<u>SUPPLEMENTAL APPENDIX</u>

Supplemental Table 1

	Definition
Complications	
Acute Kidney Injury (AKI)	As defined by clinical notes in EHR
Acute Respiratory Distress Syndrome (ARDS)	As defined by clinical notes in EHR (all met Berlin Criteria, not further categorized by severity)
Comorbidity Groupings	
Pulmonary Disease	Documentation of any pulmonary disease in the patient's chart as past medical history including, but not limited to asthma, Chronic Obstructive Pulmonary Disease (COPD), obstructive sleep apnea (OSA), or interstitial lung disease (ILD).
Renal Disease	Documentation of chronic kidney disease (CKD) or end stage renal disease (ESRD) in the patient's chart as past medical history.
Rheumatological Disease	Documentation of any autoimmune disease in the patient's chart as past medical history including, but not limited to rheumatoid arthritis or systemic lupus erythematosus (SLE), scleroderma, sarcoidosis.

Supplemental Table 1 Clinical Definitions Description of the definitions used for select complications and comorbidity groupings.

Supplemental Table 2

	All NYP/CUIMC Tests	Outpatient/Affiliate Tests	ED/Inpatient Tests	Our Cohort
Positive SARS-CoV-2	1403	271	1132	1000
Negative/Indeterminate SARS-CoV-2	1020	339	681	0

Supplemental Table 2 Breakdown of SARS-CoV-2 Tests Number of total SARS-CoV-2 tests done at NYP/CUMC (positive and negative), along with those only done in ED/Inpatient setting. Our cohort comprises the first 1000 of the 1132 SARS-CoV-2 positive patients who sought hospital care from March 1 to April 6 2020.

Supplemental Table 3

Lab Test	ED Median (IQR) (n)	Hospitalized (non-ICU) Median (IQR) (n)	ICU Median (IQR) (n)	Overall Median (IQR) (n)
ALT (U/L)	32 (23 - 55.5) (n = 59)	28 (19 - 45) (n = 374)	32.5 (22 - 58.25) (n = 150)	29 (20 - 50) (n = 583)
AST (U/L)	41 (26 - 82.25) (n = 60)	37 (26 - 58) (n = 377)	55 (34 - 86) (n = 150)	41 (27 - 65.5) (n = 587)
CRP (mg/L)	49.4 (17.36 - 156.3) (n = 29)	100.215 (57.4475 - 155.8175) (n = 206)	172.54 (96.47 - 239.645) (n = 99)	110.855 (58.59 - 190.7) (n = 334)
Creatinine (mg/dL)	1.055 (0.86 - 1.29) (n = 78)	1.05 (0.83 - 1.59) (n = 452)	1.2 (0.92 - 1.85) (n = 177)	1.08 (0.85 - 1.595) (n = 707)
ESR (mm/hr)	51 (44 - 69.5) (n = 18)	64.5 (44 - 87) (n = 172)	68 (54.25 - 90.5) (n = 86)	65 (45 - 87) (n = 276)
Ferritin (ng/mL)	357.15 (131.275 - 765.875) (n = 20)	557.05 (288.825 - 985.475) (n = 166)	1021 (556.7 - 1970) (n = 97)	714.6 (348.6 - 1254) (n = 283)
D-Dimer (ug/mL FEU)	0.82 (0.38 - 0.94) (n = 15)	1.05 (0.705 - 1.53) (n = 119)	1.52 (0.9575 - 2.305) (n = 68)	1.19 (0.7025 - 1.9975) (n = 202)
LDH (U/L)	386 (248 - 529.75) (n = 26)	366 (294 - 502) (n = 179)	504 (404.75 - 691.25) (n = 92)	414 (318 - 551) (n = 297)
WBC (x10(3)/uL)	6.46 (5.19 - 8.62) (n = 77)	6.645 (5.0325 - 8.535) (n = 450)	7.92 (5.58 - 10.98) (n = 181)	6.885 (5.1575 - 9.1225) (n = 708)
Troponin I (ng/mL)	0.025 (0.0075 - 0.0725) (n = 4)	0.01 (0.01 - 0.0225) (n = 12)	0.01 (0.01 - 0.03) (n = 13)	0.01 (0.01 - 0.03) (n = 29)
hs-Troponin (ng/L)	9 (6 - 29) (n = 45)	14 (7 - 31) (n = 293)	17 (9 - 49.75) (n = 136)	15 (7 - 34.75) (n = 474)

Supplemental Table 3 Selected Presenting Laboratory Values Selected laboratory values (Median and IQR) across three levels of care. ALT, Alanine aminotransferase; AST, Aspartate aminotransferase; CRP, reactive protein; ESR, Erythrocyte sedimentation rate; LDH, Lactate dehydrogenase; WBC, White Blood Cells; hs-Troponin, Troponin High sensitivity method.

