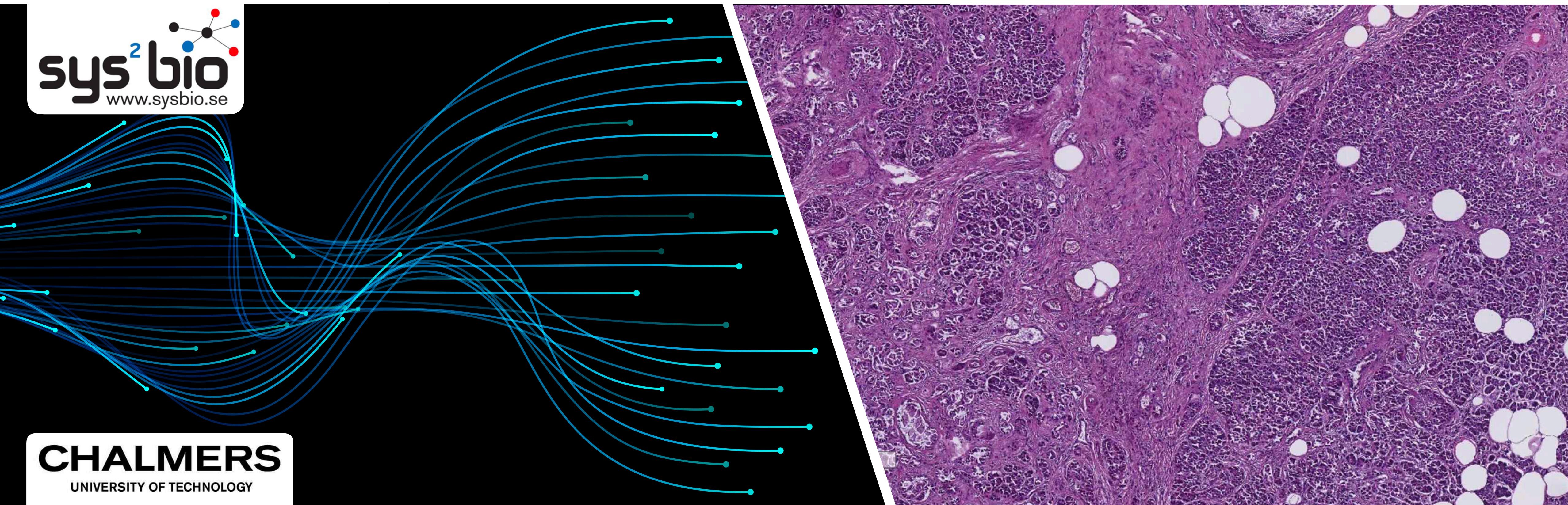


Team Chotbullah_warriors

2020-11-28

Angelo Limeta

Leticia Castillon



Who are we?

