Economic Parameters of the Modern Health Reform

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Summary: The article is analyzing the dynamics of main economic components of the health system, examined as an economic system, in the framework of ten-year period (1995 – 2005) – resources, activities, impartial and subjective indicators of health-related results. The conclusions show, that the healthcare system suffers of substantial scarcity of public funding and personnel resources (nurses), reduction of activities in the outpatient care, hyper-admissions in hospitals and worsening of main health indicators.

Key words: health care economics in Bulgaria, health resources, health effectiveness

JEL : I10.

One of the most complicated systems in the socio-cultural sphere is that of the healthcare. The complexity evolves from the varied forms of health structures, funding and correlations amongst them – market, quasi-market and non-market ones, regulations and deregulations, economic and administrative, ethical and unethical. The economic significance of the health system is conditioned not solely by the fact that it engages 3-4 % of the employed in the national economy, 3/4 of whom is university graduated. As well as that it is absorbing 4 billions of private and public funds and it generates about 5 % of the GDP. More important is that the health care system offer professional services, aimed at protecting, restoring and stabilizing the heath of the population, thus influencing human capital, quantity and quality of office hours and free time, needed for production of other wealth for the human development.

At the end of the 90th and in 2000 the system was exposed to radical changes of legal regulation, property, funding and remuneration of the health care performers. The reasons for that were substantial deformations in the preceding system, divided in two non competing sectors – public, funded by the budget, and private – with direct funding by the households (2, 4, 5). Within the old system the dark economy was more vital that the official economy (2). The reform philosophy was, that by economic stimulation of the private owner, working for profit medical institutions and development of pubic-private competitive environment funded by third party – health insurance funds, the reformed system will start performing more efficiently and effectively will bare greater utility to the consumers, therefore to the society.

Seven years later, the media alarm, that the system is shaken by conflicts and tension, and the consumers are particularly disappointed and unhappy. The dark economy is still strong in the eyes of the people, up to whom the doctors have long ago outwent the custom's officers on bribery skills. Is this the real objectified situation? Reply to this question could be given through the scientific research and the logic of the scientific evidences.

The modern literature is quite modest in such kind of impartial assessments. We would try here to assessing the status of the reformed health system leaning on the dynamic positive analysis, implanting a number of regulatory comparisons.

In the present paper we make it our **objective** to analyze the dynamics and the trends in variation of the main economic components of the health system examined as an economic system in ten-year period (1995 – 2005) – resources, activities and achievements. The data sources are the national and institutional health statistics, the WHO Data Base, publications, own scientific research and other sociologic studies.

Resources

The health system resources are more diversified than the usually examined in other systems. In their composition aside of labor, durables and nonmaterial assets, short-term assets, financial resources and management, they comprise health resort resources as well as the patient himself, who is the object and the subject of his own health, i.e. the result of the offered health services.

The most important resource is **the unique labor of the health specialists**. There are approximately 100.000 persons engaged in the system, representing 3 % of the employed in the national economy, divided on doctors, dentists, master pharmacists, nurses, maternity nurses, laboratory assistants and other specialities with a level "specialist" and "secondary school graduated", hospital attendants as well as different non-medic occupations – biologists, chemists, engineers, psychologists, economists, lawyers, IT specialists etc. In the years before the reform the health system was engaging 4 % of the employed and between 5 and 10 % of them are working in the health systems of various EC countries.

The medical personnel are the core of the human resources (see Fig. 1).

It is seen from Figure 1, that the doctor's labor in the system is reduces during the last 10 years from the point of view of the number of employed in clinical practice and administration. On the background of the reducing Bulgarian population this slight tendency does not excite grave apprehensions. However, quite **hard and endangering the system stability is the almost**

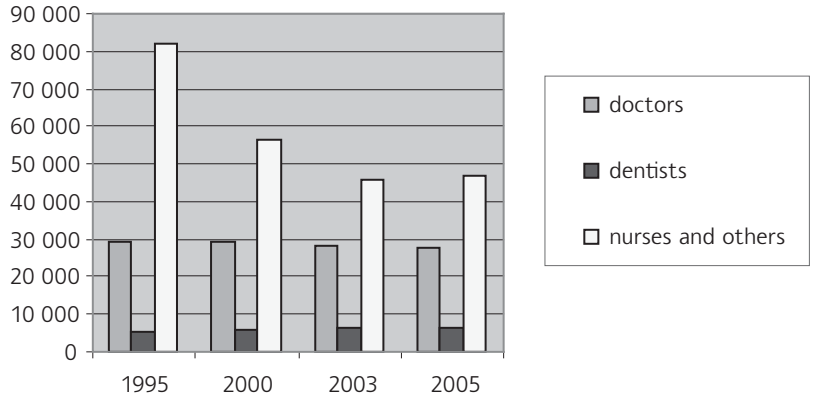

Figure 1. Dynamics of the employed in the healthcare during 1995 – 2005.
Sources: Statistical Reference Book, NSI, 2001, p.20; Statistical Reference Book, NSI, 2006, p. 25.

