

UNIVERSITY OF WEST HUNGARY
FACULTY OF ECONOMICS
THEORY AND PRACTICE OF ECONOMICAL PROCESSES
DOCTORAL SCHOOL
PUBLIC ECONOMICS SUBPROGRAM

Thesis of PhD Dissertation

**RESOURCE ALLOCATION AND COST MANAGEMENT
IN PUBLIC HEALTH**

Written by:

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Research Objectives:

The author of this thesis has a strong personal motivation to get to know and to analyse the condition of the Hungarian public health sector.

Human lives become complete, if all those motivations which stimulate us from inside, in one hand canalized, on the other hand an individual balance is created between size, direction and realization of the inner power, which are different from person to person.

Against all the liberal tendencies the responsibility of the society, especially in public health, cannot be ignored. It means that the success of the humanized tendency compared to the individual career is not only lucky, but also desirable.

The main aim of the research is to reveal the connections between resource allocation and cost management with the help of cost analysis. This particular relationship is the most critical area of the public health sector.

The author of this thesis has been dealing with financing of public health and cost management for years, his experiences helped his empirical researches as well. These results helped the author beside the theoretical basis to verify the goals of this thesis in practice also. The dissertation emphasizes three parts of the system: the examination of resources, of cost efficiency and of financing (3 corner points), their combination leads to the scientific explanation of its goals.

As a result the dissertation displays a new financing system and its possibilities to be applied in Hungary.

Precedents and Applied Methodology

Having 15 years practice in bed-, and walking-case-patient-sector the author was confronted with the absurdity of public health service and their different explanations. He joined the postgraduate study at the Faculty of Economics of the West-Hungarian University, where he got a doctor-economist degree, and a health-management degree during the past years. These early experiences made him even more interested in this topic, so he applied the Public Economics Subprogram of the Doctoral School. The economic content of this thesis has been crystallized as an effect of all this.

As a new method the dissertation develops and adapts the system-oriented approach of the health sector (combining the 3 corner points). Instead of passive reception of the information from the media the emphasis is laid on studying scientific literature and subjects, getting acquainted with outstanding educational staff.

The methods in the study besides elaborating national and international scientific literature contain statistical data analysis, having been carried out systematic data collection, the following steps were have to be taken: systemizing and selecting, preparing graphical illustrations, tables, surveys to reveal connections. Meanwhile the most significant issue of the research has been driven by the personal intuition supported by the demand of a more focused observation of the phenomenon of detected items and the systematic collection of them.

This dissertation also emphasizes that as far as the economic characteristics of public the health concerned, the elements of public health regulation supporting cost-efficiency have not been developed during the system change. The service system does not make the economically efficient and medically practicable function possible.

The Most Significant Statements of the Thesis

One of the main factors for budget deficits is the explosion of health costs as a manifestation of globalization. The main reasons of it are the unfavourable tendency of the age-dependency-ratio that is the opening demographic scissors, the development of science and technology, the conflict of medically possible - economically allowable, the inflation in this sector, e.g. the definitely higher prices of innovative medicines, the increase of supposed and real demands caused mainly by the media, the development of the morbidity-mortality index.

Behind these facts we see cost increasing effects because of wrong employment of tight resources and financial contradictions.

It means that there is no harmony among resource-allocation, cost-management and the financing system.

In the dissertation the author is looking for its possible ways. The empirical analysis based on the study in the Erzsébet Hospital in Sopron makes dysfunctions and their unfavourable effects on public health functioning clear.

The results and conclusions of the research are as follows:

1. The cost explosion leads to inequality, to distortion, e.g. in 2004 we had only one PET device in Hungary, but there were more than ten in Belgium, on the other hand in Hungary the expenditures for medicines make 30 % of the total medical costs, while in Switzerland, USA, Holland, Ireland, Denmark it is only 10 %.

The author is not against medicines; he emphasizes the importance of striving for balance.

2. There are several reasons for applying for unemployment or for disabled benefit: decreasing birth rate, decreasing number of working places. The activity ratio is in Hungary the worst in the EC: 56 %, in Denmark it is 76 %.

Lot of people work in the grey industry, they do not pay contributions. It is also a reason for the cost explosion: we have less to distribute.