Supplemental Table 4

	ED (n = 150)	Hospitalized (non-ICU) (n = 614)	ICU (n = 236)	Overall (N = 1000)
Supplemental O2 within 3 hours of ED Arrival	29 19.3% [13.8 to 26.4]	256 41.7% [37.9 to 45.6]	174 73.7% [67.8 to 78.9]	459 45.9% [42.8 to 49]
Nasal Canula	15 10% [6.2 to 15.8]	402 65.5% [61.6 to 69.1]	143 60.6% [54.2 to 66.6]	560 56% [52.9 to 59]
Non-Rebreather Mask	14 9.3% [5.6 to 15.1]	177 28.8% [25.4 to 32.5]	174 73.7% [67.8 to 78.9]	365 36.5% [33.6 to 39.5]
Venturi Mask	1 0.7% [0.1 to 3.7]	7 1.1% [0.6 to 2.3]	10 4.2% [2.3 to 7.6]	18 1.8% [1.1 to 2.8]
High Flow Nasal Canula	0 0% [0 to 2.5]	4 0.7% [0.3 to 1.7]	19 8.1% [5.2 to 12.2]	23 2.3% [1.5 to 3.4]
Non-invasive Ventilation (CPAP, BiPAP)	3 2% [0.7 to 5.7]	4 0.7% [0.3 to 1.7]	7 3% [1.4 to 6]	14 1.4% [0.8 to 2.3]
Invasive Ventilation (Intubated)	12 8% [4.6 to 13.5]	1 0.2% [0 to 0.9]	220 93.2% [89.3 to 95.8]	233 23.3% [20.8 to 26]
Prone Positioning	0 0% [0 – 2.5]	5 0.8% [0.3 – 1.9]	48 20.3% [15.7 – 25.9]	53 5.3% [4.1 – 6.9]

Supplemental Table 4 Frequency of Respiratory Therapies Count and frequency of respiratory therapies across three levels of care. All categorical data is reported as a frequency and a column percentage [95% confidence interval].

Supplemental Table 5a

Variable	HR (95% CI)	p-value
Age (Numeric)	0.996 (0.985 to 1.01)	0.419
Female	0.714 (0.535 to 0.95)	0.0221
BMI (Numeric)	1.02 (0.999 to 1.04)	0.0682
Current or Former Smoker	1.05 (0.883 to 1.24)	0.601
Coronary Artery Disease	0.858 (0.555 to 1.33)	0.492
Congestive Heart Failure	0.812 (0.594 to 1.11)	0.192
History of Stroke	0.96 (0.571 to 1.62)	0.879
Diabetes Mellitus	1.12 (0.839 to 1.49)	0.444
Hypertension	1.59 (1.1 to 2.3)	0.0141
Cirrhosis	1.16 (0.385 to 3.5)	0.791
HIV	1.05 (0.455 to 2.4)	0.917
Inflammatory Bowel Disease	0.337 (0.0466 to 2.43)	0.28
Pulmonary Disease	1.07 (0.771 to 1.48)	0.698
Renal Disease	0.695 (0.44 to 1.1)	0.118
Viral Hepatitis	0.942 (0.349 to 2.54)	0.905
Active Malignancy	0.654 (0.33 to 1.3)	0.224
Transplant History	1.03 (0.525 to 2.04)	0.923
Rheumatological Disease	1.09 (0.54 to 2.18)	0.816
Immunosuppressed State	0.959 (0.328 to 2.8)	0.94
No Comorbidities	0.999 (0.562 to 1.77)	0.997

Supplemental Table 5a Cox Proportional Hazard Model for Intubation Hazard ratio of intubation for demographics and comorbidities with 95% confidence intervals and corresponding p-values. Only patients with complete data for all of the above variables were included in the model (n = 841).

