

Review Article

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Predictive Patient Readmission Risk Using Salesforce Health Cloud

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ABSTRACT

The following article delves into the implementation of the Salesforce Health Cloud as a technology to support the predictive system of the readmission of patients. It highlights the significance of predictive analytics in identifying patients with high risks to support improvement of the readmission rate and strengthening the post-discharge care system. The article is comprehensive to support the entire process of implementation as it has taken a critical approach to deal with the topic by highlighting benefits as well as challenges associated with the process.

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Introduction

Readmission of patients is a significant challenge for the healthcare systems irrespective of the region or place. Readmission of the patients is challenging not only for the patients but also for the healthcare systems as well. For instance, the increasing bills of patients expose them to financial burdens. In addition, providing quality of care to readmitted patients pose challenges to the healthcare system. Predicting the readmission of the patients increases the risk of healthcare providers intervening in the situation early, which reduces the rates of readmission and costs of healthcare. Insufficient integration and analysis of data frequently impede the precision of forecasts in healthcare systems.



Figure 1: The Patient Journey is Enhanced by Salesforce Health Cloud [1].

The following article delves into the possibility of leveraging predictive analytics within the context of Salesforce Health Cloud technology to efficiently highlight the high risks associated with patients for readmission and improve post-discharge care [2]. It will cover essential functionalities, factors to consider during deployment, and real-life examples to reinforce our points. Based on the problems that it aims to address; the following article will help in offering a strong approach to the development of solutions and implementing them appropriately.

Background

The entire healthcare system has been actively seeking ways to reduce the number of patients who require readmission within the next thirty days of their discharge, which is crucial for care management in the post-hospital period. In the context of the USA, hospitals have faced significant financial challenges from Medicare for readmissions, which forced the need for further innovative solutions [3]. Finland in addition, has launched an overhaul aiming to digitize its healthcare system by utilizing enhanced technology integration, which currently lacks in achieving the desired results. Initially, healthcare professionals have relied on multiple factors such as age, diagnosis, or length of stay to assess the risk of readmission. However, these factors are not the sole factors to provide immediate and practical insights.

The use of advanced healthcare technology has enabled the emergence of predictive analytics as a valuable tool in healthcare administration. Salesforce Health Cloud technology provides a complete system that combines patient data from various sources such as electronic health records, social determinants of health, and wearable devices to create predictive models [4]. This analysis of real-time data can assist healthcare providers in delivering more precise and timely interventions, leading to a reduction in readmissions and an enhancement of patient outcomes.



Figure 2: Salesforce Cloud Services [4].

Problem Statement

The current healthcare system experiences several challenges in the process of accurately predicting the readmission needs of the patients, which pose threats to the entire healthcare system. The existing methods have challenges, which are multifaceted posing threats in the context of having difficulty in handling real-time data or failing to integrate multiple data sources [3]. Thus, these difficulties in predicting lead to challenges in providing a comprehensive understanding of a patient's health status.

Inaccurate predictions hamper the abilities of healthcare providers in their process to prioritize post-discharge care. Therefore, this inaccuracy leads to higher readmission rates, increased healthcare expenses, and even reduced patient satisfaction. Overall, the problems related to the prediction of readmission of patients in healthcare are diverse.

Proposed Solution

There are different solutions that can be used as the method of addressing the problems, including the use of predictive analytics in Salesforce Health Cloud. It provides an efficient way to handle patient readmissions. Artificial intelligence (AI) and machine learning (ML) algorithms are employed to analyze real-time data comprehensively, which considers multiple elements like coordination, medication adherence, and social determinants of health [5]. The evaluation of both past and present data in the system offers valuable insights for highlighting the patients with high risks for readmission.

The example of a US-based hospital namely the Mount Sinai Health System demonstrated the potential of this functionality by integrating its existing EHR system with Salesforce Health Cloud [5]. The healthcare system leveraged the use of the Health Cloud's AI-powered predictive models. The hospital not only analyzed the medical records of the hospitals but also non-clinical information, including social isolation, economic status, and patient activity levels [6]. As a result, there was a significant reduction in the cases of readmissions during the first year after implementation, which can mainly be attributed to the early identification of high-risk patients.