3. Unreasonable examinations, unnecessary treatments, illegal sick pay-income, making someone invalid, these all mean ineffective, irrational allocation of resources. Illnesses remaining unrecognised and untreated lead to the same result: those people will not work; they will not pay contributions to the budget.
4. The author analyzes the resources of the sector after outlining the national and international surroundings of public health. These resources do not only mean money, but the factors of the economy like natural and human resources, opportunities of the development of science and technology, hospitals in historic buildings, alpine sanatoria and other infrastructural elements like public roads and information network.
5. In the same time the resources of public health mean also possibilities for a healthy way of life, but they can be harmful factors as well generating further costs e.g. air- and water pollution, food security, disadvantages of one sided way of living.
6. While analyzing the resources the author deals with the role of human resources. The former political system pushed the tertiary sector into the background because it did not acknowledge its value-establishing role. He shows the education of human resources in the present public health system, makes calculations to measure the costs of doctor's training that means he attempts to determine its value with the help of accountancy. He indicates the real possibility of having a lack of doctors.

He points out the medical state, health culture of citizens as a determining factor of human resources, emphasizes the importance of health education not only in relationship with the sector, but with education, communal feeding, leisure time activities and media.

7. Mapping the capital resources we can state that the public health institutions localization is sporadic, very aged, consist of 20 buildings in average per hospitals. There are great regional differences among the institutions even in the most developed Trans-Danubian-region, and the decision makers are considering building new hospitals instead of renewing the old ones. Younger general practitioners usually have a better-equipped praxis; the capital is also better supplied at that level than the national average.
8. Analyzing the nominal resources the disproportion of financing supply and professions can be stated within the framework of output financing. The Health Insurance Fund finishes each year with 300 billion HUF deficits; one reason is of course the underestimation of expenditures. The Funds of NHS have no reserves; there have been only a few days without credit application from the state for its every day business in the past decade. The sales income of assets accepted instead of paying contributions is very insignificant.
9. The scientific resources have been imposing a multiplying effect on economic processes, and so have they on health industry as well. The author deals with the role of pharmaceutical market in details. It has a share of 25-30 % of the total expenditures of public health, which is very unique in international comparison. The unfavourable morbidity-mortality indexes do not justify an average consumption of 44,5 packet medicine per inhabitants a year at all (2002), especially if we consider the decreasing public expenditures. This shows the deformed cost allocation of households and patients as well.
10. The author takes the today very popular natural therapy, holistic attitude also into consideration. In the one hand he provides its broad interpretation, on the other hand he emphasizes the danger of charlatanry for diverting the resources.
11. Analyzing the relationships between the resources and the factors determining health he underlines the need for a change in paradigm in public health. According to this it is a very topical issue to focus on maintaining health instead of escaping into illnesses. His experiences show that there are more possibilities for maintaining health in childhood; later in the age of adulthood screenings/tests have the main role in prevention.
12. In the dissertation the author examines the cost management of the several levels of service. In 1993 the misunderstood output financing paid after services changed the basis financing. The institutions were encouraged in one hand to report more, sometimes not even performed services, and on the other hand to concentrate on higher financed items. There are 165 million ambulance cases, and annually 2,7 million cases of entering to

hospital. In 2003 more than 30% of ambulance cases, when health care was provided to patients proved to be shorter than two minutes, sometimes the NHC withdrew 98% of the subventions because of unjustified claims. All these engage an immense quantity of informatics both in institutional controlling and in controlling. While in a car market the measurement of performance is the number of cars sold, in public health the same can be measured by public health indexes: a high average age after a qualitative life, not the documentation of illnesses.

13. The management of general practitioners is usually valued as a success-story by the daily health politics. Family doctors as gate-guardians do not succeed really effective, so there are inadequacies of definitive service in family doctor-practice. In contradiction with this the output oriented financing encourages the health-service-sector to offer an even more expensive service, so it has no interest in sending the patient back into basic service. This counter interest occupies a lot of costs and informatics recourses causing additional deficits.
14. The dissertation expresses the need for harmonisation of relations among resource allocation, cost management and financing, which could lead to elimination of dysfunction.

New or Novel Results of the Thesis

1. Researches showed that the output financing connected to the tight resources causes main clash of interests between the criteria of quality-insurance that is the management of the sector, public health priorities, application of standards and protocols, and the patients, economical interests of hospitals, expectations of local governments and the transporters of health industry especially the medicine lobby.

2. Empirical tests showed that at closed cash desks some service units deprive resources with unjustified surplus-output-reports from other hospitals. If the resources were not so limited, there was not an output-pressure than there would be more money for justified cases.

The scarcity of resources has a strong relation with output oriented financing, so the hierarchy of progressive patient-service will be damaged: the minimum circumstances – that is infrastructure and human resources and the principles of a well-managed patient-guiding - will not be ensured.

