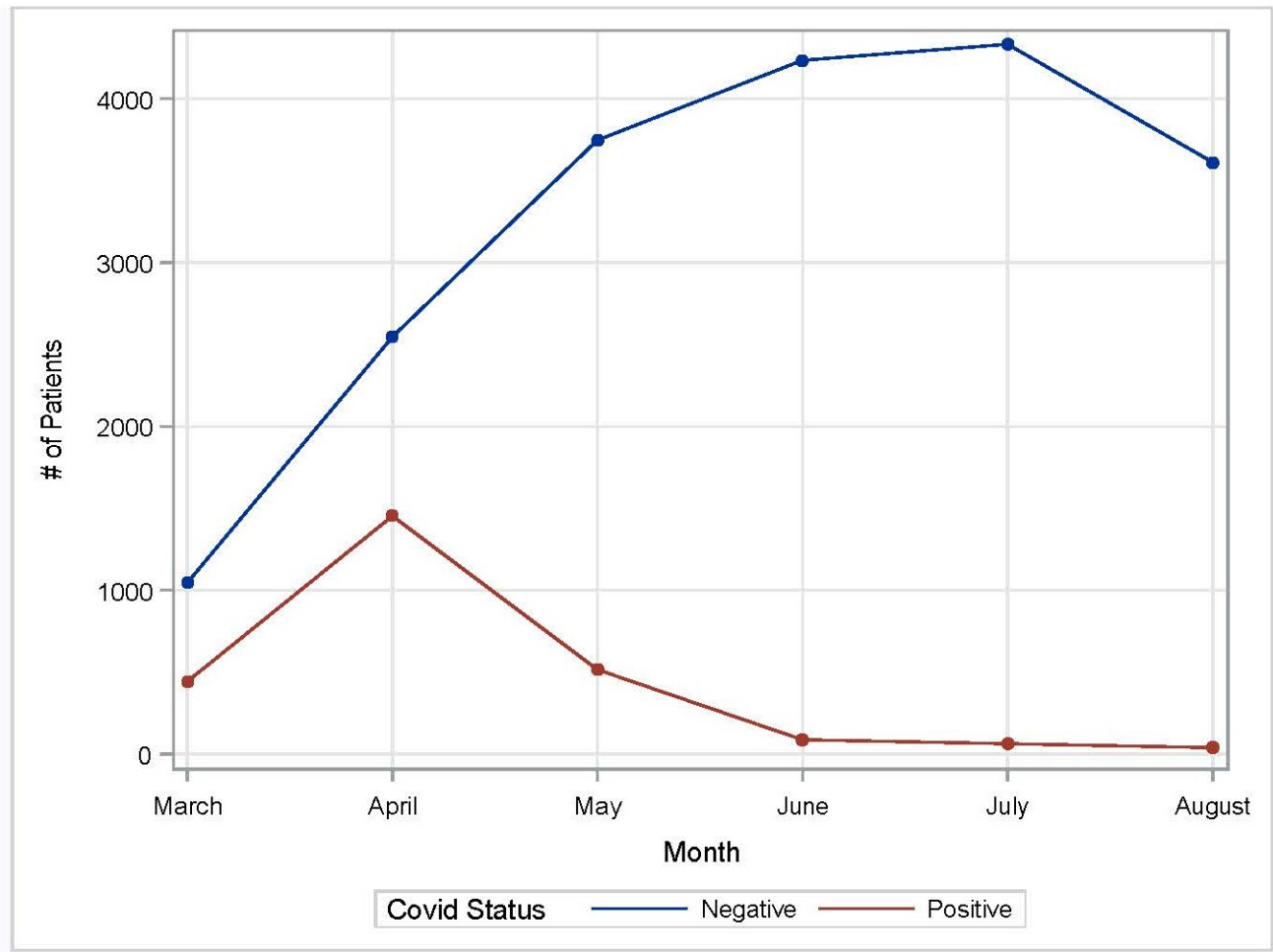
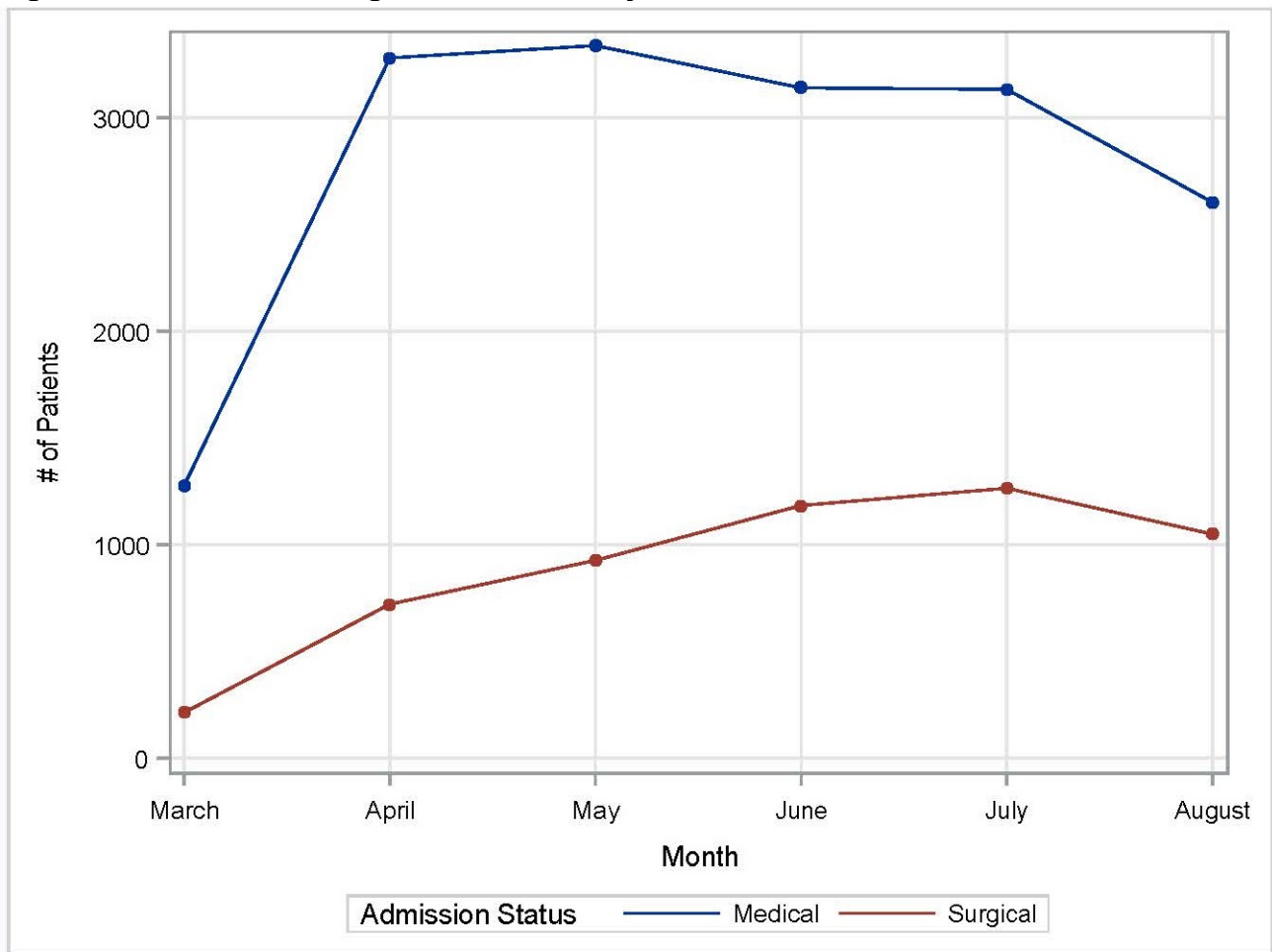


