Challenges in Building Health Surveillance Systems in Saudi Arabia

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Abstract. This paper is aiming to briefly discuss the role of health surveillance system in strengthening public health at both the local and global level and the use of health informatics in effectively creating a database of health status for the population of Saudi Arabia. This review will specifically focus on the challenges that face the Kingdom of Saudi Arabia in order to effectively implement surveillance programs making use of advances in health information technology. Data collection was performed through a web-based retrieval of reports and articles and via an interview with an epidemiologist in the Saudi Ministry of Health Surveillance unit. Based on the results of this research, it was found that the use of technology has led to an improvement in communication between various stakeholders (e.g. clinicians, epidemiologists, and decision makers) by providing timely and accurate information needed for informed decision making. However, implementing an ideal model of surveillance systems in Saudi Arabia faces many challenges particularly in training healthcare providers to be qualified and competent enough to ensure the successful implementation of a disease surveillance system.

Keywords. Health Surveillance System, Health Informatics, Public Health and Saudi Arabia

Introduction

A surveillance system is a systematic process of ongoing data collection, analysis, and interpretation with timely dissemination of these data to those responsible for preventing and controlling disease and injury [1]. The information received from the surveillance is essential in planning, implementing and evaluating healthcare systems and procedures that are targeting to mainly prevent, and to a lesser extent treat diseases at the population level. Such systems help in early detection of hazard, outbreaks or epidemic situations. Furthermore, it helps in monitoring and evaluating the impact of new strategies and policies at both public and healthcare organizations [2].

Availability of accurate data of a certain health issue or situation is the key for improving the quality of health system and to ensure patients’ safety and healthy population. Public Healthcare managers are required to make decisions based on evidence of accurate facts and information in order to make the right decisions to achieve the desired healthcare outcomes. A health surveillance system is an important
tool that will assist in documenting health data in a systematic manner which can be of help to decision makers, clinicians, epidemiologist, and researchers who are concerned with improving the entire health system [3].

Achieving improved healthcare outcomes through health surveillance systems cannot be reached without building an effective collaboration across the healthcare system, particularly between epidemiologists and health information professionals. The collaboration will lead to the development of surveillance systems that will ultimately meet local healthcare demands. Information technology plays an important role in developing surveillance systems by providing accurate, accessible, timely, and complete data to ensure high quality of epidemiological evidence [4]. Building a health surveillance system that provides accurate and comprehensive information on a specific disease or population group is a challenging task worldwide, but in particular within the developing world. The purpose of this paper is to discuss the role of health surveillance systems in Saudi Arabia, discuss the current challenges, and to recommend a course of actions for building health surveillance systems that meet local healthcare needs.

1. Methods

A web-based search for reports and articles was performed using Google Scholar and PubMed using the following search words: Surveillance, Saudi, and Notifiable Diseases. In addition, a semi-structured interview in an epidemiologist in Ministry of Health surveillance system was conducted to understand challenges and obstacles of the current system.

2. Results

2.1 Surveillance Systems in Saudi Arabia

In 1988, Kingdom of Saudi Arabia (KSA) started working with the center of disease control (CDC) to strengthen the public health, including surveillance, system in KSA. The outcome of such collaboration was the setting up of electronic surveillance systems in two main healthcare organizations, the Ministry of health (MOH) and the National Guard Health Affairs (NGHA). The surveillance project integrated three major databases: 1) International Healthcare Safety Network (IHSN) that aims to detect and prevent hospital acquired infections; 2) Notifiable Electronic Disease System with an objective to improve detection and response for other public health problems; and 3) Environmental and Occupational Disorders Registry System which aims at measuring the burden and respond to occupational and environmental safety and health problems [5]. Another important project between CDC and MOH provided a mobile computing technology to be used in Hajj season where the biggest mass gathering occurs every year. This unique surveillance system makes use of the internet to provide accurate and timely information necessary for preventive decision-making during the pilgrimage season [6].

According to the interview with the epidemiologist, it becomes evident that the use of health information systems in the surveillance unit is satisfactory. Any event of reporting of notifiable diseases, which is mandatory throughout the country, is entered
into a well-established electronic system and a weekly report is prepared for accurate monitoring of the spread of the infectious event within the population, making use of spot maps and epidemic curves. The surveillance system of the ministry of health does not only rely on passive surveillance, but active surveillance process is initiated whenever there is a need for it, whereby health professionals perform frequent visits to areas with possible epidemics or outbreaks to ensure completeness of events’ reporting. In addition, an auditing system is in place to ensure an accurate and complete data entry into the electronic surveillance of all notifications received by fax, emails or telephone calls. This becomes evident by the corona virus outbreak in Saudi Arabia, the continuous monitoring of the outbreak and the use of descriptive epidemiological investigations was successful in identifying sources of infection and partially preventing the spread of infections in several governorates. Hospitals still suffering from the outbreak are under the unit’s active surveillance umbrella with daily visits to hospitals for reporting of suspected and confirmed cases and using modern technology in sending such information to the central surveillance unit for prompt data entry and preparation of epidemiological reports for public health decision makers.

2.2 Current Gaps in Building Health Surveillance Systems in Saudi Arabia

There are some technical challenges to build the complete system. The lack of qualified and professional staff that is trained in using the system and choosing the right programs and software was the biggest challenge. Moreover, creating an electronic surveillance system needs to be updated with new technologies to provide a sustained successful system [6]. Furthermore, Saudi Arabia suffers from lack of competent epidemiologists and researchers who have enough experience for building and maintaining a national surveillance system capable of accurately collecting, analyzing and disseminating timely information to decision makers [1].

Another obstacle is the unclear definition and ambiguity of concepts related to the surveillance system in health care organizations. Inconsistency of terminology is common, particularly in coding health events reported to the systems at both the MOH and NGHA rendering such data difficult to comprehend or assemble. Moreover, lack of health policy and procedures that define a clear procedure for documenting and communicating the data is a one of the important challenges. Furthermore, data storage and management is not optimal and represents a real challenge in facilitating communication between epidemiologists in efficient manner [7]. Political issues also play a role. This was identified by the WHO as one of the obstacles has an influence on the integrity of health surveillance systems in developing countries. Some governments consider the outbreaks and the epidemic in their local area as secrets and should not be accessible. Despite being reported through the system, limited accessibility will limit the usefulness of the surveillance system [8].

3. Discussion

In order to strength health surveillance system in Saudi Arabia there are some elements that need to be improved. The system has to be improved on a basis of a clear and complete strategic planning. All stakeholders in the surveillance system need to be aware and understand the objectives and their roles. A clear policy is needed to standardize the work system, medical terms and definitions, making use of experts in
International classification of diseases (ICD) codes. Competent and qualified staff and epidemiologists is an essential factor to succeed any surveillance system [9].

The Health information system within the surveillance process is well established, however, it is still essential to strength the infrastructure of the system. It is also important to have qualified staff in information technology to update the system and choose the suitable programs and train the end users. New policies should also indicate persons who are authorized to view and use data. The enhancement of the existing auditing system is mandatory to ensure that the data is accurately and appropriately entered and managed.

4. Conclusion

Saudi Arabia has a well-established surveillance system that plays a vital role in strengthening public health in the kingdom. However, as a developing country, Saudi Arabia is facing some challenges in ensuring a sustainable and successful system in its health care organizations [10-16]. The main challenge is in having enough qualified staff and epidemiologists that are competent to update the existing system in order to provide relevant and valid information in order to support the evidence-based decision approach in healthcare.

References