

## Supplementary Files

**Supplement Table S1:** Model for predictors of mortality using logistic regression model based on a-priori variables.

<b>Covariate</b>	<b>Coefficient (Confidence Interval)</b>	<b>P.Value</b>
(Intercept)	-2.1 (-11.41 - 7.21)	0.700
Age	0.06 (0.03 - 0.1)	<0.001*
Female	-1 (-2 - -0.2)	0.015*
Nonwhite	0.04 (-0.8 - 0.9)	0.919
Body mass index	-0.03 (-0.09 - 0.03)	0.341
Initial oxygen saturation	-0.02 (-0.11 - 0.07)	0.638
Smoking	0.02 (-0.74 - 0.8)	1.000
Hypertension	0.3 (-0.6 - 1.13)	0.522
Chronic obstructive pulmonary disease	0.4 (-0.43 - 1.16)	0.400
Myocardial infarction	0.02 (-1.1 - 1.14)	1.000
Immunocompromised	0.92 (-0.03 - 2)	0.060
Mean creatinine	0.1 (-0.07 - 0.3)	0.228
Mean Renalase	-1e-04 (-2e-04 - -3e-05)	0.004*
Mean IL-6	-1e-04 (-3e-04 - 1e-04)	0.400
Time of sample	-9e-04 (-0.05 - 0.05)	1.000

\* Statistically significant with P value <0.05

**Supplement Table S2:** Model for predictors of mortality using backward step logistic regression model.

<b>Covariate</b>	<b>Coefficient (Confidence Interval)</b>	<b>P.Value</b>
Minimum oxygen saturation	0.2 (0.05 - 0.3)	0.003*
Standard deviation of oxygen saturation	4 (2 - 6)	<0.001*
Initial sodium	-0.4 (-0.8 - 0.04)	0.074
Initial chloride	0.41 (0.02 - 0.8)	0.040*
Initial estimated glomerular filtration rate	0.2 (0.04 - 0.33)	0.014*
Initial fibrinogen	-0.005 (-0.01 - 0.003)	0.243

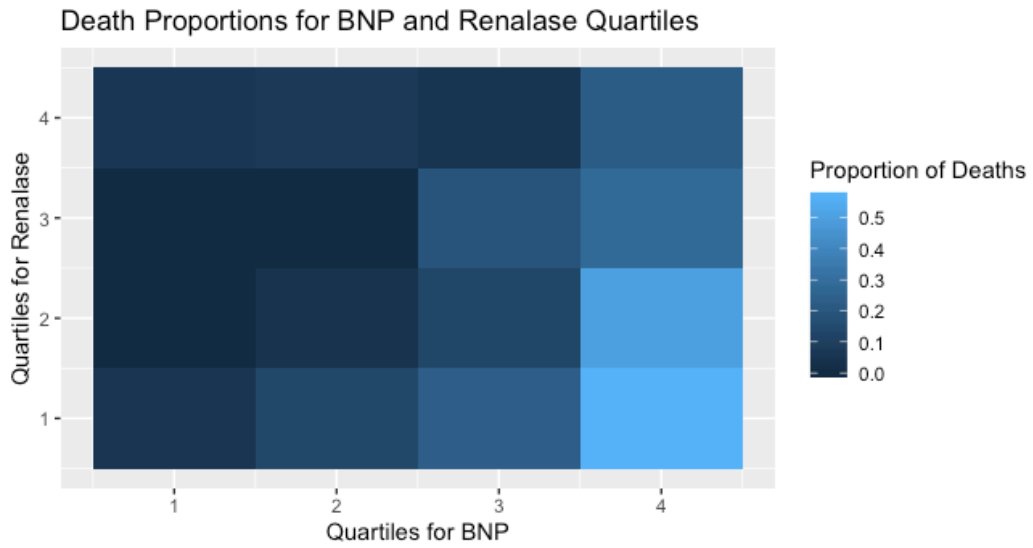
Median BNP	-6e-04 (-0.001 - -2e-04)	0.006*
Mean hemoglobin	2.21 (0.8 - 4)	0.003*
Mean platelet count	-0.02 (-0.03 - -0.003)	0.013*
Mean Blood urea nitrogen	0.2 (0.05 - 0.31)	0.007*
Mean procalcitonin	0.7 (-0.07 - 1.37)	0.074
Mean troponin t	34.03 (8.11 - 60)	0.010*
Mean Renalase	-3e-04 (-5e-04 - -7e-05)	0.009*
Mean High-Sensitivity Troponin	-0.03 (-0.06 - -0.01)	0.013*
Mean Interleukin-6	-4e-04 (-0.001 - 8e-04)	0.515
Mean diastolic blood pressure	-0.09 (-0.2 - 0.01)	0.080
Gastrointestinal symptoms at presentation	-2.05 (-4.41 - 0.32)	0.090