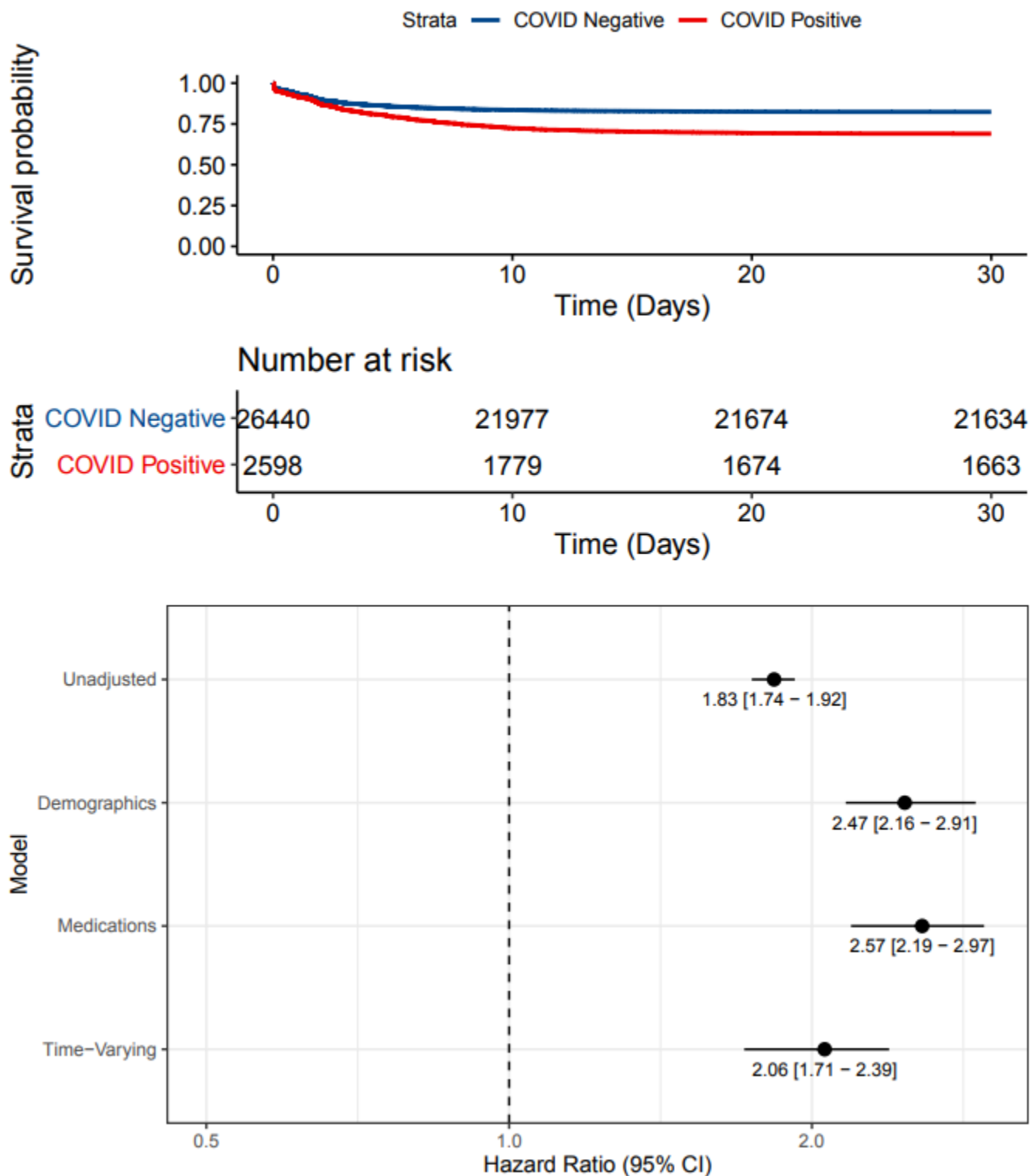
**Figure S1. Proportion of COVID positive patients by month**



