THE IMPLEMENTATION OF E-HEALTH SOLUTIONS. A REVIEW OF INTERNATIONAL SOLUTIONS AND THEIR RELEVANCE FOR ROMANIA

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Abstract

One of the most important responsibilities for any government of a developed nation is to insure a proper level of healthcare for its population. However, while this necessity is fairly obvious, it is very hard to implement an effective, coherent and country-wide public policy which can efficiently live up to modern standards of quality healthcare and, at the same time, remain within reasonable budgetary constraints. The process through which this issue is tackled has been an ongoing concern for many governments and, lately, some of them have started using eHealth systems which include, but are not limited to, different types of personal health cards. This has also been the case for Romania which, beginning with September 2014, has started the process of issuing and of using such cards. In this paper we have conducted a literature review of healthcare card usage, focusing on the experience of countries which have already implemented them and how, going forward, that will translate to Romania.

Keywords

eHealth, information and communication technology, personal health card, Romanian healthcare

JEL Classification

I12, I18

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Introduction

In this paper we will discuss the merits of implementing and using a national eHealth system. We will do this by first presenting the evolution of communication and information technology and how this has impacted the development of healthcare services. Due to the fact that the benefits of eHealth are well known and have been presented in great detail in the associated literature, greater attention has been given to the negative aspects of it. Secondly, we will present, in brief, the level of implementation of eHealth in Europe, while presenting in more detail the introduction of healthcare cards. Finally, we will present eHealth in Romania, with a focus on what the introduction of a national health card might entail.

IT&C and Healthcare

The integration and use of improved communication and information technology (IT&C) in healthcare has been changing the face of the medical field for years now. One of the first and most significant facets of it was the introduction of telemedicine, which is defined as the process through which clinical health care can be provided at a distance, through the use of IT&C technologies. However, the improvements in access to better technology has allowed for the development of different activities related to telemedicine but which cannot be accommodated by the term (Della Mea, 2001). In order to better describe these changes the term eHealth has been promoted and has been defined by the World Health Organization as: *"eHealth is the use of information and communication technologies (ICT) for health*. (World Health Organization).

It can be easily noticed, from the definition, that eHealth can refer to a multitude of items within the medical field and, as such, has been associated with systems which aim to help the doctor: clinical decision support, health knowledge management or healthcare information systems, to aid the patient, such as consumer health informatics, or simply to bridge the gap between the patient, the doctor and other stakeholders, through the use of telemedicine, electronic health records, online prescriptions and so on. The possibilities for future development seem boundless and it can be expected for the field to continue developing in new ways. It shouldn't be of any surprise that Zwicker et al have shown that there are a multitude of advantages associated with the use of eHealth solutions (2010):

- Increased data availability allows for improvements in the quality of the therapy received by patients
- Medical service providers are able to easily access an extensive overview of patient status of health
- Improved workflow and time saved as a result of improvements in communication between the patient and the doctor as well as between different doctors
- a reduction in the number of redundant reexaminations performed by different doctors which translates both in time saved as well as in lowered costs

The advantages of eHealth system are obvious; however, this has yet to translate in an exponential growth in the implementation of similar IT&C solutions. In fact, while some

countries, such as Australia, New Zeeland and the UK, have been at the forefront of these attempts, with the UK spending 12.4 billion pounds over 10 years (UK Comptroller and Auditor General, 2006, p.6), the expected results seem to be nowhere near what was expected in the beginning. Murray et al (2011) found that the context in which an eHealth program is implemented is vital to its success and its implementation would go smoothly only if the technology is perceived as useful.
In order to improve the chances that an e-Health program will succeed, Kreps and Neuhauser (2010), after a thorough literature review, have shown that a few elements need to be present during the implementation procedure:

1. Enhance the interactivity of eHealth communication interventions
2. Increase the interoperability of eHealth communication interventions
3. Creating eHealth communication that is dynamic and engaging
4. Designing communication to have the reach of mass media and the impact of interpersonal connections

As it has been shown in this section of the paper, the field of eHealth, as the product of healthcare public policies and, the ever improving, information and communication technology, is very dynamic and, until now, has yet to show signs of reaching maturity.

