

Vybrané aspekty e-health

E-health and its selected aspects

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Abstrakt: E-health je již několik let velmi diskutovaným tématem, a to nejen v České republice, ale též v mnoha jiných zemích. Samotná idea elektronizace zdravotnictví není však novinkou tohoto roku, ale již několik let v ČR diskutovaná či v jiných zemích aplikovaná. Programů a projektů týkajících se e-health je několik, aplikace do využívání v rámci zdravotních procesů však v České republice stále téměř chybí. Článek se zaměřuje na vybrané aspekty e-health, analyzuje je a hodnotí danou problematiku, jak na obecné úrovni, tak v České republice.

Klíčová slova: elektronizace zdravotnictví, Česká republika, implementace, programy, projekty, zdravotní systém, aplikace, aspekty.

Abstract: E-health is a very hot topic for several years, not only in the Czech Republic but also in many other countries. The idea of e-health is not anything new in this year but it is much-discussed topic for many years in the Czech and applied topic for many years in other countries. We can find some programmes and projects, which are in relation with e-health in the Czech Republic; the application of this for using in healthcare processes is still almost absent in the Czech Republic. The paper focuses on selected aspects of e-health, analyses it and evaluates this topic, generally and on the level of the Czech Republic.

Keywords: e-health, Czech Republic, implementation, programmes, projects, health care system, application, aspects.

JEL Classification: I15, I18, O3

Introduction

E-health is a dynamically developing field of health care based on using of ICT tools in health care providing. Over the last years health informatics respectively medical informatics has matured. The main goal of using of e-health is to improve quality in health care, provide best evidence at the point of need, and demonstrate benefits across settings, taking advantage of technological opportunities and applications (Haux, 2010).

As mentioned Moen et al. (2012) on the European scene, we observe that the terms health informatics, medical informatics, nursing informatics etc. are gradually substituted or used interchangeably with the term e-health.

There are several reports and surveys, which are providing snapshots and interesting examples for e-health evolution across Europe (Stroetmann et al., 2011; Andreassen et al., 2007).

As states Pokorná (2011) the concreted aim of e-health as suggested by the EU, is to establish the national storage of health data. This storage is usually a set of data recorded within Electronic medical files of health care recipients. E-health has a further object ambition and so to create a platform for communication between beneficiaries and health care providers. Typically this ambition implemented into reality through the creation of a special health

portal. Another aim of the EU's cross-cutting health and medical registries, thus establish a central register containing all the health and medical data. It should be able to communicate with all stakeholders participating in the e-health. It is necessary to focus on practice in e-health in EU because as wrote Moen et al. (2012) achievements in e-health can support future demands within the health care system and improve the quality of life of citizens, patients and health providers.

This paper analyses selected processes of e-health in currency world and in the Czech Republic, of course some important data are used from practice from European health systems. The aim of the paper is to define current trends of e-health and specified the situation in this concept on level Czech Republic. Firstly, e-health will be defined as a new trend and concept which has important impacts on health care markets and there are described its opportunities and challenges. Furthermore, will be defined and discussed application of e-health in EU and experience with this concept and finally, will be discussed issue of e-health in the Czech health care system.

For this purpose, a literature review was carried out of material written in English, which data was sourced from these main areas: databases, publication of international organizations, generic web searches through Google and Google Scholar and other research journals and papers.

Definition of e-health

For better understanding and appreciating the developments and initiatives in the Czech Republic and explaining of experience in EU countries, it is necessary to establish a shared understanding of what is understood by the concept of eHealth.

We can find many definitions of e-health. One of them defines e-health as design, development, implementation and evaluation of ICT in the health system, broadly understood (Moen et al., 2012).

As summarized this term Středa (2013) the e-health is a new medical discipline including elements of health informatics and health care organizations with commercial strategy, focused on the health service and the information shared via internet and similar technologies.

According to Eysenbach (2001) e-health is a developing area which connected medical informatics, public health and business related to health services and information provided or shared via the internet and related technologies. In a broader sense, this term characterizes not only a technical development, but also tuning, way of thinking, attitude and participation in an interconnected global thinking and help to improve health care on a local, regional and global levels using information and communication technologies.

