Disruptive Innovations In Healthcare

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1 Introduction

What is eHealth? "eHealth is the combined use of electronic communication and information technology in the health sector."

• Electronic medical records: such as patient • records, clinical administration systems, digital • imaging and archiving systems, e-prescribing, • e-booking etc. • Telemedicine and telecare • Decision support tools • Internet-based technologies and services

The eHealth revolution. . . .. "eHealth is the single-most important revolution in healthcare since the advent of modern medicine, vaccines, or even public health measures like sanitation and clean water".

Digital Hospital :- A Digital hospital is a hospital service facility with highly connected, interactive digital information systems which support precise, informed treatment of individual patients/clients while enabling optimally efficient use of infrastructure.

2 Digital Disruption in Healthcare

Disruptive Innovation: creates a new market and value network, disrupting existing networks eventually displacing established leaders and alliances.

Examples:

Disruption Legacy Business • Personal Computer (PC) - Typewriter • Smartphone -PC's/Cell phones • Ultrasound - X Ray Imaging • Amazon -Bricks and Mortar Retail • Wikipedia - Encyclopedias (print) • Digital photography - Photographic film • UBER - Taxis

Disruptive Innovation in Health Care Examples: • Emergency Imaging (CT; Ultrasound) • Miniaturisation (Monitoring, Ventilation) • Point-of-Care diagnostics • Interventional Cardiology • Helicobacter

Digital Disruption: "Refers to changes enabled by digital technologies that occur at a pace and magnitude that disrupt an established way of value creation, social interactions, doing business, and more generally our thinking"

The new healthcare ecosystem will fundamentally change the way technology is used for care delivery. EXAMPLE TRENDS • "Internet of Things" (Ubiquitous sensing, monitoring and connection) • "Internet of Me" • Wearable Technology • "Apps" • Telehealth • Cybersecurity
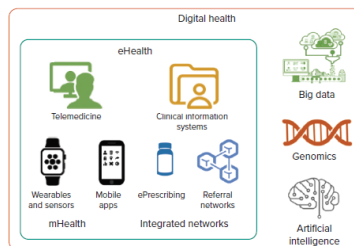
Figure 1: eHealth

Figure 2: Digital Hospital

3 Innovation

Innovation is no stranger to the healthcare sector. New therapies, medical devices, and healthcare management practices are adopted all the time. However, up until fairly recently, examples of disruptive innovations in healthcare were far less common. What is disruptive innovation, and what impact do these disruptions have on the healthcare industry? Disruptive innovations are those that cause radical change and often result in new leaders in the field. They overturn the usual way of doing things to such an extent that they have a ripple effect throughout the industry.

4 Technology

Technology is the biggest driver of many disruptive innovations in healthcare since every aspect of healthcare is dependent on some form of tech. From wearables and mobile phone apps to big data and artificial intelligence (AI) use in diagnosis, any new technology could potentially shake up healthcare.

4.1 Consumer devices, wearables, and apps

In the past, a patient could get only biometric data about their pulse, heart rate, blood oxygen, and blood pressure when they went to the doctor's office. Now, consumers take charge of their own health journey, using data gathered from their Fitbits, smartwatches, and mobile phone fitness apps. Physicians can use the data gathered from these wearables to make treatment decisions, although the vast amount of personal information collected by these apps has led to legal and ethical concerns over data privacy.

4.2 AI and Machine Learning

AI applications can manage patient intake and scheduling as well as billing. Chatbots answer patient questions. With natural language processing capabilities, AI can collate and analyze survey responses. AI will probably increase in use as a way to bring down healthcare costs and let doctors and staff focus on patient care. Healthcare leaders must be knowledgeable about the issues surrounding database management and patient privacy.

4.3 Blockchain

Blockchain is a database technology that uses encryption and other security measures to store data and link it in a way that enhances security and usability. This innovation facilitates many aspects of healthcare, including patient records, supply and distribution, and research. Tech startups have entered the healthcare sector with blockchain applications that have changed how providers use medical data.

4.4 Electronic Health Records And Big Data

Electronic health records (EHRs) have been a growing part of patient care since the adoption of the Affordable Care Act. The massive amount of EHR data goes far beyond patient health records,
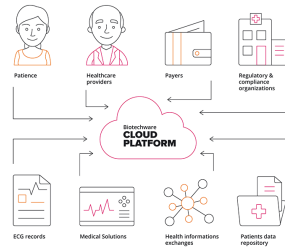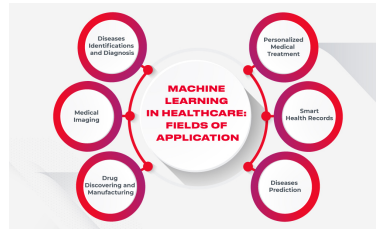
Figure 3: AI and ML

Figure 4: Disruptive healthcare

however, and can be used to conduct research, improve care, build AI applications, and create new business opportunities. Therefore, healthcare providers have to be aware of the issues surrounding EHR security.

4.5 Telemedicine

COVID-19 has undoubtedly accelerated the delivery of telemedicine, and experts affirm that telemedicine is here to stay. It's effective, doctors will be reimbursed for a telehealth consultation, and many patients prefer it. However, telemedicine is highly dependent on internet access, and some areas of the U.S. still have poor connectivity.

4.6 Patient Rights

EHR data security, billing transparency, and access to medical records are all part of a major shift in healthcare that ensures that patients receive all the information they need to make informed decisions about their care. As of early 2021, hospitals must make their prices more transparent, per the Centers for Medicare and Medicaid Services (CMS). Other upcoming reforms include the introduction of online pricing tools so patients can see their out-of-pocket costs.
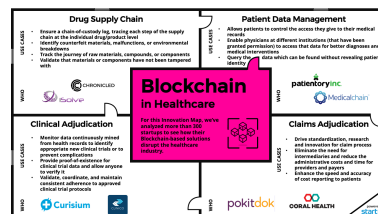

Figure 5: Blockchain