Implementation of eHealth programs

Going forward, in this section of the paper, we will briefly present how eHealth products have been implemented in different countries, this will be done while focusing mostly on health card solutions.

The adoption of eHealth solutions is one of the main objectives of the European Union. This necessity is spurred on by the population aging process as well as the sustainability in the quality of care provided (Codagnone & Lupianez-Villanueva, 2013). Furthermore, the EU commission has recognized that "*Fostering a spirit of innovation in eHealth in Europe is the way forward to ensure better health and better and safer care for EU citizens, more transparency and empowerment, a more skilled workforce, more efficient and sustainable health and care systems, better and more responsive public administrations, new business opportunities and a more competitive European economy that can benefit from international trade in eHealth*." (European Comission, 2012)

The key pillars of eHealth in the European Union are (Codagnone & Lupianez-Villanueva, 2013, p.5):

Electronic Health Records: systems that are to be used by professionals to enter, store and retrieve patient health and administrative information and data
Health Information Exchange: the process of transferring, sharing and enabling access to patient health information and data
TeleHealth: the use of technological platforms for the purpose of providing health services, medical training and health education over a distance

Personal Health Records: electronic systems which allow patients to have secure access and to manage their health and information

In a study conducted by Codagnone and Lupianez-Villanueva, for the EU Commission, the researchers found that, while clearly on the correct path towards adequate implementation of eHealth solutions, there are still a great number of issues along the way. Firstly, even though they found that the basic infrastructure is nigh ubiquitous, with a 99.74% of practices using a computer and 97% actually using them during the consultation, only 65% of them have a broadband connection (Codagnone & Lupianez-Villanueva, 2013, p.9). As such, it is fairly obvious that communication is an issue, thus, while most doctors have started using better technology in order to improve the quality of their work, the majority of them have done so more or less on their own and do not share their work with someone else.

This is made even clearer when taking into consideration the fact that 25% of doctors don't even attempt to exchange any type of patient information and, of those that do attempt it, the majority encounter issues. Codagnone et Lupianez found that most doctors use their eHealth related options for routine activities, such as receiving laboratory reports (64%), certifying sick leaves (47%) or sending/receiving discharge letters (32%), and very rarely are they used in the actual decision making process. (2013, pp.11-14)

They have also found that this communication problem, however, is not one sided. Health care consumers rarely make use of eHealth options in their interactions with their doctor. The majority of patients only use them in order to make appointments or to renew their prescription, again, routine activities, but anything beyond that is done in a more personal, direct manner (2013, p.14).

Overall, even though the level of development of eHealth is certainly better that the rest of the world. The fact that it is better funded than most is without doubt, and, while it is not nearly as fragmented as the US system which has a multitude of competing standards (Sitar-Taut et al., 2011), there are some clear issues which must be tackled: (1) the access and use of high-speed Internet must be improved, (2) inter-connection and inter-operability bottlenecks must be removed in order to facilitate information exchange, (3) patient records need to be digitized and (4) TeleHealth and access to private health records needs to be improved before more advanced factors are taken into consideration. (Codagnone & Lupianez-Villanueva, 2013, pp.19-21) Jha et al found that communication is one of the main problems for the majority of countries. In a study of seven of the most advanced countries, in terms of eHealth implementation, they have found that 5 of them had nearly universal use of electronic health records by general practitioners, but only a small fraction had implemented them at the level of a hospital. Furthermore, while health information technology was indeed a priority for them, the results lagged behind expectations (Jha et al., 2008).