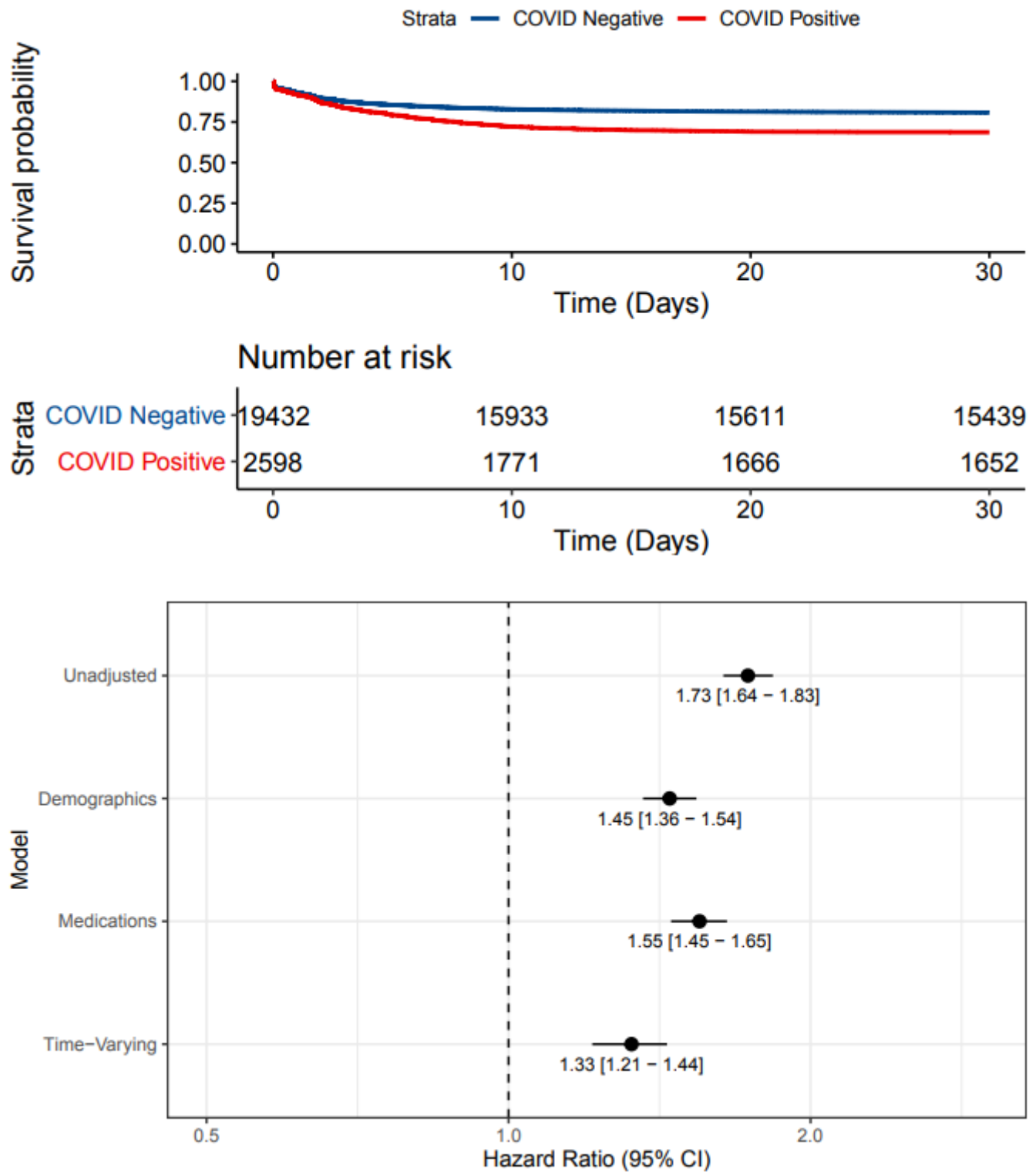
**Figure S2. Medical and surgical admissions by month**



