

## **Online Supplement**

### **Methods**

#### Study Population and Exclusions:

We conducted an observational cohort study using VA electronic health record (EHR) data. We identified patients admitted to a VA hospital within 14 days after a positive polymerase chain reaction (PCR) or antigen test for SARS-CoV-2 between June 7, 2020 and May 31, 2021. The cohort inception date of June 7, 2020 was selected because prior to this there was substantial variability in the timing of initiation of corticosteroids (greater use of late corticosteroids, more than 48 hours after admission) and in the type of corticosteroid used in hospitalized COVID-19 patients. After June 7, 2020, there was a substantial increase in initiation of corticosteroids – particularly dexamethasone – within 48 hours of hospitalization. Notably, this time period coincides with the announcement that recruitment was halted in the RECOVERY trial on June 8, 2020, and the subsequent press release that indicated benefit from dexamethasone on June 16, 2020. In addition, we omitted early months of the pandemic from March-May 2020 because there was significant variability in other aspects of care, including availability of testing and use of respiratory support and co-medications. The date of May 31, 2021 was selected as the end date for the cohort in order to have at least 90 days of follow-up for all individuals at the time of the analyses.

From the initial 27,168 patients identified, we excluded 7,195, yielding a cohort of 19,973 patients who were then stratified by category of respiratory support (Figure 1). More than one

exclusion criteria could apply; the most common reason was length of stay less than 48-hours (n=3,742; 104 deaths) as these patients had insufficient time to receive dexamethasone. This was followed by any systemic corticosteroid exposure prior to index date (n=2,046), defined as any corticosteroids within 14 days, or receipt of corticosteroids for  $\geq$ 14 days in the preceding 45 days. We excluded patients who were transferred from another acute care hospital (VA or non-VA) and who were likely incidentally-detected through screening prior to or at admission; this included patients who were not admitted to an acute medical care service or had no International Classification of Diseases, 10<sup>th</sup> Revision (ICD-10) codes for COVID-19.

In modeling mortality analyses restricted to patients who were not on oxygen or were on low-flow nasal cannula (NC) only, we excluded an additional 454 total patients; more than one exclusion criteria could also apply. Within each phase, we restricted to facilities with at least 10 cases of COVID-19 and with at least one dexamethasone prescription (n=221), and where not 100% of patients with COVID-19 received dexamethasone (n=56) to have sufficient variation and number of events at each site. We also excluded patients prescribed hydroxychloroquine (n=89) as it was falling out of favor over the study time period; the temporal variation combined with the small number of participants made balancing them by site and across groups challenging. We excluded participants who were on vasopressors in the first 48 hours (n=90) as these patients may have had a different clinical indication (namely persistent shock) for dexamethasone or other corticosteroids and thus less likely to fall into a group for whom there is clinical equipoise, yielding a final analytic sample of 14,950 patients.

**Respiratory Support:** We stratified patients by highest level of respiratory support during the initial 48 hours of hospitalization. Schemas were developed iteratively with clinician review, including appropriate negation terms, based on snippets and note context. Patients on positive airway pressure (PAP) for sleep apnea without supplemental oxygen were classified as no oxygen. The NLP system was validated on 100 complete patient admissions by performing manual full chart review including of all clinician, nursing and respiratory therapy notes, comprising 1,093 days reviewed. Fifty admissions were double annotated and adjudicated demonstrating Cohen's kappa of 0.89. At the admission-level, receipt of any supplemental oxygen in categories 2-4 (NC, other/NIV and HFNC) was identified by the NLP system with a sensitivity of 100%. On chart review, no cases were found to have received oxygen that were not also identified by NLP as being on oxygen. Specificity and positive predictive value were 77% and 94% respectively. When limited to the first 48 hours of admission, the system distinguished patients not on oxygen or on NC only from all other categories with 92% accuracy.

**Dexamethasone Exposure:** In each phase, we defined administration by site as low (<25<sup>th</sup> percentile), medium (between 25-75% percentile), or high (>75<sup>th</sup> percentile) based on the proportion in the sample receiving corticosteroids.