Illustrating it with examples it means that general practitioners can send easy cases to walking case patient-service because of lack of interest, because they are interested in registering patients. It is easier to fill referral in than to take the responsibility and heal them. This particular fact results in that the consultation hours become overcrowded. The waiting time for the patients desperately grows. Resources, examination time for one patient will be reduced. Well-to-do patients will ensure themselves to be examined out of turn during private consultation hours of doctors, often using the means of public financing.

In the same time out-patients' departments tend to hold complicated cases back in their hospitals, although the conditions are not even available: up-to-date diagnostic and therapy with the necessary knowledge and practice.

Institutions at the top of the pyramid are several times and unreasonable often forced to care for easier cases as well and to leave their valuable resources economical unexploited.

This wrong patient-management generates a lot of dead-weight deficit, additional costs with over- or mistreatments. The increasing numbers of patient statistics and malpractice processes prove this.

3. Hospital systems having limited resources try to concentrate their possibilities, the so-called 'matrix hospitals' are created this way. In the author's opinion the matrix theory should be interpreted as a cost management factor. It means improving the use of redundant capacity, but not amalgamating departments with 1-2, or even less people, because this means a regression to a lower level.

At an emergency department, where everybody is well trained, they can replace each other if it is necessary. Matrix organization of small-town-hospitals was created by their demand to survive and by the economical pressure motivated by the misinterpreted output-oriented financing.

4. In the present economical status quo the cost explosion of public health generates 'cascade' processes because of imbalance: more and more people want to avoid paying contributions, they want to ensure themselves life-long unjustified transfer -paying instead. Nevertheless this fact does not keep them back from working in the grey sector of the economy. Public health services are often used in order to get paid or to extend paying.

5. The author reveals the fact that multi- and trans- national suppliers stimulated by their own interests encourage for consuming more and more from their products using the devices of

marketing. They support even patient organisations for this reason, although the most improved quality management system, the KES, does not pay attention to the satisfaction of patients any more. They promote their products using all means of the media suggesting that the quantity of medicine consumed and being healthy have a strong relationship.

This process leads to a failing budget balance; a self-generating process is created, which can mean the rapid perdition of the nation.

The unjustified and unreasonable treatments hurt not only the discipline of accountancy, but they mean a falsification of public- and private documents. First of all they mean the violation of patients rights, so they create a case for the criminal law.

6. The practice of base-financing before 1993 ignored the economic aspect of a good cost management in the same way, like the present one does: the management of the institution decided about it in a form of a 'so-to-say' venture, because its volume was determined by the budget.

In the case of „output oriented” financing institutions tried to report more and more highly financed cases of after achieving this level e.g. by planning, it was worth sparing with costs.

7. According to the forced volume-limit of last years hospitals can get a maximum financing of the last year's output. Afterwards more output is 'rewarded' in a regressive way, although it can increase even the fix costs according to the law of increasing returns to scale. But if they do not bring the earlier output, they will not get the possible financing. It means they cannot have more, but also cannot have fewer patients than in the base year, which is nonsense.

8. The new financing system written by the author can be regarded as a new result.

The point is that the HOPH would manage the purchases and investments and their paying for hospitals and polyclinics by announcing preliminary public tenders-in cooperation with HOPH, the Ministry of Public Health and local governments.

The service units making use of the existing logistic network of suppliers or creating new ones would make the orders.

Categories of output-oriented financing, like the German point in the walking-case-patient sector, or the HBCS would not be financial-allocation elements further on, but institutions of a nationwide cost management of NHPO operated by local controlling departments. Financing human resources would be a service in the future as well. The payment table of

public servants should be completed with specific multipliers conform to the needs of health politics, creating a career-model for public servants. Financial devices can be divided into two groups: remuneration of labour and coverage of assets. Advantages of globalization like low purchase prices, compatibility, informatics and modern logistics, can help to get more and a higher appreciation for the work of doctors and of public health, serving the principles of the European Community, like subsidiary in public health, and the directive of transparency.

Practical Application of the Results

Globalization generates a cost-explosion in health care as well. Because the resources are not unlimited all over the world, the “medical possibility” and “economic implementation” have to be in harmony, which means that a balance shall have to be achieved.

Even because of the negative social and personal effects, it is necessary to declare the equality of chances as a possibility, as a right.

Besides the tightness of resources the indisputable function of state planning, strategy making, operative practice of public health is supported by the existence of regional, individual differences.

The public health supply-system is a stochastic system that means that small changes can generate explosion of processions, counter regulations, like an avalanche over the glacier.

Let's see an example: already the name of ‘guided patient service’ expresses sense over chaos, we can only agree with its aims, so we have to take care of and manage these 165+2,5 million case yearly. The family doctors know patients the best, the sense of their work is to preserve their patient's health; if they get ill, to organize their healing process using the levels of progressive patient-care. It is not advisable to delegate the task of guiding to an outsider.

