. Group practices must be territorially organized in order to provide continuous comprehensive and integrated health care for the entire population.

According to the bottom-up strategy of direction and management, joining a group practice must be voluntary, flexible, and professionally and financially satisfying for all members of the practice. This model solves organizational problems due to absences of individual doctors (e.g. vacations, education). Physicians who worked in single practices stated that the main sources of their motivation for eventually setting up group practices were better quality of life, continuity of care, and sharing of professional knowledge (35).

According to trends in European countries and WHO guidelines, organization of primary health care must be based on family medicine. A GP must be adequately educated in order to fulfill his or her task of a primary doctor for the whole population regardless of age, sex, and health problems. This means that encouraging specialization in family medicine is an essential step for the reform and catching up to European standards (36). In Croatia there is an ongoing project "Adjusting Family Medicine with European Standards." According to the guidelines of this project, all doctors working in the family medicine service are supposed to have undergone specialization by the year 2015. Additional educational programs will be available to other specialists working in family medicine service.

**Table 3.** Number of patients, visits, and preventive general examinations and check-ups in the Croatian family medicine service, 1996 and 2001

Indicator	No. in year	
	1996	2001
Registered patients in family medicine service	3.891,029	3.759,248
Preventive general examinations and check-ups in persons older than 20 years	63,868	79,483
Preventive general examinations and check-ups in pre-school and school children	125,446	93,686
Preventive general examinations and check-ups of the insured person per year (average)	0.05	0.05
Visits to the office per insured person per year (average)	4.7	6.04

A multilayered financing model must be used; containing a capitation coefficient based on the severity of illness, fee for service payment, and specific program paying. It should provide an adequate distribution of financial resources. A multilayered financing model facilitates payment in proportion to the amount of work actually performed and provides a better oversight of provided health care.

Capitation fees of the persons who are not registered with a doctor should be kept in primary health care and used exclusively for "direct" health care (care of pre-school and school children, grownups, and primary care of women).

CIHI must be transparent in their budget for primary health care, which should not be altered without professional consensus. Unused funds must remain in the primary health care budget and be reinvested in primary care.

All countries experience growing health care costs and inability to fulfill the health care demands of their populations. The solution to this global problem should be based on the following principals: priorities should be identified by analyzing the health status of the population; adequate medical technologies should be identified and evidence based solutions implemented. Consensus of public opinion, professional standards and financial and organizational structures must be achieved in this process. The goal of preserving and developing the health care system in Croatia, which is well-known to the public and to professionals, necessitates formulating health policy based on these principles.