**Supplemental Table E1. Unweighted and propensity weighted pseudo populations**  
**A. Unweighted population**

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
<b>Cohort, n</b>	5726	3124	-	1290	4383	-	7016	7507	-
<b>Age, (%)</b>									
<50	657 (11.5)	310 ( 9.9)	0.016	80 ( 6.2)	356 ( 8.1)	0.019	737 (10.5)	666 ( 8.9)	0.016
50-59	681 (11.9)	438 (14.0)	0.021	143 (11.1)	521 (11.9)	0.008	824 (11.7)	959 (12.8)	0.010
60-69	1339 (23.4)	718 (23.0)	0.004	282 (21.9)	995 (22.7)	0.008	1621 (23.1)	1713 (22.8)	0.003
70-79	1843 (32.2)	1072 (34.3)	0.021	462 (35.8)	1664 (38.0)	0.022	2305 (32.9)	2736 (36.4)	0.036
80+	1206 (21.1)	586 (18.8)	0.023	323 (25.0)	847 (19.3)	0.057	1529 (21.8)	1433 (19.1)	0.027
<b>Sex: Male, (%)</b>	5428 (94.8)	2963 (94.8)	0.001	1227 (95.1)	4168 (95.1)	0.000	6655 (94.9)	7131 (95.0)	0.001
<b>Race, (%)</b>									
White, non-Hispanic	2996 (52.3)	1711 (54.8)	0.024	724 (56.1)	2507 (57.2)	0.011	3720 (53.0)	4218 (56.2)	0.032
Black, non-Hispanic	1816 (31.7)	820 (26.2)	0.055	361 (28.0)	1077 (24.6)	0.034	2177 (31.0)	1897 (25.3)	0.058
Hispanic	437 ( 7.6)	300 ( 9.6)	0.020	90 ( 7.0)	414 ( 9.4)	0.025	527 ( 7.5)	714 ( 9.5)	0.020
Other	308 ( 5.4)	176 ( 5.6)	0.003	74 ( 5.7)	244 ( 5.6)	0.002	382 ( 5.4)	420 ( 5.6)	0.002
Unknown	169 ( 3.0)	117 ( 3.7)	0.008	41 ( 3.2)	141 ( 3.2)	0.000	210 ( 3.0)	258 ( 3.4)	0.004
<b>Phase (Admission Date), (%)</b>									
1: June 7 - July 11	426 ( 7.4)	38 ( 1.2)	0.062	289 (22.4)	258 ( 5.9)	0.165	715 (10.2)	296 ( 3.9)	0.062
2: July 12 - Aug. 15	457 ( 8.0)	64 ( 2.0)	0.059	201 (15.6)	468 (10.7)	0.049	658 ( 9.4)	532 ( 7.1)	0.023
3: Aug. 16 - Oct. 17	694 (12.1)	186 ( 6.0)	0.062	277 (21.5)	812 (18.5)	0.029	971 (13.8)	998 (13.3)	0.005
4: Oct. 18 - Nov. 30	676 (11.8)	180 ( 5.8)	0.060	183 (14.2)	993 (22.7)	0.085	859 (12.2)	1173 (15.6)	0.034
5: Dec. 1 - Dec. 31	1158 (20.2)	947 (30.3)	0.101	137 (10.6)	696 (15.9)	0.053	1295 (18.5)	1643 (21.9)	0.034
6: Jan. 1 - Jan. 31	1063 (18.6)	878 (28.1)	0.095	99 ( 7.7)	608 (13.9)	0.062	1162 (16.6)	1486 (19.8)	0.032
7: Feb. 1 - May 31	1252 (21.9)	831 (26.6)	0.047	104 ( 8.1)	548 (12.5)	0.044	1356 (19.3)	1379 (18.4)	0.010
<b>Site Dexamethasone Prescribing, (%)</b>									
Low	1689 (29.5)	405 (13.0)	0.165	399 (30.9)	594 (13.6)	-	2088 (29.8)	999 (13.3)	0.165
Medium	3406 (59.5)	1787 (57.2)	0.023	729 (56.5)	2451 (55.9)	-	4135 (58.9)	4238 (56.5)	0.025
High	631 (11.0)	932 (29.8)	0.188	162 (12.6)	1338 (30.5)	0.180	793 (11.3)	2270 (30.2)	0.189
<b>Smoking Status, (%)</b>									
Unknown	210 ( 3.7)	91 ( 2.9)	0.008	49 ( 3.8)	117 ( 2.7)	0.011	259 ( 3.7)	208 ( 2.8)	0.009
Never Smoker	1958 (34.2)	1173 (37.5)	0.034	430 (33.3)	1479 (33.7)	0.004	2388 (34.0)	2652 (35.3)	0.013
Former Smoker	1934 (33.8)	1268 (40.6)	0.068	524 (40.6)	1936 (44.2)	0.036	2458 (35.0)	3204 (42.7)	0.076

