



DIABETES &
HOSPITAL
READMISSION
ZACHARY MORRIS

“The way to deal with the devil of obesity and diabetes is literally one day at a time.”

-STEPHEN FURST

DATA SCIENCE PROBLEM

Can I accurately predict
whether a patient with a recorded
diabetic encounter will be readmitted?

DATA QUICK FACTS

- 98K ROWS
- 50+ FEATURES
- 130 US HOSPITALS
- 10 YEAR SPAN (1999-2008)
- ORIGINAL DATA COMES FROM A STUDY DONE AT VCU
- OBSERVATIONS REPRESENT WHERE A DIABETIC DIAGNOSIS OCCURRED, NOT PATIENTS WITH DIABETES



WHY?

"Management of hyperglycemia in hospitalized patients has a significant bearing on outcome, in terms of both morbidity and mortality."

By Focusing on factors that lead to readmission:

- Doctors can work with patients to reduce risks
- Hospitals can be more prepared to handle readmitted patients
- Insurance companies can better estimate costs per individual
- Individuals can better understand personal costs associated with long-term Diabetes maintenance

OBSTACLES

A Ton of Cleaning

Few 'Good/Strong' Correlations

Missing Data (That Would Have Been Nice to Have)

MODELS

Baseline

.533

Logistic Regression

.622 (Train)

.615 (Test)

RandomForest

.983 (Train)

.605 (Test)

KNN

.673 (Train)

.562 (Test)

WHERE TO NEXT?

- Continue exploring hyper-parameters for each model
- Explore other modeling techniques
- Examine more closely the relationship of each variable to the target variable
- More outside research
- Compare results to VCU study

QUESTIONS?