Leticia Castillon

- MSc student in Biotechnology

Angelo Limeta

- PhD student in Systems biology

**Both of us are based in Chalmers
University of Technology, in Gothenburg,
Sweden** 

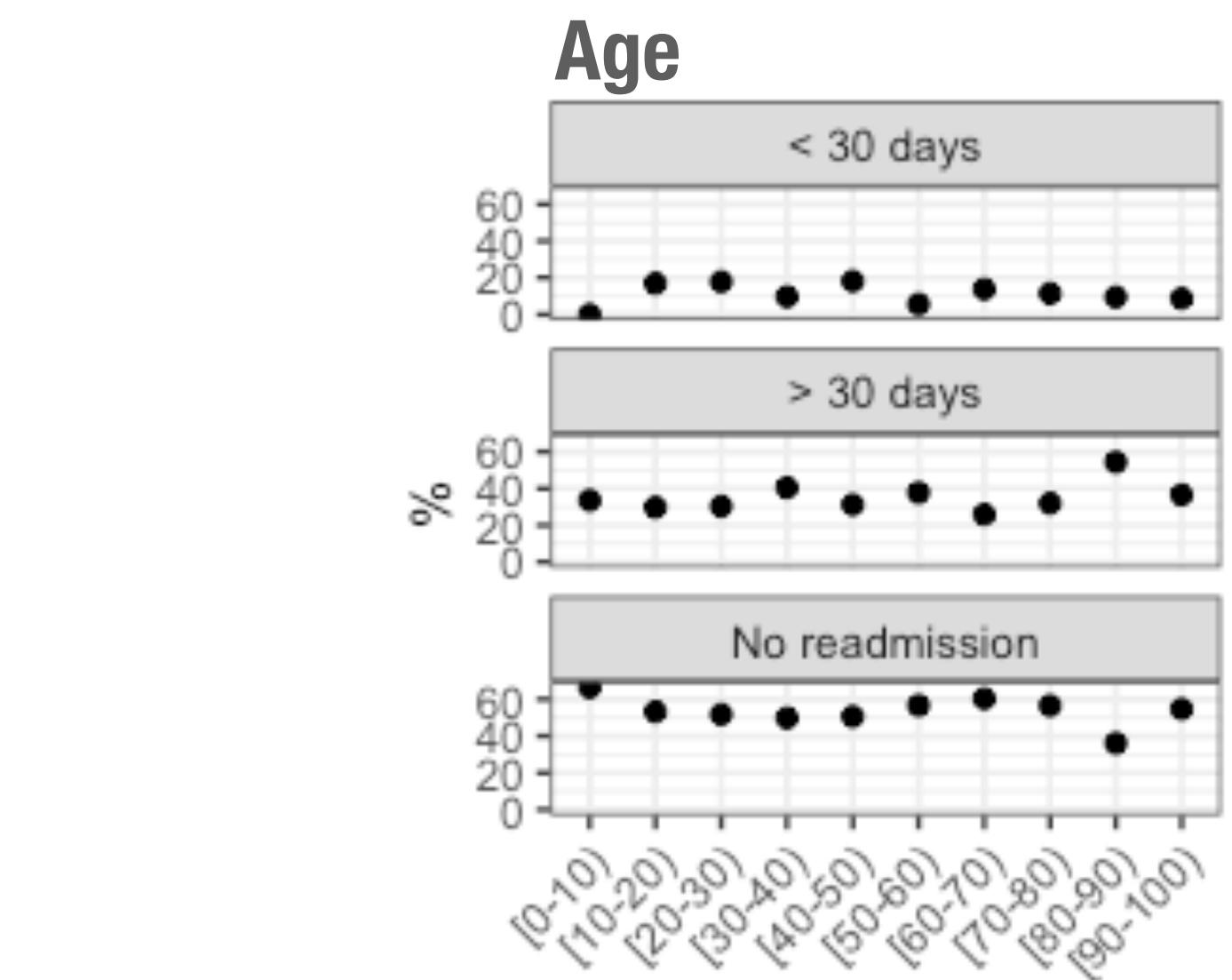
