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Reform of Health Insurance in Croatia

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After democratic changes in 1990 and the declaration of independence in 1991, Croatia inherited an archaic system of economy, similar to all the other post-communist countries, which had especially negative effects on the health system. Health services were divided into 113 independent offices with their own local rules; they could not truly support the health care system, which gradually stagnated, both organizationally and technologically. Such an administrative system devoured 17.5% of the total funds, and primary care used only 10.3% of this. Despite the costly hospital medicine the entire system was financed with US\$300 per citizen. The system was functioning only because of professionalism and enthusiasm of well-educated medical personnel. Such health policy had a negative effect on all levels of the system, with long-term consequences. The new health insurance system instituted a standard of 1,700 insureds per family medicine team, reducing hospital capacities to 3.8 beds per 1,000 citizens for acute illnesses. Computerization of the system makes possible the transparency of accounting income and expenses. In a relatively short period, in spite of the war, and in a complex, socially and ethically delicate area, Croatian Health Insurance Institute has successfully carried out the rationalization and control of spending, without lowering the level of health care or negatively influencing the vital statistics data.

Key words: Croatia; health care; health expenditures; health insurance; health plan implementation; hospital costs; insurance, health; planning, health and welfare; management information systems; resource allocation reform

Obligatory health insurance is a complex phenomenon, which brings together health, social, economic, and political interests of individuals, groups, or whole communities (1). Medical knowledge expands every day, and new technologies, medicines, and treatments are introduced, constantly putting an objective pressure on chronically insufficient health care system funds. The heritage of a post-communist country is an additional burden, because Croatia lived within the frame of the self-management system and false social standard, in which an almighty state provided everything and paid for everything, and individuals and groups were left to choose what, how, when, and how much of the offered to use (Hebrang, cf. 2).

There is no ideal model in the world today which could simply be copied and thus solve all the problems or satisfy all the expectations and wishes. Yet, the arguments in favor of obligatory health insurance have prevailed, but this should be a system where the insurance should involve precisely defined rights and duties, which make it possible to determine the planned income and expenditure, as well as their monitoring. It does not exclude other kinds of insurance, private and additional. Today, the health insurance system of the Republic of Croatia has an annual amount of DM 2.5 billion at its disposal but the needs and requests surpass the possibilities.

Financial problems of the health care system end up as requests for more funds, which seem to be chronically insufficient in all the countries. Contributions for health care per citizen are different in different countries, with the great differences in their relation to the vital statistics indicators (Table 1) (3,4). The equivalent of the money invested is not an absolute guarantee of high quality and efficient health care system. Therefore, it is necessary to look at real costs objectively, as a precondition for any system of financing.

In its organization and financing, the health care system unites the knowledge and experience of three basic sciences: medicine, law, and economy, which often offer contradictory opinions.

Table 1: Contributions for health care per citizen in different countries of the world are disproportionate to the vital statistics data, and clearly point to the fact that finances are not the only factor of high quality health care (3,4) [\[view this table\]](#)

Table 2: Verbal communication equipment at the health institutions of the Republic of Croatia (7)a [\[view this table\]](#)

Pre-War Health Care System in Croatia

After the 1990 elections, the new independent state of Croatia inherited the archaic communal health system, in which hospitals were given all the attention, and primary health care was neglected.

Inherited Communal System

Health insurance system involved 117 independent legal bodies (self-management interest units), which were all a part of the same organizational body but had independence in deciding about income and expenditure. Certain principles were determined formally and legally, but again, in practice, no one was really bound by them. The health care economy was based on settlements and the number of days spent in a hospital. In-patient institutions carried the main burden of health care, and gradually, they became the top priority elements of the health care system.

Self-managed interest unions were closed on September 30, 1990, with their final accounts showing a loss of DM375,687,178.95. A new centralized health insurance institution, called The Republic Health Fund, was founded, which took over and united the previous system. Such a health insurance system showed the total loss of DM608,790,300.85 at the end of 1990 (5). That amount did not include the losses suffered by health institutions, because they were not monitored on the state level at that time. The financial data and numbers gathered on the basis of real indicators allowed an assessment of the objective condition of all the segments of health insurance and health care systems.

