Chapter 12
The Suggested Use of Big Data in Medical Analytics by Fortis Healthcare Hospital

Vivek Veeraiah
Sri Siddhartha Academy of Higher Education, India

K. O. Thejaswini
Sri Siddhartha Academy of Higher Education, India

R. Dilip
https://orcid.org/0000-0002-4316-6532
Dayananda Sagar Academy of Technology and Management, India

Sanjiv Kumar Jain
https://orcid.org/0000-0001-8942-7681
Medi-Caps University, India

Aradhana Sahu
Rungta College of Engineering and Technology, India

Sabyasachi Pramanik
https://orcid.org/0000-0002-9431-8751
Haldia Institute of Technology, India

Ankur Gupta
https://orcid.org/0000-0002-4651-5830
Vaish College of Engineering, India

ABSTRACT

The chapter describes how clinical data may be stored in digital formats, such as patient reports, as electronic health records, and how meaningful information from these records may be created using data analytics methods and tools that may assist patients and physicians to save time and money. The Apollo Hospital in Kolkata, West Bengal, India is the subject of this study. Apollo Hospital is the biggest hospital in West Bengal. It collects a huge quantity of heterogeneous data from various sources, including patient health records, lab test results, digital

DOI: 10.4018/978-1-6684-5347-6.ch012

diagnostic supplies, healthcare insurance data, social media data, pharmaceutical data, gene expression records, transactions, and data from MY hospital's Mahatma Gandhi Memorial Medical College. Data analytics could be used to organise this data and make it retrievable. As a result, the term "big data" may be used. Big data is defined as exceptionally big datasets which may be analysed computationally to uncover trends, patterns, and relationships, visualisation, information privacy, and predictive analytics on a huge dataset.

1. INTRODUCTION

Patient records, health and medical device records, pharmaceutical experimentation data, healthcare insured data, medical data, patient feedback data lab findings, images (CT scan and X-ray), health policy data, audio and video data are generated in the healthcare industry. The data generated may be organized or unstructured. Digitizing this data is necessary in the digital age. Digitalizing healthcare data will improve quality and cut costs. Current technology may help healthcare firms analyze data digitally and improve patient care. Big data is a large volume of organized (RDBMS) and unstructured (multimedia, text, and web pages) data that is difficult to handle using normal databases and tools. Big data refers to the tools and processes a corporation requires to handle huge volumes of data and storage. Extraction of hidden facts and statistics from a massive quantity of data is needed to improve medical treatment and handle new issues like cutting healthcare expenses. Hospitals like Apollo, Kolkata's largest, generate "Big data" because they serve millions of people daily, most of whom are poor and work as daily wage earners. If these people go to the hospital, they'll have to wait in line for medicine all day, losing their money and leaving them hungry. To solve this problem, we can store patient data in an EHR (Mahajan, H.B., et al. 2023) to save patients, healthcare providers, and the government time and money. Electronic health records (EHRs) are standardized patient records that may be shared among hospital branches in a network. EHRs hold demographics, medical history, prescriptions, past lab test results, radiology based data, main organ reports, and individual records.

Big data analysis helps find data patterns and their associations to make significant decisions using decision tree (Chellam, V. V. Et al. 2023), clustering, association, sequence analysis, classification, segmentation, regression, and web mining tools. Hadoop is an open-source software framework that saves data and has immense compute capability for practically endless parallel processes or jobs.