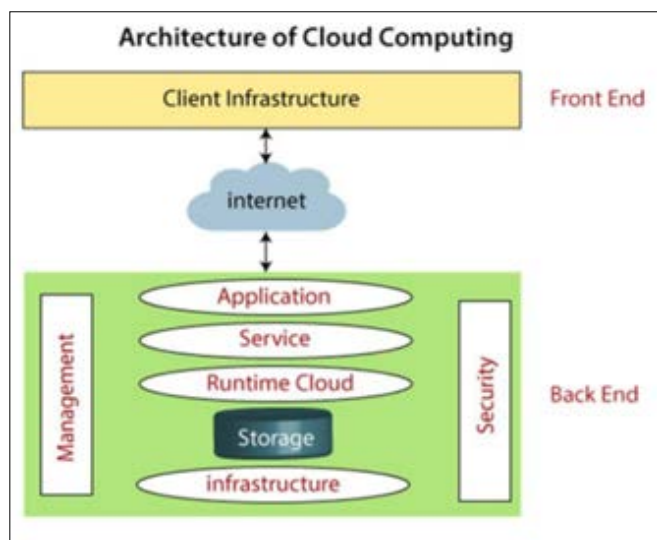


Figure 3: Architecture of Cloud [6].

Methodology

A systematic approach to the implementation of the predictive assessment of patients' readmission through Salesforce Health Cloud is as follows:

The implementation of the Salesforce Health Cloud requires strong support from a structured system or framework. Therefore, the structural process of the implementation methodology is provided below.

Data Collection and Preparation: The first stage of the process is data collected from electronic health records, wearable devices, and other health information systems [5]. Prior to the integration of the data into the machine learning or artificial intelligence-based model, it is crucial to ensure that the dataset is updated and cleaned to uphold consistency and accuracy.

Training of the Predictive Model: Machine learning algorithms will be trained utilizing the past data of the patients to detect patterns that can forecast the probability of readmission [5]. These models will require continuity in the improvement as new data is acquired. The neural networks will be prioritized for this purpose, which uses data and interconnected nodes for performance.

Integration of System and Testing: The integration of Salesforce Health Cloud with current healthcare systems will allow the opportunity for seamless data exchange [5]. A pilot test with a small group of patients will require to be carried out to verify the accuracy of the model. The patients will be targeted, especially those with high risks of readmission. The feedback of the patients will be collected for understanding and improving the implementation process.

Appropriate Deployment and Monitoring: The predictive model needs to be validated for improved implementation for all patients. Continuous monitoring of readmission rates and predictive model performance will ensure regular improvement [7].

Implementation Considerations

The implementation of the system will require emphasis or consideration of certain aspects described below.

Data Privacy and Security: Healthcare data is sensitive and requires strong emphasis or adherence to regulations like General Data Protection Regulations (GDPR) and national regulations of the country to ensure data security and privacy [8]. Salesforce Health Cloud has built-in security measures, including encryption and user access control which are crucial to protect the information of the patients.

Staff Training: The successful implementation of the system will require support from the staff and their ability to handle it in the long run. Therefore, the need for staff training is a crucial aspect of the implementation of the technology [9].

Consent and Engagement of Patients: The technology will have access to the sensitive data of the patients and therefore will require consent and engagement from them [2]. Therefore, the involvement of the patients in the healthcare plans, especially in the context of implementing the technology will be an important implementational consideration.

Results and Discussion

Reduction of Readmission Rates: The integration of the Salesforce Health Cloud will possibly witness significantly positive results in real-time. The reduction in readmission rates following the implementation of the system is one of the most important benefits. The use of predictive models accurately highlights the patients with a high risk of readmission, which allows timely interventions [5].

These interventions are diverse, including medication reconciliation, scheduled follow-up appointments, and remote monitoring using wearable devices.

Regular Update of Data: The use of real-time data gained from wearable devices, can assist healthcare providers by keeping them updated regarding the health status of the patients, especially post-discharge. Patient engagement resources have also proven effective in encouraging adherence to medications and compliance with follow-up appointments, ultimately reducing the risk of readmission [7]. The use of updated data regularly can offer benefits like improved health of patients with decreased risk of readmission.

In contrast, the process of ensuring the accuracy of incoming data from various sources requires training of clinical staff [1]. The training of staff assures efficiency in utilizing the predictive insights leading to several challenges. However, these obstacles underscore the significance of continuous model enhancement and user education [10].

Conclusion

Overall, the predictive analytics of Salesforce Health Cloud offer benefits to address the issues that patients face during readmissions. It provides prompt insights regarding the patients at high risk by using AI and ML models. Healthcare providers can develop personalized, data-driven care plans to decrease readmission rates, enhance patient results, and reduce healthcare expenses.

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