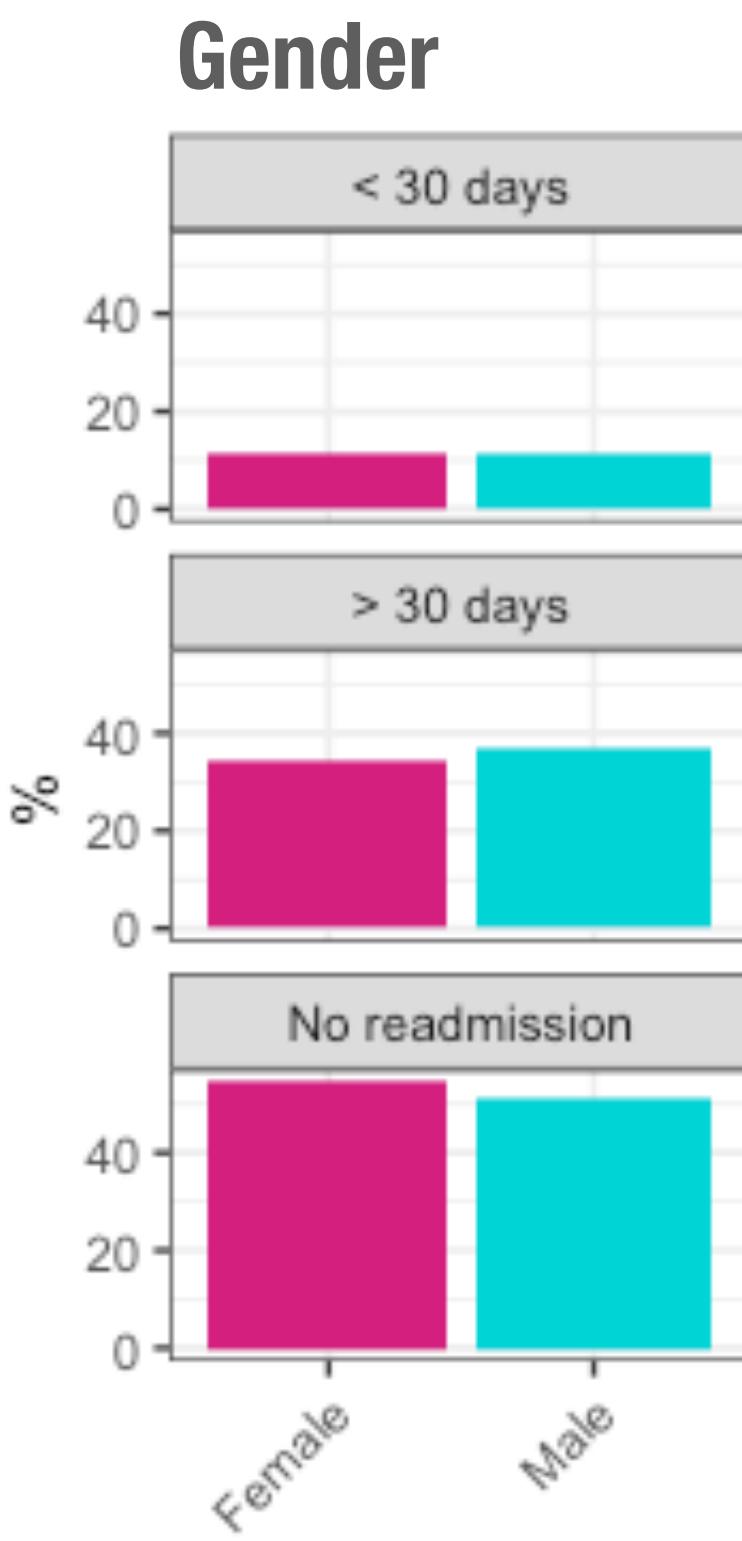
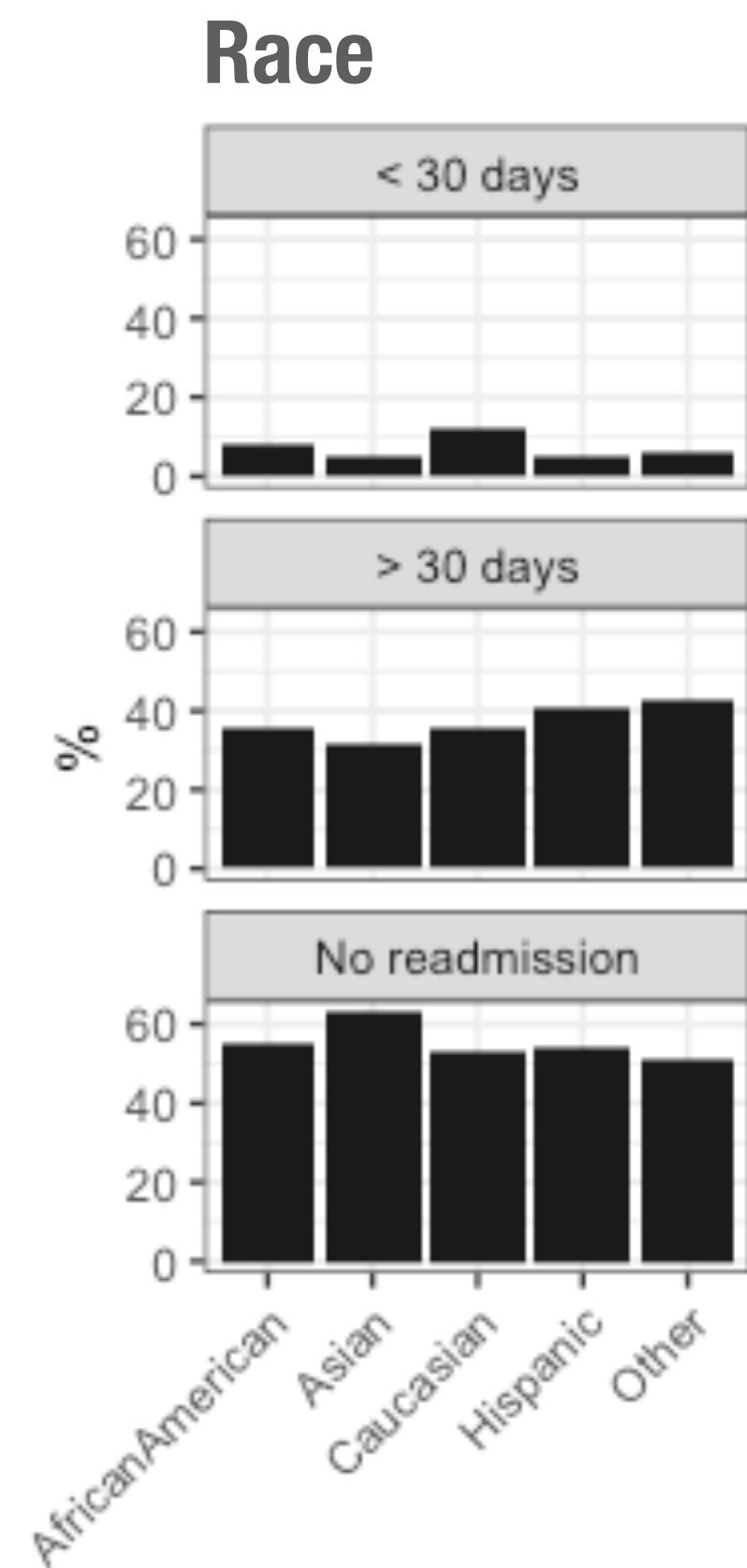


