Final Metrics

Predicting Sepsis in ICU Patients

#### By Aisling Casey – 06/09/2021

The final model selected was a gradient boost model. The classification scheme used is by-patient classification rather than hourly. A classification threshold of 11% is used to catch more sepsis cases. The model should thus be used as an elevated warning system.

### Model Parameters

Gradient Boost Model

'ccp\_alpha': 0.0,

'criterion': 'friedman\_mse',

'init': None,

'learning\_rate': 0.01,

'loss': 'deviance',

'max\_depth': 5,

'max\_features': 'sqrt',

'max\_leaf\_nodes': None,

'min\_impurity\_decrease': 0.0,

'min\_impurity\_split': None,

'min\_samples\_leaf': 1,

'min\_samples\_split': 2,

'min\_weight\_fraction\_leaf': 0.0,

'n\_estimators': 300,

'n\_iter\_no\_change': None,

'random\_state': 42,

'subsample': 1.0,

'tol': 0.0001,

'validation\_fraction': 0.1,

'verbose': 0,

'warm\_start': False

## Results

Classification Report – Testing Data

precision recall f1-score support

0 0.96 0.76 0.85 11231

1 0.15 0.54 0.23 870

accuracy 0.74 12101

macro avg 0.55 0.65 0.54 12101

weighted avg 0.90 0.74 0.80 12101

Note: The probability threshold has been set to 11% to favor True Positives.

Confusion Matrix – Testing Data

|  |  |  |
| --- | --- | --- |
|  | Predicted 0 | Predicted 1 |
| Actual 0 | 8534 | 2697 |
| Actual 1 | 399 | 471 |

Note: The probability threshold has been set to 11% to favor True Positives.



