Literature Survey

Team ID PNT2022TMID17589

Project Name Analytics For Hospital's

Health Care Data

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Paper -1

Analytics For Hospital's Health Care

Data

Abstract:

Healthcare data analytics refers to the process of working on raw datasets related to healthcare and analyzing them to find hidden patterns, trends, etc., thus paving a way for further improvements at patient-level as well as business-level.

Since we talked about healthcare-related data in the above definition, let us now understand what healthcare data is. Healthcare data is nothing but any data that is related to the patient and the healthcare facilities such as medical records, scan and test reports, hospital records, etc. Different tools are used to collect this data. Some of the important tools and ways are electronic health records (EHRs), patient portals, master patient indexes (MPIs), online health-related mobile applications, etc. Not only does this help in data-driven informed decision-making, but it also helps in providing a personalized experience and treatment to the patients.

Advantages:

- ➢ Integrate heterogeneous data types.
- ➢ Ensure the quality of the data upon reception and throughout the analysis.
- ➢ Create data models.
- ➢ Interpret the results of the analysis.
- ➢ Validate the analysis results.

Disadvantages:

- ➢ Big data analysis violates principles of privacy.
- ➢ It can be used for manipulation of customer records.
- ➢ It may increase social stratification.

Paper -2

Abstract:

Clinical data abstraction is the process of searching through medical records—electronic and/or paper—to identify the data required for secondary use. This process results in the summary of information about a patient for secondary use.

Data abstraction relates to direct matching of information found in medical records to the data elements required. This practice also involves additional operations on this data as categorizing, coding, interpretation, summarizing and then calculating.

Healthcare organizations can use data from clinical registries to measure their outcomes and perform against other organizations.

The abstraction and reporting required for registry can be quite a painstaking process for which hospitals often have a dedicated team.

This conventional process revolves around collecting organizationally defined, clinically relevant data elements from a repository of documents describing each patient's medical record. The process makes detailed patient data available in the electronic chart and thus facilitates access to care without having to refer to paper documents or an EMR.

It requires accurate information for clinical registries to be actually useful for advancing healthcare, and the data and records are essential for communicating patient and clinical information. But providers often find it difficult to get the time and resources to pull data from medical charts. The pressure of keeping up with this monumental task can be quite burdensome, if registry abstraction doesn't get the attention it deserves.

Advantages:

- ➢ Advantage: System Costs. ...
- ➢ Advantage: Ease for Small Start-Ups. ...
- ➢ Advantage: Increased Oversight. ...
- ➢ Transitioning from Manual to Modern Data Entry.

Disadvantages:

Since big data has the ability to predict future medical issues which is a positive thing, big data can also pose risk and undermine doctors.

The patients too will rely on the technology rather consulting the healthcare practitioners.

Paper-3

Abstract:

The growing healthcare industry is generating a large volume of useful data on patient demographics, treatment plans, payment, and insurance coverage—attracting the attention of clinicians and scientists alike. In recent years, a number of peer-reviewed articles have addressed different dimensions of data mining application in healthcare. However, the lack of a comprehensive and systematic narrative motivated us to construct a literature review on this topic. In this paper, we present a review of the literature on healthcare analytics using data mining and big data. Following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, we conducted a database search between 2005 and 2016. Critical elements of the selected studies—healthcare sub-areas, data mining techniques, types of analytics, data, and data sources—were extracted to provide a systematic view of development in this field and possible future directions. We found that the existing literature mostly examines analytics in clinical and administrative decision-making. Use of human-generated data is predominant considering the wide adoption of Electronic Medical Record in clinical care. However, analytics based on website and social media data has been increasing in recent years. Lack of prescriptive analytics in practice and integration of domain expert knowledge in the decision-making process emphasizes the necessity of future research.

Advantages:

- ➢ Proactivity & Anticipating Needs: ...
- ➢ Mitigating Risk & Fraud: ...
- ➢ Delivering Relevant Products: ...
- ➢ Personalisation & Service: ...
- ➢ Optimizing & Improving the Customer Experience.

Disadvantages:

- ➢ Large power consumption.
- ➢ Occupies large memory.
- ➢ The cost of installation is high.
- ➢ Wastage of memory.