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Basima J Jasim
M.Sc., Instructor, Al-Kindy
College of Medicine, University
of Baghdad, Iraq

Al-Hakam M Fadhil
MBBS, House Officer,
Alexandria University
Hospitals, Alexandria, Egypt

Corresponding Author:
Basima J Jasim
M.Sc., Instructor, Al-Kindy
College of Medicine, University
of Baghdad, Iraq

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The Importance of ehealth in the management of patient's safety

Basima J Jasim and Al-Hakam M Fadhil

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Abstract

The goal of this article is to communicate the concept of patient safety as well as the function, goals, benefits, and application areas of eHealth in the patient safety management process. The advancement of information and communication technology presents potential for e-health services and tools to assist innovation in the health services industry. The employment of digital technology in the medical field, on the other hand, has a significant impact on patient safety. As a result, it is vital to consider if e-health services and technology may be leveraged to improve patient safety management. The article is conceptual in nature and was prepared using research methods such as a review and in-depth analysis of health policy literature and papers, reports, and legal proceedings. Although eHealth services and technology may be used to help with a variety of patient safety management duties, they require continual, complex engagement at all levels of the health system, as well as cross-sectoral and worldwide collaboration. This is true for both technological collaboration and the legal framework for implementing the promise of e-health. Patients' and medical personnel's active participation in generating health awareness, as well as their involvement in communication and educational processes, is especially important in the implementation of digital technology.

Objectives: The major purpose of this article is to communicate the essence and determinants of patient safety, as well as to emphasize the possibilities for integrating eHealth tools and services (digital health treatments) in the patient safety management process. The conceptual essay is founded on an examination of literature and materials. The following research methodologies were used: a) study and in-depth analysis of management literature relevant to patient safety management and digital health, and b) document analysis - review and in-depth analysis of international strategy documents on health policy, reports, and legal acts.

Keywords: eHealth, digital health interventions, patient's safety, COVID-19

Introduction

The World Health Organization (WHO) defines eHealth as "the use of information and communications technology in support of health and health-related sectors" [4]. The use of electronic health (eHealth) has increased quickly in recent decades, and this increase has recently been fueled by Due of the Coronavirus Disease 2019 (COVID-19) pandemic, there are restrictions on in-person practice [1]. By improving patient safety and care, Health care and the medical profession have the potential to be transformed by eHealth [2]. The topic of medical sector safety is multidimensional. The situation's complexity arises from the concept of health, which is defined as "a condition of complete physical, mental, and social well-being, rather than just the absence of sickness or disability" [7].

In recent years, the Iraqi health industry has made tremendous strides, with several local facilities garnering international acclaim. However, developments in electronic health have not kept pace (eHealth) industry, Such applications have become mandatory for hospitals in order to meet certain objectives like as increasing health-care quality and reducing the time and expense of healthcare delivery [3]. Paper-based patient records cannot keep physicians entirely informed as healthcare becomes increasingly complicated with more healthcare providers participating in patients' health. Paper records can only exist in one location at a time, As a result, they cannot be shared at the same time by two or more health specialists in separate places, which has a negative impact on healthcare information management optimization and, as a result, reduces productivity and quality of care provided. Accordingly, information must be made available in an electronic format so that health professionals may

readily access and evaluate the patient's history, including allergies, medicines, investigations, and laboratory testing. As a result, healthcare organizations have begun to investigate e-health systems capable of automating and integrating business activities, facilitate information exchange inside and across organizations, improve patient services, and safeguard patient information confidentiality and privacy. Nonetheless, The following are the reasons why e-health is important: the majority of hospitals and medical institutes still use paper to record patient information; the amount of health information available is increasing; the most of information systems are administrative in nature rather than focused on patient care; historically, most healthcare systems have arranged healthcare delivery around institutions rather than patients; e-health is expected to improve quality and reduce costs.

The Importance of Patient Safety Management and Its Determinants

Not all health-care services are as safe as they might be. Patient damage caused by healthcare treatments is a major problem. An increasing body of research suggests that around 10% of patients may be injured while receiving medical treatment and that half of these occurrences are avoidable ^[5].