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
Current Smoker	1624 (28.4)	592 (19.0)	- 0.094	287 (22.2)	851 (19.4)	- 0.028	1911 (27.2)	1443 (19.2)	- 0.080
<b>AUDIT-C Score (%)</b>									
Unknown	250 ( 4.4)	86 ( 2.8)	- 0.016	62 ( 4.8)	125 ( 2.9)	- 0.020	312 ( 4.4)	211 ( 2.8)	- 0.016
0	3663 (64.0)	2048 (65.6)	- 0.016	898 (69.6)	2928 (66.8)	- 0.028	4561 (65.0)	4976 (66.3)	- 0.013
1-3	1164 (20.3)	756 (24.2)	- 0.039	255 (19.8)	1055 (24.1)	- 0.043	1419 (20.2)	1811 (24.1)	- 0.039
4-7	389 ( 6.8)	182 ( 5.8)	- 0.010	53 ( 4.1)	204 ( 4.7)	- 0.005	442 ( 6.3)	386 ( 5.1)	- 0.012
8+	260 ( 4.5)	52 ( 1.7)	- 0.029	22 ( 1.7)	71 ( 1.6)	- 0.001	282 ( 4.0)	123 ( 1.6)	- 0.024
<b>Comorbidities</b>									
Myocardial Infarction (%)	534 ( 9.3)	228 ( 7.3)	- 0.020	128 ( 9.9)	354 ( 8.1)	- 0.018	662 ( 9.4)	582 ( 7.8)	- 0.017
Congestive Heart Failure (%)	1226 (21.4)	618 (19.8)	- 0.016	374 (29.0)	898 (20.5)	- 0.085	1600 (22.8)	1516 (20.2)	- 0.026
Cerebrovascular Disease (%)	1110 (19.4)	425 (13.6)	- 0.058	248 (19.2)	657 (15.0)	- 0.042	1358 (19.4)	1082 (14.4)	- 0.049
Dementia (%)	946 (16.5)	269 ( 8.6)	- 0.079	222 (17.2)	405 ( 9.2)	- 0.080	1168 (16.6)	674 ( 9.0)	- 0.077
Chronic Obstructive Pulmonary Disease (%)	1312 (22.9)	888 (28.4)	- 0.055	417 (32.3)	1416 (32.3)	- 0.000	1729 (24.6)	2304 (30.7)	- 0.060
Rheumatoid Arthritis (%)	78 ( 1.4)	54 ( 1.7)	- 0.004	19 ( 1.5)	71 ( 1.6)	- 0.001	97 ( 1.4)	125 ( 1.7)	- 0.003
Peptic ulcer (%)	159 ( 2.8)	44 ( 1.4)	- 0.014	35 ( 2.7)	85 ( 1.9)	- 0.008	194 ( 2.8)	129 ( 1.7)	- 0.010
Liver disease, mild (%)	834 (14.6)	327 (10.5)	- 0.041	147 (11.4)	435 ( 9.9)	- 0.015	981 (14.0)	762 (10.2)	- 0.038
Diabetes, Uncomplicated (%)	2581 (45.1)	1492 (47.8)	- 0.027	631 (48.9)	2149 (49.0)	- 0.001	3212 (45.8)	3641 (48.5)	- 0.027
Diabetes, Complicated (%)	1771 (30.9)	922 (29.5)	- 0.014	427 (33.1)	1314 (30.0)	- 0.031	2198 (31.3)	2236 (29.8)	- 0.015
Hemi or paraplegia (%)	203 ( 3.5)	48 ( 1.5)	- 0.020	51 ( 4.0)	78 ( 1.8)	- 0.022	254 ( 3.6)	126 ( 1.7)	- 0.019
Renal disease (%)	1541 (26.9)	733 (23.5)	- 0.034	380 (29.5)	1074 (24.5)	- 0.050	1921 (27.4)	1807 (24.1)	- 0.033
Liver disease, moderate-severe (%)	124 ( 2.2)	48 ( 1.5)	- 0.006	24 ( 1.9)	46 ( 1.0)	- 0.008	148 ( 2.1)	94 ( 1.3)	- 0.009
Metastatic cancer (%)	138 ( 2.4)	48 ( 1.5)	- 0.009	24 ( 1.9)	80 ( 1.8)	- 0.000	162 ( 2.3)	128 ( 1.7)	- 0.006
HIV (%)	69 ( 1.2)	37 ( 1.2)	- 0.000	17 ( 1.3)	39 ( 0.9)	- 0.004	86 ( 1.2)	76 ( 1.0)	- 0.002
<b>Charlson Comorbidities Count (%)</b>									
0	1128 (19.7)	655 (21.0)	- 0.013	209 (16.2)	793 (18.1)	- 0.019	1337 (19.1)	1448 (19.3)	- 0.002
1-2	1698 (29.7)	1047 (33.5)	- 0.039	362 (28.1)	1441 (32.9)	- 0.048	2060 (29.4)	2488 (33.1)	- 0.038
3-4	1268 (22.1)	704 (22.5)	- 0.004	310 (24.0)	1097 (25.0)	- 0.010	1578 (22.5)	1801 (24.0)	- 0.015
5+	1632 (28.5)	718 (23.0)	- 0.055	409 (31.7)	1052 (24.0)	- 0.077	2041 (29.1)	1770 (23.6)	- 0.055
<b>Number of Doctors (prior year) (%)</b>									
0	2421 (42.3)	1291 (41.3)	- 0.010	493 (38.2)	1639 (37.4)	- 0.008	2914 (41.5)	2930 (39.0)	- 0.025
1	1493 (26.1)	872 (27.9)	- 0.018	337 (26.1)	1268 (28.9)	- 0.028	1830 (26.1)	2140 (28.5)	- 0.024
2-4	1665 (29.1)	901 (28.8)	- 0.002	413 (32.0)	1368 (31.2)	- 0.008	2078 (29.6)	2269 (30.2)	- 0.006
5+	147 ( 2.6)	60 ( 1.9)	- 0.006	47 ( 3.6)	108 ( 2.5)	- 0.012	194 ( 2.8)	168 ( 2.2)	- 0.005



Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
< 1.45	1391 (24.3)	539 (17.3)	- 0.070	210 (16.3)	599 (13.7)	- 0.026	1601 (22.8)	1138 (15.2)	- 0.077
1.45 – 3.25	2232 (39.0)	1313 (42.0)	- 0.030	512 (39.7)	1923 (43.9)	- 0.042	2744 (39.1)	3236 (43.1)	- 0.040
3.25 +	1661 (29.0)	1226 (39.2)	- 0.102	496 (38.4)	1800 (41.1)	- 0.026	2157 (30.7)	3026 (40.3)	- 0.096
Missing	442 ( 7.7)	46 ( 1.5)	- 0.062	72 ( 5.6)	61 ( 1.4)	- 0.042	514 ( 7.3)	107 ( 1.4)	- 0.059
Lactate, mmol/L (%)									
<1.2	739 (12.9)	482 (15.4)	- 0.025	215 (16.7)	707 (16.1)	- 0.005	954 (13.6)	1189 (15.8)	- 0.022
1.2 - <2.0	1164 (20.3)	929 (29.7)	- 0.094	331 (25.7)	1423 (32.5)	- 0.068	1495 (21.3)	2352 (31.3)	- 0.100
2.0+	667 (11.6)	564 (18.1)	- 0.064	193 (15.0)	727 (16.6)	- 0.016	860 (12.3)	1291 (17.2)	- 0.049
Missing	3156 (55.1)	1149 (36.8)	- 0.183	551 (42.7)	1526 (34.8)	- 0.079	3707 (52.8)	2675 (35.6)	- 0.172
Platelet count per microL (%)									
150 or higher	3900 (68.1)	2099 (67.2)	- 0.009	803 (62.2)	2962 (67.6)	- 0.053	4703 (67.0)	5061 (67.4)	- 0.004
< 150	1741 (30.4)	1019 (32.6)	- 0.022	479 (37.1)	1416 (32.3)	- 0.048	2220 (31.6)	2435 (32.4)	- 0.008
Missing	85 ( 1.5)	6 ( 0.2)	- 0.013	8 ( 0.6)	5 ( 0.1)	- 0.005	93 ( 1.3)	11 ( 0.1)	- 0.012
Total bilirubin, mg/dL (%)									
<1	4102 (71.6)	2299 (73.6)	- 0.020	954 (74.0)	3219 (73.4)	- 0.005	5056 (72.1)	5518 (73.5)	- 0.014
1 - 1.2	449 ( 7.8)	295 ( 9.4)	- 0.016	113 ( 8.8)	467 (10.7)	- 0.019	562 ( 8.0)	762 (10.2)	- 0.021
1.2 +	797 (13.9)	473 (15.1)	- 0.012	156 (12.1)	640 (14.6)	- 0.025	953 (13.6)	1113 (14.8)	- 0.012
Missing	378 ( 6.6)	57 ( 1.8)	- 0.048	67 ( 5.2)	57 ( 1.3)	- 0.039	445 ( 6.3)	114 ( 1.5)	- 0.048
White Blood Count per microL (%)									
4-10	3426 (59.8)	1443 (46.2)	- 0.136	732 (56.7)	1890 (43.1)	- 0.136	4158 (59.3)	3333 (44.4)	- 0.149
<4	1320 (23.1)	915 (29.3)	- 0.062	346 (26.8)	1344 (30.7)	- 0.038	1666 (23.7)	2259 (30.1)	- 0.063
>10	980 (17.1)	766 (24.5)	- 0.074	212 (16.4)	1149 (26.2)	- 0.098	1192 (17.0)	1915 (25.5)	- 0.085
C-reactive protein measured (%)	2786 (48.7)	1947 (62.3)	- 0.137	723 (56.0)	2793 (63.7)	- 0.077	3509 (50.0)	4740 (63.1)	- 0.131
D-dimer measured (%)	3676 (64.2)	2635 (84.3)	- 0.201	986 (76.4)	3682 (84.0)	- 0.076	4662 (66.4)	6317 (84.1)	- 0.177
<b>Vital Signs</b>									
Highest Temperature (F) (%)									
< 99	2620 (45.8)	1071 (34.3)	- 0.115	396 (30.7)	1409 (32.1)	- 0.014	3016 (43.0)	2480 (33.0)	- 0.100
99 - 100	1441 (25.2)	752 (24.1)	- 0.011	312 (24.2)	1026 (23.4)	- 0.008	1753 (25.0)	1778 (23.7)	- 0.013
100 - 102	1176 (20.5)	888 (28.4)	- 0.079	386 (29.9)	1316 (30.0)	- 0.001	1562 (22.3)	2204 (29.4)	- 0.071
102 +	475 ( 8.3)	397 (12.7)	- 0.044	194 (15.0)	614 (14.0)	- 0.010	669 ( 9.5)	1011 (13.5)	- 0.039
Missing	14 ( 0.2)	16 ( 0.5)	- 0.003	2 ( 0.2)	18 ( 0.4)	- 0.003	16 ( 0.2)	34 ( 0.5)	- 0.002
Mean Arterial Pressure, mmHg (%)									
< 60	155 ( 2.7)	55 ( 1.8)	- 0.009	51 ( 4.0)	74 ( 1.7)	- 0.023	206 ( 2.9)	129 ( 1.7)	- 0.012

