Chapter 33
Personalized Medicine

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ABSTRACT

This chapter discusses the issues and concerns related to the adoption of personalized medicine in modern healthcare system. In this chapter, the authors have elaborated the critical challenges while adopting this new medicare system. The changes required for this adoption have also been discussed by the authors. They have also give a glimpse of the critical success factors and consumer trust concerns along with the privacy and security threats for the successful adoption of personalized medicine system.

INTRODUCTION

Electronic Medical Record (EMR) and Personalized Medicine (PM) systems utilize new strategies for genomic diagnosis to better deal with a patient's ailment or inclination towards a sickness. PM intends to accomplish ideal restorative results by helping physicians and patients pick the disease management approaches prone to work best in the setting of the patient's genomic profile and genetic data. Such methodologies might incorporate genetic screening programs that all the more precisely analyse sicknesses and their types offering physicians the right assistance with selecting the right treatment and most appropriate drugs best suited to that genomic group of people (PMC, 2010, PMC, 2014). EMR and PM systems consist of identifying nature and contribution of genes as well as different environmental factors and preparation of personalized drugs based upon the information derived. PM system can then facilitate disease prediction, prediction and treatment by determining whether an individual runs the risk of developing a disease. Thus PM system can develop early prevention strategies. It can dragonize disease faster. Therefore, treatment can be started early. Thereby, it is possible to prevent side effects that resulted from medicines given to a patient by trial and error method using the traditional system of treatment. Thus the main merits of PM system can be summarized as follows (PMC, 2007):

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1. In this novel system, it is possible for the medical practitioners to prevent onset of different diseases more effectively.
2. It is more time and cost effective.
3. This treatment procedure bears the potential to reduce the possibility of adverse reaction of drugs.

However, it is to be borne in mind that for successful adoption of EMR and PM systems it is very important to first identify the critical challenges (Misra and Bisui, 2014), changes required (Misra et al., 2016), and trust, privacy and security concerns in the adoption. This act of identification will significantly add to the success of the personalized healthcare system management. As indicated above, the novelty of EMR and personalized healthcare lies in the fact that it makes use of information regarding environment, genes, proteins and clinical treatment of individual patients.

BACKGROUND AND MAIN FOCUS OF THE ARTICLE

Personalized Medicine is a recently developing idea in the modern health sector. Some of the personalized drugs have been now found by the researchers. However, reception of the Personalized Medicine and EMR idea still lacks practice implementations. Despite the fact that there are a several researches about on the genomic translation and genetic interpretation by Esvelt and Wang (2012), Dreyfuss (2012), Zamft et al. (2012), Cong et al. (2013) and Mali et al. (2013) advancement of exploration on various parts of Personalized Medicine is very insufficient. Bolouri (2010) has talked about a few issues regarding personalized medicinal services. Eysenbach (2001) and Ahern et al. (2006) gave some insights about electronic healthcare. In a survey Jadad et al. (2005) and Eysenbach and Diepgen (2001) gave some direction towards the electronic medicinal services framework. There is an active promotion of e-health across the world. Several developed countries including Canada, United Kingdom and United States have a long-term plan to implement EMR. Taiwan has already adopted EMR and EMR Exchange. Canada had the goal to have EMR for all its citizens by the time of 2015. United Kingdom is building integrated IT infrastructure and systems to transmit health information safely and efficiently. United States has invested billions to encourage physicians and hospitals to adopt EMR and other applications of healthcare Information technology (HIT). Thus, the active promotion of EMR and EMR exchange is one of the important goals of health policy across the world (MRI, 2004). However, when it comes to developing countries, the success rate of the EMR adoption is not very high. Although Taiwan has implemented it, but physicians and clinics are still in a dilemma when it comes to practice implications of EMR and EMR exchange (Hwang et al., 2012, Chang et al., 2009, Chen et al., 2010). Countries like India, Netherlands and Australia are still trying to implement EMR and E-Health system. There are several challenges, trust issues, privacy and security concerns in this new technology adoption. We will try to discuss these issues further in this article.

SOLUTIONS AND RECOMMENDATIONS

While older people are more prone to drug adverse reactions because they are more likely to have multiple ailments and treatment of all the health problems need to be addressed simultaneously. Among younger generation people too, treatment by using personalized medicine is becoming increasingly attractive