double reduction of the number of nurses and other specialists, graduating at medical colleges. The good medical practice requires having not less than 2 nurses per 1 doctor. In Bulgaria **the proportion is 1.1 being much lower as internationally,** where 3-5 nurses are falling on 1 doctor.

Figure 2 presents the coverage of 100,000 persons from the population with medical specialists for the same time period. It's confirming the alarming tendency of low coverage with nurses, but the financial incentives and the widening insurance funding of hospitals has positive influence, showing signs of improvement starting on 2003. The coverage with doctors and dentists is stable and slightly improving under the conditions of the reform.

Except for the scarcity of nurses and other employed persons with degree "specialist" and "secondary school graduated" toward the population and the doctors, there are other disproportions in the coverage with human resources – for instance **the disproportion between the doctors in the primary outpatient care and those in the specialized outpatient care.** It is seen from Figure 3 the excessively big and growing number of the doctors on the higher level of medical care – the specialized outpatient care (during the last years the growth results from the ranks of the hospital doctors, working in medical institutions for outpatient care). One can also see the even though **weak trend of reducing number of general practitioners,** that forms the main body of the newly reformed system and who are to be relied on for the coverage of non less than 60-70 % of the health needs. In view of the being in arrears with the population coverage with doctors in the outpatient care toward the EC (5), the lines of the people waiting in front of the cabinets, as well as the unoccupied 350 medical practices in small living places, this phenomenon looks quite anxiously.

Another important "productivity" operator is the **durable material assets** in the system, which we would analyze through the indicators: number of the medical/ treatment institutions and beds in them. In inheritance from the system of socialism, the country disposes with quite big and diversified number of medical institutions, most of them having old-fashioned and ill-kept building fund, and improper technological assurance. The health reform

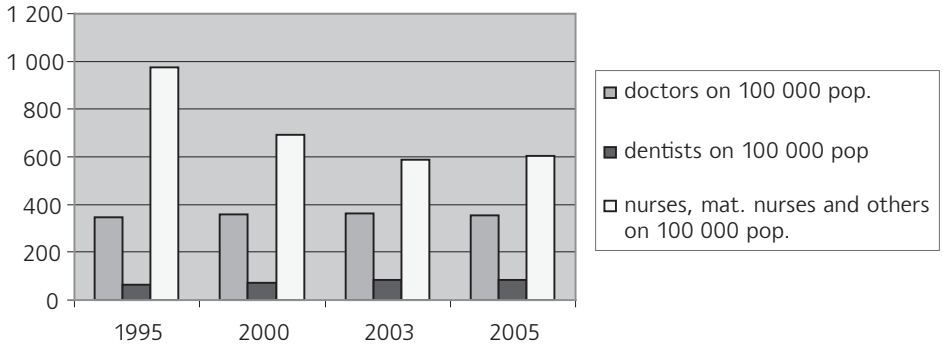

Figure 2. Coverage of population with main human healthcare resources (on 100 000 persons) for the period 1995 – 2005.
Sources: Computed based on the population and number of medical personnel data in: Statistical Reference Book, NSI, 2001, p.7, p.20; Statistical Reference Book, NSI, 2006, p.12, p. 25.