Synthetic data analysis

Demographics

Overall pretty similar distribution of readmission rates across race, gender and age

- Slight decrease in readmission amongst asian individuals
- Same for males vs females
- Dip in readmission amongst individuals aged 80-90



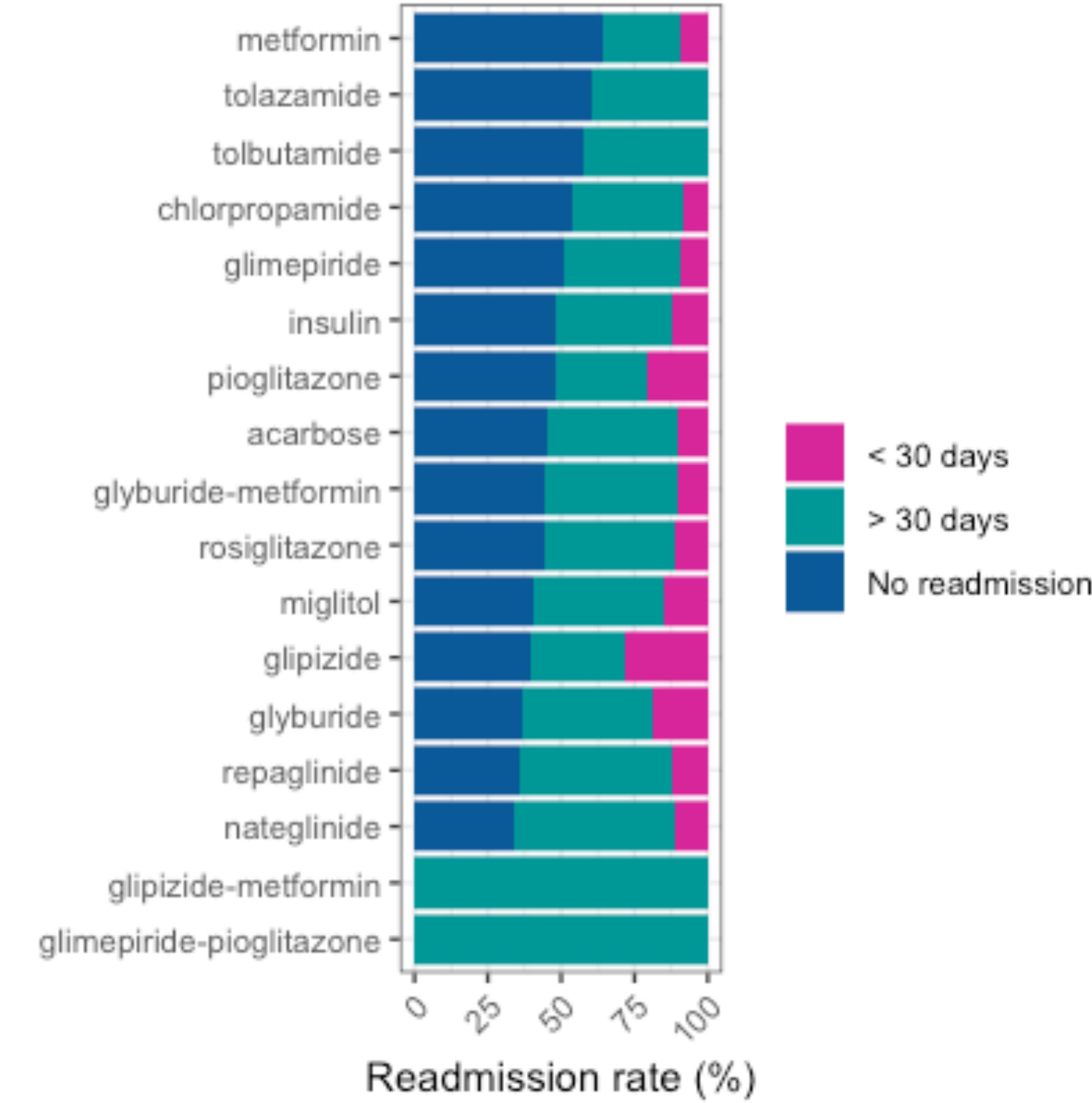
Medications

Filtered out all individuals with steady treatment regimens

- Calculated the proportion of each class

