e-Health – For Continuity of Care
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Towards National eHealth Implementation - A Comparative Study on WHO/ITU National eHealth Strategy Toolkit In Iran

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Abstract. Experiences has shown that utilization of ICT in health sector requires national commitment and planned efforts to make the best use of existing capacity. Establishing the main directions as well as planning the detailed steps needed are key to achieving longer-term goals such as health sector efficiency, reform or more fundamental transformation. Collaboration between the health and ICT sectors, both public and private, is central to this effort. As the major United Nations agencies for health and telecommunications respectively, the World Health Organization (WHO) and the International Telecommunication Union (ITU) have recognized the importance of collaboration for eHealth in their global resolutions, which encourage countries to develop national eHealth strategies; the National eHealth Strategy Toolkit is the proof of these recommendations. In this study a mapping of eHealth components in WHO/ITU National eHealth Strategy Toolkit and our national eHealth vision is presented.

Keywords. eHealth, Strategy, eHealth Strategy, Planning Techniques, Electronic Health Record, Health Information Systems, Health Service

Introduction

The term eHealth only came into use in the year 2000, but has since become widely prevalent. The scope of the topic was not immediately discernable from that of the wider health informatics field, for which over 320000 publications are listed in Medline alone, and it is not explicitly represented within the existing Medical Subject Headings (MeSH)[1] taxonomy[2].

In 1980s and 1990s, some leading healthcare organizations began to demonstrate the quality and efficiency potential of electronic health records (EHRs)[3]. In the past three decades researches demonstrate that eHealth activities such as electronic patient records, electronic prescribing, and the National Electronic Library for Health, etc can improve quality and efficiency of health services and be cost effective[4-8]. Thus, many countries funded lots of money to gain benefits of eHealth [3, 9]. In literature review at some of the national initiatives to develop an information infrastructure for healthcare, some of the challenges were presented by these very different approaches around the world.[10]. The European Union Action Plan for eHealth was published in April 2004 and endorsed by the EU health ministers in June 2004 which means that, for the first time, Europe has a coherent agenda for eHealth implementation [11].

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The Fifty-eighth World Health Assembly in May 2005, adopted Resolution WHA58.28 establishing an eHealth strategy for WHO. The resolution urged Member States to plan for appropriate eHealth services in their countries[12]. Inappropriate eHealth strategy and plan definition is a barrier to effective investment, and successful implementation of eHealth solutions[13]. In a joint effort WHO and ITU have tried to solve the issue by development of the National eHealth Strategy Toolkit that introduces and reviews components and processes that must be considered in eHealth planning[14].

ITU is the leading United Nations agency for information and communication technologies. ITU's role in helping the world communicate, spans 3 core sectors: radiocommunication, standardization and development[15].

The National eHealth Strategy Toolkit is an expert guide that provides governments, their ministries and stakeholders a solid foundation to develop and implement a national eHealth vision, action plan and monitoring framework[16].

Along with International commitment on development of eHealth, national efforts in Iran had started, too. Preparation of National eHealth vision started in 2006. The purpose of this study is to map implemented and ongoing projects and activities of our national eHealth vision and presented eHealth components in WHO/ITU Toolkit.

1. Methods

1.1. Design

In order to evaluate our National eHealth, we adopted an exploratory, interview-based methodology. Approval for this research was obtained from the Ministry of Health and Medical Education (MOHME).

1.2. Sampling

the experts of eHealth were interviewed to collect data regarding technical, executive, and other aspects of eHealth development in Iran. These experts were selected from variety of stakeholders including professors at universities, Electronic Health Record development team, experts at research deputy of MOHME.

1.3. Data collection

These interviews took place in 2013 and several websites, documents and outputs of eHealth projects were studied as well.

1.4. Data analysis

All realized activities are sorted out and mapped with National Component map in WHO/ITU National eHealth Strategy Toolkit[16].

2. Results

2.1. eHealth Governance

In 2003, Iran approved and signed a 20-year vision that describes national development in several disciplines including healthcare. This vision is to be implemented in terms of four 5-year Country Programs (CP) started from 2005 and to be ended in 2025[17].

In 2004, the 4th CP was approved and launched according to which MOHME is responsible to design and deploy Integrated Health Information System to improve performance, provide high quality health services [18].

In 2005, a comparative study on eHealth all over the world was done determining Iran's place in eHealth area from several aspects[19].

