



Predicting Strokes in Our Patient Population

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The business problem

In our family practice locations we want to help our physicians be able to deliver the most accurate preventative care as possible.

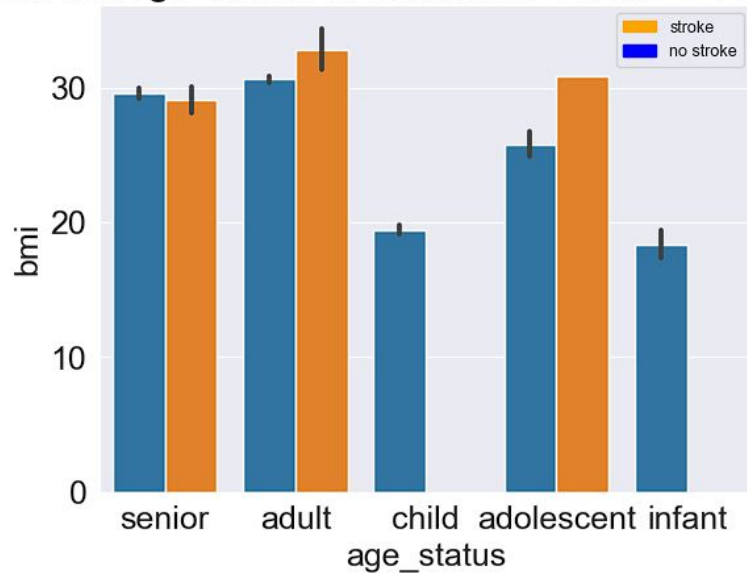
The main question: Can we predict which of our patients will get strokes?



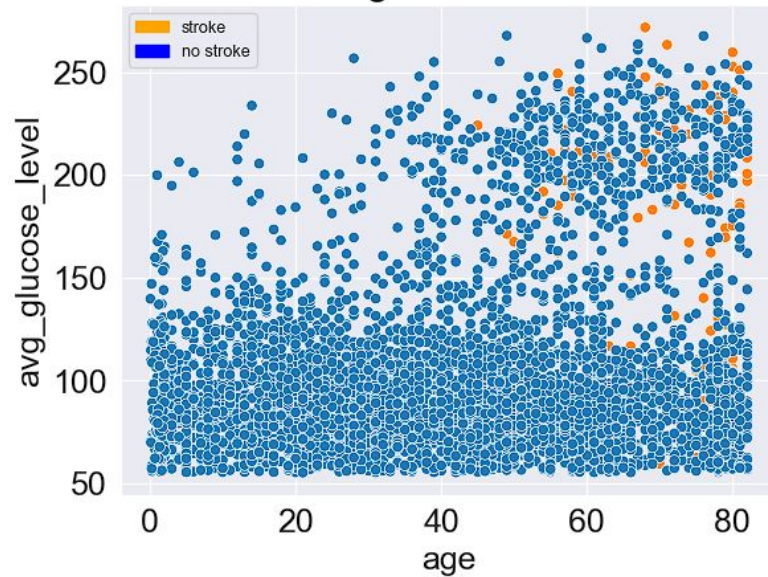
Data Included

- Gender:
 - Male, Female, Other
- Age
- Hypertension (present or not)
- Heart Disease (present or not)
- Ever Married?
- Work Type
 - Child, government, private, self-employed
- Average Blood Glucose Level
- Body Mass Index
 - Actual number
- Smoking Status
 - Used to smoke, never smoked, smokes, unknown
- Residence Type
 - Rural Urban

BMI vs. Age Status in relation to Stroke Occurrence



Avg. Glucose Level vs. Age in relation to Stroke Occurrence





Strengths and Limitations

Strengths

- Balance between false positives and negatives
- Model is not 'memorizing' training data
 - Both have accuracy of 75%

Weaknesses

- Accuracy of model is below 80%
- False negatives are still relatively high
- Very small amount of patients that have had strokes compared to not having a stroke



Recommendations

While this model has its limitations I recommend that we implement the model for our physicians to use as a tool to help guide them in clinical decision making. Providers should not solely rely on the models predictions, but can use it as a consideration in our patients.



Where Do We Go From Here

1. Tune model with different combinations of risk factors
2. Group factors to help model be more accurate
3. Reduce factors to ones most correlated with strokes