Unwanted and unintentional damage to patients has been a reality for as long as medicine has been practiced. The rising complexity of health raises the danger of injury and needs higher awareness and dedication to protecting patient safety. A variety of activities at various levels are feasible to increase patient safety. Governments should embrace patient safety measures from a systems viewpoint at the national level, promoting and coordinating various programmes; to put it another way, safety culture should begin here. Professional training, evidence-based safety standards, and In this regard, the ability to reveal difficult situations without blaming is crucial. Investments in identifying and responding to the most severe adverse occurrences in many settings are more efficient (acute care, general care, and long-term care are all types of care.) are crucial. According to recent studies, the costs of prevention are far less than the costs of failure. Leadership at all levels of healthcare organizations will be crucial in dealing with patient safety problems in an effective, sustainable, and adaptable manner ^[6]. Bates and Singh remark that considerable work remains to be done in the two decades after To Err is Human, involves the development of interdisciplinary safety knowledge and the implementation of accompanying improvement procedures, and enhancing reporting and comprehensive and long-term evaluation, as well as a "learning health system" approach to safety (specifically, one in which continually and routinely tracking events leads to greater safety.). They underline the importance of safety culture in guaranteeing the effectiveness of safety initiatives as well. Assessing safety culture is a technique that may help businesses recognize the elements of their practice and provide ideas for transformation, which can lead to good cultural improvements. The instrument and technique utilized to measure and foster cultural change, however, should be continuously monitored depending on the circumstances. National safety strategies should involve providing stakeholders throughout the healthcare system with the necessary weaponry ^[7].

To conclude, patient safety management is a complex, diversified process that involves many different stakeholders in the health care system and demands continual efforts to develop and maintain an environment in which patients feel safe in the area of health. This process refers to a collection of integrated activities that include planning (Identification of threats and their conditions, establishment of safety and regulatory standards, and development of procedures to achieve this state), organizing (Supplying people, money, materials, and information), encouraging safe operation (building and sustaining a safety culture via training, promotion, and encouragement), managing and enhancing (system for monitoring and processing adverse occurrences, as well as measuring, analyzing, and evaluating the obtained degree of safety). These efforts must be consistent and integrated at all levels of the health care system, and they must take health policy factors into consideration, socioeconomic requirements, demographic changes, and technical advancement, as well as internal factors and the uniqueness of the functioning of organizations providing health care.

The Importance, Techniques, and Goals of eHealth in the Medical System

Along with a variety of other reasons, eHealth is one of the facilitators of "access to healthcare services." The social determinants of health are a group of elements that interact to impact people's health and hence their capacity to obtain health care through digital health technology. It has become critical to build and deploy such technology in communities in order to eliminate injustice and enhance access to health care. eHealth has been defined as "the use of information and communication technology (ICT) in support of health and health-related disciplines, such as healthcare services, health surveillance, health publications, and health education, knowledge, and research" ^[9].

The main goal is to improve the availability of appropriate information for healthcare workers, to share medical procedures and improve communication with patients ^[10]. This concept is supporting prevention, diagnosis, treatment and promoting public health and a healthy lifestyle ^[11]. New technologies and applications in healthcare open up a number of new possibilities ^[12]. eHealth is also one of the important tools to improve the availability of healthcare and increase its quality and efficiency ^[11].

Finally, it should be emphasized that eHealth is a dynamic sociocultural phenomena that relates to the development and application of digital technology in the larger area of health and is applicable at multiple levels of the care system (macro, meso, and micro levels) encompasses multiple dimensions of action linked to various phases of the service delivery process, assisting not just with treatment but also with preventive, health instruction, and management responsibilities (health care planning, organization, coordination, and monitoring).

The Importance of eHealth in the Management of Patient Safety: An Overview of Scope and Functionality

This Digital Health Interventions (DHIs) categorization should be used in conjunction with the list of Health System Challenges (HSC) to express how technology is addressing stated health needs, such as low service usage. The HSC framework provides an overview of health-system needs and problems in order to help programmer planners in

expressing what they want to achieve via the adoption of a digital health intervention. For example, one might implement a digital health intervention like "targeted communication to clients" to address a health system challenge like "lack of service utilization" in order to achieve an overarching eHealth outcome like "improving clients' access to knowledge resources and support for better health management" [13].

The benefits of deploying digital health treatments include both patients and health-care providers, and may include consequences such as: improved outcomes, less unjustified variance, less preventable damage, more appropriate health care, more patient centeredness, and increased monitoring and quality enhancement. The following are the key goals of digital health interventions [14]:

- a. Online patient portals, providing patients with secure access to their medical records and encouraging consumers to become active participants in health-care decision-making
- b. Electronic reminders for patients (Technology for mobile devices), delivering reminders to a sizable portion of the patient population; promoting optimal outcomes via one-on-one contact between health care professionals and patients; and its impact on clinical workflow
- c. Release information sharing, critical to patient safety and continuity of treatment, as well as encouraging the timeliness of patient information preparation and transfer to primary care physicians.
- d. Electronic prescription and computerized provider order input, enhancing organizational effectiveness and prescription safety (In the subject of adhering to pharmaceutical recommendations).
- e. Clinical decision-making systems, connecting patient-specific features to the database; creating individualized disease status forecasts, diagnosis, therapy alternatives, and other clinical choices; producing reminders and warnings for the patient when a departure from the suggested treatment is identified; as well as a favorable influence on patient safety, especially in terms of accessibility, Clinical assessment, data integration, and regulatory compliance.