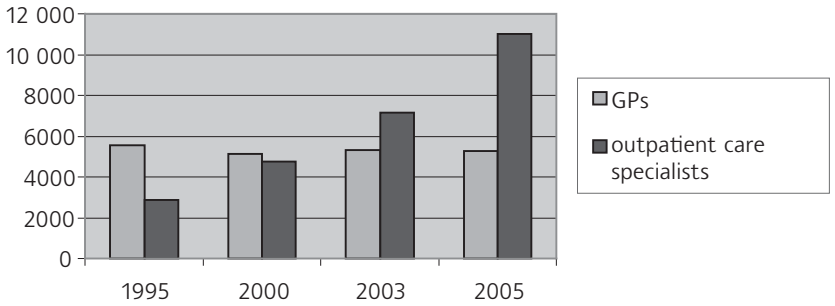

Figure 3. Dynamics of the doctors engaged in primary and specialized outpatient care in the period 1995 – 2005.
Remarks: The number of GPs for 1995 comprises the district physicians (without the obstetricians) of the in town treatment and prophylactic institutions and the physicians working in the country. The number of the specialists in the outpatient care is the difference between the total number of doctors in the outpatient departments and the district and country doctors.
Sources: m. "Healthcare", 1996, p. 70, 71 and 74; Health Report, MoH, 2004; NHIF Activity Report, 2005.

served as an **accelerator in the registration of growing number of institutions mainly in the specialized outpatient and inpatient care.** In spite that the number of hospitals does not varies significantly, seen from Fig. 4, the same if compared with the population is the biggest in the EC and leads to a very big pressure on the public funding system (5, 6). The number of hospital beds was reduced in the last years to the necessary minimum with **internal disproportions between the beds for active treatment (quite a lot) and for finalizing the treatment and for long treatment (miserably insufficient)**.

The funding resources are the cardiovascular system of the resources' provision. The healthcare is one of the most expensive types

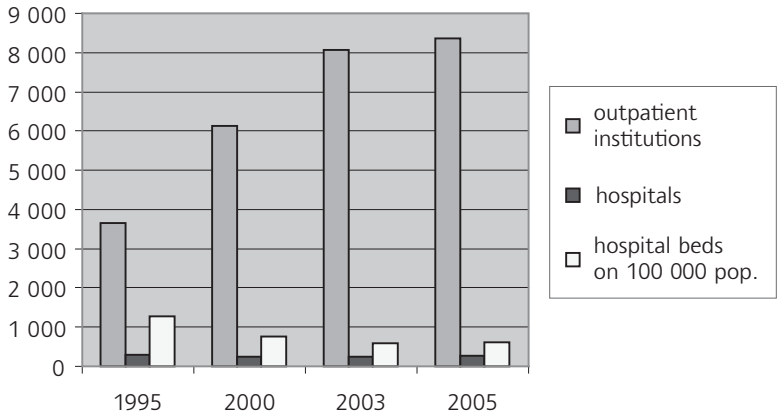

Figure 4. Dynamics of the number of outpatient and hospital institutions and population coverage with hospital beds for the period 1995 – 2005.
Sources: Statistical Reference Book, NSI, 2001, p. 7, p. 17; Statistical Reference Book, NSI. 2006, p. 12, p. 23.

of activity and its financing is a function of the general social-economic state of the country, the municipalities, the business and the households. The health reform centre was the implementation of contractual model of mandatory health insurance, which should secure fresh funds for the health needs, increase the individual and shared responsibility for the health and to keep the approachability to a universal package of health assistance. Priority of the insurance model was also the possibility of equal approach to the enlarging number of private medical institutions, having contract with NHIF.

Seven years since the beginning of the health reform we ascertain, that none of these expectations came true aside that the health insured persons have access to private medical institutions with modern medical technologies. The public financial resources haven't almost increased in real values (see Figure 5) despite the more and more penetration of NHIF as a payer of around 80 % of the medical care (Figure 6.). The reason for this negative result is the restrictive macroeconomic policy followed by IMF and left by it to the state in relation of the public expenditures. As the NHIF budget represents part of the consolidated budget program, all insurance expenses, as well as part of state and municipal health expenditures are framed by the adopted budget floor, set yearly by IMF for health care. In comparison with the BDP **the public health expenditures take almost constant share of 4 – 4,5 %, which is extremely insufficient towards the real needs** of the ageing Bulgarian population, for building renovation and purchase of new medical technologies. This is **the lowest level of the public health expenses** towards the other EC member countries, as well as Romania (5, 6).