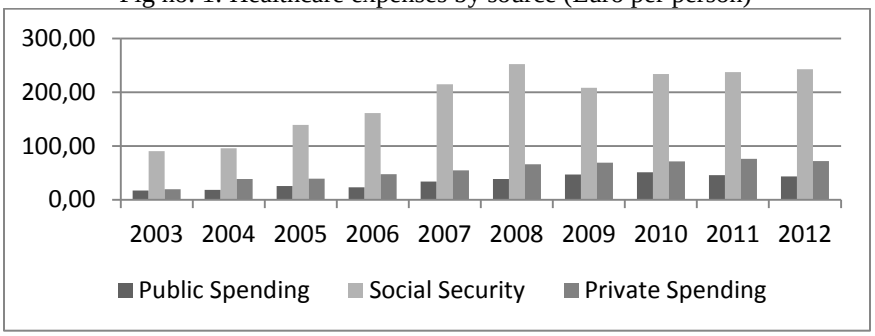
One of the most important achievements, at the European level, in terms of eHealth implementation has been the introduction of the European Health Insurance Card. While this is not meant to replace regular forms of insurance in a country and so the consumer must abide by the specificities of the visiting country, it does help in that it has created a method through which European citizens may benefit from healthcare products in countries other than their own (European Comission, n.d.).

Two notable health card programs which have been implemented successfully have been those in Germany and Italy. The German card is, mostly, with an administrative purpose first and a medical one second. The card holds insurance and payment information concerning the patient and must be used when buying prescription medications. However, any type of medical data, such as allergies or emergency information, is recorded only on a voluntary basis. The implementation process has been cumbersome and has cost 1.7 billion Euros up to this point with an expected 150million Euros every year going forward, however, continued use, along with streamlining certain procedures, is expected to save to government up to 500million Euros every year. (Zwicker et al., 2010). The Italian card is similar in scope and purpose in that it contains biographical data, insurance information and is used when buying prescription medicine (Gazzetta ufficiale dell'Unione europea, 2003).

The Romanian Healthcare Card

The healthcare system in Romania has been in dire need of reform for many years now. It has been chronically underfunded and mismanaged. Fig. 1 shows the evolution of healthcare expenses, by source, starting with 2003 and it can be easily noticed that, even though public spending has increased and investments have been made over the years, the bulk of all the spending has been made up of social security expenses or, in other words, expenses made strictly for the treatment of patients and very little done to actually improve the quality of care.

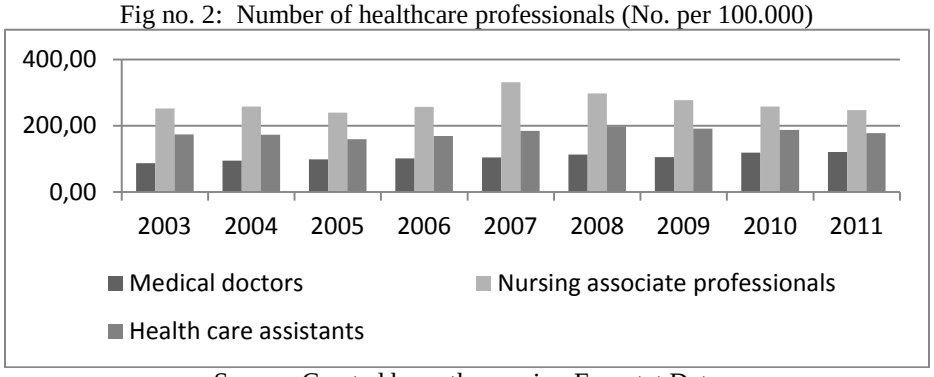
Fig no. 1: Healthcare expenses by source (Euro per person)



Source: Created by authors using Eurostat Data

This has also been associated with a steep decline in the number of healthcare professionals, as can be seen in fig. 2, thus creating a situation where the quality of the services provided is lacking and there are a number of people whose healthcare needs have gone unmet.

