Nurse Satisfaction and Experience Using a 30-day Readmission Predictive Analytics Tool in a Military Treatment Facility Patient Centered Medical Home

Introduction

Unintended hospital readmissions have a negative impact on quality outcomes and patient satisfaction scores, as well as an overall impact on resource utilization and cost (Joynt, 2012). The Risk of Readmission (RoR) tool was developed as a web-based software application to provide individual patient-level notification of the risk of readmission to inpatient and outpatient clinicians (Cai et al., 2013). The RoR tool provides early notification and case management opportunities for inpatient and outpatient clinicians to prevent readmissions, thus reducing overall costs and improving quality of patient care. The implementation of the predictive analytics Risk of Readmission tool was integrated as part of the Patient Centered Medical Home (PCMH) model into the Madigan Army Medical Center Internal Medicine and Cardiology Clinics. The implementation of the predictive analytics Risk of Readmission tool was integrated as part of the PCMH model into the Madigan Army Medical Center Internal Medicine and Cardiology Clinics.

Background

In 2015, when nurses were first exposed to the RoR tool, nurses were asked to complete a qualitative study to gather information on the tool's effectiveness in providing quality of care to patients with a history of readmissions. The tool was then tested in the Cardiology Clinic and the Internal Medicine Clinic Patient Centered Medical Home (PCMH). A myriad of variables, both known and unknown, contribute to an individual patient's risk of readmission (RoR) (Joynt, 2012). Big data analytics can determine which variables are associated with increased risk of readmission, and predictive algorithms can be used to identify individuals at highest risk. A machine learning-based 30-day Risk of Readmission predictive tool for healthcare facilities was developed by the collaboration between a military treatment facility and healthcare informatics company to better identify individuals at highest risk. A machine learning-based 30-day Risk of Readmission predictive tool for healthcare facilities was developed by the collaboration between a military treatment facility and healthcare informatics company to better identify individuals at highest risk.

Prior Research

To evaluate the effectiveness of the tool in readmission risk prediction, qualitative interviews were conducted with nurses at the Madigan Army Medical Center (なのか Facility) to assess the tool's usefulness in predicting patient risk of readmission. The tool was designed to help nurses identify patients at highest risk of readmission by using machine learning algorithms to analyze large datasets of patient information. The tool was found to be effective in helping nurses identify patients at highest risk of readmission.

The Risk of Readmission Tool

The 30-day goal of the RoR tool provides a platform of risk stratification based on real-time and historical electronic health record data. The tool is designed to identify high-risk patients and provide early notification of readmission risk to nurses and other healthcare providers. The tool uses machine learning algorithms to analyze large datasets of patient information, including demographics, medical history, and treatment outcomes. The tool is integrated into the electronic health record system to provide real-time access to risk scores and intervention recommendations.

Qualitative Results

Workflows Developed & Recommended Revisions

In the Internal Medicine Clinics, the specific intervention resulting from the use of the RoR tool was to identify high-risk patients who were scheduled for a clinic appointment but not seen in the past year. This intervention resulted in a significant increase in the number of patients who were identified as high-risk for readmission and who were subsequently followed-up. In the Cardiology Clinic, there was an additional specific intervention developed as a result of the use of the RoR tool. This involved facilitating communication among healthcare providers to identify high-risk patients who were scheduled for a clinic appointment but not seen in the past year.

Interventions Developed & Recommended Revisions

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Recommendations for Tool Improvements

The RoR tool provides nurses with access to real-time and historical patient data, which can be used to improve the quality of care provided to patients. The tool is also designed to help nurses identify patients at highest risk of readmission, which can be used to improve the quality of care provided to patients. The tool is designed to help nurses identify patients at highest risk of readmission, which can be used to improve the quality of care provided to patients.

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