By contrast with the low coverage with funding from public sources, private sources – mainly the households' budgets have extensively developed in the country. For instance as per NSI data the health-related expenditures of the households are continuously increasing from 2.1 % (1995) to 5.1 % (2005) of the financial expenses,

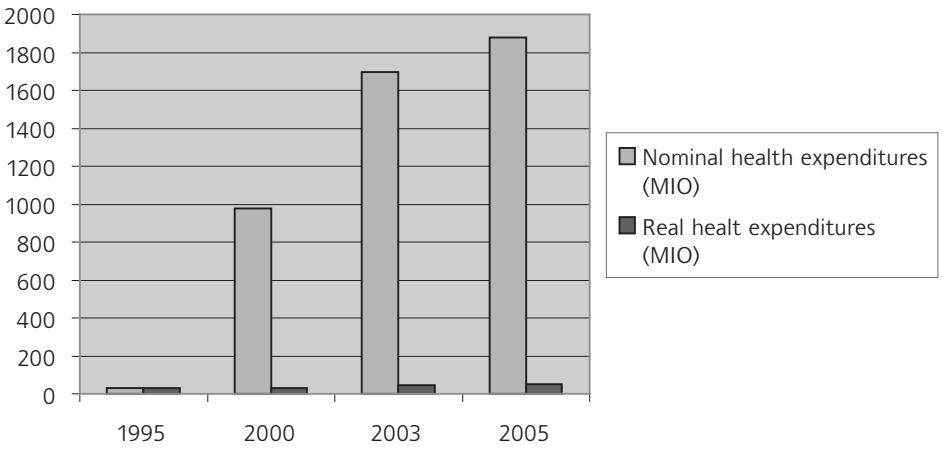

Figure 5. Nominal and real public health expenditures for the period 1995 – 2005.
Remarks: The nominal expenditures are deflated with GDP deflator (Main macroeconomic indicators, NSI, 2005).
Sources: Health Care Systems in Transition – Bulgaria, WHO, 1999, p. 23; Health Report, MoH, 2004; Ministry of Health.

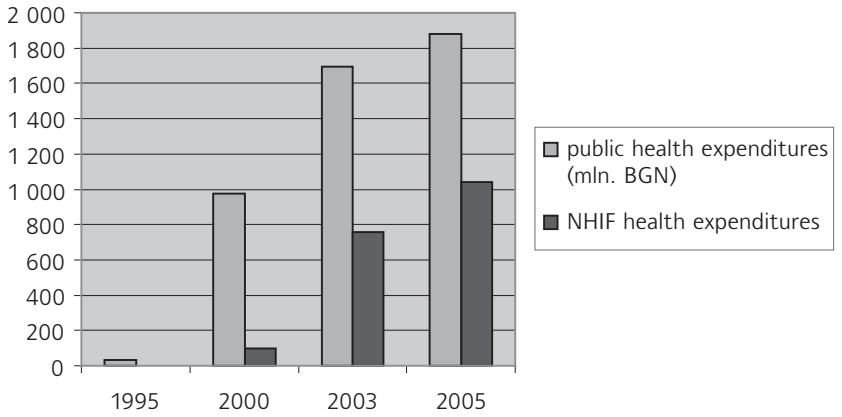

Figure 6. Nominal public health and NHIF expenditures for the period 1995 – 2005.
Sources: Health Care Systems in Transition – Bulgaria, WHO, 1999, p. 23; Health Report, MoH, 2004; Ministry of Health; NHIF Budget Report, 2005.

and the ultimate consumer expenses of the households for health in 2004 reach BGN 1 113 mio., only for the period of the reform increasing 3 times (13). Two our studies comprising the question of the consumer health expenses (2.4) indicate that since 1999 to 2005 the increase is 2,5 times and for the last year are accumulated BGN 1 427 mio. (1), non negligible part of which represents non regulated payments for health services. In view of the fact, that 90 % of the dentistry, 10 % of the primary care and almost 50 % of the specialized medical care are shady, one can conclude that **Bulgaria has taken the road of the underdeveloped "banana" republics**, where more than 50-60 % of the health expenses are private and in cash.

The internal structure of the public expenditures by activities is asymmetric too. The WHO requirements are for investing more than the half of the resources in the primary outpatient medical care, which is less expensive and could produce economy of hospital expenses. During the majority of the past 10 years and mainly in the last 2-3 years the rate of the expenditures for inpatient care surpasses 50 % of all public expenses, which orientates the system toward more expensive medical services and thus becomes source of inefficiency. Except for that the newly built two-level outpatient system, composed by subjects of the private law working for profit doesn't fulfill its high responsibilities for assuming the prevailing part of the needs and for effective prevention and treatment in outpatient conditions. In quite a lot cases due to the low qualification of the outpatient doctors the patients enter the hospitals in very bad shape and with imprecise diagnoses.