Supplemental Table 5b:

Variable	HR (95% CI)	p-value
Age (Numeric)	1.07 (1.05 to 1.08)	1.66E-19
Female	0.793 (0.576 to 1.09)	0.155
BMI	1.02 (1 to 1.05)	0.025
Current or Former Smoker	0.967 (0.797 to 1.17)	0.734
Coronary Artery Disease	1.25 (0.83 to 1.89)	0.284
Congestive Heart Failure	1.07 (0.808 to 1.42)	0.639
History of Stroke	1.3 (0.84 to 2.01)	0.239
Diabetes Mellitus	1.23 (0.894 to 1.68)	0.206
Hypertension	0.89 (0.56 to 1.41)	0.62
Cirrhosis	1.95 (0.62 to 6.17)	0.253
HIV	2.47 (1.05 to 5.86)	0.0393
Inflammatory Bowel Disease	1.18 (0.346 to 4.06)	0.787
Pulmonary Disease	0.817 (0.554 to 1.2)	0.306
Renal Disease	1.61 (1.06 to 2.43)	0.0245
Viral Hepatitis	0.606 (0.127 to 2.89)	0.53
Cancer	1.01 (0.554 to 1.83)	0.98
Transplant History	0.986 (0.448 to 2.17)	0.972
Rheumatological Disease	0.481 (0.173 to 1.34)	0.161
Immunosuppressed State	1.57 (0.663 to 3.73)	0.305
No Comorbidities	0.56 (0.191 to 1.64)	0.29

Supplemental Table 5b Cox Proportional Hazard Model for Death Hazard ratio of death for demographics and comorbidities with 95% confidence intervals and corresponding p-values. Only patients with complete data for all of the above variables were included in the model (n = 841).
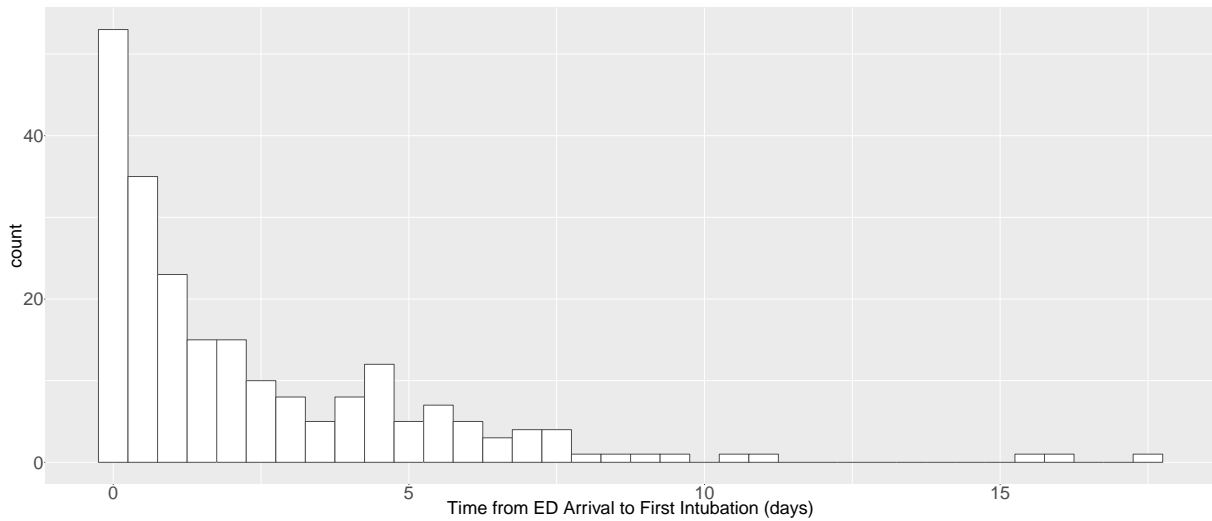
Supplemental Table 5c:

