Predicting the Risk of Recurrent MI

SIBS Hackathon Presentation

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Outline

Background

- Bullet 1
- Bullet 2
- Bullet 3

Research Question

Question 1

What can we look at either during admission or the hospital stay in patients post-heart attack (myocardial infarction) to predict the risk of having a relapse?

Question 2

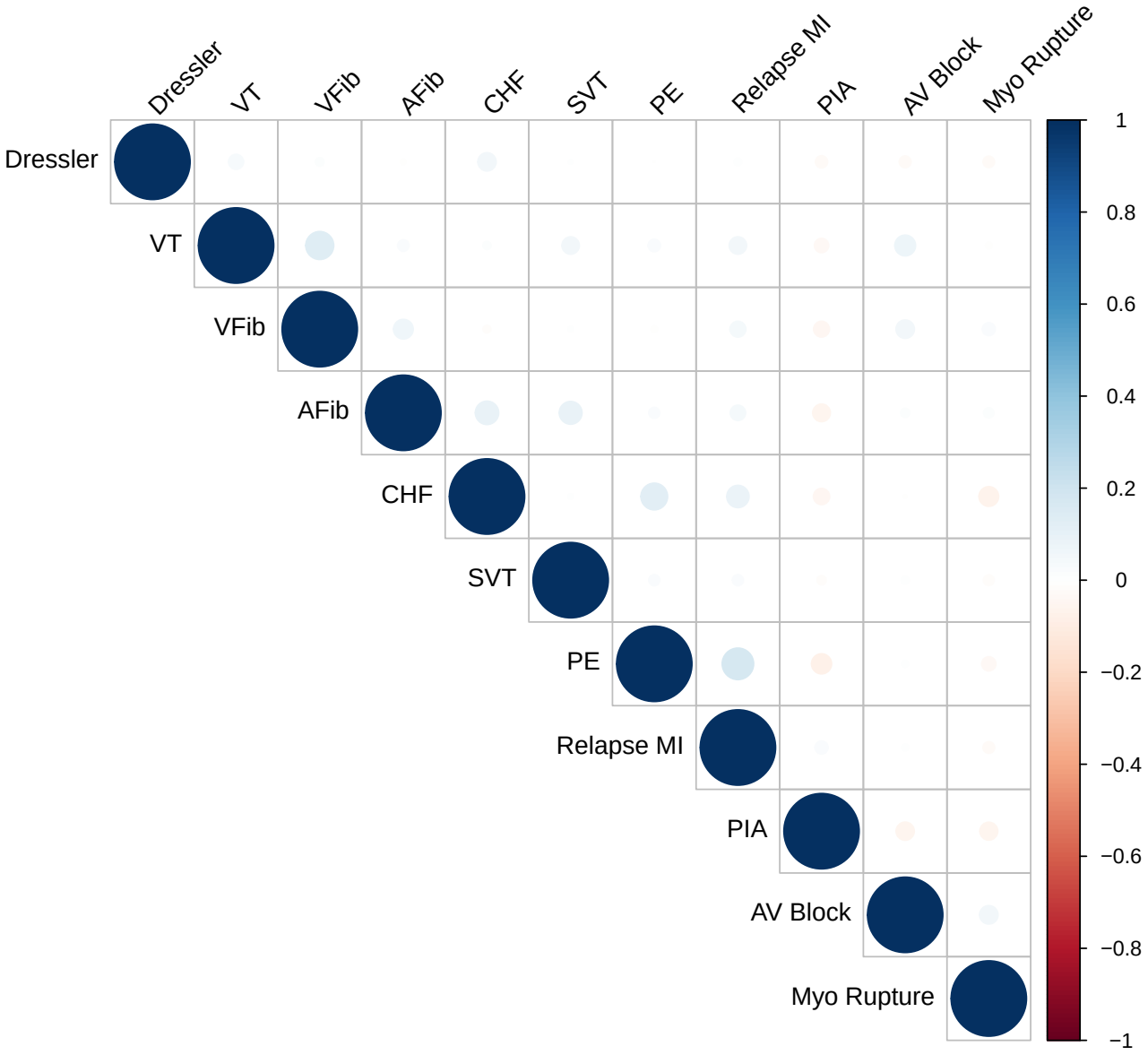
Which risk prediction model is best at predicting a recurrent heart attack?

Missing Data

- 7.6% missing values
- Used `mice` library in `R`
  - Predictive Mean Modeling
  - 1700 completed observations instead of 0!

Outline

Response Variable Correlation



Outline

Model Building

Logistic regression is the basis

- Response variable (recurrent MI) is binary
- Multiple predictors
  - $>$ 100 covariates to begin
  - Several removed from consideration due to missingness
  -

Model Building

Two methods to select significant predictors:

1. Backwards Elimination using AIC (`stepAIC`)
2. Elastic Net Penalized Regression (`glmnet`)

Methods will pick predictors and build model

Model

$$REC\_IM = \beta_0 + \beta_1 x_1$$

\end{subsection}

Outline

Outline

Questions??