Activity

The new quasi-market and market relations, the based on activity funding by NHIF and the Ministry of health and the requirements for concluding contracts have positive effect on the part of the main indicators for the activity of the medical institutions. This conclusion is especially valid for the hospitals, which intensify their activity, use more and more tightly their bed capacity and treat more intensively (see Table 1). Simultaneously NHIF alarms continuously for "excessive hospitalizations" – overburden growth of the patients passed, which is due to

Table 1. Main activity indicators in health care during 1995 – 2005.

Activity indicators	1995	2000	2003	2005
Ambulatory visits per person	5.5	5.0	3.5	4.0
Listed by GP and specialist as chronically ill	139.6	n.a.	252.2	196.8
Hospitalized per 100 persons	17.7	15.4	17.3	20.8
Usage of beds in days	241	242.0	272.0	288.0
Beds' turnover	18.0	21.0	30.0	35.0
Average stay per patient	13.6	11.5	9.1	8.1

Sources: m. "Healthcare", NSI, MoH 1996, p.74, 78, 82; : m. "Healthcare", NSI, MoH, 2006 p. 89, 92; NHIF Activity Report, 2003; NHIF Activity Report , 2005

the striving of the hospitals to increase their earnings by financing every patient (clinical path case) (11,12). Bulgaria has never been known with so high levels of hospitalization (particularly for 2005 and the last years) including within the counter-plans in the socialism. Despite that from the point of view of the economic appraisal could be concluded, that the system performs more efficiently, this doesn't illustrate the social efficiency because of institutions' orientation towards more expensive inpatient care and the transfer of expenditures from the lower system levels to the most expensive level.

The outpatient medical institutions work quite pathetically with the health insured persons in comparison with the inpatient institutions – such are the conclusions of MoH and NHIF in the reports for the NIHF activity during the last years (6, 11, 12). This is valid mainly for the preventive and the dispensary activities which are of very substantial social significance, but are covered on lower prices.

The reporting information on the activity and the coverage of population with different kinds of services is twisted in the new circumstances. For example the introduced in 2003 additional payment for each person registered as chronically ill in the GP patient's list and for the visit of such a patient to a specialist, has resulted in increasing the number of so registered patients (see Table 1). At the same time the activity doesn't increase, but slowly decreases (the number of visits of one person falls from 4 to 2 for a period of 2-3 years).

In conformity to our estimations the consumption of publicly funded inpatient care measured through the number of visits per person has fallen if compared with 1995 and reaches approximately 4 visits in 2005 (Table 1). For comparison with the other Central and East European Countries, the number of visits per capita is usually higher than 5, and in Hungary is above 10 (19). The reasons for that situation are the more insignificant financial resources which are devoted for the outpatient care in the NHIF budget, the severe restrictions and the limitation of the doctors for the number of submitted directions for consultations and laboratory tests (through the so called "regulatory standards"), the shift of part of the patients to self-financed examinations and laboratory tests, which aren't reported to avoid taxes, self treatment and increased preferences to alternative medicine.

Achievements

The health results for the period 1995-2005 will be traced through objective and subjective health indicators. The effectiveness will be analyzed also through the degree of satisfaction by the health care, a synthetic expression for the individual usefulness of the consumed health services. Most of the health-demographic indicators (objective statistical indicators for the health status of the population) are changing for the worse in the circumstances of transition and after the implementation of the health reform. The International Health Statistics (19) unambiguously shows, that during the health reform our country lags behind the other comparable countries (newly associated and candidates) and even deteriorates the indexes mortality (highest in EC 25 + Rumania), birth-rate (lowest in the same comparison), natural growth (lowest). Bulgaria distinguishes with the most unpleasant development of the index of standardized mortality from cardiovascular system diseases among E25 and Rumania. Its value is 80 % higher than that in EC-10 and 3 times above that in EC-15. We are on one of the bottom places in relation with the cerebral-vascular diseases (15). Bulgaria occupies one of the leading places on occurrence with a trend to growth of smoking among the whole population mainly the youth and the women (6).

In the assessments of the fulfillment of the Lisboan Strategy (16) Bulgaria takes the bottom place among the new 10 member countries, behind Turkey and Rumania on the social inclusion index (3.07 % with average 4.81 for these countries) and steady development (3.08 with average for the same – 5.16). On the index of human development our country shifts from the 60th place (1998) to 56th in 2002, but with deteriorated health status – lower than expected life expectancy – 70.9 years with 71.3 years in1998 (17).

