Inpatient 30-Day Readmissions Prediction Model
Clinical Operations

Children's Mercy KANSAS CITY

Business Need & Use Case Overview

Over the past fiscal year, a significant number of patients discharged "home" from inpatient care are readmitted within 30 days.

By predicting which patients are most likely to readmit, the care team can customize precision interventions targeting prevention.

Ethical/Regulatory Considerations

There are many published studies indicating readmissions disproportionately impact patients based on race and financial class; the resulting model should be sensitive to not increase this gap

Archetype

Taker

AI Technique(s) Used

Supervised Learning Classification

Core System(s) Used

Cerner

Digital Solution(s) Used

N/A

Implementation Stage

In Development

Assessments

Risk	Complexity	Financial Impact
2.3/5	3.3/5	$$

Challenges/Lessons Learned

- Some readmissions are planned and have been excluded from the model
- A patient's likelihood of readmission may be primarily influenced by disease/disease process
- Identifying when interventions should occur is challenging, affecting both model adoption and (potentially) feature selection for the model itself

Initial Outcomes

Of the 5,306 patients included in the final analysis, 1343 (25.3%) had a thirty-day readmission. Out of nine risk components analyzed, eight were consistent with the literature review findings. Patients with a score of seven or higher had a 54.9% predicted probability of a thirty-day readmission, compared to 13.6% for patients with a risk score of zero. Overall, the HARRPS Tool was favorable and provides initial credibility of the tool's predictive power for the general pediatric population.

Source: https://www.childrensmercy.org/siteassets/media-documents-for-depts-section/documents-for-about-us/quality-and-safety/harrps-tool-usage-and-copyright.pdf?s=4MRKMN44JP