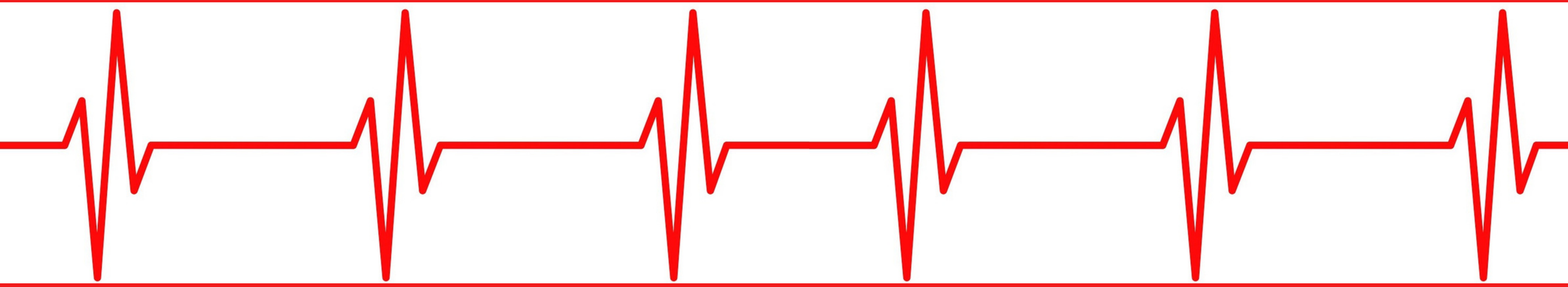
Predicting complications after Heart Attack



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Cardiologists

University Research Hospital

- Predict which myocardial infarction (MI) patients will experience potentially fatal complications or die within the first year after MI

- Identify possible areas for research into new treatments or drug targets

Business Problem

Data & Methods

MI patients in Krasnoyarsk, Russia from 1992–1995

HEALTH DATA

- admission
- 3 days in ICU
- 1700 patients

FEATURES

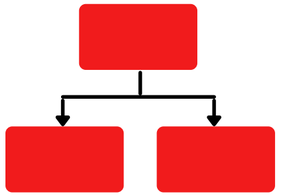
- Age, & Sex
- Health History
- ECG, blood labs
- Medicines used

