

# **Big Data: Used in Healthcare Sector**

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ABSTRACT - Healthcare area grows widely in last few years and from the large amount of data in created. This data have large amount of volume. The data have various types of information such as electronic health record (EHR). Now Days this system is not easy to handle. The database is created in large amount so this data is not easy to handle. For this the Big Data offers great solutions to tackle the large amount of data. Big Data gives you better solution for future opportunities.

KEYWORDS: Big Data, Healthcare Sector, Big Data Analytics

## I. INTRODUCTION

Healthcare Industry is one of the world's biggest and largest developing industries. During, the recent years the healthcare management around the world is changing from disease-centered to a patient-centered model and volumebased to a value-based healthcare delivery model .Educating the superiority of health care and decreasing the cost is a principle behind the developing movement toward value based healthcare delivery model and patient care. The capacity and demand in healthcare organizations are growing little bit. To provide effective patient care, it is necessary to manage and analyze huge health data. The outdated data management implements are not sufficient enough to analyze volume and variety of data sources have increased in the past two decades. There is a need for new and innovative big data tools and technologies that can meet and increase the ability of managing healthcare information. Research study predictions on the worldwide big data expenditure in the healthcare business. The Yearly Growth is (CAGR) of 42% in 2014-2019. The big data are used to assume the diseases before they emerge based on the medical records. There are Many countries' public health systems are providing electronic patient records with advanced medical imaging media. The big data experience the upcoming market need and tendency in the area of healthcare. Big data gives you best chance for Specialists doctors and health policy gives best judgments for improving the patients' health. Big data applications give you the huge amount of data. Big data analytics gives the large datasets from patient data their group and relation between the dataset.

## II. BIG DATA ANALYTICS

Big Data Analytics is the procedure of exploring large data that may contain a different of data types to reveal hidden patterns, unknown correlations, market trends, customer preferences and other useful business information. Big data analytics has appears from two distinct concepts: big data and analytics .It is a group of datasets, procedure, technology and implementation of data in meaningful information. This information is used to make the decisions better and implement it in the better way. Big data is used for patient treated in good way and if new disease found it will know immediately and patient gets proper treatment. Data Mining is used to reduce data which is in the form of logistic, statics in the database system. With the use of mobile phones it is best platform for sending the message to patient and known to the changes which are involve the health conditions and improvement of the health .mobile phones can send and receive the message of motivation and medical advices for the improvement. Big data analytics is overall used in healthcare sector for improvise the health for their betterment. Data of the patient is having different format as X-rays, Scanner and the digital data records as HER which is stored in database can handled by the big data. There is no risk of losing data in data analytics which is used in the health care.

# **III. VI** OBJECTIVES IN HEALTH CARE SECTOR

The objective is to give you solution for the big data and analytics. It gives fast research, the objectives availability and accessibility which is in field of healthcare. This gives you the overview of current situations and improves the healthcare sector. This will benefits for the area and advance techniques which provide to the patient.

#### 1. INFORMATION USED IN CDS

The information used (CDS) this aims to increase the quality and upgrade the outcomes of healthcare. It focus on the information is right that goes to the right person. Proper execution of healthcare process diagnoses the disease. The system know all information of medical is spread to each and every one.

#### 2. DISEASE MANAGEMENT

The Disease Management is the process where every single person can take care of self and improve health and the person is careful about their health.



#### 3. PATIENT MATCHING

The Machine sets will safely match patients to the information, make more medical resources available to provider and grant researchers timely ingress to clinical data.

#### 4. DATA SECURITY

Data security securing the data which is digital format stored in database. This data will hides from the unauthorized users. and this will be protecting from the unwanted attacks like Cyber-attacks.

## IV. ADVANTAGES IN HEALTHCARE SECTOR

- 1. Detect Diseases faster, and they can be more easily treated.
- 2. Assume the time of stay for different patient.
- 3. Make the research process efficient overall.
- 4. Using past results from different sources (eg. EMR, or operation data) assume future outcomes.
- 5. Analyze Gene data more efficiently.
- 6. Analyze operational data to see if fraud exist.
- 7. Analyze data obtained from IOT devices.
- 8. Perform specific analytics to see the best procedure for specific patient.

## V. OPPORTUNITIES OF BIG DATA IN HEALTHCARE

#### 1. REDUCING COSTS AND GET PROFIT

Big Data help us to reduce cost of treatment and medicine. it analyses the population to determine the risk for illness. Big Data can help us to know the new generations about healthier foods and prevention about this foods and medicine will get lower cost. It gives you the evidence of best treatments.

#### 2. ADVANCE RESEARCH AND CHANGE

Form the advance and research in the current state patient provides more easy and improved treatment from that the disease can easily recognize and treatment should be started.

#### 3. CUSTOMIZE MEDICINE

In this if person caused by some diseases then after the test of the doctors gives you the treatments and based on that medicine. In this if a disease recognized early then treatments is started early. from this costs of health is reduce, the risk of disease will reduce. we can predict how the disease can connect and increasing day by day.

#### 4. NEEDLE CARE AND HEALTH CARE TECHNOLOGIES

Now a days the technologies are more advance and this will be more user friendly to the people. It will make the effective impact and increase the quality which can be access more by patient.

#### 5. IDENTIFY AND TRACK PATIENTS

The statistical grouping method is applied to further divide the subsets process. This method uses readily available administrative datasets. Patients get tracked to determine the patterns for treatment.

#### 6. STUDY OF DRUG QUANTITY

With the use of Electronic Health Record (EHR) it is useful for studying which medicine should use mostly from that the disease will most accrued that will be helpful for studying drug quantity.

## VI. CHALLENGES OF BIG DATA IN HEALTHCARE

- 1. The knowledge form complex different patient origin. holding the data or patient relations in the longitudinal records.
- 2. Understanding the uniforms clinical notes in the right area.
- 3. Efficiently handles the large amount of medical imaging data and removal possibly useful information and bio markers.
- 4. Examine the genomic data is a computationally rigors task and combining with standard clinical data added layers of difficulty.
- 5. Capturing the behavior of the patient through some sensors the different social reaction and communication.
- 6. Protecting the patient's data privacy and make them secure.

## GOALS OF THE BIG DATA IN HEALTHCARE



- 1. In this diagram the EHR, Genomic, Behavioral Information, Public Health this will be stored in the database using the big data analytics.
- 2. This all the data will stored as evidence of patient and data insight.
- 3. Form this patient have the medicine and treatment faster and with the lower cost. It will improve the outcomes.
- 4. As we see using the big data analytics in healthcare sector is smarter decisions.

VII.



## VIII. CONCLUSION

In this paper data analytics is used in the healthcare area in large amount. This will save millions of life and improve the patient services. In this big challenge we face of for data hiding, data should not be revel to any area this is big task handle by big data analytics. In this data will be in the different format i.e. medical image data, EHR records. The should be confidential for each and every patient. big data is helpful when it comes to the cost of medicine, disease recongnization, treatment it will be more helpful.

In the big data the data of records should be secure. This is important thing data should be safe gourd Data should not go out. With the help of big data is easy to find the location of available data. It is difficult to manage the records in traditional system but with the use of big data it is easy to manage the data. Using the big data the future research can be done easily and with that we can improve the services, facilities, treatment, and data security.

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