The data of the Bulgarian health statistics also show negative changes in some basic health indicators shown in Table 2. In 2005 the total morbidity from malignant new formations increases with 25 % towards 2000 and with 45 % towards 1995. The morbidity from active tuberculosis marks apogee in 2000 and after

Table 2. Main health indicators for the period 1995 – 2005

Indicators	1995	2000	2003	2005
Registered general mortality from malignant new formations and localizations on 100 000 persons.	2119.60	2462.90	2981.90 (2004)	3069.90
Morbidity by active tuberculosis on 100 000 persons.	154.90	173.40	168.20 (2004)	127.70
General mortality on 1000 persons	13.60	14.10	14.30	14.60
Child's mortality on 1000 born alive	14.80	13.30	11.60	10.40
Premature mortality on 1000 persons	28.30	25.00	24.90	24.60
Standardized factor of mortality from cardiovascular diseases on 100 000 persons	691.38	737.07	713.01	685.35 (2004)
Standardized factor of mortality from malignant new formations on 100 000 persons	152.43	150.06	152.48	156.53 (2004)

Source: Healthcare, 2006, NSI, MoH, p. 28-29, 34, 46, 192, 194, 195.

that decreases slowly, but in 2004 is still 8.6 % higher from that in 1995. In comparison with comparable EC countries it is still higher with 50 % (19). The general mortality increases permanently and higher with 4 % from the level in 2000 and with 7 % from the level in 1995.

Positive changes in unison with the European and world trends are noted in the indicators of children mortality and premature mortality, but the levels are still enough more negative than in EC.

Particularly unfavorable is the trend to increase of standardized mortality due to malignant new formations in the years of the heath reform. Certain improvement is observed in the indicator of mortality from cardiovascular system diseases, but the levels are much higher if compared with that in the 10 new members of EC and even more in comparison with that in EC (15).

The deterioration of most of the health-demographic indicators during the years of the health reform has multifactor predetermination. The main determinants are the socio-economic factors (low incomes, unemployment, problems of the approach to the health system, stress etc.), as well as risky behavior and unhealthy way of life. Factors like aging of population, menaces of new pandemics and invasion of new technologies in the healthcare on their part generate bugger health requirements as well. These negative dynamics and reality predetermine growing health needs and health aid demand that on their side require conforming purchasing power of the funding bodies and offer which could meet the demand.

Aside from impartial indicators for health results we are to observe the **subjective aspect of the health** measured through **self estimation of the health** as well**.**

According to data of the national study of the heath of the population effected by NSI in December 1996 in very good and good health are defined 66.4 % and in satisfactory, bad and very bad – totally 33.6 % (9). Another analogous study of NSI conducted in March 2001 10) indicates that **the health of the population assessed through the subjective opinion of the questioned persons is significantly deteriorated –** the specific part of those defining their health as good and very good is decreased with 11 % and reaches 55.5 %. The percentage of men with worsened health from 27.8 % for 1996 increases to 35.9 % in 2001 so with 5.6 points. In the women the self estimation for worsened health increases as a percentage from 38.8 % to 44.4 % or with 5.6 points. The high level of the consideration for worsened health among women needs special attention as it shows presence of health problems in substantial part of them.

During the last years NSI has not conducted similar study for comparability in the new circumstances but the body of Chair "Management of socio-cultural activities" – UNWE in analyzing the market transformation in the socio-cultural sphere (4) has studied the self-assessment of health based on answers of 780 respondents. As of 2005 in "very good" and "good" health have estimated themselves 52.1 % the others being in satisfactory, bad and very bad health. **This result shows values lower with 3.4 percentage points from that at the beginning of 2001, but the rate of deterioration is lower** if compared with that for the period 1996 – 2001.

In conformity with the representative research of AFIS Agency for chronically ill consider themselves 22 % of whom 34 % men and 66 % – women. The indicated chronicle illness is approximately 3 times bigger than the average for EC and around 4 times if compared with USA.

From the referred studies it is possible to conclude that **the subjective assessment of the health status is decreasing during the 10-years period** and inclusive – in the conditions of the health reform even if with lower rates in the last years.

The satisfaction from the medical services received is studied differentiated for public and for paid by the consumer medical services in two of our studies (with comparability between the questions) in 1999 and in the summer of 2005 (1, 2, 4).

