

Innovation - a mean to recover the health system

M. Toth, A. Jivan

Maria Toth, Alexandru Jivan

Faculty of Economics and Business Administration
West University of Timișoara, Romania

Abstract

The paper aims to present an aspect of the current situation of the Romanian health system, through the innovative aspects related and medical technologies used to treat patients. The research starts with a brief clarification of the term “innovations in services”, applied to the health system, followed by a statistical research of the current state of the investment in research and development. The research results reveal the situation of Romania, compared with other European countries, regarding the innovation system and the health system generally and shows possible solutions to improve the Romanian health system.

Keywords: innovation, health system, services

Introduction

Currently, by the development of telecommunications and Internet technologies has reached the phenomenon called *flattering of the earth* (Friedman, 2007), also appointed in a small way by P. Teillet, *outsourcing of services by companies to reduce the added value of traditional industries to branches of service benefit*. (Teillet, 1987) Regarding health services, through *flattering of the earth*, their productivity increased, average period of hospitalization was reduced, communication between different specialists in different countries is easier etc. For example, through telecommunications via satellite it establish various videoconferencing and any doctor can participate virtual in these activities without incurring travel and accommodation costs; in this way, the physician participating at these events, do not

miss from the hospital and so do not neglect the patients; by these possibilities, professional connections can be maintained easily and the doctors can be permanently informed regarding the news that appear in the health field.

On long-term, the health of population is directly related to the level of professional training of medical staff and the endowment of hospital with medical equipment and devices for the preparation and implementation of the medical act. *Investment in intellect* (Caspar, 1988) means that intelligence is a positive and rational *tool* which includes skills, studies and analyzes, simultaneously; intelligence is also *imagination and intuition, i.e. the ability to focus in a whole unique and essential thought.* (Caspar, 1988)

Material and Methods

The research method used is the comparative method, through which we highlight specific aspects of innovations in medicine, the national governments decisions impact on long-term development of the health system and the importance of research and development expenditure spend for innovative technologies.

Literature review

The first researches in innovations were launched for industrial activities focused on technological innovation of product and processes (Djellal, Gallouj, 2002: 105-106). In terms of services, the unstable nature of the results (product) is an analytical problem, because this product is an act, a treatment protocol, formula, process or organizational way (Mustar, Penan, 2003: 112). Examples of product and process innovation often encountered in industrial activities, can be found in the case of health care: preventive medicine and screening techniques (Djellal, Gallouj, 2002: 118).

Innovation in services is not limited to technological progress. May be concerned about a new insurance contract, new financial instruments, a new area of legal expertise, a new formula of restoration, distribution and hospitality, a new concept of leisure (Gallouj, 2004). At these examples, we add the idea that innovations in health can include a revolutionary new treatment, a new method of operation or a new method of diagnosing various diseases.

The term *medical innovation is used as a generic term for various types (tangible and intangible) of technological and bio-*

pharmaceutical innovations in the health care field (Djellal, Gallouj, 2005). This type of innovation diffusion depends on several factors: existence of specialist teams at different periods of training, the way this innovation is accepted among the population and the medical staff, standards imposed by governments and even by the price system. Medical innovation impact is felt on the quality of health, productivity, work organization, health expenditures, externalities and others.

Regarding the terminological clarification in health services, based on the literature review we highlight seven forms of innovation in this area, such as:

Innovation in an organized process is a change focused on new products, processes and methods of organizational models, wearing of wide variety of forms, such as: *i*) at the level of organization (improving working methods, hierarchy and division of tasks, information systems); *ii*) at the level of process (improvement of material and immaterial resources allocated to the production); *iii*) at the level of product (creating a new product or improving an existing product) (Bellon, 2002: 223). *Radical innovation* is a technological change in the economy or in the private entity (Bellon, 2002: 224). *Improvement innovation* having the aim to improve the quality of certain features, without altering the structure of the system. *Incremental innovation* describes the suppression or substitution of features without altering the general structure. *Ad hoc innovation* is common in knowledge-intensive activities and represents a solution, with a certain degree of novelty, of legal, organizational, strategic, technical issues etc., contributing, in terms of the provider, to generate new knowledge and skills (Mustar, Penan, 2003: 119). *Innovation through recombination* is achieved through basic principles of dissociation and association of the final and technical characteristics (Mustar, Penan, 2003: 120). *Innovation by formalizing* represents a heterogeneous mechanisms which can be realized through two types of ways that can be combined, such as: *i*) tangible mechanisms (introduction of technical systems in the service activity, i.e., computers and computer systems), and *ii*) intangible mechanisms (introduction of methods in the service activity) (Mustar, Penan, 2003: 120).