\* P value <0.05

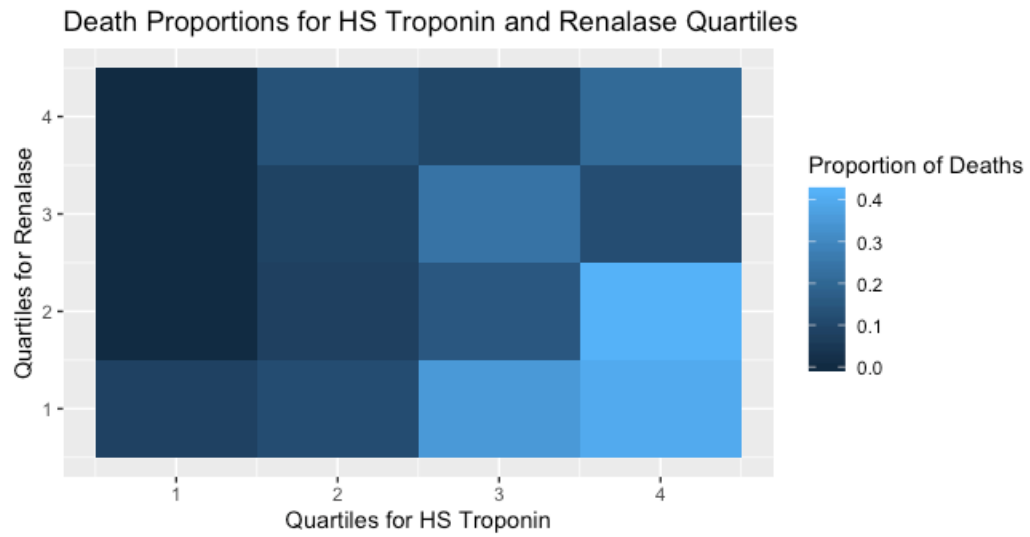
**Supplement Table S3:** Profile of patients hospitalized with COVID-19 with 3 or more samples.

<b>Factor</b>	<b>Total (n=437)</b>	<b>Patients with 2 or fewer samples (n=309)</b>	<b>Patients with 3 or more samples (n=128)</b>
<i>Demographics</i>			
Age; mean (SD)	63.8 (17.0)	64.1 (16.8)	63.3 (17.6)
Male; n (%)	233 (53.3%)	157 (50.8%)	76 (59.4%)
BMI; mean (SD)	30.1 (7.6)	30.0 (7.4)	30.2 (8.1)
Race; n (%)			
White	228 (52.2%)	161 (52.1%)	67 (52.3%)
Black	132 (30.2%)	95 (30.7%)	37 (28.9%)
Other	77 (17.6%)	53 (17.2%)	24 (18.8%)
<i>Clinical Course</i>			
Hospital length of stay; mean (SD)	16.2 (13.7)	14.3 (12.5)	21.0 (15.2)
ICU Admission; n (%)	167 (38.2%)	97 (31.4%)	70 (54.7%)
Follow-up in days; mean (SD)	72.0 (61.0)	71.5 (61.6)	73.2 (59.8)

