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Big Data Analytics in Healthcare

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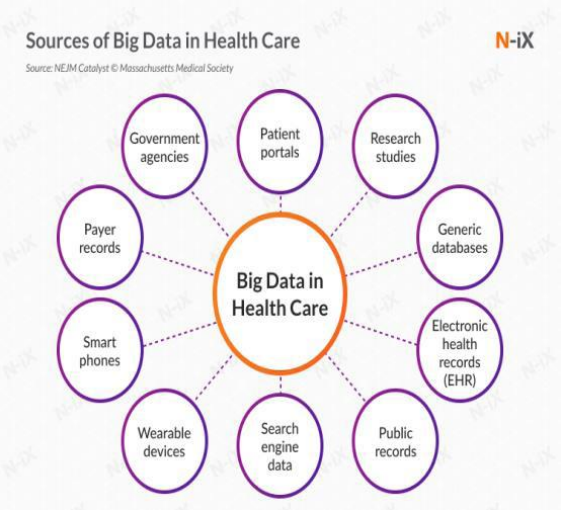
ABSTRACT:

Big data is a new driver of global economic and social changes. Global data collection is reaching a tipping point for major technological changes that could unlock new ways of making decisions, managing our health, our cities, finances and our lifestyle. As data complexity increases, including volume, variety, speed and accuracy of data, real impact is based on our idea of discovering the "value" of big data analytics. Big data analytics pose a major challenge in developing highly scalable algorithms and systems to integrate the data and uncover great hidden values from data sets that are diverse, complex and large. Possible breakthroughs are new algorithms, methods, systems and applications in big data analysis that efficiently discover useful and hidden knowledge from big data and effective. In this article we made a research on Big Data Analytics on health care

Keywords: Big Data, Healthcare, Medical

1.1 Introduction:

Accurately matching patients with medical treatments for specific diseases can reduce unnecessary side effects, improve the standard of treatment and avoid improper treatment or waste in medicine services. Also, new medical treatments may be introduced through research into new drugs or the utilisation of existing drugs for innovative or more targeted uses .Systems biology may be a successful method that integrates multiple data sources and studies of biological processes. Many studies cater to network models in describing etiopathogenesis and immune responses, helping to find new biomarkers for early diagnosis, but avoiding the bias of clinical data should be avoided when using such models. Many types of medical devices,especially wearable devices, continuously collect data; that a high speed of the generated data often requires fast processing in an emergency.



1.2 EMR and MRI:

The worth hidden in an isolated data source could also be limited, but the deep value may well be maximized from health data (e.g. public health alerts and personalized health advice) through the information fusion of Electronic Medical Records (EMRs) and Electronic Health Records. Structural MRI, a technique of visualizing a
patient's brain, could be a rich source of high-grade Dimensional data and provides brain maps with detail in high spatial resolution, which is incredibly good Useful in both research and clinical settings to
reveal structural features of the brain.

1.3 Big Data Analytics in Healthcare

Systems:
Big data often performs well in terms of volume, speed, variety, variability, value, complexity, and economics. Big data has the potential of applications in healthcare, including disease surveillance, disease control, clinical decision support,population health management, etc. Big data in healthcare can provide significant benefits,
e.g. the early detection of diseases. Big data integration Analytics in intelligent health systems bring innovative electronic and mobile health (e/m-health) that increase efficiency and save medical costs. Predictive analytics is utilised in predicting pharmaceutical outcomes, identifying patients who benefit the foremost from pharmacist interventions, providing pharmacists with a decent understanding the risks of specific medical-related problems,
and delivering solutions tailored to patients' needs. Complex biomedical data with an infinite volume became available due to advances in biotechnologies. Big Data analytics is required to use these heterogeneous data and it covers application areas like health informatics, sensor informatics, bioinformatics, imaging informatics, etc. Databases with various degrees of completeness and quality cause heterogeneous results, which increase the
likelihood of false discoveries and 'biased fact-finding excursions'. Low data quality and biases thanks to the absence of randomization are two major problems. Efforts in increasing the worth of big data are often made through linking different databases and analyzing all existing and related data. Data pre-processing could be a
process of remodeling raw data into an lucid format that usually includes: 1) data cleaning, 2) data integration, 3) data reduction, 4) data transformation, and 5) data discretization. The pre-processing is an important step for Big Data analysis healthcare systems.

Conclusion:

Conventional data processing techniques are unable to deal with big data in healthcare systems. Big data analytics pushes the boundaries of traditional data analysis and will bring revolutions in healthcare. Big data analytics has the potential for disease surveillance, disease control, clinical decision support, population health management, etc. There are challenges of big data analysis in healthcare systems. Collecting, storing, sharing, searching and analyzing data are the challenges of Big Data in almost all areas. In addition, data security and data protection, data quality, real-time processing, integration of heterogeneous or disparate data and health data standards are also challenges of big data analysis healthcare systems.

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