From the point of view of the consumer of publicly funded health services six years after the beginning of the health reform **is kept the same percentage of totally unsatisfied persons** from the received **public health services** – 28 % which is a sign that in the eyes of the consumer the reforms have not changed the negative estimations. Though certain improvement in the new circumstances is reported – in 2005 **the relative part of the wholly satisfied persons is increasing** – from 14 % in 1999 to 20 % for the account of the partially satisfied. In comparison with 1999 the consumer assessments of the quality and technologic equipment of the healthcare have improved but the waiting time in front of cabinets is becoming leading problem. Slight improvement is observed in terms of the reason for "lack of attention" but it is still emphasized in the foreground. The consumer taxes and the patients' co-payment are another reason for lack of satisfaction.

The satisfaction with the medical services paid by the consumer is slightly higher – 24.6 % **and the unsatisfaction is fairly lower of that of the public health services** in 2005 – 7.3 %. In comparison with the study held in 1999 one could note **drop of the satisfaction** (from 31 % wholly satisfied to 24.6 %) while keeping the rate of the totally unsatisfied – on the level of 7 %. Aside from the high costs as reasons for unsatisfaction are shown the low quality, the insufficient choice and incomplete market in the private sector.

The conclusion from the subjective assessments of the satisfaction is that health reform which introduces public funding of public-private treatment and medical institutions and new market and quasi-market relations **has weak influence on the increase of the degree of satisfaction from the public health services** (the 6 % increase coming from the group of partially satisfied, that already fix their assessment more categorically) **without decreasing the rate of the totally unsatisfied.** It is evident that with services paid by the consumer they are far from always receiving effective and procedural utility. **The assessment of satisfaction from paid medical services is worsening and the rate of totally unsatisfied is kept,** like before the beginning of the health reform.

Summary

The comparative overview on the dynamics of the main economic parameters of the health system in the last ten years with an accent on their development in the health reform circumstances enables the deduction of the main trends in them.

The present analysis illustrates that the reformed health system has become highly fragmented and disintegrated. From social point of view the increased number of medical institutions seams unneeded and leads to low capacity using. The medical institutions increase their activity only with cost incentives aiming at absorbing more public funds but with low effectiveness. The system worsens its structures relative to: therapeutic activity; outpatient/inpatient activity; active/finishing treatment.

Trends in the triad resources-activity-results for the period 1995-2005

Resources

Human resources:

1. General reduction of the employment with drastic worsening the provision with nurses.

2. Insufficient provision with GPs and excessive provision with specialists.

3. Worsened proportion doctors versus nurses (substitution of cheaper with costly labor).

Health network:

1. Excessive provision with specialized and inpatient medical institutions (pressure on the public system of funding, leads to inefficiency).

2. Reduction of the number of hospital beds (positive trend, reaching the sanitary minimum).

3. Excessive provision with active treatment beds and insufficiency of beds for finishing and continuous therapy.

Financial resources:

1. Nominal increase with slight real grow of the public funding in gradual substitution of the budget funded with health insurance funded (shortage of fresh money).

2. Freezing and significant backwardness on the part of the public health expenditures from the GDP.

3. Non-European health expenditures' structure (promptly increasing share of the direct payments from the budgets of the households.).

4. Disproportion in the public health expenditures (dominating expenditures for the tertiary level – hospital care).

Activity

Outpatient activity:

1. Reduction in number of visits to a doctor, in positive trend.

2. Insufficient volume of preventive activity.

3. Growth of chronically illness registration in decreasing volume of outpatient activity.

Inpatient activity:

1. Excessive hospitalization.

2. Improved extensive and intensive use of the hospital beds' fund.

3. Orientation of the system towards the cost expensive hospital care (social inefficiency).

Results

Impartial health indicators:

1. Worsening indicators of general mortality, mortality from oncological and cardiovascular diseases, and morbidity from malignant new formations. Great lagging behind EC.

2. High levels in positive trend of active tuberculosis morbidity (great lagging behind EC).

3. Improvement in the child's and premature mortality.

Subjective health indicators:

1. Worsening health status.

2. High chronically morbidity.

Satisfaction by the health services:

1. Retaining unsatisfaction by public and paid medical services.

2. Slight increase of the full satisfaction by the public services (for the account of the partially satisfied) in reduction of the complete satisfaction by the paid sector.

The possible solutions of the durable problems and negative phenomena are in reforming the already reformed system guaranteeing improved insured persons' accessibility to needed by them medical care, vertical integration of new type and a national policy targeting the health and the healthcare.

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