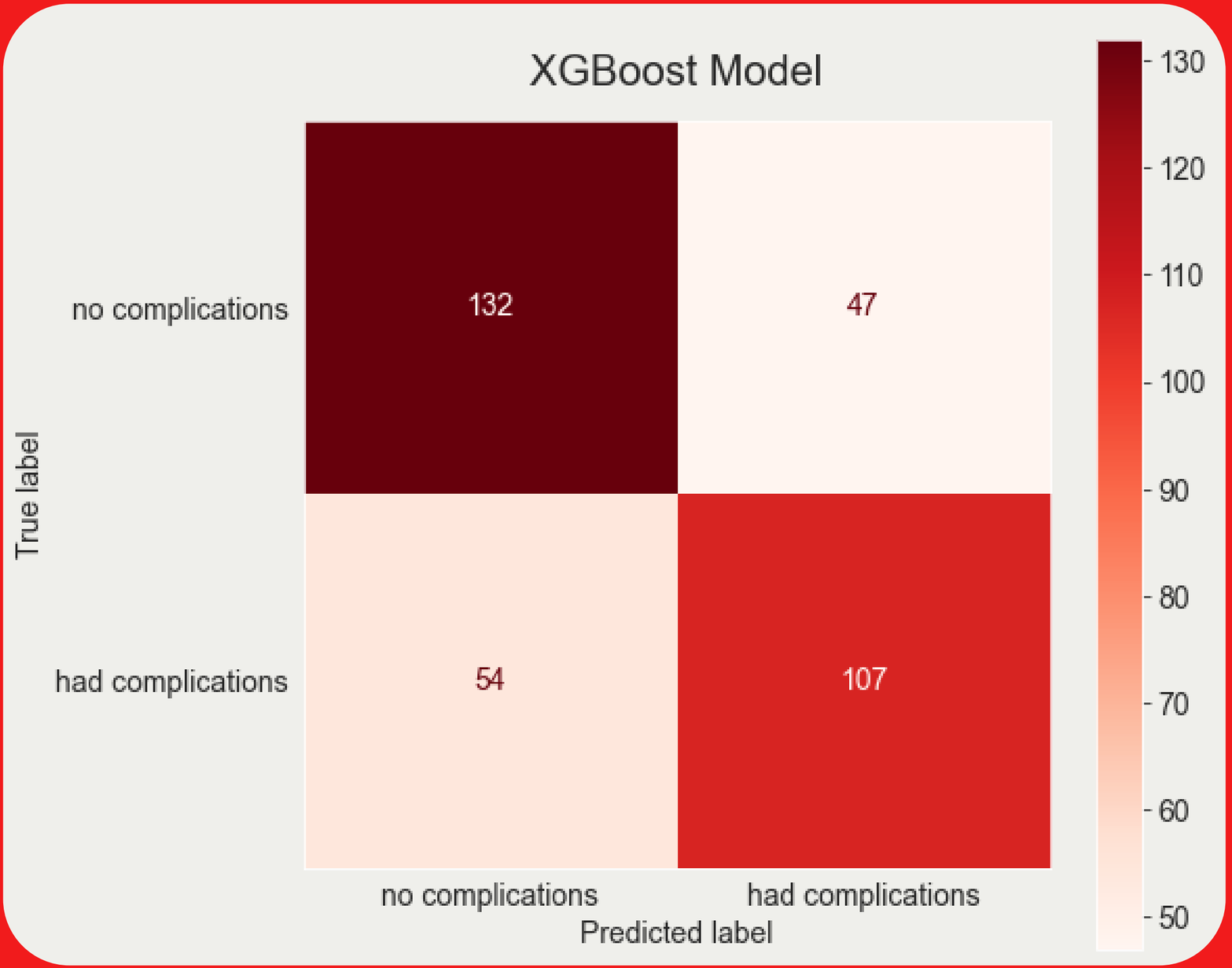
TARGET

Did the patient have a potentially fatal complication or die of heart related causes?