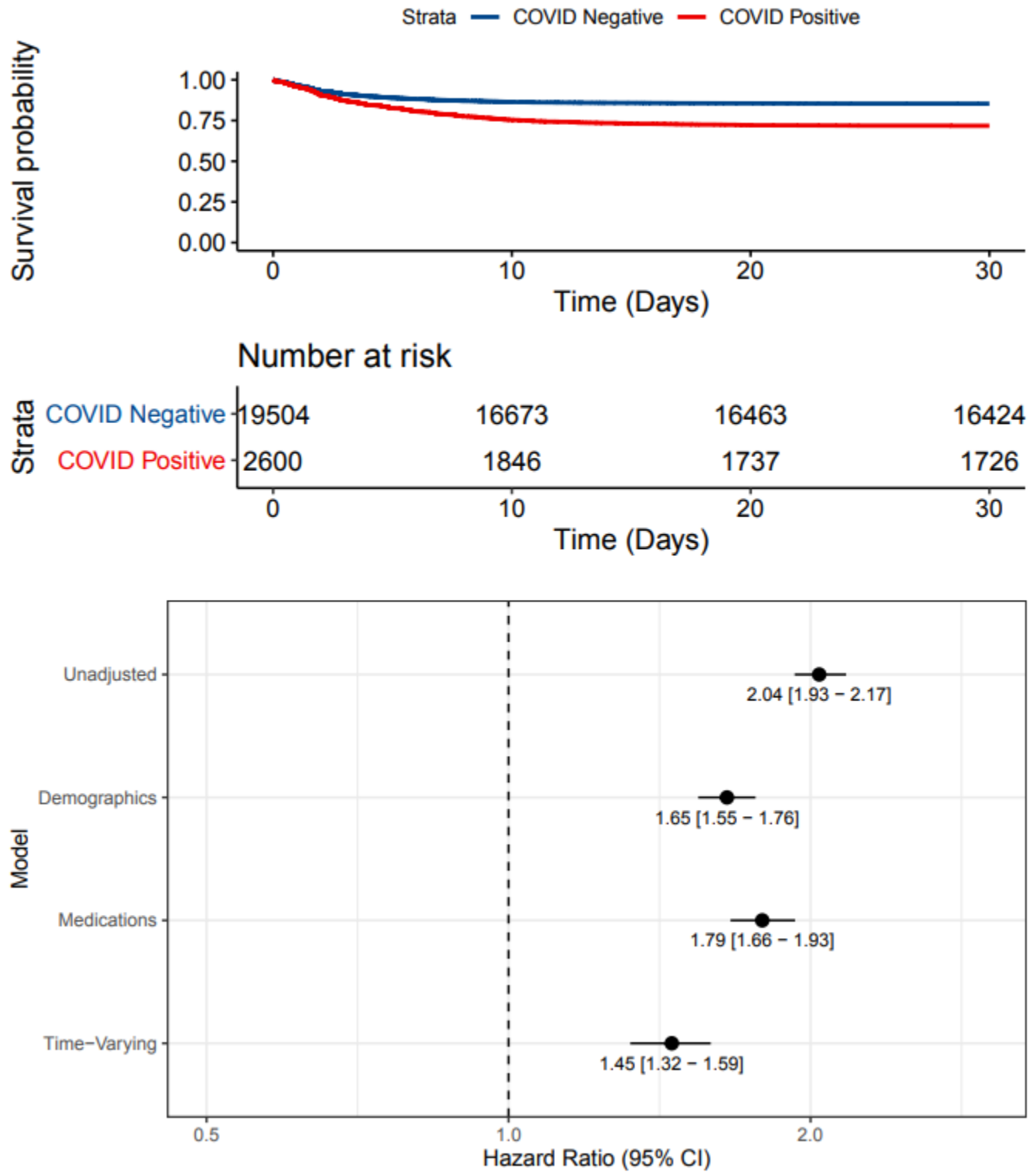
**Figure S3. Kaplan-Meier curve and forest plot for sensitivity analysis utilizing historical control data.**



**Figure S4. Kaplan-Meier curve and forest plot for sensitivity analysis for inclusion of 30-day readmission data**



**Figure S5. Kaplan-Meier curve and forest plot for sensitivity analysis using only hospital-acquired acute kidney injury**



**Table S1. Timeline of COVID testing and cancellation of elective procedures**

Key changes to clinical care	Timeline
COVID testing	
By criteria	3/1/2020 to 4/23/2020
Universal testing	4/24/2020 to study end
Elective procedures	
Cancellations	3/18/2020
Resumption	6/1/2020

*The criteria for testing varied over time. Initially cough and fever, followed by sequential addition of other respiratory (sore throat, rhinorrhea) and gastrointestinal (diarrhea) symptoms, followed by removal of fever. Initially, travel to COVID hotspot areas was required but this was later removed.*