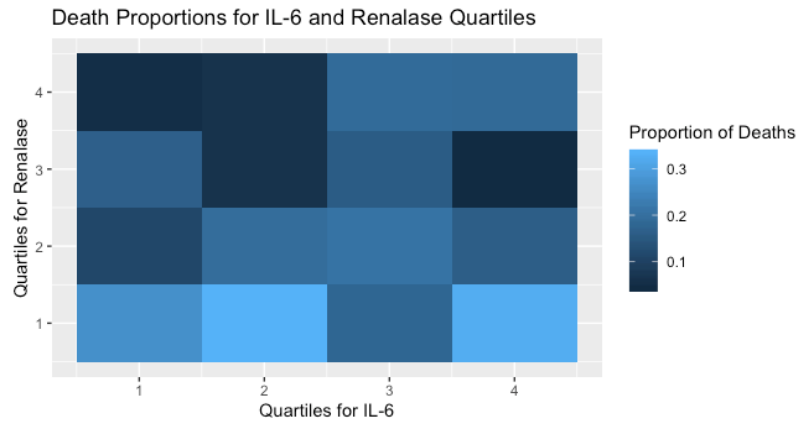
**Supplemental Figure S1A:** Comparison of BNP and Renalase Quartiles.



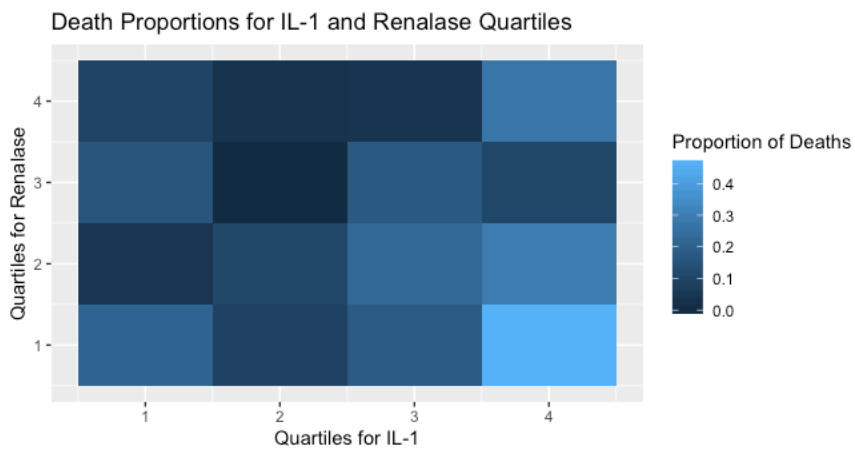
**Supplemental Figure 1B:** Comparison of High Sensitivity Troponin and Renalase Quartiles



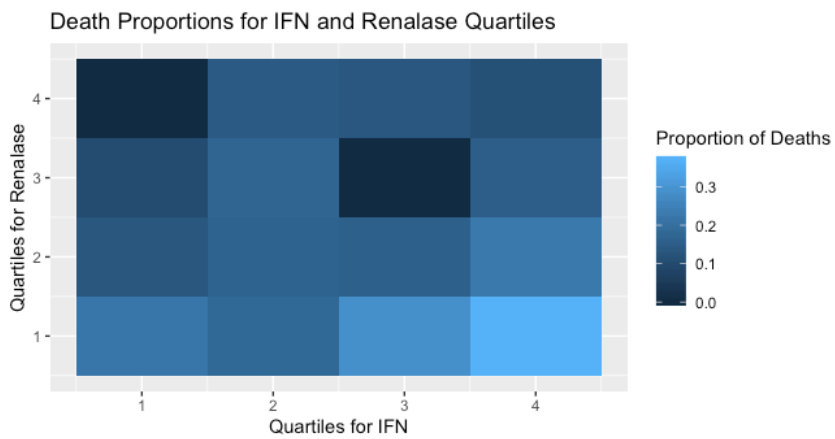
**Supplemental Figure S1C:** Comparison of Interleukin-6 and Renalase Quartiles.