In 2008, Iranian High Council of Health approved an Act requiring MOHME to prepare action plan to create and develop National Integrated Care Electronic Health Record (ICEHR); it was prepared jointly with Ministries of welfare, ICT, Iranian High Council of IT and Iranian Legal Medicine Organization [20].

The 5th CP was launched in 2011; According to Act 35, MOHME was required to deploy National ICEHR and Healthcare Facility Information Systems in coordination with Statistical Center of Iran (SCI), National Organization for Civil Registration (NOCR), maintaining confidentiality of data[21].

Thus, national commitment was formed to implement and deliver eHealth. As it is suggested in WHO/ITU National eHealth Strategy Toolkit, Minister of Health and Medical Education should take the leadership of eHealth development which is the same case for Iran.

2.2. eHealth Solutions

According to interviews and assessments regarding present state, implementation of the following activities was on the agenda; the implemented solutions are explained below according to WHO/ITU National eHealth Strategy Toolkit.

2.2.1. Individual Electronic Health Record

Iranian ICEHR (locally called SEPAS) was implemented in 2010. According to the interview with SEPAS development team, it has a distributed and service-oriented architecture based on ISO 13606 standard that creates and maintains ICEHR for each individual. Decentralization of SEPAS enables healthcare facilities to purchase Health Information Systems (HIS) independently.

2.2.2. Health Service Delivery

In order to ensure quality of electronic health service delivery in HIS products, they are evaluated every 2 years based on criteria declared by IT Office of MOHME[22]. All of the components mentioned in this part of WHO/ITU National eHealth Strategy Toolkit are present in the document of Functional Evaluation of HIS products[22].

2.2.3. Health Information

ICEHR is implemented for several purposes; Its primary purpose is to improve healthcare service delivery. The secondary purpose is to utilize the nationwide

integrated data for research, management reports, etc[23]. According to the interviews, management dashboards have been developed on integrated data and are available for relevant stakeholders complying privacy issues.

2.2.4. Health Care Management

An application of eHealth implementation is better management of epidemics. In June 2009 Influenza pandemic happened globally and spread to Iran as well. Since proper management of epidemics needs taking right actions in right place and right time, there was a need for data registry and integration through SEPAS in Iran. The management dashboard based on integrated data helps high officials of Communicable Disease Center at MOHME to monitor trend of epidemics and prepare necessary actions.

2.3. eHealth Infrastructure

In addition to software requirements, communication infrastructure, and hardware equipments must be provided to implement eHealth. In the interview with eHealth high officials in Iran, at the start of the process, a large proportion of healthcare facilities lacked computer systems and high bandwidth network(locally called SHAMS Network). MOHME jointly with Ministry of ICT mobilized healthcare facilities to computer systems and SHAMS. In order to register healthcare facilities capable of interoperating with SEPAS, an identification system is developed. This identifier is a mandatory reference of further communications.

2.4. eHealth Enablers

2.4.1. Privacy

Considering novelty of eHealth in Iran, executive regulations are not defined for privacy maintenance, yet. However, according to evaluation of HIS products, capability to store and maintain patient consents, and permissions related to surgeries and other interventions are considered as mandatory.

2.4.2. Standards

Since HIS products vary in functionality, they must be ranked amongst peer competitors. In this regard, a set of functionality criteria have been published, according to which are assessed and certified. Additionally, SEPAS is implemented according to ISO 13606 enabling several information systems interoperate with each other. In order to achieve semantic interoperability, a committee consisting of experts in health terminologies is formed called MAXA responsible to prepare and disseminate approved healthcare coding to be used in HIS.

2.4.3. Compliance

Functionality of HIS products are evaluated every 2 years and are certified property to their assessment score. In order to guarantee data interchange compliance, HIS vendors are required to get certification of interoperability with SEPAS complying ISO 13606. This certificate is considered in annual evaluation of hospitals, too.

3. Discussion

It has not been long that eHealth has been taken into consideration in Iran. Although lots of efforts have been done to implement eHealth in many aspects in healthcare domain, there is many to do in this regard. This study shows that the steps taken so far have been in line with WHO/ITU National eHealth Strategy Toolkit. Now the core eHealth team in Iran is restructuring after almost a 10-year process, reviewing its action plan and building up a dedicated committee to tackle with development issues and barriers in this regard.

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