**Table S2. Baseline and hospitalization variables by AKI status among patients with COVID-19**

Variables	No AKI (N=1804)	Stage 1 AKI (N=508)	Stage 2 or Higher AKI (N=288)	p-value1	P-value2
<b>Demographic</b>					
Age	63.2 (49.2,77.9)	73.1 (61.7,84.4)	65.6 (56.5,77.6)	<0.001	<0.001
Race, Black	416 (23.1%)	150 (29.5%)	80 (27.8%)	0.002	0.6
Ethnicity, Hispanic	535 (29.7%)	102 (20.1%)	88 (30.6%)	0.002	<0.001
Sex, Female	904 (50.1%)	260 (51.2%)	116 (40.3%)	0.2	0.003
<b>Comorbidities</b>					
Congestive heart failure	266 (14.7%)	169 (33.3%)	67 (23.3%)	<0.001	0.003
Chronic obstructive pulmonary disease	532 (29.5%)	199 (39.2%)	100 (34.7%)	<0.001	0.2
Liver disease	186 (10.3%)	46 (9.1%)	38 (13.2%)	0.9	0.07
Malignancy	171 (9.5%)	84 (16.5%)	40 (13.9%)	<0.001	0.3
Chronic Kidney Disease	211 (11.7%)	150 (29.5%)	65 (22.6%)	<0.001	0.03
Hypertension	1049 (58.1%)	399 (78.5%)	210 (72.9%)	<0.001	0.07
Diabetes	588 (32.6%)	268 (52.8%)	141 (49%)	<0.001	0.3
Elixhauser comorbidity score	4 (1,7)	7 (3,10)	6 (3,10)	<0.001	0.03
<b>Vitals</b>					
Systolic, minimum	97 (89,106)	96 (84,106)	90 (73,105)	<0.001	<0.001
Diastolic, minimum	54 (48,60)	51 (43,59)	50 (41,57)	<0.001	0.1
Pulse	106 (95,119)	107 (93,124)	117 (101,132)	<0.001	<0.001
Respiratory rate	26 (22,34)	29 (22,39)	36 (24,45)	<0.001	<0.001
Spo2	90 (85,93)	88 (82,92)	85 (76,92)	<0.001	0.001
Temp	100.9 (99.7,102.4)	101.4 (99.8,102.7)	101.6 (99.9,103)	<0.001	0.1
<b>Medication Use</b>					
Angiotensin converting enzyme inhibitor	188 (10.4%)	48 (9.4%)	26 (9%)	0.4	0.8
Aminoglycoside	0 (0%)	0 (0%)	2 (0.7%)	0.03	0.06
Angiotensin II receptor blocker	164 (9.1%)	49 (9.6%)	20 (6.9%)	0.7	0.2
Diuretics, Potassium sparing	27 (1.5%)	5 (1%)	7 (2.4%)	0.9	0.1
Diuretics, Loop	402 (22.3%)	191 (37.6%)	88 (30.6%)	<0.001	0.05
Non-steroidal anti-inflammatory drugs	215 (11.9%)	31 (6.1%)	19 (6.6%)	<0.001	0.8
Proton pump inhibitor	419 (23.2%)	123 (24.2%)	46 (16%)	0.3	0.006
Vasopressor	76 (4.2%)	77 (15.2%)	106 (36.8%)	<0.001	<0.001
<b>Blood Chemistry</b>					
Sodium, mEq/L	141 (139,144)	141 (138,144)	140 (137,143)	0.02	0.005
Potassium, mEq/L	4.4 (4.1,4.7)	4.4 (4.1,4.9)	4.4 (4.1,4.8)	0.3	0.5
Chloride, mEq/L	105 (103,108)	105 (101,109)	104 (100,108)	<0.001	0.02
Anion gap, mEq/L	15 (13,17)	16 (14,18)	16 (14,18)	<0.001	0.4
Blood urea nitrogen, mg/dl	19 (13,28)	29 (19,40)	27 (18,37)	<0.001	0.06
Creatinine, mg/dl	1 (0.8,1.2)	1.2 (0.9,1.7)	1.1 (0.9,1.5)	<0.001	0.05
Glucose, Maximum, mg/dl	144 (117,208.5)	185 (134,263)	188 (144,286)	<0.001	0.1
Glucose, Minimum, mg/dl	89 (79,98)	95 (80,120)	103 (87,132)	<0.001	0.003
Hemoglobin, g/dl	13.6 (12.2,14.7)	13.3 (11.4,14.4)	13.7 (12.1,15.2)	0.02	<0.001
Platelet Count, *1000 per mm <sup>3</sup>	294 (216,385)	249 (188,343)	253 (195,340)	<0.001	0.3
<b>Inflammation</b>					
D-dimer	1.6 (0.8,3.8)	2.1 (1.1,5.8)	3.2 (1.2,8.9)	<0.001	0.006
C-reactive protein, high sensitivity	102.1 (44.9,173.4)	131.1 (74,223.2)	161.2 (95.7,225.3)	<0.001	0.02
White blood cell count, *1000/mm <sup>3</sup>	8.1 (6,11.3)	9.5 (6.7,13.7)	10.5 (7.2,15.2)	<0.001	0.004
Lymphocyte, absolute count	1.6 (1.2,2.1)	1.3 (0.9,1.8)	1.2 (0.9,1.6)	<0.001	0.02
Neutrophil, absolute count	6 (4.1,8.9)	7.3 (4.9,11)	8.8 (5.7,12.9)	<0.001	<0.001
Neutrophil to lymphocyte ratio	3.8 (2.5,6)	5.6 (3.4,9.3)	7.5 (4.4,11.6)	<0.001	<0.001
Ferritin	623 (291,1195.5)	690 (331,1283)	1175.5 (522,2208.5)	<0.001	<0.001