The hospital can be described as a genuine innovation, which defines several types of innovation, such as: *i*) social innovation (development of training schemes for medical staff), *ii*) technological innovation (IT equipment, biotechnology), *iii*) organizational innovation

(administrative reorganization, evaluation of the quality of care, working time organization), and *iv*) service innovations, in terms of hospitals working methods change, by introducing new activities (ambulatory services, health and social services) and by developing collaboration between doctors and voluntary organizations. (Anatole-Touzet, Souffir, 1996)

Results and Discussion

Assuming that innovation is in principle beneficial, at the level of the entities concerned (innovative), but also at the social level, nevertheless, certain renewals („reforms”) can be destructive for short, long and very long term, we want to show how the research and development expenditure reflect certain political and economic decisions of the national governments.

Tabel nr.1. Research and development expenditure (% of GDP) between 2000-2009 in some European countries and in the USA

Country name	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
USA	2,71	2,72	2,62	2,61	2,54	2,57	2,61	2,67	2,79	-
Average EU	1,80	1,86	1,83	1,86	1,83	1,82	1,85	1,85	1,95	2,04
Belgium	1,97	2,07	1,94	1,88	1,86	1,83	1,86	1,90	1,96	1,96
Bulgaria	0,51	0,46	0,48	0,48	0,49	0,46	0,46	0,45	0,47	0,53
France	2,15	2,20	2,24	2,18	2,15	2,11	2,11	2,08	2,12	2,23
Germany	2,45	2,46	2,49	2,52	2,49	2,48	2,53	2,53	2,68	2,82
Italy	1,05	1,09	1,13	1,10	1,10	1,09	1,13	1,18	1,23	1,27
Luxembourg	1,65	-	-	1,65	1,63	1,56	1,66	1,58	1,56	1,68
Netherlands	1,82	1,80	1,72	1,92	1,93	1,90	1,88	1,81	1,76	1,84
Romania	0,37	0,39	0,38	0,39	0,39	0,41	0,45	0,53	0,59	0,48
Hungary	0,78	0,92	0,99	0,93	0,88	0,94	1,00	0,97	0,99	1,15

Source: *World Bank, Research and development expenditure (% of GDP), <http://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS/countries?display=default>, accessed: 10.10.2012*

Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically use to increase knowledge of humanity, culture and society. In our analysis we have chosen the countries listed in Table nr. 1 because the United States has high medical innovation, and for the EU we have chose the EU's founding countries (France, Germany, Italy, Luxembourg, Netherlands and Belgium) and Romania, Hungary and Bulgaria (developing countries with high potential to absorb new technologies).

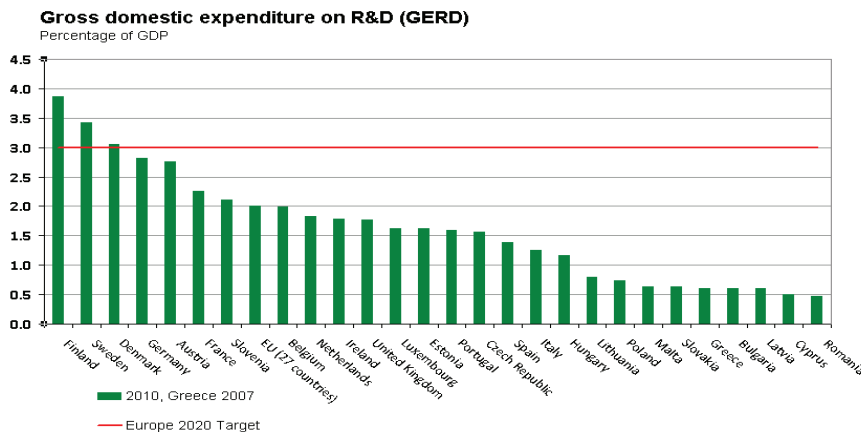
The developed countries have a modern health system (modernity refers to equipment: buildings, filing systems and other technical aspect) (i.e., United States, France, Germany, Netherlands etc.). The health system in the developing countries (Bulgaria, Romania and Hungary) is a transition one to a modern healthcare system (due to the entry in force on the national markets of new medical innovations). For example, Romania before 1989 had a health system with organizational problems (insufficient financial and material resources, unable to purchase drugs from abroad, low wages and improper working conditions for medical staff etc.), issues that are also reflected today, by multiple ad hoc political decisions taken without debate in the legislative. However, the trend of modernizing the health system exist, with reference to local medical market penetration of various techniques and modern surgical procedures, drugs and new medical equipments, with direct effect on the recovery of the health of people.