As state (Eysenbach, 2000; Eysenbach 2008; Moen et al., 2012) generally speaking, the e-health helps to support health professionals in their work and continuous, lifelong learning, as well as to assist all citizens in their own health care management and their search for reliable health information, disregarding organizational boundaries and functioning of the health systems.

As confirmation of this concept of the e-health the Ministry of the Interior of the Czech Republic (2010) is written on its website that eHealth is a fairly new term used to healthcare supported by electronic and information technology. These tools should be used to benefit the prevention, diagnosis, treatment, monitoring and management of health and lifestyle.

Dogan et al. (2013) state that e-health is one of priority in strategy of economic growth "Europe 2020". EU sees in using of concept of e-health the important opportunity for development in health care area.

Nicholson (2012) notes that e-health is not just about technology - it is about finding, using, recording, managing, and transmitting information to support health care delivery; in particular to make decisions about patient care. The computers and other ICT tools are merely the technology that enables this to happen. The term e-health can encompass a range of services or systems that are at the edge of medicine/ healthcare and information technology. This term included following scopes: electronic health records, telemedicine, consumer health informatics, health knowledge management, virtual health care teams, m-health, health information systems etc.

As shows results of many research, for example Kunstová & Potančok (2013), OECD (2010) and Ilminen (2003) with proper use of e-health or its component elements can achieve a significant increase in the quality of patient care, labor-saving medical personnel, financial savings and elimination of risks in the course of preventive, diagnostic and therapeutic procedures.

The opportunities and challenges of e-health

E-health offers many opportunities and challenges. As shows Picture No. 1 we can define opportunities of e-health in three levels.

Picture No. 1: Three levels of opportunities of e-health



Source: own proceeding based on Ministry of Health, 2014

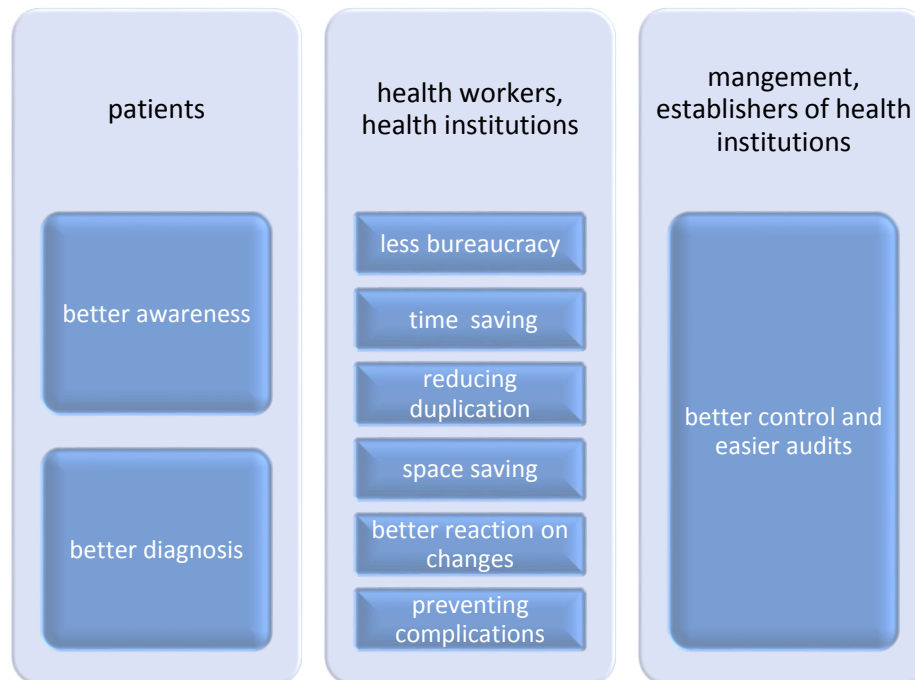
The first benefit is certainly quality. The easy and comfortable e-health solutions can reduce errors and this fact will support increasing of the health care quality and providing health care. Another opportunities is the availability. The transferring some administrative activities from paper form into electronic form will contribute to reducing the administration of the health care and improve access to health care. As a final benefit we can named the efficiency. E-health should reduce costs. This fact improve the efficiency of whole health care system.

