Introduction to Data Analytics

Healthcare Analytics

Healthcare analytics is the qualitative and quantitative analysis activity used to improve healthcare productivity through infrastructures and applications that store, categorize data and find patterns to conclude them with decisions.

Analyzed data in the company can be

- Historical, old records that the company might have
- Newly processed from some external sources or internal sources

In the healthcare industry, Data Analysis can help

- Improve efficiency within the business
- Increase revenue
- Optimize customer services
- Plan to outpace market competitors

A simple analytical tool, known as a **Healthcare Analytics Dashboard**, can display any operational data. It is possible to see multiple datasets in this dashboard. To make sense, you need to standardize all the data. Every hospital has its own set of records for each patient (e.g., information about a patient within the hospital). Try to think of a person working with multiple hospitals under one company. Then all these records will be in the same format, making them easy to store and understand. These patient records are vital because they give healthcare Data Analytics access to a larger dataset.

As a Data Analyst, your goal is to cross-reference the other available data with your own to create a better patient profile.

Healthcare analytics can find Patient trends (admission to discharge), Budget performance for specific departments, Rate of tests, etc. This data can help see how long, historically, patients were admitted to the hospital. Utilizing this data could determine potential necessary or required improvements in the Patient's admission to when they get discharged.

The interplay between data analytics and the hospital's admission-to-discharge process can benefit the hospital, staff, and patients. By selecting the right KPIs for hospital analytics, you can find what happens in patients staying at the hospital. You can identify what the Patient faces the problem at the time of discharge, such as the quality of care and staff available. You can use this information for the next discharge improvement in creating a process around it that results in happier and healthier patients, and the process might become cost-effective. The same analysis can help create an admission-to-discharge pattern as well. For example, what kind of symptoms and diseases for which a patient stayed longer in the hospital and what treatment they got. This process can help the hospital create an expected chart of a patient's recovery and health.

The effectiveness of data analytics dashboards correlates with the benefits of analytics in healthcare. If you have bad analytics data, the analysis will be bad. **It's always good to start with a good question to have a good dataset that can answer your questions and have a good analysis.**

Application of Analytics in Healthcare

All stakeholders in the healthcare industry benefit from data analytics:

- Patients
- Physicians/surgeons
- Hospitals
- Pharmaceutical Companies
- Insurance Companies
- Public Health Professionals

Patients: More aware of self-health: With the proliferation of wearables like smartwatches, patients can be more aware and assured of their physical

conditions. A 62-year-old Canadian citizen felt sick at work. His smartwatch revealed that his heart pressure was extremely high and he was suffering a severe heart attack, calling the hospital emergency, and doctors were able to save him.

Physicians/Surgeons: increase diagnostic accuracy: When a patient visits a doctor with chest pain, it is often difficult for the physician to know whether the person needs medical attention. Predictive analysis can help them make firm decisions based on previous records and their analysis. As a result, this fact-based treatment reduces the probability of causing any significant side effects.

Hospitals: improve patient care with low mortality rates: With analytics, they can have better procedures and research on various diseases, which can help them improve mortality and morbidity rate during the post-op period.

Pharmaceutical Companies: bring new, more effective drugs to market faster. Predictive modelling can be implemented to test the significance of new drugs' effectiveness faster and less expensively, which will help them bring the drug to the market more quickly and reduce the overall healthcare costs per patient.

Insurance Companies: reduce the cost of insurance. It can implement predictive analysis models to forecast insurance costs for individuals better. The insurance cost is more a function of a person's age, current medical condition, and the 'plan' they are opting for. With the help of analytics, they can find the future medical expenses of a person and genetic information as well, and they can also make informed decisions about insurance costs.

Read More:

- https://www.hackread.com/7-times-apple-watch-saved-lives/
- https://opsdog.com/resources/healthcare-analytics-guide-use-cases-case-studies-examples/