MINI REVIEW
E-Health and Big Data Analyzing

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Abstract

E- technology use in health education and healthcare delivery expanded in recent years. The E-health is with positive effect on professional health education and healthcare providing for community. E-health mean the use of information and communication technologies (ICT) for improvement of population health. WHO established E-health unit that collaborate with country, regional and global levels to strengthen and promote the use of ICT in health systems design and care providing to community. Big data in healthcare mean collection, analysis, consumer benefit, patient physical and clinical data that it is difficult to dealt with using traditional tools for data processing. Thus technology adoption is vital to face the healthcare data challenges which include soundness, volume, variety, and velocity in order to collect, store and analyse information to produce outcomes that improve healthcare systems and education. Now globally healthcare is influenced by the increase in healthcare data volume, healthcare costs growing and the desire for healthcare personalization.

Keywords: E-health, Big data, electronic system, security, cryptography, coding.

Background

Many definitions describe big data, which is characterized by the v3 (Volume, variety and velocity) are called big data and sometimes in some sources we see properties v5 that are being added to v3 (veridicality+ value) [1] But few of these sources focused on big data in health, medicine and e-health Big data in the medical and health field refer to big data in the form of groups that are routinely or traditionally automatically collected, captured or collected and stored electronically and can be entered into the health field quality system and electronic health system.[2]

Purpose

When collecting big data in the health field, it is classified and analyzed, stored according to databases, it is divided according to interrelated relationships using digital electronic analysis tools for the purpose of improving the healthcare system and the performance of the medical system [3] These operations need large logistical efforts and computer power used in the field of application in the health field, including generation the data is collected, then stored and processed. Coding system is needed to code information in order to maintain complete confidentiality of the information, or there may be future monitoring of the data, or for example, the data is analyzed retroactively.[4]

Methodology

This decade has witnessed a significant increase in the amount of information that we believe is produced routinely, collected and stored, and this is what we call big data. World now live in the age of information technology and most of what practiced is related to access to huge amounts of data and this buzzword that we describe this huge amount of data is big data.[2]

In the field of healthcare, not far from it, the increased technological development allowed the possibility of dealing with this huge amount of data and with a deeper issue of profits and expenses is its contribution to the prediction of epidemics, treatment and disease diagnosis, increase the efficiency and accuracy of the medical decision and avoid errors that can be made by providers.[2]

Health and medical care.

Information technology has become an integral part of the concept of health management, as the use of massive information technology works to promote development and development in the

health field and improve health services. Which will have an impact in reducing health care costs and provide high-quality services with attention to consideration of the topic of medical rights and professional ethics. The great challenges in healthcare delivery that facing physician, patients, healthcare providers and community need proper legislation of laws to control the confidentiality of data, privacy, access to this private information, and activating the principle of legal accountability.[5]

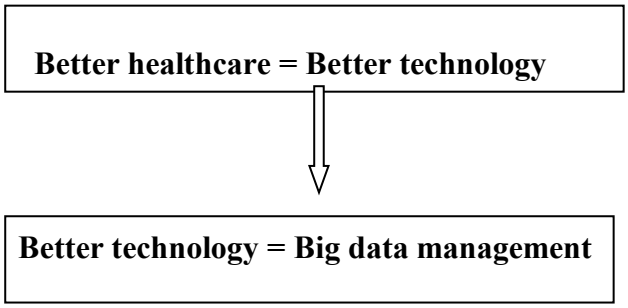

Fig.1. Better healthcare

So the need to process big data in the field of healthcare began so that the results when analyzing these data will become positive and life-saving results by digitizing everything that is combined and analyzed by specific techniques, especially in the field of health care such as health data for a specific population or individual that may help prevent epidemics, treatment of some diseases, and lowering costs.[2] Therefore, collecting huge amounts of data for medical use for long time and with today's techniques that help in development and improvement so that this data turns into critical visions related to providing better healthcare. The purpose of analyzing big data is to use the results to predict the problem and its solution before it is too late, especially in crises of health disasters and epidemics. The use of treatments faster, so the need to digitalize health institutions for the purpose of helping to collect huge health data and develop the infrastructure to provide health data.

Medical Big data:

Collection of data sets that are large and complex in nature, they consist both structured and unstructured data, that grow large so fast that they are not manageable by traditional relational data base systems or statistic tools.

Big data analyzing tools [2]

1- Hadoop and distributed file system: divided the data in smaller parts and distributed in across various nods.
2- SQL: allows posts can be downloaded and in to hadoop.
3- Map reduces: process that transforms data loaded in to hadoop in to format that can be used for analysis.
4- Hive: run time Hadoop support Structure Queries Language with Hadoop platform.
5- Jaql: converts high-level queries in to low level queries.
6- Zoo keeper: coordinate parallel processing across big clusters.
7- HBase: is a column _oriented data base management system that sites on top (HDFS) by using SQL approach.

Fig.2. Pig healthcare data

Technological development

Software solutions are developed to facilitate the smooth and easy collection of data and also how to link and analyze this data and make it relevant data by supporting digital solutions that simplify the sharing of this data within health institutions in order to facilitate data and retrieve it quickly and add software solutions to process health

records taking into consideration data merging into databases with big data.

Application areas[3]

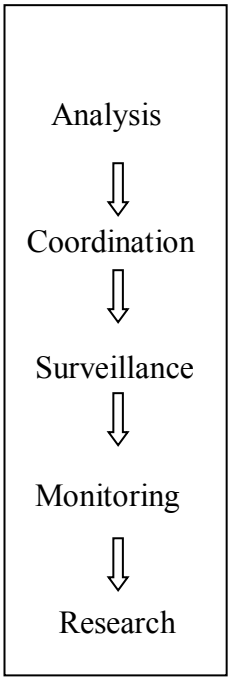

Fig.3. Big data application

The most prominent challenges in big data in the medical field: [6]

1- Lack of awareness of the importance of big data in the health field
2- Data quality and integrity
3-High cost
4-Data security
5- Digital informational privacy
6-Legal aspects
7-Administrative aspects.

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