When we will focus on benefit of e-health from the perspective of each stakeholder, it is clear that e-health is positive for all subjects. As subject which are using e-health we can named the following:

- patients,
- health workers and health institutions,
- management and establishers of health institutions,
- health insurance agency,
- health office,
- ministry,
- governments,
- international organizations,
- etc.

The picture No. 2 shows selected subjects who are using the e-health and their main benefits of its using.

Picture No. 2: Selected subjects using e-health and their benefits of its using



Source: own proceeding

On the other hand, we can find also negative side of e-health, which is very often discussed. The biggest risk of e-health is security of personnel data. The disadvantages of e-health include also dissimilar access to e-health and disinterest in e-health by the public and also by professionals and administrative staff. (Czech forum for eHealth, 2010) Other problems with e-health we can see in the first phase of implementation, it means the high initial cost and the necessary technical skills and the need of constantly learning new things and legislative process. Finally, we cannot forget that it must be quality public relations, must exist the expert team which will inform the whole of society, public about steps, needs and advantages of e-health. There is other big problem based on experience from abroad, which we can named the high expectations.

As state Roubík et al. (2013) it necessary to see also these challenges in using of e-health: reducing errors in diagnoses, improving the targeting of medication, suppression therapy without medication, frequent inclination to best practice and better prevention in a healthy population. From these positive impacts promise of improving the health status of the population and longer life expectancy. E-health also Roubík et al. (2013) considered as a certain type anti-corruption measures.

E-health in Europe

In some countries (for example Denmark, Estonia, Finland etc.) there are e-health tools and services widely used. EU is mainly seeks to potential communication across these individual systems and their interconnections. It expects an increase and promote the benefits of computerization. Its aim is to provide European Union citizens and good quality health care, whether it is located in any country of European Union (eZdrav, 2014).

As show results of research in using of e-health in European countries (Sabes-Figuera et al., 2013) there is an increasingly successful attempts to implement e-health in Europe. For example, there is the significant increase in e-health tools: in 2013 it was used by 60% of general practitioners, which compared to 2007 represents an increase of 50%.

As write Potančok et al. (2015) Sweden has dominant statue in ranking of ICT using and has the best level of health care. This fact enabled the rapid development in computerization of health care, where Sweden has a leading position, but also initiates changes in other European countries.

As show results of research "eHealth in Europe - Status and Challenges" (Moen et al., 2012) in 2011 is evident the satisfaction with the implementation of eHealth in many countries. It is reported that the e-health has a positive impact on long-term savings and the cost reductions. The benefits are also reflected in the improvement of communication, coordination and cooperation between health personnel.

Other study "Interoperable eHealth well worth it - Securing benefits from EHRs and e-Prescribing" published by the European Commission in 2010 describes also positive effects of e-health implementation. As an example this study states Scottish project ECS. The main purpose was to provide an actually information about allergies and medications prescribed by GPs for authorized health professionals. The main benefit was to increase patient safety and reduction of the risk of wrongly prescribed medication. Analyses show that 5, 5 million pounds

invested more than nine years earned nonfinancial benefits and reallocation funds worth 21.6 million pounds (European Commission, 2010).

E-health in the Czech Republic

E-health in the Czech Republic is closely linked to e-Government (Baumruková, 2015). The first mention of the concept of e-health in the Czech Republic is stated in the national strategy of the State Information and Communication Policy, in short eCzech (Kolín, 2015). This strategy was inspired by the information policy of the European Union (Ministry of Informatics of the Czech Republic, 2004).