Because of the Corona outbreak, several health-care systems have increased their use of digital technologies for both patient care and public health. One example is the several Corona App variations that give risk information as well as contact and immunization status, to name a few. These apps may have been used for public health monitoring, but they were also widely used for information intervention to aid in preventative action, completing a test, for example, when a warning appears. Patients were encouraged or compelled to stay at home and shun social activities, Video consultations have become popular in a number of countries. These are only a few instances of digital interventions that have lately been used. They developed a multitude of success and failure tales while serving critical public health duties. Furthermore, while some digital solutions improve health care and prevention in difficult times, others place extra strain on already overburdened health staff. Although initially unconnected to the Corona epidemic, this broad range of difficulties related to the deployment of digital health treatments was fundamental to the present selection of study contributions listed under this Research Topic.

While a digital, or communication-technology-based, approach unifies the treatments in this issue, significant conceptual discrepancies should be addressed. eHealth, on the other hand, refers to the use of information and communication technologies to all aspects of health and health care (as well as Health research and education), as a subset of eHealth, mHealth refers to mobile gadgets such as smartphones and tablets facilitate medical and public health initiatives. There is no discernible difference between these two definitions of digital health; nonetheless, digital health might be defined as eHealth (including mHealth) and telemedicine, as well as health-related devices like wearable sensors and trackers. Digital health is a fast emerging field that focuses on the development of information and communication technology applications, such as Artificial intelligence in medicine. Current Research Contributions The topic investigates a wide variety of issues of the burgeoning subject of digital health, which also has an impact on public health. [15].

The translational process of designing and assessing digital health treatments for persons with chronic medical illnesses might assist to enhance interventions, taking into consideration the quick technology innovation cycle. Not only will formative input from studies done concurrently with the translational process be used to create next-generation digital health solutions for persons with chronic medical problems, but also by intervention designs aimed at providing personalized and Just-in-time adaptive therapies are examples of adaptive interventions (i.e. personalized interventions delivered at a point of opportunity) [16]. Harnas *et al.* in this special issue give a case report series on customizing cognitive behavioral treatment for cancer-related tiredness using ecological momentary assessments, which clearly illustrates the intricacy of these kinds of technology augmented therapies. Another difficulty is the creation of digital interventions for persons with medical illnesses as an integrated element of sometimes complicated health care delivery models and disease management programmers [17].

Finally, it should be emphasized that there is a wide range of digital solutions available, including eHealth services and technologies, brings up a plethora of potential for assisting management operations, notably in the areas of health care safety and quality. eHealth helps management decision-making and control procedures related to the organization and delivery of health care, as well as clinical judgments, is a data source and transmission tool, and enables assessment and safety monitoring in the health-care system, As a result, mistakes and the risk of adverse outcomes are reduced. As a communication and teaching tool for patients and staff, eHealth supports the idea of patient engagement as well as empowerment in the health-care system, which, in a qualitative context connected to accessibility, adds to patient safety, Processes for communication and information exchange have been strengthened.

Conclusion

In order to ensure the safe use of eHealth, clinicians must consider and implement a number of safety measures, such as the management and organization of the eHealth clinic, written instructions, safe identification, informed consent, treatment follow-ups, and the retention of patient records. Many innovative technologies may go undiscovered in their intended environment before being deployed. A lack of

evidence of eHealth's usefulness and safety may stymie policymakers' hopes for wider eHealth adoption. To oversee the growing use of eHealth, government oversight must be systematic, effective, dependable, and constant.

The rapid advancement of digital technology presents chances to improve the health-care system, particularly in terms of patient safety^[18]. Electronic tools will be crucial for increasing safety, especially in the fields of: the use of electronic health records to maintain more accurate and comprehensive patient records; fast and dependable health data sharing; assisting with illness and condition diagnosis, monitoring, and management; influencing behavior and risk reduction, as well as educating and involving patients and families in their own treatment; as well as supporting in the arrangement of communication between patients and their families.

To enhance the practical, operational side of health-care delivery, activities examples, eHealth initiatives, and good patient safety management strategies must be shown. The study is important for identifying, systematizing, and underlining the importance of digital solutions in improving patient safety management, and it also acts as a platform for subsequent research.

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