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
60 – 69	787 (13.7)	342 (10.9)	- 0.028	222 (17.2)	550 (12.5)	- 0.047	1009 (14.4)	892 (11.9)	- 0.025
70 – 89	3629 (63.4)	2092 (67.0)	- 0.036	828 (64.2)	2998 (68.4)	- 0.042	4457 (63.5)	5090 (67.8)	- 0.043
90 +	1144 (20.0)	625 (20.0)	- 0.000	188 (14.6)	747 (17.0)	- 0.025	1332 (19.0)	1372 (18.3)	- 0.007
Missing	11 ( 0.2)	10 ( 0.3)	0.001	1 ( 0.1)	14 ( 0.3)	0.002	12 ( 0.2)	24 ( 0.3)	0.001
Lowest Oxygen Saturation (%)									
< 88	118 ( 2.1)	319 (10.2)	- 0.082	106 ( 8.2)	622 (14.2)	- 0.060	224 ( 3.2)	941 (12.5)	- 0.093
88 - 92	1603 (28.0)	1660 (53.1)	- 0.251	643 (49.8)	2702 (61.6)	- 0.118	2246 (32.0)	4362 (58.1)	- 0.261
93 - 95	2690 (47.0)	863 (27.6)	- 0.194	401 (31.1)	794 (18.1)	- 0.130	3091 (44.1)	1657 (22.1)	- 0.220
96 +	1193 (20.8)	216 ( 6.9)	- 0.139	118 ( 9.1)	165 ( 3.8)	- 0.054	1311 (18.7)	381 ( 5.1)	- 0.136
Missing	122 ( 2.1)	66 ( 2.1)	0.000	22 ( 1.7)	100 ( 2.3)	0.006	144 ( 2.1)	166 ( 2.2)	0.002