Fig no. 2: Number of healthcare professionals (No. per 100.000)

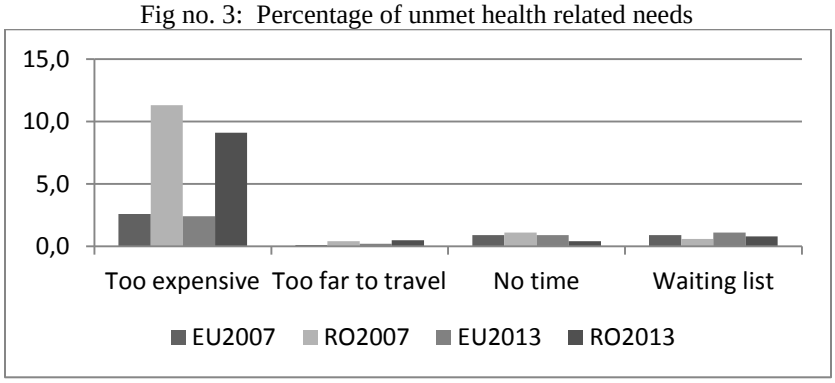


Source: Created by authors using Eurostat Data

Figure 3 shows the percentage of respondents who have had certain health requirements which have gone unsatisfied. While it is true that the majority of the people who answered the Eurostat survey did not declare any unmet needs (77% and 90.1% in 2007 in Romania compared to the EU27 average respectively 84.2% and 89.7% in 2013) Romania is still lagging behind the rest of the European Union.

Admittedly, the majority of those with unmet needs have cited that they are too expensive (11.3% and 2.6% in 2007 in Romania compared to the EU27 average respectively 9.1% and 2.4% in 2013). The solution to these problems is related to funding and , as such, is beyond the immediate scope of this paper. However, as can be seen from fig. 4, Romania is also lagging behind in terms of access, therefore, improvements in telemedicine and eHealth services might be able to bridge some of the gap between Romanian results and those from the rest of the EU.

Fig no. 3: Percentage of unmet health related needs



Source: Created by authors using Eurostat Data

The situation of eHealth in Romania is still lagging behind the rest of Europe but has been improving significantly over the last years. In a study conducted for the EU Commission, it was found that over 80% Romanian doctors use electronic health records in order to keep track of prescription/medication, immunization, medication lists and ordered tests but not so much for

radiology test reports, drug interactions, patient allergies and so on (European Comission, 2013, pp.6-8). Furthermore, it would seem that the system suffers from the same ailments as those implemented in more developed countries, with communication between different institutions and between two specialists being the main issues (European Comission, 2013, pp.11-13).
A notable improvement has been introduced with the issuance of a personal health card for everybody who benefits from some type of health insurance. The card is very similar to the ones already used in Italy and Germany, thus, it will contain the name, and basic data of the holder. Furthermore, in order to improve transparency, it is to be used in order to keep track of all the health related services used by the person and it is required when buying any type of prescription medicine. What is of note is the fact that, like the aforementioned cards, medical data may be recorded on the card only at the request of its owner.

Conclusion

The implementation of an eHealth system is a long and arduous process whose benefits can only be felt when it is completed. It involves a great number of diverse stakeholders, such as funding agencies, be they public or private, doctors and patients, who have very different, but not necessarily opposing, objectives and who manifest a great asymmetry of knowledge. Therefore it should not be surprising that quite a few attempts at implementing such a project have not been met with a resounding success. This, however, should not be mistaken for reason to not implement an eHealth system but only be understood that the complexities involved are not always apparent.

Romania is now among the countries that have started to implement an eHealth system. While the level of success is still to be determined, the initial signs show that the implementation process is expected to encounter the same problems as those of other countries, issues such as: budged over-runs, communication problems, data security problems and so on. However, at the same time, it stands to gain by lowering costs with record keeping and prescription writing, to enhance data access, to improve patient access to services and to better communication between different specialists. Furthermore, assuming it is successfully implemented, it can serve as the basis for a more integrated future eHealth system. At the time of writing this paper the issuance of the card was still an ongoing process and no data related to the level of success had been released to the general public. This, however, is an excellent avenue for future research, once more information is available.

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