

Hospital Re-admission

Project Proposal

Hospital re-admission is a large problem currently facing the health care industry. Often, when a patient is released from a hospital, they return within a short period of time because of the same issue. For example, for patients discharged from a hospital after treatment for heart failure, 23 % of them return again within 30 days. This situation is not ideal, as it is more expensive for the patient, the hospital, and insurance companies to have the patient come back to the hospital again. In addition, if the patient has to come back to the hospital, the hospital has to re-collect their information and medical. We are interested in this project as James worked in research over the summer studying patient hospital flow, and Dana works in health insurance.

Our goal with this project is to predict which patients are likely to return to the hospital. We would like to see what factors make a patient more likely to return, and what diseases are the most common for return risks. Based on this, we would be able to recommend certain patients for longer initial visits or alternative care methods to prevent the risk of return. These results will be beneficial to both the hospital and the patient, as the hospital will ideally be able to adapt their discharge process to prevent patients from having to return.

The data we plan on using is from MIMIC, a dataset developed by the MIT Lab for Computational Physiology. This dataset contains health data of around 58,000 patients, including demographics, vital signs, laboratory tests, medications, and more. The data spans June 2001 to October 2012. The data is deidentified, and each patient has a unique ID number.

For our problem, there are several specific fields in the dataset we will be primarily focusing on. First, the patient admission date and discharge date will help us to identify how long the patient stayed at the hospital for. We can look at the patient ID numbers and determine if the patient returns to the hospital within a month-long period. The diagnosis code field will be used so that we can group patients of the same or similar diagnoses together for analysis. These fields will provide us with insights that can help us to identify the features that

make patients likely to be re-admitted.