## References

- Orešković S. New priorities for health sector reform in central and eastern Europe. *Croat Med J.* 1998;39:225-33.
- Reamy J, Orešković S. Life expectancy in central and eastern European countries and newly independent states of the former soviet union: changes by gender. *Croat Med J.* 1999;40:237-43.
- Mastilica M, Chen M. Health care reform in Croatia: the consumers' perspective. *Croat Med J.* 1998;39:256-66.
- Borovečki A, Beliczka B, Orešković S. 75th anniversary of Andrija Štampar School of Public Health – what can we learn from our past for the future? *Croat Med J.* 2002;43:371-3.
- Hebrang A, Henigsberg N, Erdeljic V, Foro S, Vidjak V, Grga A, et al. Privatization in the health care system of Croatia: effects on general practice accessibility. *Health Policy Plan.* 2003;18:421-8.
- Ham C. Improving the performance of health services: the role of clinical leadership. *Lancet.* 2003;361:1978-80.
- Republic of Croatia, Ministry of Health, Croatian Institute of Public Health. Health status of population and health care in the Republic of Croatia. Zagreb: Institute; 2001.
- Croatian National Institute of Public Health. Croatian health service yearbook 1990. Zagreb: Croatian National Institute of Public Health; 1991.
- Croatian National Institute of Public Health. Croatian health service yearbook 1997. Zagreb: Croatian National Institute of Public Health; 1998.
- Croatian National Institute of Public Health. Croatian health service yearbook 2000. Zagreb: Croatian National Institute of Public Health; 2001.
- Ham C, Alberti KG. The medical profession, the public, and the government. *BMJ.* 2002;324:838-42.
- Hearnshaw HM, Harker RM, Cheater FM, Baker RH, Grimshaw GM. Expert consensus on the desirable characteristics of review criteria for improvement of health care quality. *Qual Health Care.* 2001;10:173-8.
- Mitton C, Donaldson C. Setting priorities in Canadian regional health authorities: a survey of key decision makers. *Health Policy.* 2002;60:39-58.
- Croatian National Institute of Public Health. Croatian health service yearbook 2001. Zagreb: Croatian National Institute of Public Health; 2002.
- Katić M, Pavlović J, Jurković Lj, Vinter-Repalust N, Lemaić Z, Budak A. Family practitioners in the primary health care of preschool-age children – a report on well-child care in the practice of 2 family medicine physicians [in Croatian]. *Lijec Vjesn.* 2000;122:56-60.
- Gaminde I. Priorities in healthcare: a perspective from Spain. *Health Policy.* 1999;50:55-70.
- Katić M, Budak A, Ivanković D, Mastilica M, Lazić D, Babić-Banaszak A, et al. Patients' views on the professional behaviour of family physicians. *Fam Pract.* 2001;18:42-7.
- Chaix-Couturier C, Durand-Zaleski I, Jolly D, Durieux P. Effects of financial incentives on medical practice: results from a systematic review of the literature and methodological issues. *Int J Qual Health Care.* 2000;12:133-42.
- Shi L, Macinko J, Starfield B, Wulu J, Regan J, Politzer R. The relationship between primary care, income inequality, and mortality in US States, 1980-1995. *J Am Board Fam Pract.* 2003;16:412-22.
- Božičević I, Orešković S, Stevanović R, Rodin U, Nolte E, McKee M. What is happening to the health of the Croatian population? *Croat Med J.* 2001;42:601-5.
- Croatian National Institute of Public Health. Croatian health service yearbook 1996. Zagreb: Croatian National Institute of Public Health; 1997.
- Casalino L, Gillies RR, Shortell SM, Schmittiel JA, Bodenheimer T, Robinson JC, et al. External incentives, information technology, and organized processes to improve health care quality for patients with chronic diseases. *JAMA.* 2003;289:434-41.
- Woodward CA, Hutchison B, Norman GR, Brown JA, Abelson J. What factors influence primary care physicians' charges for their services? An exploratory study using standardized patients. *CMAJ.* 1998;158:197-202.
- Kersnik J. Observational study of home visits in Slovene general practice: patient characteristics, practice characteristics and health care utilization. *Fam Pract.* 2000;17:389-93.
- Smith H, Lattimer V, George S. General practitioners' perceptions of the appropriateness and inappropriateness of out-of-hours calls. *Br J Gen Pract.* 2001;51:270-5.
- Croatian National Institute of Public Health. Croatian health service yearbook 1992. Zagreb: Croatian National Institute of Public Health; 1993.
- Croatian National Institute of Public Health. Croatian health service yearbook 1994. Zagreb: Croatian National Institute of Public Health; 1995.
- Croatian National Institute of Public Health. Croatian health service yearbook 1998. Zagreb: Croatian National Institute of Public Health; 1999.

- 29 Babić-Banaszak A, Kovačić L, Kovačević L, Vuletić G, Mujkić A, Ebling Z. Impact of war on health related quality of life in Croatia: population study. *Croat Med J.* 2002;43:396-402.
- 30 Busse R. Priority-setting and rationing in German health care. *Health Policy.* 1999;50:71-90.
- 31 Hutchison B, Woodward CA, Norman GR, Abelson J, Brown JA. Provision of preventive care to unannounced standardized patients. *CMAJ.* 1998;158:185-93.
- 32 Lopez-de-Munain J, Torcal J, Lopez V, Garay J. Prevention in routine general practice: activity patterns and potential promoting factors. *Prev Med.* 2001;32:13-22.
- 33 Hutchison B, Birch S, Evans CE, Goldsmith LJ, Markham BA, Frank J, et al. Screening for hypercholesterolaemia in primary care: randomised controlled trial of postal questionnaire appraising risk of coronary heart disease. *BMJ.* 1998;316:1208-13.
- 34 Politzer RM, Schempf AH, Starfield B, Shi L. The future role of health centers in improving national health. *J Public Health Policy.* 2003;24:296-306.
- 35 Feron JM, Cerexhe F, Pestiaux D, Roland M, Giet D, Montrieux C, et al. GPs working in solo practice: obstacles and motivations for working in a group? A qualitative study. *Fam Pract.* 2003;20:167-72.
- 36 Hrabač B, Ljubić B, Bagarić I. Basic package of health entitlements and solidarity in the Federation of Bosnia and Herzegovina. *Croat Med J.* 2000;41:287-93.

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