Change of disease patterns from communicable to chronic diseases has a tremendous impact on the healthcare ecosystem. For healthcare organizations to remain viable and economically sustainable during this transition, there is a desperate need of cost-effective solutions for chronic disease management. One important strategy for this is early diagnosis and management of diseases. With rapid technological advancements, IoT-based solutions are well-positioned to be an effective tool for disease screening and health monitoring provided that they are also able to bridge non-technical barriers in technology adoption. The three primary stakeholders for screening solutions are healthcare organizations, clinical fraternity, and end-users. The primary objective of this chapter is to review likely barriers in adoptions of the IoT solutions from the perspective of these three primary stakeholders.
INTRODUCTION

Availability of precise and continuous medical data has been identified for a long time as one of the important prerequisites for effective clinical management. Such data is also required for optimal practice of evidence based medicine as well as for planning patient-specific treatment regimes. This has led to ever increasing deployment of Internet-of-Things (IoT)-based solutions in the healthcare sector due to their unique ability to automatically gather and share physiological data in real-time. By 2020, it is estimated that out of 30 billion IoT devices, 40% would be used in healthcare for disease-screening, diagnosis and management (Bauer, Patel, & Veira, 2014). When combined with rapidly evolving predictive and classification capabilities of machine learning algorithms, the IoT devices are likely to minimize subjective errors in assessment, reduce inefficiencies, and enable more robust remote-monitoring thereby reducing the overall cost of patient-management—and save lives (Dimitrov, 2016). This is especially important for healthcare systems that are over-burdened with ever-increasing number of patients with chronic diseases who consume a greater share of limited healthcare resources.

The Internet of Medical Things (IoMT) refers to the connected system of medical devices and applications that collect and share healthcare data through online networks. The concept of an electronic device that captures or monitors data and shares it using internet connection is not new as such, but has evolved tremendously over a period of time due to accelerated progress in hardware and embedded software development. The introduction of newer technologies such as wearable electro-chemosensors, nanomaterial-enabled wearable sensors (Yao, Swetha, & Zhu, 2018) has made the IoT devices even more powerful and reliable tool for the disease-screening and long-term monitoring of the chemical, biological, and physical systems in real-time (Haghi, Thurow, & Stoll, 2017). These technological advancements have also made it possible to have miniaturized, lightweight, transparent, ultrathin, high flexibility, and stretchable sensors, which can be conformally attached on the surface of organs or skin, thereby enabling health-monitoring in a non-obtrusive and more convenient way (Trung & Lee, 2016). The decline in the overall cost and energy requirement has also made it possible to deploy increasing number of IoT solution for practical applications. A report by Allied Market Research predicts that the IoMT healthcare market will reach US$136.8 billion worldwide by 2021. These developments in the IoT sensors along with computational and algorithmic advancements are well-positioned to create newer, unforeseen possibilities for disease screening and health monitoring in the 21st century.

Disease screening is very important aspect of healthcare continuum, as it provides an opportunity of early diagnosis, which could ultimately lead to better disease management for individual and for healthcare organizations. This is the
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