Towards a Framework for Measuring E-Health Status across the World

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INTRODUCTION

The evaluation and development of health systems of countries and provinces is frequently elaborated in various articles (Sang, Wang & Yu, 2014). All of them share a general thought of health sector as the concept of immense importance for well-being of nations (Arber, Fenn & Meadows, 2014). With the exponential growth in information-communication technologies (ICTs), which created a wealth of opportunities for societies around the world (Ayanso, Cho & Lertwachara, 2014), ICTs introduction in the health care system has led to many changes and has consequently provided a powerful platform for changing the way people deal with health issues (Kuehn, 2011). Accordingly, more than 60% of Americans have used the platform to acquire health information (Mackart, Champlin, Holton, Munoz & Damasio, 2014). Today's medical field is very different from what it was just a decade ago as exemplified by the use of medical informatics, novel surgical equipment and modern testing techniques (Yadav & Poellabauer, 2012). The technological advances, medical development, better, and more efficient services have improved the human quality of life and life expectancy, leading to a new paradigm for health care service providers (Gomes, Sperandio, Peles, Borges, Brito, & Almada-Lobo, 2013).

Our chapter is firstly oriented towards emphasizing the importance of health-care system evaluation. Due to the importance and impact the status of health has for its population, a state implements a large number of measures in health-care system planning and management in order to ensure steady financing and a rational, high-quality health-care system, and to provide basic health protection to its citizens within available resources (Jovanovic-Milenkovic, 2011; Frenk, 2010; Vujin & Jovanovic-Milenkovic, 2012). Consequently, the introduction of information system increases the efficiency, productivity and work quality of a health organisation; it also evaluates the work done, eliminates data duplication, and provides a more comprehensive use of data (Jovanovic Milenkovic, Milenkovic & Dobrota, 2012; Jeremic & Jovanovic-Milenkovic, 2014). Nowadays there are many attempts to enhance the quality of e-Health concept even more by implementing cloud computing (Sultan, 2014; Zapater, Arroba, Ayala, Moya & Olcoz, 2014; Vilaplana, Solsona, Abella, Filgueira & Rius, 2013; Milenkovic, Jovanovic Milenkovic, Vujin, Aleksic & Radojicic, 2012; Jeremic, Jovanovic-Milenkovic, Radojicic & Martic, 2013).

Secondly, we will point out to a continuous need for a comparison as an imperative for validating the progress over time (Kell & Kell, 2014). Hence, an appropriate methodology for evaluation and ranking of countries e-Health progress is a necessity.

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BACKGROUND

The rapid usage of the Internet is also altering the traditional relationship between doctors and their patients. More and more people use the Internet to address their health and wellness needs and concerns, and the Internet enables patients to assume much greater responsibility for their health care (Ballas, 2001).

Application of information-communication technologies (ICT) in health care tends to expand the focus of resource management to knowledge management and process management. Integration of information-communication technologies in health care was performed to provide better health services for patients, by achieving mobility of people. ICT in health care providing the opportunity to control and analyse the total healthcare system in terms of quality and economy, and thus to the possibility of managing total health systems. Depending on its socio-economic opportunities, each country makes efforts to find out the best way to solve problems of management and control of its health system (Milenkovic, Jovanovic Milenkovic, Vujin, Aleksic & Radojicic, 2012).

The electronic health system called e-Health. It was created by the application of ICT, which fundamentally changed medical practice, enabling a significant increase in efficiency and quality of health service through a more logical and effective use of available resources. The term "e-Health" encompasses a wide purview of medical services used with the help of information technologies.

Today there are many definitions of e-Health. Eysenbach (2001) defined e-Health as "an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. The term characterizes not only a technical development, but also a state-of-mind, an attitude, a way of thinking, and a commitment for networking, global thinking, improving health care locally, regionally, and worldwide by using information-communication technology" (Eysenbach, 2001).

E-Health is a term used to describe the use of information-communication technologies over a wide spectrum of health-care system functions. Innovative and well-thought-out applications of this new technology are able to increase the consistency, reliability, and quality of information delivered (Robertson, Ann et al. 2010; Milenkovic, Jovanovic Milenkovic, Vujin, Aleksic & Radojicic, 2012). The features and solutions of e-Health include products, systems, and support services that go by and simple Internet-based applications: in addition to those designed for medical experts and professionals, there are also ones designated to include the active participation of patients in their own healthcare (Jovanovic-Milenkovic, Jeremic & Martic, 2014).

The e-Health system encompasses the following essential services (Milenkovic, Jovanovic Milenkovic, Vujin, Aleksic & Radojicic, 2012):

- An electronic medical record is the first step towards more efficient and higher quality healthcare system. It contains useful information for all actors in the system.
- Electronic medical records are typically computerized regular medical records created in an organization that delivers care, such as hospitals or doctor's surgeries. An electronic medical record tends to be part of a local stand-alone health information system that allows storage, retrieval and manipulation of records.
- Telemedicine is a service that includes all types of physical and psychological measurements that do not require a patient' visit to a specialist. Owing to this service, a patient doesn't have to travel often, and a specialist can cover a wider geographical area.