XGBOOST

tree based model

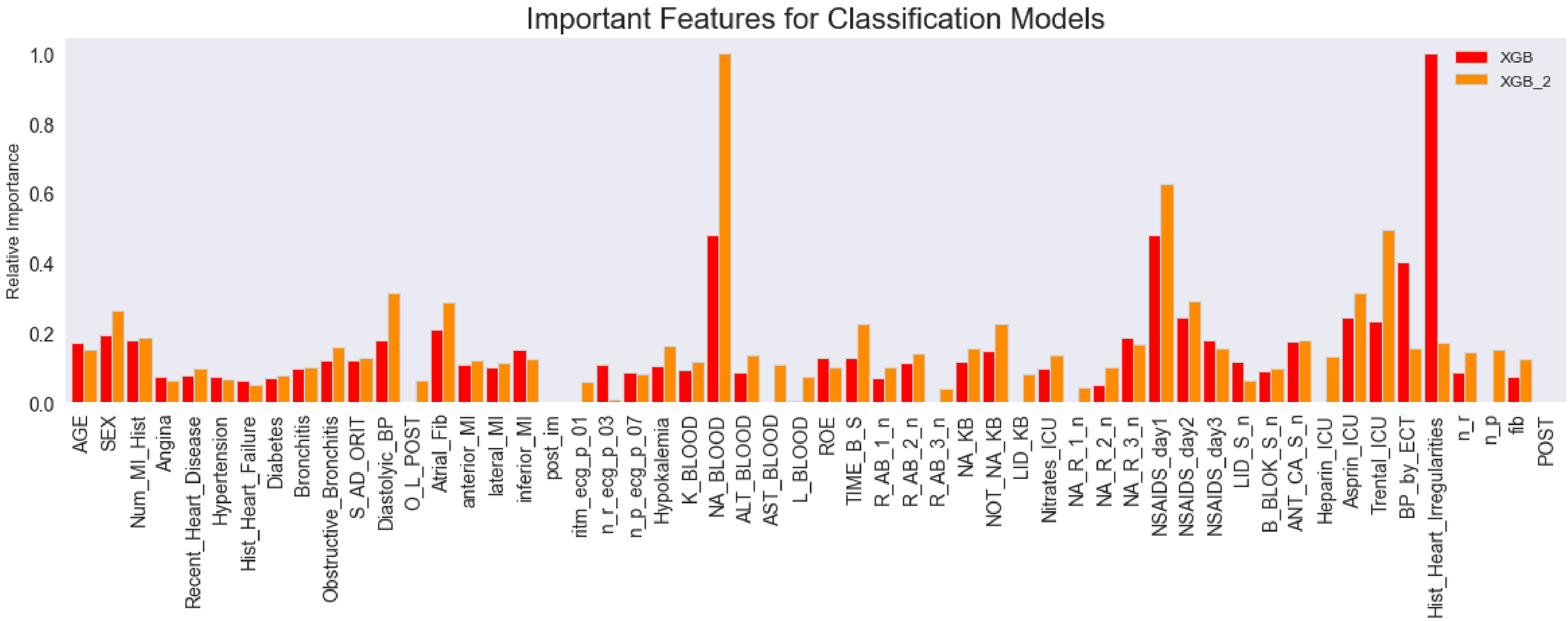


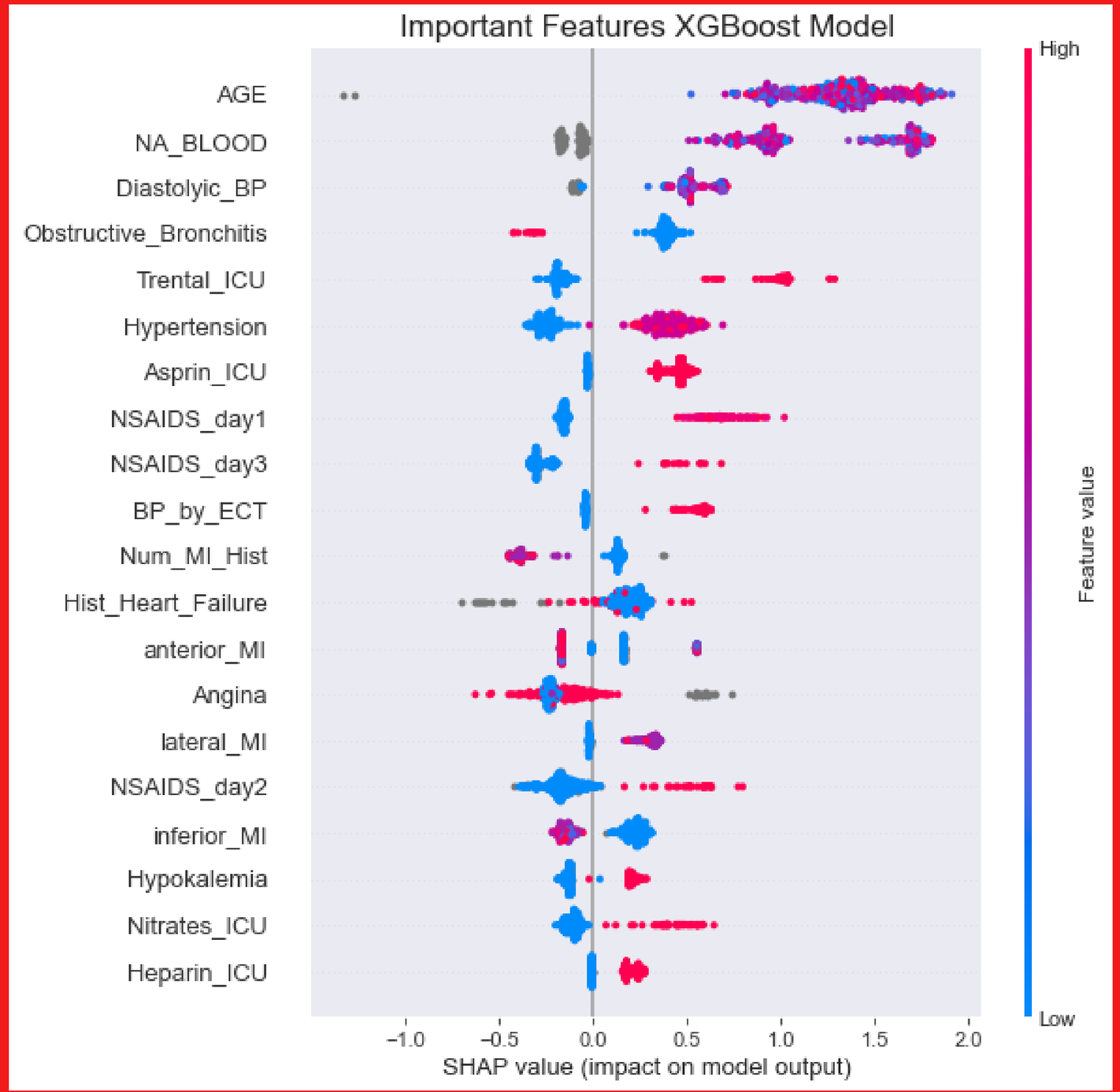


The Model

Identifies 66% of patients

Feature Importance changes with tuning





Research areas

Potenital targets

- Trental given in ICU
- Asprin given in ICU
- NSAIDs given in the ICU
- Location
- Obstructive Bronchitis?

Conclusions & Future Directions

Model

NEEDS IMPROVEMENT

- Identifies 66% patients for intenstive follow up care
- Try a different type of model
- Use a different method to prepare data

Research

POSSIBLE AREAS

- Medicines given in ICU
- Obstructive Chronic Bronchitis
- Location of MI
- Other features are already well known risk factors- sodium levels, hypertension

Thank you!

Questions?

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