Urinalysis					
Specific Gravity	1.021 (1.015,1.029)	1.021 (1.015,1.027)	1.025 (1.019,1.03)	0.2	<0.001
Protein, ≥2+	313 (28.3%)	160 (48.5%)	94 (54.7%)	<0.001	0.2
Blood, ≥2+	198 (17.9%)	87 (26.4%)	55 (32%)	<0.001	0.2
Leucocyte, ≥1+	347 (31.4%)	115 (34.8%)	47 (27.3%)	0.7	0.09

All missing <10% except hsCRP (26%), and urinalysis findings (38%). All variables reported as maximum before AKI onset (except where specified)



**Table S3. Baseline and hospitalization variables by AKI status among patients without COVID-19**

Variables	No AKI (N=15978)	Stage 1 AKI (N=2579)	Stage 2 or Higher AKI (N=965)	p-value1	P- value2
<b>Demographic</b>					
Age	64.4 (50,77.3)	70.9 (58.6,81.3)	67.8 (55.9,77.9)	<0.001	<0.001
Race, Black	2337 (14.6%)	398 (15.4%)	181 (18.8%)	0.04	0.9
Ethnicity, Hispanic	2002 (12.5%)	263 (10.2%)	110 (11.4%)	0.001	0.02
Sex, Female	8159 (51.1%)	1266 (49.1%)	476 (49.3%)	0.001	0.3
<b>Comorbidities</b>					
Congestive heart failure	3341 (20.9%)	1026 (39.8%)	361 (37.4%)	<0.001	0.2
Chronic obstructive pulmonary disease	5451 (34.1%)	1023 (39.7%)	370 (38.3%)	<0.001	0.5
Liver disease	2496 (15.6%)	481 (18.7%)	250 (25.9%)	<0.001	<0.001
Malignancy	2833 (17.7%)	608 (23.6%)	242 (25.1%)	<0.001	0.4
Chronic Kidney Disease	2191 (13.7%)	829 (32.1%)	226 (23.4%)	<0.001	<0.001
Hypertension	9833 (61.5%)	1997 (77.4%)	742 (76.9%)	<0.001	0.7
Diabetes	4446 (27.8%)	1079 (41.8%)	429 (44.5%)	<0.001	0.2
Elixhauser comorbidity score	5 (2,8)	8 (4,11)	8 (5,11)	<0.001	0.2
<b>Vitals</b>					
Systolic, minimum	101 (92,111)	99 (88,114)	96 (81,113)	<0.001	<0.001
Diastolic, minimum	55 (49,62)	54 (46,63)	52 (43.5,63)	<0.001	0.1
Pulse	101 (89,115)	104 (89,120)	107 (90,126)	<0.001	<0.001
Respiratory rate	21 (20,26)	22 (20,29)	23 (20,31)	<0.001	0.5
Spo2	93 (91,95)	93 (90,95)	94 (89,96)	0.9	<0.001
Temp	99.2 (98.8,99.9)	99.1 (98.6,100.1)	99.1 (98.2,100.4)	<0.001	0.03
<b>Medication Use</b>					
Angiotensin converting enzyme inhibitor	2260 (14.1%)	271 (10.5%)	62 (6.4%)	<0.001	<0.001
Aminoglycoside	32 (0.2%)	15 (0.6%)	4 (0.4%)	<0.001	0.5
Angiotensin II receptor blocker	1822 (11.4%)	244 (9.5%)	50 (5.2%)	<0.001	<0.001
Diuretics, Potassium sparing	587 (3.7%)	120 (4.7%)	28 (2.9%)	0.2	0.02
Diuretics, Loop	2925 (18.3%)	790 (30.6%)	225 (23.3%)	<0.001	<0.001
Non-steroidal anti-inflammatory drugs	3535 (22.1%)	342 (13.3%)	89 (9.2%)	<0.001	0.001
Proton pump inhibitor	5593 (35%)	689 (26.7%)	191 (19.8%)	<0.001	<0.001
Vasopressor	1483 (9.3%)	323 (12.5%)	174 (18%)	<0.001	<0.001
<b>Blood Chemistry</b>					
Sodium, mEq/L	141 (139,142)	140 (137,143)	140 (136,143)	<0.001	0.8
Potassium, mEq/L	4.3 (4,4.6)	4.4 (4,4.8)	4.4 (4,4.9)	<0.001	0.7
Chloride, mEq/L	106 (103,109)	105 (101,109)	105 (101,109)	<0.001	0.9
Anion gap, mEq/L	13 (11,15)	14 (12,17)	15 (13,18)	<0.001	<0.001
Blood urea nitrogen, mg/dl	18 (13,25)	25 (17,36)	25 (16,38)	<0.001	0.9
Creatinine, mg/dl	1 (0.8,1.2)	1.2 (0.9,1.6)	1.1 (0.8,1.5)	<0.001	<0.001
Glucose, Maximum, mg/dl	141 (117,189)	167 (129,239)	169 (133,246)	<0.001	0.2
Glucose, Minimum, mg/dl	92 (83,104)	100 (85,122)	103 (85,133)	<0.001	0.005
Hemoglobin, g/dl	13.1 (11.6,14.4)	12.4 (10.7,14)	12.4 (10.6,14.1)	<0.001	0.6
Platelet Count, *1000 per mm <sup>3</sup>	247 (193,309)	239 (184,309)	240 (177,327)	<0.001	0.8
<b>Inflammation</b>					
D-dimer	1.2 (0.6,2.8)	1.8 (0.8,5)	2.1 (1.1,5.4)	<0.001	0.09
C-reactive protein, high sensitivity	33.6 (5.8,115.7)	47.6 (7.9,148.4)	75.1 (17.7,206.8)	<0.001	0.01
White blood cell count, *1000/mm <sup>3</sup>	10.4 (7.8,13.8)	11.3 (8.3,15.2)	12.3 (8.8,17.3)	<0.001	<0.001
Lymphocyte, absolute count	1.8 (1.3,2.4)	1.5 (1,2.1)	1.4 (1,2.1)	<0.001	0.2
Neutrophil, absolute count	7.8 (5.3,11)	8.8 (5.9,12.5)	9.7 (6.3,14.1)	<0.001	<0.001
Neutrophil to lymphocyte ratio	4.4 (2.7,7)	5.8 (3.4,9.9)	6.5 (3.7,11.2)	<0.001	<0.001