**Supplemental Figure S1D:** Comparison of Interleukin-1 and Renalase Quartiles.

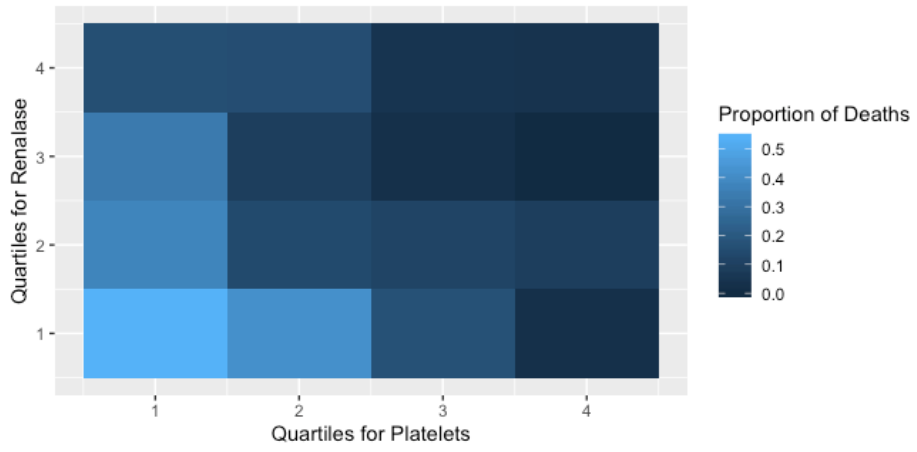


**Supplemental Figure S1E:** Comparison of Interferon and Renalase Quartiles

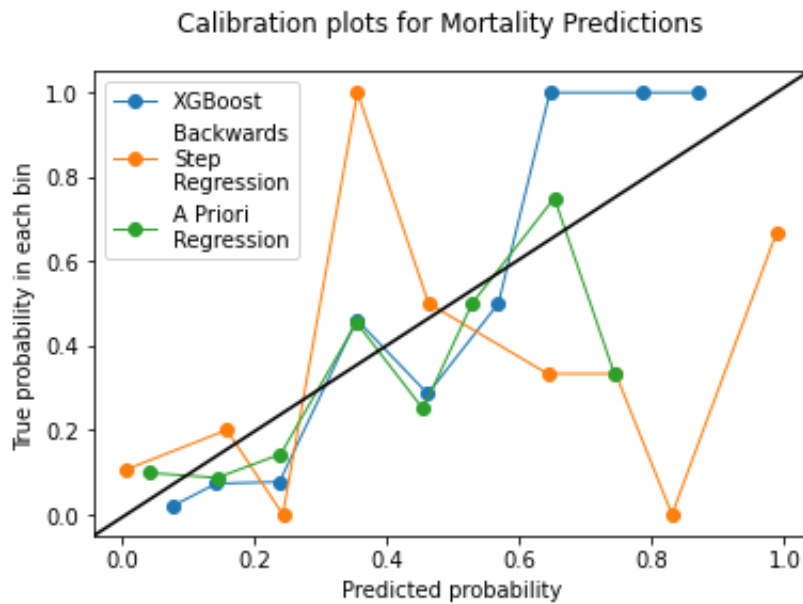


**Supplemental Figure S1F:** Comparison of Platelet Counts and Renalase Quartiles.

Death Proportions for Platelets and Renalase Quartiles



**Supplement Figure S2:** Calibration Plot for the Models



**Supplement Table S4:** New Metrics.

Method	Train PR-AUC	Validation PR-AUC	Test PR-AUC
A Priori Logistic Regression	0.56	0.21	0.37
Backwards Step Logistic Regression	0.94	0.55	0.56
XGBoost	0.98	0.97	0.74

**Supplement Table S5:** List of Variables Removed.

- The following is a list of variables where 35% or more values were missing.
- C-reactive protein first value
- C-reactive protein value closest to the sample
- Troponin I first value
- Troponin I value closest to the sample
- Troponin I minimum value
- Troponin I maximum value
- Troponin I median value
- AC Ratio Urine maximum value
- AC Ratio Urine median value
- AC Ratio Urine mean value
- AC Ratio Urine minimum value
- Standard deviation of AC Ratio Urine values
- AC Ratio Urine first value

- Standard deviation of BNP values
- BNPPPOC first value
- BNPPPOC last value
- 25<sup>th</sup> Percentile of cortisol levels
- 75<sup>th</sup> Percentile of cortisol levels
- Cortisol first value
- Cortisol last value
- Cortisol maximum value
- Cortisol mean value
- Cortisol median value
- Cortisol minimum value
- Standard deviation of cortisol values
- 25<sup>th</sup> Percentile of ejection fraction values
- 75<sup>th</sup> Percentile of ejection fraction values
- Ejection fraction first value
- Ejection fraction last value
- Ejection fraction maximum value
- Ejection fraction mean value
- Ejection fraction median value
- Ejection fraction minimum value
- Standard deviation of ejection fraction values
- Length of stay in the ICU
- Time in the hospital