I see the solution in the following corner points: 1. Change of paradigm, which prefers health to illness, unjustified sick pay, unauthorized calculation of percentage. The working person produces GDP, pays contributions. 2. After determining the yearly budget and the services it is not ethical to treat patients only for output-points. 3. Costs would be refunded through the detailed then aggregated material- and assets-management of service units, so the HOPH would pay the costs of the different cost-places direct to the suppliers and not for the service produced there. Service units would give their orders to the logistic centre of HOPH the

performance of orders would be coordinated from there. 4. The periodical public tenders would ensure the most favourable prices and homogenous devices. 5. Human resources-management, so the remuneration of doctors as well, has to be handled as a service, the existing public servant scale has to be completed with multiplications among different branches. This is the way to harmonize the numerous advantage of globalization and the repairing of budget-balance. The liberated resources should be invested direct into public health.

There is a strong need to reform the financing of public health. The place, the direction and the size of interventions should be planed very carefully before, because it is a stochastic system. Those above can ensure the most that the interest of patients, of the workers in public health and of the profession will not be damaged. It makes possible to reach the most favourable profit with the smallest changes in the present structure, in status quo without causing a budget deficit or unnecessary extra costs.

The task of Hungarian Office of Public Health (HOPH) is to supervise the infrastructure, the assets and equipments of hospitals, polyclinics, to provide human resources, shortly to control the minimum circumstances further on. The Hungarian Chamber of Doctors could manage the ethical part of services, the malpractice processes. As part of the state finance the Ministry of Finance (MF) would provide the resources to be spent by the National Health Pay Office (NHPO).

These five institutions, -Ministry of Finance, Hungarian Office of Public Health, National Health Pay Office, Ministry of Health, NHC, the Hungarian Chamber of Doctors and at last the health politicians of Ministry of Health could allocate money. They could even consult with the representatives of the National Public Health Round Table. MF would have the first step to set the limits; afterwards the Ministry of Health would coordinate the allocation of services and their resources. The HOPH and the NHPO would control and finance consequently by permanent and dynamic feedbacks. These feedbacks could influence the budget planning of Health Insurance next year as well.

The author attempted to put an up-side down-system on to its foot. This is the system of Social Insurance System, which provides public health services for a lot of people. Economic principles are followed in cost financing: if something costs 3 HUF, than it is not possible to create it out of 2 HUF. The excellent HBCS system would have its function in serving cost-

efficiency instead of the financial aim, which means, if something is to be produced for 3 HUF, it is irresponsible to do it for 4 HUF. This task could be done by controlling in the practice, not as a financial aim, an output-accelerating engine, but as a cost management factor, controlling the amplitudes of the Gauss curve of the institutions.

The question is of great importance; it is about spending 1500 billion HUF in an optimal way, and capacity for work, health of more than 10 million people, about the fate and future of a nation.

This suggested solution is to conform with up-to-date principles like subsidization and transparency, uses elements of globalization such as informatics, logistics, basic economical categories of social market economy, like competition, effective resource allocation and redistribution.

Publications on the Topic of the Thesis

Articles and Studies:

Csengei, Gábor: Cost management and resource allocation in public health. *Gazdaság és Társadalom*. 2003/1.

Csengei, Gábor: Cost management and allocation in public health. Part 1. *Egészségügyi Gazdasági Szemle*. 2003, July

Csengei, Gábor: The value of human resources in the chaotic system of the Hungarian public health - *Társadalombiztosításról Mindenkinek* 1-2. Part. 12.2004. – 01.2005

Csengei, Gábor: The matrix-hospital – *Orvosok lapja* 2005. II.

Csengei, Gábor: Human resources-management in the Hungarian public health. XXVII. National Scientific Student's Conference, PhD. Section, 2005. Sopron

Csengei, Gábor: Integration of the Hungarian public health system into the global world: change of paradigm and strategy. National Association of Doctors. *Tavaszi Szél* Conference publication 2005

Csengei, Gábor: Resource allocation and cost management in public health Part 2. *Egészségügyi Gazdasági Szemle*. 2005.2.