Variable	HR (95% CI)	p-value
Age (Numeric)	0.996 (0.985 to 1.01)	0.419
Female	0.714 (0.535 to 0.95)	0.0221
BMI	1.02 (0.999 to 1.04)	0.0682
Current or Former Smoker	1.05 (0.883 to 1.24)	0.601
Coronary Artery Disease	0.858 (0.555 to 1.33)	0.492
Congestive Heart Failure	0.812 (0.594 to 1.11)	0.192
History of Stroke	0.96 (0.571 to 1.62)	0.879
Diabetes Mellitus	1.12 (0.839 to 1.49)	0.444
Hypertension	1.59 (1.1 to 2.3)	0.0141
Cirrhosis	1.16 (0.385 to 3.5)	0.791
HIV	1.05 (0.455 to 2.4)	0.917
Inflammatory Bowel Disease	0.337 (0.0466 to 2.43)	0.28
Pulmonary Disease	1.07 (0.771 to 1.48)	0.698
Renal Disease	0.695 (0.44 to 1.1)	0.118
Viral Hepatitis	0.942 (0.349 to 2.54)	0.905
Cancer	0.654 (0.33 to 1.3)	0.224
Transplant History	1.03 (0.525 to 2.04)	0.923
Rheumatological Disease	1.09 (0.54 to 2.18)	0.816
Immunosuppressed State	0.959 (0.328 to 2.8)	0.94
No Comorbidities	0.999 (0.562 to 1.77)	0.997

Supplemental Table 5c Cox Proportional Hazard Model for Intubation or Death Hazard ratio of intubation or death for demographics and comorbidities with 95% confidence intervals and corresponding p-values. Only patients with complete data for all of the above variables were included in the model (n = 841).
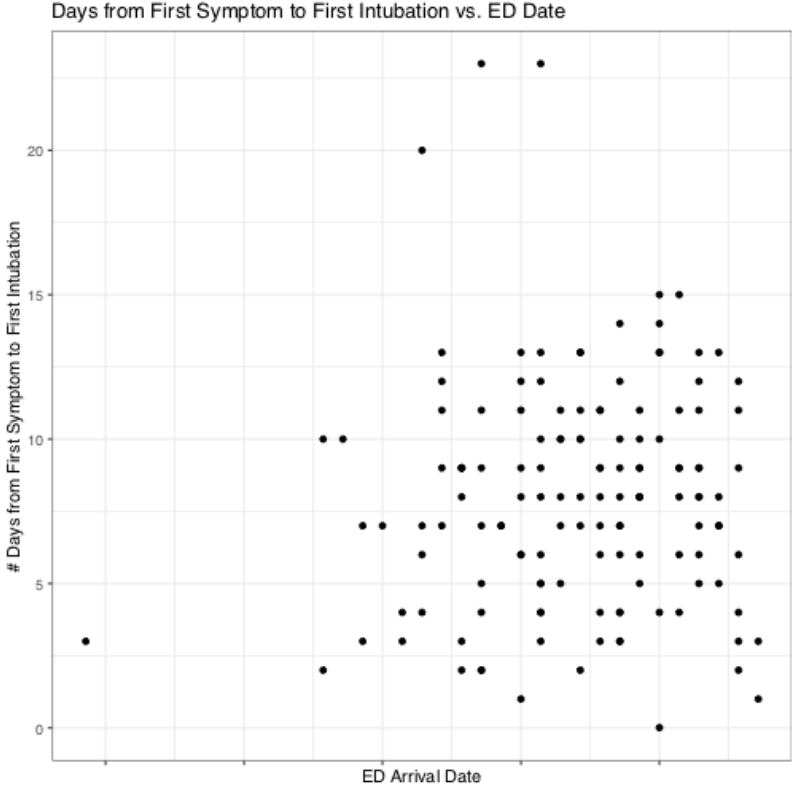
Supplemental Figure 1

Distribution of Time from
ED Arrival to First Intubation

Supplemental Figure 1 Distribution of Time from ED Arrival to First Intubation The time from ED arrival to intubation for n = 225 patients is visualized for patients who have reached the point of intubation at least once. 71.6% (161 /225) of patients were intubated within the first three days.

Supplemental Figure 2

Days from First Symptom to First Intubation vs. ED Date

Supplemental Figure 2 Days from First Symptom to First Intubation vs. ED Date: 136 patients had a recorded date for first symptom onset. These patients are visualized in this figure with time symptom onset to first intubation plotted against the date of ED arrival.