**B. Propensity weighted pseudo population estimating the average treatment effect in the entire population (ATE)**

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
<b>Cohort, n</b>	8072.1	6801.3		3594.6	5602.9		11963.6	12887.0	
<b>Age, (%)</b>									
<50	807.0 (10.0)	648.8 (9.5)	- 0.005	271.7 (7.6)	436.5 (7.8)	0.002	1082.7 (9.0)	1142.0 (8.9)	- 0.002
50-59	991.0 (12.3)	847.1 (12.5)	- 0.002	376.8 (10.5)	657.9 (11.7)	0.013	1367.3 (11.4)	1551.5 (12.0)	- 0.006
60-69	1863.5 (23.1)	1658.1 (24.4)	- 0.013	802.6 (22.3)	1254.6 (22.4)	0.001	2800.3 (23.4)	2959.5 (23.0)	- 0.004
70-79	2694.9 (33.4)	2283.9 (33.6)	- 0.002	1331.8 (37.0)	2122.6 (37.9)	0.008	4206.0 (35.2)	4662.9 (36.2)	- 0.010
80+	1715.8 (21.3)	1363.5 (20.0)	- 0.012	811.8 (22.6)	1131.3 (20.2)	0.024	2507.4 (21.0)	2571.2 (20.0)	- 0.010
<b>Sex: Male, (%)</b>	7651.9 (94.8)	6471.7 (95.2)	- 0.004	3392.6 (94.4)	5332.5 (95.2)	0.008	11323.9 (94.7)	12237.6 (95.0)	- 0.003
<b>Race, (%)</b>									
White, non-Hispanic	4298.8 (53.3)	3657.7 (53.8)	- 0.005	2017.2 (56.1)	3172.8 (56.6)	0.005	6430.7 (53.8)	7170.0 (55.6)	- 0.019
Black, non-Hispanic	2443.2 (30.3)	1883.4 (27.7)	- 0.026	933.2 (26.0)	1416.2 (25.3)	0.007	3567.0 (29.8)	3507.0 (27.2)	- 0.026
Hispanic	666.2 (8.3)	673.0 (9.9)	- 0.016	272.0 (7.6)	483.8 (8.6)	0.011	940.7 (7.9)	1120.5 (8.7)	- 0.008
Other	428.3 (5.3)	348.7 (5.1)	- 0.002	236.1 (6.6)	341.5 (6.1)	0.005	666.5 (5.6)	673.5 (5.2)	- 0.003
Unknown	235.5 (2.9)	238.5 (3.5)	- 0.006	136.2 (3.8)	188.6 (3.4)	0.004	358.7 (3.0)	416.1 (3.2)	- 0.002
<b>Phase (Admission Date), (%)</b>									
1: June 7 - July 11	444.3 (5.5)	212.1 (3.1)	- 0.024	607.5 (16.9)	576.6 (10.3)	0.066	1112.0 (9.3)	865.6 (6.7)	- 0.026
2: July 12 - Aug. 15	501.3 (6.2)	225.4 (3.3)	- 0.029	569.6 (15.8)	656.1 (11.7)	0.041	1063.1 (8.9)	1074.1 (8.3)	- 0.006