Data on the efficiency of health care pointed to the inefficiency and inappropriate organization of the whole system. For example, primary health care dealt with 25-32% health problems, and the rest was dealt with in hospitals, which gradually took over the work intended for primary health care. It resulted in long patient stay in hospitals and long sick leaves, which caused huge increase in sick leaves.

Diagnostic procedures were multiplied, without any real medical reason, which considerably increased the system expenditure. Consumption of medicines was not monitored, and many inefficient medicines were prescribed. The people began to think of medicines as synonyms for health; manufacturers and suppliers took great advantage of that fact. Gradually, rent habits also developed, which only contributed to further increase of purposeless expenditure.

Condition of Health Structures, Equipment, and Personnel

Buildings and installations were badly maintained, only the most necessary repairs were made. Thirty-seven percent of the buildings were inadequate for their purpose, and 64% of premises were not painted for more than 10 years. Almost 87% of expensive medical equipment was obsolete. For example, the average ambulance was 16 years old, and expenditures for repairs were higher than the price of a new vehicle. X-ray machines were on average 18 years old (6). The condition of the verbal communication equipment (7) best illustrates the existing technological obsolescence (Table 2).

The existing data on the number of employees and on capacities were not true, and neither were the reports on the health services provided. Health institutions did not keep records of the materials, and all the financial indicators were determined in an average, so some data differed $\pm 100\%$ from average. Insurance offices did not keep the exact records of the number of insureds or the real number of subscription payers and possible difference between the amount acquired from subscription and the expected amount. The health care system did not have any organized computer equipment or programs at their disposal, nor any exact data on the income and expenditure (2). Numerous but inefficient administrative services were mainly concerned with their own financial interests and therefore presented a great financial burden.

Existing accounting records allow an estimate that in financial transactions the real loss was DM1.8 billion in the period from 1989 to December 31, 1993, war damage excluded (DM608.8 million in 1990, 461.9 in 1991, 377.4 in 1992 and 77.8 in 1993) (8). As time went by, the system suffered great losses no one could compensate for. Instead, everyone waited for inflation to lower the losses, which indirectly led to the impoverishment of the whole health system infrastructure. Organized investments did not exist. All that is at present already widely known, but, since it can too quickly be forgotten, it is necessary to stress it in order to avoid repeating the same mistake.

War Damage

The 1991-1995 war in the Republic of Croatia caused great material damage (Table 3) and human losses (9,10). Numerous health institutions and medical equipment were destroyed, and a great number of refugees and displaced persons flooded the country. Despite such circumstances, the tasks posed by war were successfully executed. The system was maintained, and health care was fully provided to all the citizens and refugees, regardless of their religion or ethnic origin (11).

Table 3: Direct material damage to the structures and the equipment of the health institutions in the Republic of Croatia due to 1991-1995 war [\[view this table\]](#)

Table 4: Croatian primary health care standards define the average number of insured people per team consisting of a medical or dental medicine doctor and a nurse or technician [\[view this table\]](#)

Transformation in Independent Croatia

The new state had no budget for compensating for the losses. The Ministry of Health was the main factor in executing the reform, which can be divided into three basic tasks: (a) to maintain the functioning of the health insurance and health care until new solutions are developed, introduced, and applied; (b) to determine zero indicators for all aspects of the insurance and health care system; and (c) to develop a new Law on Health Insurance and Health Care.

The draft of the new Law on Health Insurance and Health Care determined the preliminary strategic principle of the reform of the whole health care and health insurance system. In 1993, the Croatian parliament confirmed the new Law on Health Insurance and Health Care (12,13).

Health Care and Health Insurance

Primary health care attained the key role in providing health care. It should gradually be privatized up to year 2000 and it is expected to solve the minimum of 75% health problems. Polyclinic and hospital care should only deal with more complex diagnostic and treatment procedures, which cannot be dealt with by primary health care.

