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Case Study 2: Predicting Diabetes Patients Hospital Readmissions

**Introduction**

This case study looked at predicting the factors for hospital readmissions in diabetic patients. Specifically, it looked at patients who had previously been in the hospital and were re-admitted to the hospital within 30 days of discharge. This is the standard set by Centers for Medicare & Medicaid Services. Hospital re-admissions may or may not be for the same thing the patient went into the hospital for the first time. Avoiding readmissions results in cost savings and a healthier patient. Admissions to the hospital generally only happens when something has gone wrong, and the patient is not able to address the issue by themselves or in outpatient care.

**Methods**

Two CSV files were provided for this cast study. One was an encounter database when patients were admitted to the hospital. The second was a mapping of admission types including how they were admitted to the hospital as well as how they were discharged. We dropped two columns that did not have more than one value including “examide”, and “citoglipton”. While there technically were no NaN values in the data set there were missing values set as “?”. This was due to how data was collected, input by hospital staff and was not always uniform in what was collected. We dropped 3 additional columns due to low input of data including, “'weight”, “medical\_specialty”, “payer\_code”. Additionally, we if “race” was not noted in the data set we set it as Caucasian as that was approximately 80% of the data. We imputed missing values in race using mode.

**Conclusion**

Over 50% of patients were not re-admitted to the hospital. While close to 37% of patients were re-admitted within 30 days of being discharged. Less than 15% of patients were re-admitted over 30 days from discharge.

Chart, bar chart

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We got an accuracy of 88.9% with a precision of 74.5%

Graphical user interface, text, application

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**Appendix A**Text

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