In recent decades, in the American hospitals, it was found that responsibilities and work of the administrative staff and nurses increased, developing the new career opportunities, reflected in the increasing need for collaboration between specialists and technicians to perform operations and maintenance technical equipment (Stanback, 1987). As we see in table nr. 1, the USA granted a rated high of percentage of GDP for the R&D, while the EU average is close to the United States. Founding countries of the EU allocates a high percentage of GDP for the R&D, and developing countries analyzed accorded a rate below the EU average.

Unfortunately, in Romania and in other developing countries (in table nr. 1, Bulgaria and Hungary), R&D sector and health sector are not adequately funded, as these sectors are underdeveloped, creating of new technology is almost non-existent. However, in terms of diffusion of innovations and new technologies, the situation in Romania is not

worrying, because our country is a market with rather high potential to absorb technological innovations, which leads to the fact that sick people have access to treatment and laser surgery, specialized tomography and other revolutionary methods of diagnosis and treatment. The situation became alarming since, in recent years, most young people working in the medical field (and not only) became involved in personal desire to learn and use new medical technologies, this effort being required to build a successful career (unfortunately, most young people in developing countries are more concerned about their own welfare than about the welfare of the community they belong; this leads to the situation where they live the country attracted by higher wages in developed countries, and acute diseases affecting population of origin are untreated).

Figure nr. 1.



Source: Eurostat,

http://epp.eurostat.ec.europa.eu/portal/page/portal/science_technology_innovation/introduction, accessed: 11.10.2012

The developing countries has a high potential to absorb innovative medical news; governments of these countries should give up the implementation of political decisions with contradictory and destructive effects on the economy; also would be required to support actively the cooperation between the private and public sectors by foundation public-private partnerships in innovation. It would be necessary to support the cooperation between foreign specialists

(especially with specialists from developed countries where R&D occupies a leading position in implementing political and economic decisions of national governments) and specialists from the developing countries. For example, in Romania, a private clinic (specialized in various eye surgeries) supports the collaboration between the Romanian doctors and the Italian technicians for the implementation and development of various surgical procedures; thus, this segment of the Romanian patients may benefit of high quality of health services.

New technologies developed over time have a positive impact on medical field, both by the appearance of a multitude of processes, methods of operation, treatments, drugs, devices and medical equipments, which lead to the development of health services, increase their productivity and the possibility of maintaining relations between different experts.

Modern medicine through innovations can ensure the way for a consistent reach of the balance between human body and the environment (the relationship with divinity, environment, health and social system) and, simultaneously, it should be noted a positive impact on the socio-economic life (for example, most people probably sick at a certain time noted in the recovery period that positive or negative mental state influenced for better or worse the speed and intensity of the post-operative treatment effects. In our country, a strong emphasis is placed on the relationship between individual and divinity; such notice the existence of priests in hospital units that are designed to strengthen the spiritual bond and to induce wellbeing of the patients hospitalized).

Conclusion

Development actions in the medical field should be seen both by politicians and by the civil society, as long-term investments, able to maintain health and increase chances for development and better conditions for the future. These types of investments represents a high percentage of GDP in developed countries, where the research (both in the medical field and in other areas) are well developed, hence the fact that these countries allocate a percentage of GDP increasingly higher for the R&D.

Many Romanian doctors are drawn to the developed countries, because in those countries incomes and life conditions are incomparably higher; that is a disadvantage for Romania which incurred the costs of their education and the local population does not benefit from the

Romanian doctors knowledge and skills. Romanian doctor's migration can be limited through programs designed by national government, through which to pursue the granting of decent wages and adequate working conditions, including ensuring a high standard of living in our country.

Innovation in *intellect* in Romania compared with other European Union countries is low. In terms of *management*, the situation has often destructive tendencies (dissolution of hospitals, leaving whole areas without nearby medical facilities etc.). New medical technologies are long-term material investments in the health system. Knowledge in health services is a long-term intellectual investment, provided by human resources and the university education system.

The Romanian Ministry of Health has not presented viable measures for the stimulation of the medical research. Thus, in the short term, government efforts should focus on attracting European funds for: *i*) stimulating medical research and *ii*) helping small and medium-sized hospitals (remaining after dissolution) to purchase medical equipment.

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