The goals, dynamics, and means of reform were precisely determined. The goal is determined by the Constitution and the Law: health for all the citizens of the Republic of Croatia, under equal conditions and with equal accessibility. It supposes the establishment of a well-equipped health care system by year 2000, concerning both staff and technical abilities, which will ensure the fastest possible differential diagnosis and execution of optimal treatment without considerable increase of the costs.

The basic principles of the obligatory health insurance in the Republic of Croatia are based on equal rights, accessibility, and level of health care regardless of the place of residency, with necessary solidarity in subscriptions and using of rights, which is determined by the Constitution and the Law on Health Insurance (13). Obligatory health insurance should be provided by a unified institution with centrally controlled transparent income and expenditure (14).

Long-Term Goals and Priorities

According to the new Law, the Croatian Health Insurance Institute was formed in 1993. It centralized all the services and institutions of the previous Republic health care system. Standards were determined for all the levels of health care, as well as the program for automatic data processing, which was a precondition for the formation of the transparent system and the income-expenses control (Table 4). The primary task was to achieve a tight control of expenditures and maintain the balance of income and expenses, so that the cost of the health care can grow only within the growth of the gross national income.

The tasks were the following:

1. The system must be sufficiently financed from the planned budget for year 1994, i.e., it must not show financial loss at the end of the year. Contracts for the health care provided are drawn with health institutions, according to precisely determined standards and normatives for all the levels of health care, applied to every health institution. Primary health care expenditures are covered in accordance with the standards, by an average amount per every citizen, i.e., "amount per head", while polyclinics and in-patient health institutions are paid according to the health care provided, based on the system of points.
2. To establish a central organization of the Institute, with the Headquarters, in charge of making strategic decisions and developing plans, which are then executed by 20 regional offices with their own branch offices – windows for working with citizens.
3. To determine real debts for the whole health care system.
4. To introduce a central computer system, which could monitor real income and expenditure and health care provided.
5. To make a list of insureds and issue a new magnetic card (Fig. 1) in order to control the insureds' status as efficiently as possible, in relation to the paid subscriptions and costs of the health care provided.

[Figure 1.](#) Croatian Institute for Health Insurance magnetic card with a protective hologram.

The Reform

In the first half of 1994, the Board and Regional Offices of the Institute were organized. The Board makes strategic decisions in accordance with law and sub-law documents, which are then implemented by 20 expert regional offices through 79 branch offices.

Financial Affairs

By reorganizing the whole system of insurance and health care according to the regulations from 1993, during 1994 we tried to establish the control over the flow of money in income and cost and to maintain the same level of cost and income in 1994.

We started with the income, that had been split into 113 different income subjects without any reliable indicators at all. Due to the aggression against Croatia, numerous companies were no longer functional and could not pay contributions for health insurance. In short, income was coming in very sporadically. To successfully control the income, it was essential to establish a unified and precise database for all the insureds and contribution payers, which we could not reliably monitor in 1994. To gain at least a partial insight into the real income situation, our first task was to establish a single account instead of the 113 we had, in order to prevent manipulations on the community level, where the money used to be stalled frequently, even spent for unspecified purposes. We decided to monitor and control gradually and manually, until the computer system is established.

At the beginning of 1994, the primary task of the Institute was to avoid new losses, and the initial status was determined as the loss carried over from earlier years, amounting to DM208,900,000. By maximally economizing in 1994, we did not suffer any new losses, and the whole system was restored, since the previous loss was compensated for by surplus income in relation to expenditure (14).

This almost impossible task required fast solutions and efficient ways of controlling income and cost. After previously determining the initial numbers, according to standards and normatives (Table 4) for all kinds of expenditures, we were able to calculate planned total numbers and, by monitoring the expenditures, to determine how realistic our calculations were. We detected three main kinds of expenditures with constant tendency to grow every year for no apparent objective medical reason: hospital treatment costs, costs for medicines issued on primary health care prescriptions, and compensations for sick leaves. So, at the beginning of the whole project of cost and income control, we paid additional attention to those expenditures by trying to locate them precisely, for every individual health institution.

