

# NATIONAL INSTITUTE OF TECHNOLOGY RAIPUR



## BIOMEDICAL ENGINEERING ASSIGNMENT

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### Disruptive Innovations in Healthcare

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*Submitted By:*

**Name:** Rudrapratap patel **Under The Supervision Of:**

**RollNo.:** 21111046

**Dr. Saurabh Gupta**

**Semester:** First

**Department Of Biomedical**

**Branch - Biomedical**

**Engineering  
NIT Raipur**

**Engineering**

# **1 Disruptive Innovations in Healthcare**

## **1.1 INTRODUCTION**

The healthcare industry is no stranger to innovation. Every day, new medicines, medical equipment, and healthcare management approaches are introduced. Disruptive innovations in healthcare, on the other hand, were significantly less common until lately. What exactly is disruptive innovation, and how does it affect the healthcare industry? Disruptive innovations are those that bring about significant change and frequently result in the emergence of new industry leaders. They upend the status quo to such an extent that it has a knock-on effect throughout the sector.

Disruptive innovation is the process of transforming expensive or highly sophisticated products or services that were previously only available to a high-end or more skilled part of the population into products or services that are more affordable and accessible to a wider audience.

Take the automobile for example. In the late 19th century, cars were not a disruptive innovation. They were luxury items occupying the high-end of the transportation market. Most people continued using more affordable horse-drawn vehicles to travel.

## **1.2 AI and machine learning**

AI can compile and analyse survey results thanks to its natural language processing skills. AI will most likely become more widely used as a means of lowering healthcare expenses and allowing doctors and staff to focus on patient care. The concerns around database management and patient privacy must be understood by healthcare leaders. 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.

## **1.3 Blockchain**

Blockchain is a database technology that stores data and links it in a secure and usable way using encryption and other security features. Many elements of healthcare are made easier as a result of this invention, including patient records, supply and distribution, and research. With blockchain applications, IT entrepreneurs have joined the healthcare sector, changing how providers handle medical data. Blockchain is a database technology that stores data and links it in a secure and usable way using encryption and other security features. Many elements of healthcare are made easier as a result of this invention, including patient records, supply and distribution, and research. With blockchain

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#### **1.4 Telemedicine**

COVID-19 has unquestionably accelerated telemedicine delivery, and experts agree that telemedicine is here to stay. It works, doctors will get paid for telemedicine consultations, and many patients prefer it. Telemedicine, on the other hand, is heavily reliant on internet connectivity, and some parts of the United States still lack it.

#### **1.5 Consumer-centered care**

Consumer-centered care is an example of a disruptive innovation in healthcare. The patient-healthcare-provider interaction has changed dramatically as healthcare has become more consumerized. The mix of technology and public policy has altered how patients obtain healthcare and engage with their physicians in this area. Data security in electronic health records, billing transparency, and access to medical records are all part of a dramatic shift in healthcare that guarantees patients have all the information they need to make informed decisions about their care. According to the Centers for Medicare Medicaid Services, hospitals must make their costs more transparent by early 2021. (CMS). Other future revisions include the use of internet pricing tools that allow patients to see their out-of-pocket expenses.

Since the passage of the Affordable Treatment Act, electronic health records (EHRs) have become an increasingly important aspect of patient care. The huge volume of EHR data, on the other hand, may be utilised to perform research, improve care, construct AI applications, and create new economic prospects in addition to patient health records. As a result, healthcare practitioners must be aware of the concerns about EHR security.