Metformin has the greatest success rate for reducing readmission to the clinic

- Consistent with its used as a first-line therapy in T2D



Feature selection

Trained a random forest model to predict readmission labels for each patients

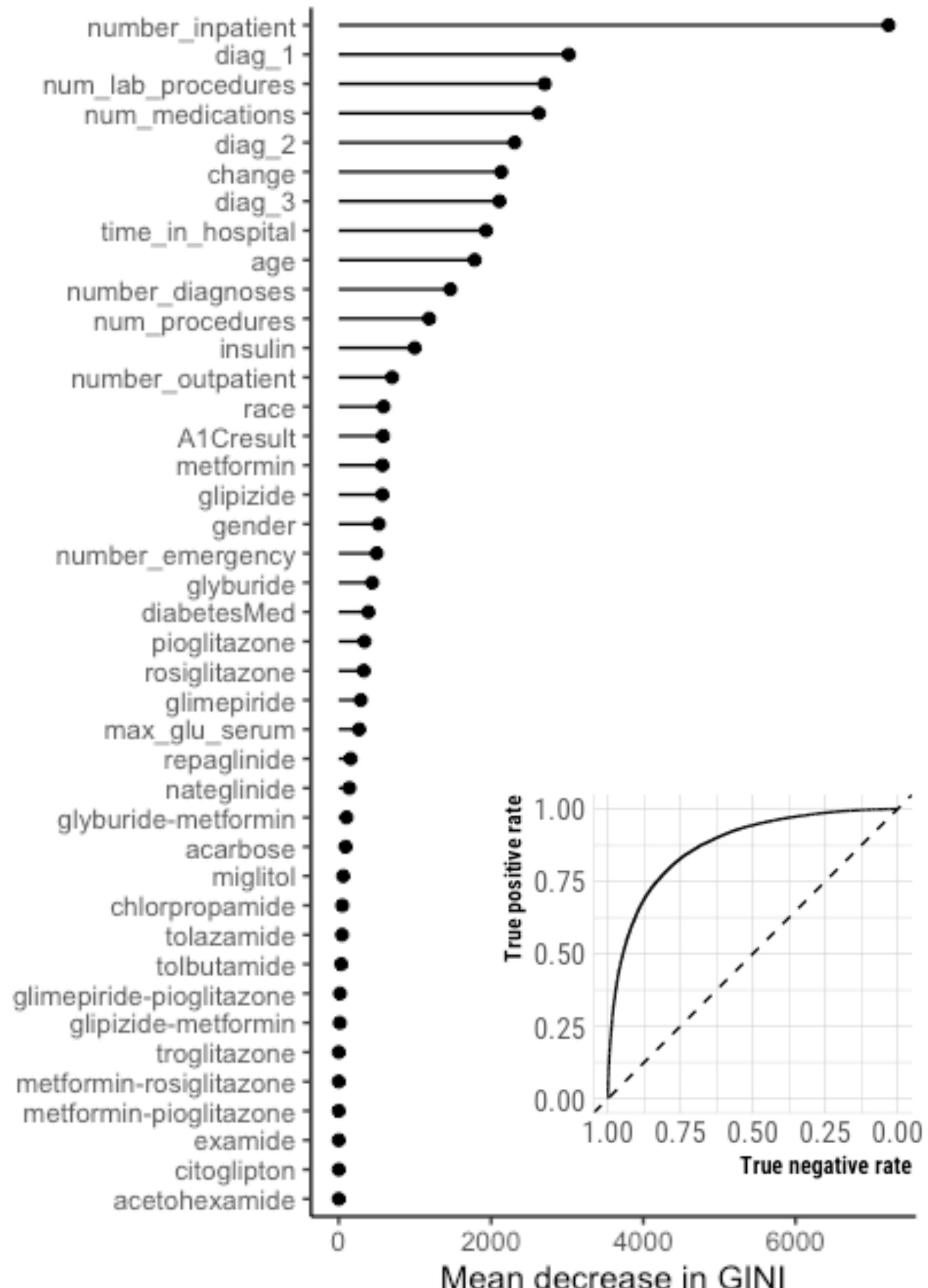
- All features in the synthetic data set
- 1000 trees
- \sqrt{k} features sampled for each split
- implemented using the randomForest package in R