Ferritin	182 (65,441)	222 (96,545)	304 (106,844)	<0.001	0.1
Urinalysis					
Specific Gravity	1.02 (1.013,1.027)	1.018 (1.013,1.025)	1.021 (1.015,1.029)	0.2	<0.001
Protein, ≥2+	1225 (13.8%)	349 (26.6%)	116 (26.4%)	<0.001	0.9
Blood, ≥2+	1706 (19.2%)	324 (24.7%)	135 (30.7%)	<0.001	0.01
Leucocyte, ≥1+	3015 (34%)	483 (36.8%)	155 (35.2%)	0.05	0.5

All missing <10% except D-dimer (86%), ferritin (86%), hsCRP (85%), and urinalysis findings (46%). All variables reported as maximum before AKI onset (except where specified)

**Table S4. Baseline characteristics of historical controls**

Variables	COVID-19 Positive (N=2600)	COVID-19 Negative (N=19522)	Historical Control (N=26543)
<b>Demographic</b>			
Age	65.6 (52.5,79.6)	65.5 (51.7,78)	65.9 (52.6,78.2)
Race, Black	646 (24.8%)	2916 (14.9%)	3783 (14.3%)
Sex, Female	1280 (49.2%)	9901 (50.7%)	13580 (51.2%)
Ethnicity, Hispanic	725 (27.9%)	2375 (12.2%)	3169 (11.9%)
<b>Comorbidities</b>			
Congestive heart failure	502 (19.3%)	4728 (24.2%)	5633 (21.2%)
Chronic obstructive pulmonary disease	831 (32%)	6844 (35.1%)	8729 (32.9%)
Liver disease	270 (10.4%)	3227 (16.5%)	3575 (13.5%)
Malignancy	295 (11.3%)	3683 (18.9%)	1693 (6.4%)
Chronic Kidney Disease	426 (16.4%)	3246 (16.6%)	4107 (15.5%)
Hypertension	1658 (63.8%)	12572 (64.4%)	16012 (60.3%)
Diabetes	997 (38.3%)	5954 (30.5%)	7409 (27.9%)
Elixhauser comorbidity score	5 (2,8)	5 (2,9)	4 (1,8)
<b>Vitals on Admission</b>			
Systolic blood pressure	132 (118,148)	137 (121,156)	136 (120,154)
Diastolic blood pressure	76 (66,85)	79 (69,89)	78 (68,88)
Pulse rate	94 (80,109)	87 (74,102)	85 (72,99)
Respiratory rate	20 (18,22)	18 (17,20)	18 (17,20)
Pulse oximetry oxygen saturation	96 (93,98)	97 (96,99)	97 (96,99)
Temperature	98.9 (98,100.4)	98 (97.5,98.6)	98 (97.5,98.6)
<b>Blood laboratory findings on Admission</b>			
Blood urea nitrogen, mg/dl	17 (11,26)	17 (12,25)	17 (12,24)
Creatinine, mg/dl	1 (0.8,1.3)	1 (0.8,1.3)	0.9 (0.7,1.2)
Estimated glomerular filtration rate, ml/min/1.73 m <sup>2</sup>	76.7 (52.6,97.1)	76.2 (55.1,95.9)	78 (56.5,96.3)
Chloride, mEq/L	100 (97,104)	102 (99,105)	103 (99,106)
Glucose, g/dl	123 (105,162)	120 (102,151)	119 (102,149)
Potassium, mEq/L	4 (3.7,4.4)	4 (3.7,4.4)	4.1 (3.7,4.4)
Sodium, mEq/L	137 (134,140)	138 (135,140)	139 (136,141)
Hemoglobin, g/dl	13.2 (11.8,14.4)	12.8 (11.1,14.2)	12.5 (11,13.9)
Platelet count, *1000/mm <sup>3</sup>	206 (161,262)	230 (178,289)	224 (175,281)
White blood cell count, *1000/mm <sup>3</sup>	6.7 (5.1,9.2)	9.2 (6.9,12.3)	9.2 (6.9,12.3)
<b>Urinalysis findings</b>			
Specific gravity	1.02 (1.015,1.027)	1.018 (1.013,1.026)	1.017 (1.011,1.025)
Protein, ≥2+	598 (33.4%)	1790 (15.4%)	2347 (16.4%)
Blood, ≥2+	354 (19.8%)	2184 (19.1%)	2626 (18.3%)
Leucocyte, ≥1+	494 (27.6%)	3504 (30.6%)	4447 (31%)

