

National Institute of Technology, Raipur

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BIO MEDICAL ENGINEERING
ASSIGNMENT

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1 DISRUPTIVE INNOVATIONS IN HEALTHCARE

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.

Disruptive innovation refers to the innovation that transforms expensive or highly sophisticated products or services—previously accessible to a high-end or more-skilled segment of consumers—to those that are more affordable and accessible to a broader population. This transformation disrupts the market by displacing long-standing, established competitors.

Examples of disruptive innovation in healthcare.

1. Consumer devices, wearables, and apps:-

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.

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.

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. IoT:-

If public health managers could gather data from wearable devices, thermometers, smartwatches, and various other consumer devices — and then use that data to discover disease clusters and provide care to patients more effectively. .

5. 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, 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.

6. 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.

7. 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).

8. Retail competition:-

In 2019, Walmart formed Walmart Health, freestanding clinics that provide primary and urgent care. The same year, Amazon bought the online pharmacy PillPack, setting itself up to move into the pharmaceutical retail market and potentially disrupt the pharmacy benefits management market. In 2018, CVS acquired Aetna, moving from retail into health plans. All of these moves create new giants in the industry, changing the way healthcare operates.

9. Public policy:-

CMS announced that public health plans will have to make pricing data available to all in 2022, with the goal of driving innovation and providing consumers with pricing comparison tools. Researchers, entrepreneurs, and developers will be able to access this data to build new tools for patients.