The State Public Health Informatics in Saudi Arabia

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Abstract. The purpose of this exploratory study is to provide an overview on the state of Public health informatics (PHI) in the Kingdom of Saudi Arabia (KSA). The study defines PHI and discusses the current status and future challenges which face the Saudi health system. Data collection methods included interviews with public health and PHI experts, and database search, using relevant keyword terms in PubMed. Results of this research show that public health information systems (PHIS) are not well-developed to deliver efficient health care in Saudi Arabia. There are several challenges that need to be addressed with the implementation of PHIS such as the need for readiness assessment, resistant to change, integration of systems, and confidentiality and privacy of health information. Future challenges include profiling users, developing a national PHIS and monitoring the impact of PHIS on healthcare outcomes need to be addressed.

Keywords. Public health (PH), information systems (IS), public health telecommunications, information technology (IT), Saudi Arabia

Introduction

Effective public health practice (PHP) requires timely, accurate, and reliable information from a variety of sources such as the electronic medical record, public health systems and surveillance systems. Information and communication technologies (ICTs) need to be utilized in a more systematic and informed approach in order to take full advantage of its potential to augment and facilitate PHP. Public health informatics (PHI), which been defined as the systematic application of information and computer science and technology to PHP, can help in achieving public health goals through research, learning, and education.\footnote{1 Corresponding Author. Salwa BAHKALI, email: BahkalyS@ngha.med.sa} The Kingdom of Saudi Arabia is the largest healthcare consumer in the Middle East. There are numerous investments spearheaded
by the Saudi Ministry of Health in building a modern health care infrastructure with the vision of having a more efficient and robust healthcare delivery system. Health Information Systems (HIS) are being implemented across the country with over 1 billion dollars expected in investments over the next five years. While many steps have been undertaken to reform the Saudi health system through the implementation of HIS and other initiatives, several challenges remain towards the goal of building a healthcare systems that uses health information technology to promote the Saudi public health agenda. The lack of national HIS;[2] security issues[3]; and the lack of integration within and in-between governmental and non-governmental systems, despite the availability of adequate number of operating e-HIS in the MOH institutes, are some of the ministry’s major concerns.[4] Developing effective regulation of PHI is the key to systematically and scientifically make use of the confluence of information systems and technologies to benefit public health. Such investments will require both strong private sector partnerships to maintain and to take advantage of expected demand [5, 6] mainly for unmet population health needs. Despite the growth of Public Health Informatics within North America and Europe, the Middle East, and specifically Saudi Arabia, there still remains much to learn about the benefits from the application of such technologies. Saudi Arabia, as well as other developing countries, face a challenge in the collection and analysis of public health data that can help in promoting population health prevention of diseases within the country. The purpose of this paper is to provide an overview of the current state and future challenges for Public Health Informatics in Saudi Arabia.

1. Methodology

Different sources of data were collected between February 10 and 26, 2014. Sources of data included one stakeholder interview with a Saudi public health expert for 45 minutes and another Saudi health informatics expert for 15 minutes; online searches of Saudi government sites (both in English and Arabic); and a literature search through PubMed.

2. Results

There was deficiency in publication of e-health information system in Saudi Arabia, in particular research related PHI. The majority of publications deal with IT tools for improved information access and health care. Most of the functioning e-health applications in Saudi Arabia (KSA) were related to EHR, patient information, and health related education and training.

3. Current Challenges

A. Readiness assessment and Resistance to Change

The first challenge that faces Saudi MOH is to perform reliable e-HIS Readiness assessment projected to evaluate the telecommunications infrastructure, human
resources, performance, legal framework, Leadership and strategic thinking readiness with respect to public health activities. This assessment can be used as an information gathering instrument for future PHI strategic planning. Health institutions are expected to encounter barriers and constraints in term of market forces, policies, standards, finances, skills, and technology. A resistance to change might come from denial the need, refusal, uncertainties or failure to implement the change.

B. Integration between public health and clinical care and confidentiality and privacy

Most medical record systems in the country are still paper-based where patient information is fragmented, information on patients is incomplete, and not all hospitals have implemented electronic medical record systems. [9] The manual reporting system in the initial data entry with the lack of guidelines will result in underreporting of health-related conditions. The challenge will be how to assure effective electronic information sharing and data exchange and integration between PH and clinical care activities. [2] PH organization need to adopt and enforce confidentiality policies and utilize up-to-date security procedures to implement new policies.

4. Future Challenges

A. Identification and profiling the end-user segmentation

The heterogeneity of the end user population is one of future challenges for the implementation of a national Public Health Information System. Saudi HIS should identify, shape and be designed for distinguishing end user segments. This will need analysis of large sets of quantitative data and uses a combination of demographical, health, and psycho-graphical variables which is another area of challenge.

B. Monitoring and assessing the impact of IT and mobile media on PH

In KSA the potential of relatively widespread access to smartphones has led to an emphasis on engaging the public through a mobile platform. Smartphones, for example, seem to offer exciting scope for new applications.[10] Thousands of mobile health applications exist and are obtainable to all residents within the Kingdom. These applications, although useful, cannot guarantee positive behavioral changes unless the consumer is motivated and committed to using them.[11] There has been previous work discussing the role of mHealth and social media within the literature [12-20].

5. Discussion and Conclusion

This exploratory study defined the theory of PHI and reviews some of its existing applications in Saudi Arabia. Despite the fact that Kingdom is one of the richest and fastest growing countries in the ME [2], such progress has not been equally proportional with some of the significant issues such as the development of the e-HIS targeted effective planning, monitoring and systematic evaluation.[7] Although, the MOH e-Health Strategic agenda, has been planned to guide the development of the e-
Health Strategy and 5 year roadmap; and confirm alignment with the MOH business strategy and objectives, the e-Health vision is more patient centered rather than public/community centered.[8] The key for the wide-ranging use of ICT is the enveloping operation all over the public health computers system which are interconnected through a standards-based network. Currently, considerable progress in the country has been made toward this goal. However, most of the progress is noticed toward patient care and EMR and information exchange rather than towards PHI. KSA attempt to implement ICTs strategies effectively, but there are many challenging areas to put PHI into practice.

References