**Table S5. Acute kidney injury and other outcomes between COVID-19 positive patients compared with historical controls**

Variables	COVID-19 Positive (N=2600)	COVID-19 Negative (N=19522)	Historical Control (N=26543)
Acute kidney injury	796 (30.6%)	3544 (18.2%)	4773 (18%)
Stage 1	508 (19.5%)	2579 (13.2%)	3588 (13.5%)
Stage 2	153 (5.9%)	594 (3%)	763 (2.9%)
Stage 3	135 (5.2%)	371 (1.9%)	422 (1.6%)
Dialysis	68 (8.5%)	127 (3.6%)	159 (3.3%)
Time from hospital admission to first dialysis, days	6.1 (3.7,11)	5.1 (1.8,12.5)	3 (1.2,9.1)
Duration of inpatient dialysis, days	10.1 (1,21.9)	4.1 (1,13.7)	5.7 (1.6,18.3)
AKI on admission	129 (5.0%)	941 (4.8%)	1075 (4.1%)
ICU admission	654 (25.2%)	4759 (24.4%)	6536 (24.6%)
Length of stay in ICU, days	4.9 (1.8,11.1)	2.3 (1.2,4.7)	2.4 (1.2,4.7)
Ventilator requirement	377 (14.5%)	1186 (6.1%)	1755 (6.6%)
Vasopressor requirement	369 (14.2%)	2329 (11.9%)	3369 (12.7%)
AKI recovery (at discharge)	462 (58%)	2473 (69.8%)	3370 (70.6%)
Length of hospital stay, days	8 (4.5,14.8)	4 (2.4,7)	4 (2.6,7)
Death, overall	383 (14.7%)	612 (3.1%)	555 (2.1%)
Death, among those with AKI	236 (29.6%)	401 (11.3%)	391 (8.2%)

AKI recovery was defined as last creatinine prior to discharge that is  $<1.5 \times$  baseline creatinine  
 ICU, intensive care unit; AKI, acute kidney injury; COVID, Coronavirus Disease

**Table S6. Subgroup analysis for patients hospitalized in the intensive care unit**

Variables	COVID-19 Positive (N=654)	COVID-19 Negative (N=4759)	Risk difference % (95% CI)
Acute kidney injury	377 (57.6%)	1532 (32.2%)	25.5 (21.4, 29.5)
Stage 1	190 (29.1%)	1014 (21.3%)	7.7 (4.1, 11.4)
Stage 2	87 (13.3%)	270 (5.7%)	7.6 (4.9, 10.3)
Stage 3	100 (15.3%)	248 (5.2%)	10.1 (7.2, 12.9)
Dialysis	55 (8.4%)	115 (2.4%)	6 (3.8, 8.2)
Time from hospital admission to first dialysis, days	6.6 (3.8,10.7)	5 (1.7,12.8)	1.5 (-0.8, 3.8)
Duration of inpatient dialysis, days	12.5 (1,23.7)	3.6 (1,14)	8.8 (2.6, 15.1)
Length of stay in ICU, days	4.9 (1.8,11.1)	2.3 (1.2,4.7)	2.6 (1.9, 3.3)
Ventilator requirement	317 (48.5%)	1129 (23.7%)	24.7 (20.7, 28.8)
Vasopressor requirement	299 (45.7%)	1503 (31.6%)	14.1 (10.1, 18.2)
AKI recovery (at discharge)	187 (49.6%)	956 (62.4%)	-12.8 (-18.4, -7.2)
Length of hospital stay, days	14.5 (8.2,24.5)	5.9 (3.2,10.7)	8.6 (7.7, 9.4)
Death, overall	194 (29.7%)	459 (9.6%)	20 (16.4, 23.6)
Death, among those with AKI	151 (40.1%)	328 (21.4%)	18.6 (13.3, 24)