At the same time, those were also the first steps in establishing coherent system of transparent managing of health insurance finances. We grouped the expenditures according to their nature and level of health care or contributions, including the costs of the health insurance system.

Primary health care. Primary health care is defined by the amount per head paid monthly to every team led by a chosen physician, on the basis of a contract drawn at the beginning of every year. For the first few years, the amount per head was the same for all age groups, and for year 1998 we were able to adjust the amount per head to the age structure of the insureds, with the help of the unified computer network system, which was established in the meantime.

Pharmacies. We pay the pharmacies for the medicines delivered to the insureds, on the basis of prescriptions (Table 5) that can only be issued by a primary care physician under contract. The number of prescriptions is restricted to 5 per citizen per year. Medicines can be prescribed on the basis of the list of medications (15), which is issued by the Institute every year, with established prices. By monitoring the medication costs during the last four years, the Institute determined, for the year 1998, an average quantity a physician under contract can prescribe per insured, and per year. Computerization of the whole primary health care is under way, which will ensure a very precise cost control, as well as the efficiency of health care control.

Hospitals. Hospitals under contract with the Institute provide in-patient and out-patient health care. We have hospitals for acute care (university and general hospitals) and hospitals for chronic long-term non-contagious illnesses. Acute illness hospitals are defined by their network and capacity, on the principle of 3.8 beds per 1,000 citizens (Table 6), and chronic illnesses hospitals have the capacity of 1.54 beds per 1,000 citizens (Table 7). For hospital and polyclinic health care we pay, unlike for primary health care, according to the health service provided, on the basis of an issued bill.

Table 5: Expenditures for prescription medicines in primary health care from 1994 to 1997 [\[view this table\]](#)

Table 6: Bed capacity in hospitals for acute care in Croatia in 1998 [\[view this table\]](#)

Table 7: Bed capacity in Croatian hospitals for chronic diseases in 1998a [\[view this table\]](#)

Table 8: Total hospital costs in Croatia from 1994 to 1997 [\[view this table\]](#)

Table 9: Participation of different expenses in the total costs in the Croatian health care system [\[view this table\]](#)

Medical work is separately noted on the bill, and we pay for it according to the system of points. For the length of the stay at the hospital, we pay a determined amount covering the accommodation and food costs. Used medicines and consumer materials are paid according to the hospital list of medicines determined for every year; the list contains medicines, implants, and consumer materials of defined prices. From 1998 on, all the bills are individually entered into a central data base, which will also make possible the control not only of the costs, but also of the efficiency of the health care provided.

Out of the available capital, 60-65% is set aside for the health workers' wages at the acute illnesses

hospitals, with variations, and 80-85% at chronic illnesses hospitals. We were able to control and keep those expenditures within the set limits, by monitoring the number of the employees at the level of every institution and the whole system in total, every month and by applying the Collective Agreement on Wages drawn with the health care and health insurance unions. Also, during the whole period, we have been monitoring all the other expenditures for every health institution individually, and we grouped them into 12 categories (medicines and implants, food cost, postal and telephone bills, communal costs, capital maintenance, spare parts, other costs), giving us a complete insight into the financial status of every individual institution, efficiency of its management, as well as possible uncontrolled expenditure outside the set limits (Table 8).

Other expenditures. Other expenditures are connected with the rights of the insureds and 80% of them are related to compensations for sick leaves. Sick leaves can only be authorized by a chosen general practice physician under contract, and the allowed rate of sick leaves is 3.5% of the total number of employees who are a physician's patients. In the previous system the rate of sick leaves could be as high as 9%, and currently amounts to 4.2%. In the previous period, those expenditures were gradually growing due to several reasons: (a) growth of wages causes growth of compensations; (b) social reasons – due to the less efficient functioning of the economy of a post-communist country in transition, affected by war and war damages; (c) medical reasons – due to the inadequate role of primary health care, which is also being transformed into a system of private practices; and (d) cultural reasons – because we can not be satisfied with the level of health culture of our nation, especially concerning smoking and diet.