As state Kolín (2015) other very important document of implementation of e-health strategy in the Czech Republic which was prepared in cooperation with WHO was "Recommendations for Strategy eHealth (eHealth) for the Czech Republic" in January 2012 at the University of Tromso. The results of recommendations based on the prepared document WHO / ITU e-health Roadmap, which proposed a three-stage procedure for the implementation of the concept of e-health. The document recommends:

Phase 1: Creating a Platform

- To Set up a working group on eHealth with a clear mandate
- To evaluate existing health problems
- To analyse the stakeholders and define roles for their involvement
- To evaluate the infrastructure and information systems
- To establish mechanisms common base (workshops and seminars)
- To establish a common vision for eHealth

Phase 2: Definition of goals, action and outcomes

- To define short and long term goals
- To determine the specific action items and milestones
- To specify the roles and activities of each stakeholder outcomes

Phase 3: Evaluation of implementation process

- To determine the tools and indicators that will be used to measure progress and results of the implementation of e-health
- To initiate research projects that will monitor the implementation processes to identify and clarify the arising problems and successes. (Hasvold, Knarvik 2012).

Currently, many projects related to e-health in the Czech Republic was failed. New ways to achieve a better status of the concept are activities of professional companies that due to the unsatisfactory status of e-health have taken the initiative in this area (Kolín, 2015).

From these initiatives we can mention, for example "The new concept of e-health for the period 2014". This concept is based on the government's policy statement, which speaks of improving the quality, efficiency and effectiveness of health care by ensuring long-term financial sustainability of the public health insurance system. The main prerequisite for fulfilling these objectives, Ministry of Health is developing the concept of eHealth, consisting of the following tasks:

- To set standards which are necessary for the development and long-term sustainability of eHealth and supervise their implementation
- To promote the systematically computerization in the health sector in order to encourage both patients and providers to implement and use new processes, systems and applications to enable the correct setting decision-making processes
- To keep sensitive personal and medical data under control and provide clearly identified bodies
- To process and implement eHealth strategies (Phillip, 2014)

The signatories of the Memorandum are: JEP, ICT UNION, Czech National Forum for eHealth, telemedicine center and the National MEDTEL. Other subjects who are part of this project are WHO Office in the Czech Republic and the Czech Association of Nurses, the Association LIFE 90 and the Czech Home Care Association. The cooperation and participation in the development of eHealth in the Czech Republic were invited as well as other professional bodies. Some of them already on the signing of the Memorandum and connect to act (Zeman, 2014).

Although e-health processes in the Czech Republic have many problems, on the other hands it is necessary to mention that the Czech Republic and healthcare facilities have already taken many steps towards the implementation of e-health. The ambulance and practitioners use different

types of outpatient information system. Even in hospitals, there is becoming increasingly use hospital information systems. The current development of e-health confirmed that the level of individual information systems is well developed, but it is essential coordinating role of the state (Roubík et al., 2013).

There are many efforts to set e-health in the Czech Republic, but everything is still at the initial stage. It is necessary to create a particular functional web portal accessible not only professionals, but also lay people and carry out public education in the area. It would certainly be missed effect also precise legal definition of the use of e-health on the part of health care facilities, support, and determine sanctions for not using these procedures.

Conclusion

E-health is very actual topic and plays important role in economy, medicine and health care and also in technologies and IT. As shows experience with using of e-health in European Union and in the other countries in the world, we can find many positives of e-health. For example to reduce errors in diagnoses, support continual, coordinated and quality health care, effective planning, greater use of available optimization of resources, improving the targeting of medication, increased tendency to best practices, better prevention in a healthy population, a

gradual transition from reactive to proactive mode the provision of health services, anti-corruption measures, improving health population and longer life expectancy (Szobonyová, 2014).

According to the WHO (2013) in today's heterogeneous world health care is mainly concerned with the fact how to adapt to rapid changes and requirements in order to provide continuous and coordinated care patient in many countries. On the other hand, current world has to respond to increasing public demand for access to new technologies and their use, following the availability of new drugs and new models of care. The most countries are trying to achieve better and more accessible for all health care.

This situation it is not possible to solve without e-health what we must realize also in the Czech Republic. The main role in the implementation of e-health on the countrywide level must play government.

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