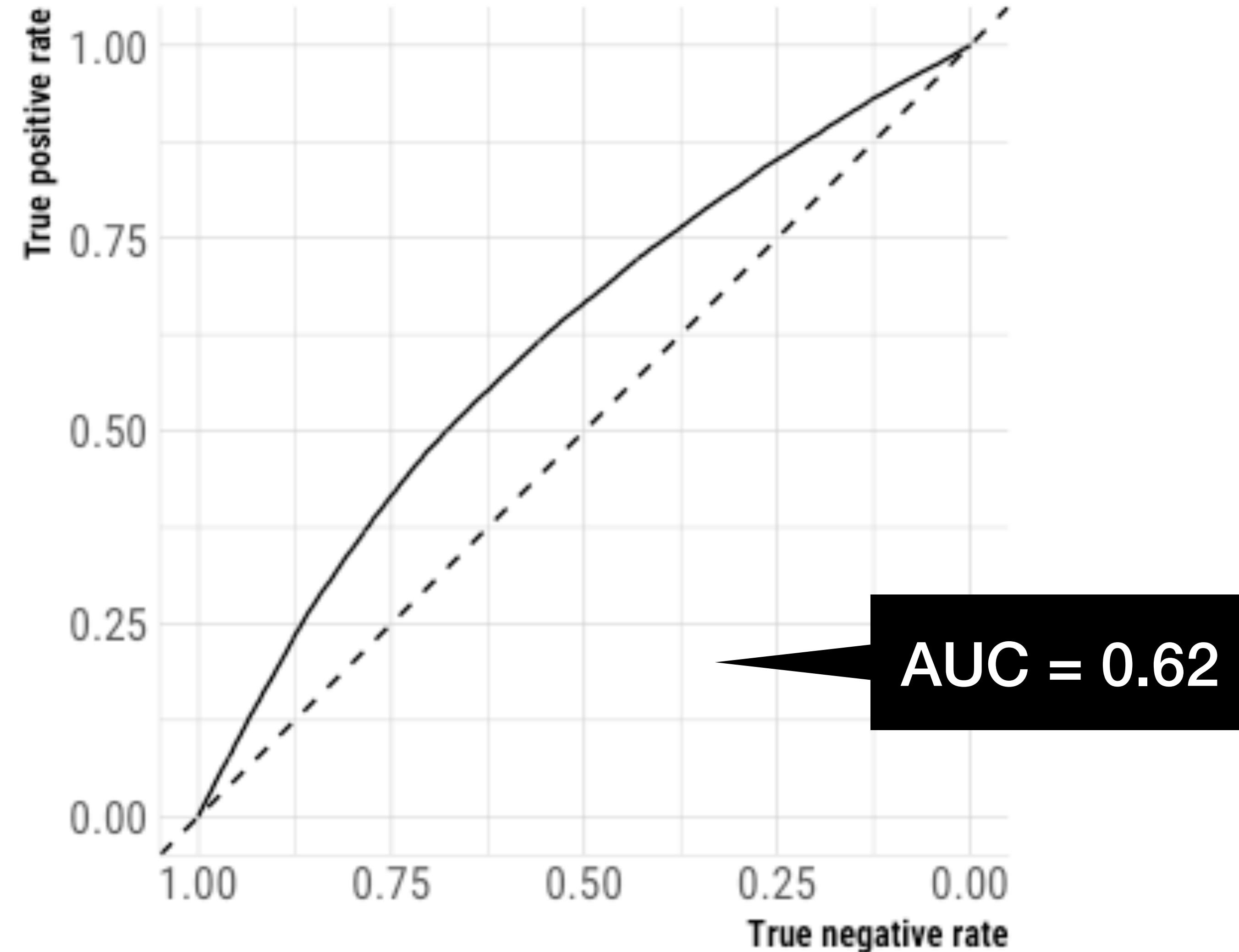
Model performance

- AUC ROC of 0.87 (95% CI: 0.870-0.875) on synthetic training data

Features related to prior visits are the most important

Insulin is the most predictive drug





Performance on real data is quite poor, but remains predictive

Thanks for listening!