Insurance system. Insurance system costs were reduced to a minimum, 3.8% to 5.6%, including wages, current operations costs, and capital expenditure for the maintenance of buildings, equipment, and system computerization (Table 9).

The whole health care system started the year 1995 without losses or financial uncertainties, with initial zero budget, which means that it did not have any working or reserve capital, but the whole system was maintained by a dynamics which depended on subscription funds.

The Croatian Health Project

Based on the results achieved in such a short period, we received an offer from the World Bank in the form of a joint project. The project enabled us to gain some new insights and achieve speedy development and modernization of the health system technology. The Ministry of Health appointed committees, which developed six sub-projects, according to the determined priorities. The emphasis was put on renewing primary health care medical equipment (X-ray diagnostics and laboratory diagnostics), emergency medical care equipment (vehicles equipped with the equipment for quick evacuation of the injured and cardio-pulmonary resuscitation equipment), neonatology equipment, in order to reduce perinatal mortality rate (incubators, cardiocographs) and intensive care unit equipment (respirators and monitors). The World Bank experts accepted the already initiated program of the computerization of the Institute, as well as its expansion to the health care system. In accordance with the change in the existing relations, with the introduction of new technologies, the need to train the users appeared, as well as the need to improve the level of health culture of the citizens, which is also one of the sub-projects. The cost of the whole project was estimated to be US\$54 million, out of which the World Bank contributed US\$40 million, and the Croatian Institute US\$14 million.

The joint project with the World Bank was intensely executed. All the buys were done through international soliciting of tenders, and all operative tasks were carried out by the expert services of the Institute Headquarters.

In addition to the finances from the Project with the World Bank, the Institute continues with renewing the expensive medical equipment from its own budget, according to investment plans for every individual year. By 1998, over 3,500 different units of equipment were brought into the health care system, for all the health institutions (e.g., 5 MRI, 13 CT, 4 linear accelerators, 4 angiographs, 126 X-ray machines, 345 ambulance vehicles with equipment, etc). It is our goal to renew the complete range of equipment of all the health care institutions included by the contract by year 2000. By buying larger quantities of medical equipment lower prices were achieved and even up to 40% of necessary repairs and spare parts were also secured. It is possible to calculate total capital expenditure, so that they can be calculated into the price of the care provided. In that way, the problem of financing expensive medical equipment would be solved.

System Computerization, List of Insureds, and New Magnetic Cards

The project of acquiring a computer system, programs, network equipment, and providing education for staff called for gradual introduction in three stages in three years. In the first stage, we computerized the Headquarters and four regional offices in Osijek, Rijeka, Split, and Zagreb. The cost of the whole project was US\$7.5 million, which is very little compared to the possibilities opened. The

second stage of computerization was continued, which involved all the regional offices and the list of insureds, together with the issuing magnetic cards (Fig. 1). During 1996, the third stage of computerization was executed at the regional offices, and at the beginning of 1997, all the offices and services of the Institute were connected in a unified computer system which ensures access to all the necessary data about health insurance and health care. During 1997, a unified computer network system was finished (Fig. 2), which enabled us to fully control income, with the completed data base of insureds and contribution payers (14). For example, in 1994, the Institute had no information whatsoever on how much less contribution was paid in during the year. It could be determined only by individual controls in individual companies, which, again, depended on a number of factors. Today, the Institute can say for any particular company or individual, how much they owe on the basis of subscriptions not paid. For example, on June 30 1998, that amount was HRK3.2 billion (1US\$=6.8HRK).

The list of insureds has been completed, which makes it possible to control all the health care expenditures and other expenditures in connection to the insureds. New health insurance cards and a list of insureds were made, and were gradually introduced after international soliciting for tenders. The cost was US\$2.5 million.

[Figure 2.](#) Croatian Institute for Health Insurance computer system network.

