Literature Survey

Big Data Analytics in Healthcare at Maharaja Yeshwantrao Hospital

Author: Mimoh Ojha[1], Dr.Kirti Mathur[2]

Year:2016

This paper focuses on utilizing the big data characteristics to keep track and make use of the Hospital data of every patients and to improve the healthcare domain. It was done at the Maharaja Yeshwantrao hospital which is located at the Maharastra. It is central india one of the largest Government hospital. It is intended to digitalize the patient record and make it into the EHR[Electronic Health Record].The hospital generates enormous amount of data in the form structures, semi-structured and unstructured. It makes use of Hadoop distributed system to process and analyse the data. By analysing the incoming data such as patients health records, laboratory test result, electronic medical equipment, health insurance data, social media, drug research, genome research, clinical outcome, transaction and from Mahatma Gandhi Memorial medical college which is under MY hospital.

Advantages:

It is used to convert the paperwork and tedious task into paperless digital-format. Data analytics at the hospital will provide insights and benefits interms of money saving and doctor's time as well. It can resist upto highlevel of data storage.

Disadvantages:

The main disadvantage of this system is ,that it does not have a cloud storing facility, irrespective of the data collected and stored in it, it could not be processed from anywhere at time of need, so as of now it is just stored in the single system.

BIG DATA ANALYTICS IN HEALTHCARE

Author: Nkemakolam Chinenye Onyemachi[1] , Ogwueleka Francsiska Nonyelum[2]

Year: 2019

The amount of data being generated in the healthcare industry is growing at a very fast rate. This has generated immense interest in leveraging the availability of healthcare data to improve health outcomes and reduce costs. Big data analytics has earned a remarkable interest in the health sector as it could be used in the diagnosis and prediction of diseases.The goal is to predict the epidemic weeks in advance using the geo-map to outburst the plague or virus in the environment. The second method is using a tool called Resistance Open which is used to discover the immunities that has been present in the patients naturally.The third method is to monitor the ratio and spreadness of the disease among the surroundings. Data mining can help health care insurance organizations to detect hypocrisy and misuse, health care institutions to make decisions of customer relationship management, providers to identify effective treatments and best practices and patients now receive enhanced and more economical health care services

Advantages:

Different kinds of methods were presented and explained to do the classification, prediction and analysis on the big-data. It states the role of data analytics in the healthcare sector by make use of the Big data tool and Classification techniques.

A Research on Big Data Analytics in healthcare Industry

Author: Mohaiminul Islam, Rezaul Karim, Shamim Reza, MST Asha Khatum

Year:2020

In this article, it is solely describes to show the need of the data analytics advantages in the health-care industry.Data analytics has been a very effective tool to analyse and make predictions on the patient data, that is used for further analysis and make sure to prevent the plague or epidemic outburst into the nature. Before the era of data analytics, lots of lots data was loading over the hospital paperwork but the none of the paperwork comes handy when it comes to analysis. But storing the data in the computers and perform data analysis on it by using the data analytical tool. The best finding is that can give insights and the early indications of the disease can make better and life saving.The need of the data analysis led to the invention of two amazing tool such as SAS(using HANA) and Dell. One of the functions of the SAS HANA tool is to analyse data from its cancer and medical admin databases to find the clinical trial for the most suited patients. It provides accurate and quick analytics regardless of the structured or unstructured data.

Advantages:

Analytical tool has its own impact on the health-care industry for finding insights from the structured or unstructured data.

A Review of Analytics and Clinical Informatics in Health Care

Author: Allan F Simpao,Luis M Ahumada,Jorge Galvez,Mohamed A Rehman

YEAR: 2014

Federal investment in health information technology has incentivized the adoption of electronic health record systems by physicians and health care organizations; the result has been a massive rise in the collection of patient data in electronic form (i.e. "Big Data"). Health care systems have leveraged Big Data for quality and performance improvements using analytics-the systematic use of data combined with quantitative as well as qualitative analysis to make decisions. Analytics have been utilized in various aspects of health care including predictive risk assessment, clinical decision support, home health monitoring, finance, and resource allocation. Visual analytics is one example of an analytics technique with an array of health care and research applications that are well described in the literature. The proliferation of Big Data and analytics in health care has spawned a growing demand for clinical informatics professionals who can bridge the gap between the medical and information sciences.

Characterizing Mammography Reports for Health Analytics

Author: Carlos C Rojas, Robert Patton, Barbara G Beckerman
Year: 2011

As massive collections of digital health data are becoming available, the opportunities for large-scale automated analysis increase. In particular, the widespread collection of detailed health information is expected to help realize a vision of evidence-based public health and patient-centric health care. Within such a framework for large scale health analytics we describe the transformation of a large data set of mostly unlabeled and free-text mammography data into a searchable and accessible collection, usable for analytics. This paper also describes several methods to characterize and analyze the data, including their temporal aspects, using information retrieval, supervised learning, and classical statistical techniques. This paper presents experimental results that demonstrate the validity and usefulness of the approach, since the results are consistent with the known features of the data, provide novel insights about it, and can be used in specific applications. Additionally, based on the process of going from raw data to results from analysis, this paper presents the architecture of a generic system for health analytics from clinical notes.

Advantage:

In this paper the experimental results demonstrate the validity and the usefulness of the approach, since they both conformed to what was expected from the data and helped to get novel insights about it.

Disadvantage:

Since this paper has discussed a notion of time and space for the patient data, questions about the rate of change and the direction of the trajectory naturally arise which makes it complex.

Development of the Health Information Analytics Dashboard Using Big Data Analytics

Author: Anisatul Afifah, Krisostomus Nova Rahmanto

Year: 2020

This paper states about the development of digital technology that has an impact on healthcare facilities in Indonesia, one of which is the digitization of medical records. This will generate abundant clinical data from various sources including electronic medical records. Therefore, a large infrastructure is needed to store data from various sources that can facilitate the process of data aggregation to then be processed into information. Health Information Analytics Dashboard is the solution to get accurate, complete, and real-time insight from big data in healthcare. Data collection is carried out from various sources of health service facilities in Indonesia that are integrated into the system. With a user-friendly display, the analytic dashboard can be used to create monitoring reports with just one click. The method of this study uses big data analytics. The data analysis results are visualized through display charts/graphs that make it easier for users to understand the data analysis results and interpretation. This dashboard is useful to facilitate decision making so that stakeholders can find out more quickly to be able to respond appropriately and also improve the quality of health services so as to improve the degree of public health.

Current Practices in Clinical Analytics: A Hospital Survey Report

Author: Dana Womack, Rosemary Kennedy, Bill Bria

Year: 2012

This paper is mainly based on the clinical analytics which must become a pervasive activity in healthcare settings to achieve the global vision for timely, effective, equitable, and excellent care. Global adoption of the Electronic Health Record (EHR) has increased the volume of data available for performance measurement and healthcare organizational capacity for continuous quality improvement. However, EHR adoption does not automatically result in optimal use of clinical data for performance improvement. In order to understand organizational factors related to use of data for clinical analytics, a survey was conducted of hospitals and hospital-based clinics. The survey revealed sub-optimal use of data captured as a byproduct of care delivery, the need for tools and methodologies to assist with data analytics, and the need for disciplined organizational structure and strategies. Informatics nurse professionals are well-positioned to lead analytical efforts and serve as a catalyst in their facility's transformations into a data-driven organization.