BOOST HEALTHCARE DECISION MAKING POWER WITH PREDICTIVE ANALYTICS

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Abstract

Digital technologies and cloud computing trends are driving force that are quickly embraced by younger consumers, and new-age health and wellness providers. Such technology-oriented systems and methods of predictive analytics are enabling people to move forward into the modern era of decision-making. Here, predictive analytics plays an integral role in quantifying, assessing a patient's health status. It provides a thorough analysis and can help hospitals, health systems, and patients.

As per the survey conducted by the Society Of Actuaries (SOA), around 60 % of healthcare professionals rely on predictive analytics for their organization. For healthcare professionals', predictive analytics is like an opportunity to look into the future. It makes unsupervised learning that adds significant value to the healthcare industry by offering detailed insight on upcoming trends related to patient care. High-level trends bring market transformation and create an impact on multiple stakeholders.

Actuaries makes predictions on the basis of artificial intelligence (AI), modelling, and data mining. Health care has a long history of evidence-based clinical practices and research-oriented ethical standards. Such tools help actuaries in acquiring real-time data based on historical or future events. Hence, there are the considerable number of benefits of predictive analytics in the healthcare industry.

Introduction

Actuaries are acting as the game-changer or a powerful tool to influence health care decisions. It is because of the rise in the internet and smartphones, and several disruptive changes happened in recent times. These changes or advancement is, enabling the rapid sharing of knowledge and information to bring industrial transformation.

With the rise of Predictive analytics health care industry has gone through a drastic change. Things are not the same the way they were; old methods are uprooted under the layer of a set of the digital techniques available now. Actuarial analysis has made positive changes in the healthcare sector. All the tremendous positive impacts or alterations in pathological processes, practices are only because of Predictive analytics

Statement of the problem

The statement of the problem is, "BOOST HEALTHCARE DECISION MAKING POWER WITH PREDICTIVE ANALYTICS".

Objectives

   i.   To identify the impact of predictive analysis on healthcare decision making
   ii.   To state the future appointments for a new patient based on contemporary diagnostics and vital symptoms

Review of related literature

From the review of the various related literature, it is precise that the title for the present research is different, and no analysis of this type has been done before on predictive analysis in regards to the healthcare industry. The current study is novel and done on the basis of decision-making process of healthcare professionals. Also, it takes the support of helpful guidelines responsible for enhancing the decision-making power by means of predictive analytics.

Here are some of the Predictive analytics techniques that can be used to obtain data.
- Decision Trees
- Text Analytics
- Simple Statistical Modelling
- Neural Networks

Apart from this, there are certain methods that are combined to obtain secured results in order to make right decisions.

Our Findings

Nowadays, healthcare organizations are becoming more sophisticated, and they are moving towards the realm of predictive insights. Actuaries play a crucial role in making health insurance, healthcare and wellness organizations, retirement plans, and risk analysis and management. It provides the detailed understanding of economic, financial, demographic, and insurance risks. Further, the actuaries support health professionals to understand the risk, reinsurance arrangements, and health investment policies.

Actuaries works in a close alliance of predictive analytics, and it is becoming a huge leap forward for many health organizations. All together, they are working on estimating the likelihood of a future outcome based on historical data. The system provides insights on a patient's health status, forecasts the patient's future visits to a hospital, and describes future patient charges. Such information helps doctors in providing better healthcare advice and enables decision making.

Getting the help of clinical predictive analytics removes the pharmacy and physician visits and produces a cumulative impact on patient well-being. Such information can also help under-served communities, provide consistent support to achieve effective methodologies towards their health awareness. Clinical analytics creates a room for significant improvement to budget expenses and improve administrative efficiency.

Generally, several healthcare professionals and administrations set their operational skills based on past bearings. But with the recent improvements in healthcare analytics, it is possible to have better administrative decisions. For the proof of this, we can take the example of Yale-New Haven Health System (YNHHS) that has saved 150 million dollars with the help of predictive analytics.

1. **Actuaries – Strengthens the Process of Clinical Decisions-Making**

With the rise of Electronic Health Records (EHR), massive clinical data is now available. After performing the study, we observed that around health care system generates around 30% data as compared to the world's data. Such a massive amount of data plays a crucial role in managing the critical needs of health industries. One can transform this data effectively into a valuable resource for the betterment of the quality and cost of healthcare. Here, actuaries work based on the predictive model and provide essential insights to hospitals and the physicians managing the patient. Also, it supports in making various decisions like referring a patient to a specialist, performing lab tests, and scheduling follow-ups, etc. Furthermore, actuaries can help patients in minimizing readmissions. Also, they can accomplish things that are not possible for analysts and artificial intelligence.

2. **Actuaries - Provides a Complete Design and Valuable Penetrations**

Here we observed that various progressive events are occurring in the field of data collection, data management, and data sharing. Big data and cloud-based storage makes the data access faster and lowers the duration of the workflow. So, the actuaries convert this data into real-world insights to take actions. Based on the data, actuaries help the patient in identifying and retaining high-risk involved in care. Also, it helps in obtaining tailor-made awareness and evaluation programs. Besides this, actuaries give valuable inputs to plan clinical resources and prepare the patient for further visits. Ultimately, it makes the patient care and well-being more effortless and efficient.

3. Actuaries – Strengthens an Administrative and Patient's Standpoint

For making the future expenditure, the system considers existing ailments, frequency of visits, patient age, current costs, and type of medications, etc. The information obtained in regards to the cost incurred in the coming year supports the patient and professionals. It becomes effortless for the patient to set financial expectations and to estimate the future value in financial planning.

Apart from this, the actuarial team and predictive analytical resources are essential to influence strategic decision making. By using the power of automation and data, the actuarial analysis provides an intelligently organized and filtered data for clinicians and patients based on previous medical knowledge. The system offers future guidance utilizing automated alerts on various treatments, provides clear insights on patient reports, also, gives diagnosis advice to enhance accurate and timely diagnoses.

Conclusion

1. Actuaries gives the predictions about the number of future patient visits and projected patient costs
2. Actuarial analysis works well in understanding the risk involved in patient care based on history and current health status
3. Predictive analysis provides web-based and real-time insights

Recommendations

1. Actuaries or predictive analysis has the power to transform the way of patient care
2. Along with healthcare, actuaries support in other industrial sectors
3. Actuaries is becoming a central aspect of the future of medicine and health care
4. Predictive analysis is the way to attain the cost reduction, well-organized health management

References

- https://www2.deloitte.com/us/en/insights/topics/analytics/predictive-analytics-health-carevalue-risks.html

- http://www.scsug.org/wp-content/uploads/2017/10/ac14.pdf

- https://healthitanalytics.com/news/10-high-value-use-cases-for-predictive-analytics-inhealthcare

- https://rockhealth.com/reports/predictive-analytics/

- https://www.predictiveanalyticstoday.com/what-is-predictive-analytics/

- https://www.evariant.com/blog/how-to-use-predictive-modeling-for-healthcare/

- https://www.elsevier.com/connect/seven-ways-predictive-analytics-can-improve-healthcare

- https://saviance.com/whitepapers/DataAnalyticsSaviance.pdf

- https://www.sciencedirect.com/science/article/pii/S1876034118300303

- https://www.osplabs.com/healthcare-predictive-analytics/

- https://onlinemasters.ohio.edu/blog/how-to-empower-decision-making-with-predictiveanalytics/

- https://www.healthcareitnews.com/news/next-gen-clinical-decision-support-toolsanalytics-and-health-data-ehr-workflow

- https://www.researchgate.net/publication/332333573_Predictive_analytics_clinical_decision_support_and_the_future_of_sepsis_treatment

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