Privatization of Primary Health Care

The Ministry of Health has finished the project of the privatization of primary health care, which aims at transforming the whole level of primary health care (16) into health care provided solely by private surgeries, by the beginning of 2000. Emergency health care and community health care nurses are not included in the privatization plan. For this project as well, depending on the realization of health care arrangements in practice, the Institute will execute all the operative tasks in the course of the year.

The development of the project of the computerization of primary health care and the minimal amount of data to be collected for statistical analysis and reports has begun.

Conclusions

Control of Income and Expenses

It is necessary to continually control all kinds of expenses, and to be able to spot in time the deviation from the planned and prevent uncontrolled expenditure. By monitoring all the costs during the four year period, a precise data base was created, and the basis for all the calculations, planning, and evaluation of different levels of health services, as well as different health institutions. The Institute made a list of insureds and contribution payers, which is one of the essential conditions for transparent control of total income.

Computerization

The Croatian Health Insurance Institute has successfully executed the computerization of the whole insurance system and created the basis for further computerization of the health care system. The cost of this computerization is minor in relation to the benefits. Computerization of primary health care, where most of all the expenditures in health care originate, will give us a complete insight into the expenditure, at the moment of its creation, which will considerably lower further higher level costs at polyclinics and hospitals.

The system has not been finished yet. There are further adjustments to be made, because the computer system has, by increasing the speed of information sharing and the quantity of available information, opened a number of possibilities which we could not even dream about at the beginning. Computerization gives us great opportunities and provides us with abundant data. It is extremely important to recognize the relevant, in order to keep focused in such a vast mass of data and to avoid compromising the whole system.

Education and Continuous Education

Previous experience has taught us that it is not enough to pass regulations, and expect them to be implemented on their own. It is necessary to continually instruct the Institute personnel in an organized manner, on how to apply the regulations, in order to ensure the existence of unique criteria of regulation implementation, and to prevent improvisation, which can be very harmful. Equally, it is necessary to instruct health workers because they are, due to the circumstances, a priori against any new regulations, which they mainly see as an attack on their jobs.

Renewal of Expensive Medical Equipment

The renewing of equipment by buying larger quantities through public purchases brings the best results, because it expertly meets the needs for new technology on a long-term basis, and considerably decreases the possibility of abuse.

Health Care Must Encourage the Care for the Healthy Life

Preventive medicine is the cheapest medicine. That is why the Insurance Fund must invest in educating its insureds on how to lead a healthy life and preserve their health, because in that way a considerably lower cost of health care will be achieved.

Openness of the System is One of its More Important Characteristics

Health insurance does not merely equal financial transactions. It is both a profession and a science. To achieve optimal results and efficiency, it requires constant monitoring and evaluation of results, and continuous education. Health insurance must be a generator, positively influencing the health system.

Epilogue

From 1994 to 1997, the Croatian health care system functioned normally and mostly fulfilled its financial obligations. It invested in modern technology and education of personnel. The salaries grew 89%, and were paid regularly. The income collected at the Croatian Institute for Health insurance grew from US\$782,476,260 in 1994 to US\$1,359,673,160 (57.5%). Salaries grew somewhat faster than income but this was compensated through rationalization of material costs. Possibilities for further savings were unnecessary diagnostic procedures and their repetitions, irrational administration of drugs, especially antibiotics, etc.

However, during 1998, the monitoring of spending became less careful, and the spending exploded. Although 1998 was the year of introducing of Value Added Tax (VAT) (22%) in Croatia, the income of the Institute grew 21.74% at the same time, so VAT cannot be blamed for considerably increased spending. In comparison to 1997 (Table 9), spending in 1998 for recipes in primary health care grew 36.1%, 41.4% in specialist care, 26.2% in hospital care, and 48.2% for orthopedic prostheses. There was no real reason for this because the epidemiological situation remained stable. Yet the health care system suffered great losses, which prompted a serious consideration of a fundamental health care reform in 1999, which will encompass both more rational resource management and new theoretical bases of health insurance organization.

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