Permanent memberships in different Societies

Association of Hungarian Rheumatologists
Hungarian Osteoporosis and Osteoarthrological Society
Society of Hungarian Doctors of Acupuncture
Hungarian Nourishment Society
Union of Hungarian Doctor-Societies and Associations
Medicine 2000 Polyclinic and Specialists' Association
Hungarian Chamber of Doctors

Participation at Conferences

Annual congresses, other events of societies and association mentioned above:

XIV. Scientific Day of Health Education, Győr, 2004

I. International Congress on Public Health Economics, Sopron, 2004

As a lecturer:

XXVII. National Scientific Students' Conference, Sopron April 2005: Lecture at the section of PhD Economics

Csengei, Gábor: Human resources-management in the Hungarian public health

Tavaszi Szél Conference, Debrecen 2005, May

Csengei, Gábor: Integration of the Hungarian public health system into the global world: change of paradigm and strategy.

XV. Scientific Day for Health Education, Győr – X. Alpok-Adria Conference, Győr, 2005. :

Csengei, Gábor: Resource allocation and cost management in public health (poster)

SOTE Student Conference 1983 Bp. MAO paralyses and the l-deprenil

SOTE Student Conference 1985 Bp. Alcoholism and suicides in different countries of the world

Other Professional Activities

Lectures at work or at the university:

State Sanatorium Sopron: The role of potassium in the function of kidney, 1990

University of West-Hungary Faculty of Economics -Doctor-economist, 2002: workshop in the topic of institutional cost management, during 2003: Report on material-obtaining, material-management, public tenders while listening to the lecture of Hospital-management

University of West-Hungary Faculty of Economics -Budget financing yearly 1-1 occasion in 2004 and 2003 A Budgets of social insurance in the first years of 2000, or lectures about the privatisation of public health.

University examination of the present dissertation: Privatisation in public health 2004

Other publications

Csengei, Gábor and **Kiss-Antal, Mária**: Analysing the effectiveness of piroxicam (Hotemin) in illnesses. Supplement of our Medicines. Clinical Pharmaceutical Publications, 1994. 2. National Pharmaceutical Institute

Csengei, Gábor: Report about the study at the university clinic of Zurich, 1990. Magyar Reumatológia. Bp.

At the beginning of the 1990's member of the editor's committee and official distributor of the quarterly health-journal called 'Diagnosis' Articles were made in following topics:

- Reports about the social homes of Győr-Moson-Sopron committee (Sopron: social home at Balfi street, social home in Nagylózs)
- Talking to Ákos Vajda, the General Manager of Balf Health Spa
- Report with Hamadeh Fuad, the doctor who graduated this year

- Report about the congress of the Hungarian Arterioscleroses Society in Sopron
- Report about my study in the clinic of rheumatic in Zurich, in 1989

University degrees:

- 1985 general doctor degree
- 1985 specialist in rheumatology and in physiology
- 2004. Doctor-Economists doctor-economist, Public health management expert

Study-tours abroad:

- 1989. Universitatsspital Zürich
- Rheumaklinik und Institut für physikalische Therapie

Courses, other accredited educations:

- 1991. State Hospital Balatonfüred: EKG course for specialists' exam for internal doctors
- 1995. HIETE: Modern professional and management knowledge of haematology and phisiotherapy.l
- 1997. Pathophysiology, diagnostic and treatment of metabolite bone illnesses – 1997. SOTE I. University Medical Clinic
- 1997-98. New trends in healing – Complementary Medicine (Acupuncture, Bio resonance diagnostic and therapy methods, Homeopathy, Physiotherapy, soft laser therapy, bioenergetics medicine) 180+200 hour postgraduate development course HIETE – Yamamoto Institute
- 1998. HIETE: Bone-joint picture creating diagnostic
- 1999. Medicinal Laser Centrum: Laser-therapy
- 2000. SE I. University Medical Clinic: metabolite bone illnesses – 2000
- 2001. The latest results of rheumatology. ORFI Bp.
- 2001. Latest news in the rheumatology therapy. ORFI Bp.
- 2003. Developments in rheumatology ORFI. Bp.
- 2004. The importance of nourishment in preventing some widespread diseases. Magyar Táplálkozástudományi Társaság Bp.
- 2004. Advantages and disadvantages of CT and MR in rheumatology. SE. Bp.
- 2004. The gout. SE. Bp.
- 2005. Medipharma 2005 Congress Bp.
- 2005. Development in rheumatology and osteology 2002-2004 ORFI. Bp.

Language exams: State Language Exams: Intermediate Level: Russian, English
Basic level: German

Summary

One of the factors for budget deficit is the cost explosion of public health. The author describes the tasks and the international and national economic surroundings of public health service system, he deals with the resources of public health, the cost management of the different levels, and presents a new financing system, which could harmonize the factors of resource-allocation - cost management - financing in the sector of hospital- and walking-case-patient and could help to reduce the anomaly and improve the budget-balance and realizing.