3: Aug. 16 - Oct. 17	937.0 (11.6)	674.2 (9.9)	- 0.017	824.3 (22.9)	1101.0 (19.7)	0.033	1764.3 (14.7)	1784.1 (13.8)	- 0.009
4: Oct. 18 - Nov. 30	895.1 (11.1)	628.7 (9.2)	- 0.018	560.0 (15.6)	1163.1 (20.8)	0.052	1567.9 (13.1)	1894.9 (14.7)	- 0.016
5: Dec. 1 - Dec. 31	1841.7 (22.8)	1806.4 (26.6)	- 0.037	384.9 (10.7)	809.7 (14.5)	0.037	2347.1 (19.6)	2693.3 (20.9)	- 0.013
6: Jan. 1 - Jan. 31	1620.7 (20.1)	1653.3 (24.3)	- 0.042	350.0 (9.7)	676.4 (12.1)	0.023	1998.7 (16.7)	2315.6 (18.0)	- 0.013
7: Feb. 1 - May 31	1832.1 (22.7)	1601.3 (23.5)	- 0.008	298.4 (8.3)	620.1 (11.1)	0.028	2110.5 (17.6)	2259.4 (17.5)	- 0.001
<b>Site Dexamethasone Prescribing, (%)</b>									
Low	2026.5 (25.1)	1094.8 (16.1)	- 0.090	938.8 (26.1)	974.2 (17.4)	0.087	3173.2 (26.5)	2421.9 (18.8)	- 0.077
Medium	4815.2 (59.7)	4102.3 (60.3)	- 0.007	2151.7 (59.9)	3175.9 (56.7)	0.032	7115.5 (59.5)	7480.7 (58.0)	- 0.014
High	1230.4 (15.2)	1604.2 (23.6)	- 0.083	504.1 (14.0)	1452.7 (25.9)	0.119	1674.9 (14.0)	2984.5 (23.2)	- 0.092
<b>Smoking Status, (%)</b>									
Unknown	262.5 (3.3)	187.8 (2.8)	- 0.005	109.3 (3.0)	158.1 (2.8)	0.002	384.8 (3.2)	384.5 (3.0)	- 0.002
Never Smoker	2848.7 (35.3)	2590.4 (38.1)	- 0.028	1201.3 (33.4)	1886.7 (33.7)	0.003	4080.9 (34.1)	4491.1 (34.8)	- 0.007
Former Smoker	2952.7 (36.6)	2577.3 (37.9)	- 0.013	1481.1 (41.2)	2425.1 (43.3)	0.021	4576.0 (38.2)	5277.6 (41.0)	- 0.027
Current Smoker	2008.2 (24.9)	1445.8 (21.3)	- 0.036	802.9 (22.3)	1133.0 (20.2)	0.021	2921.8 (24.4)	2734.0 (21.2)	- 0.032



Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
Cardiology (%)	2009.2 (24.9)	1732.1 (25.5)	-	1097.7 (30.5)	1680.2 (30.0)	-	3108.1 (26.0)	3528.6 (27.4)	0.014
Coagulation (%)	137.3 ( 1.7)	116.6 ( 1.2)	0.000	44.3 ( 1.5)	82.1 ( 1.5)	0.002	192.2 ( 1.6)	214.1 ( 1.7)	0.001
Pacemaker (%)	261.0 ( 3.2)	176.0 ( 2.6)	-	161.9 ( 4.5)	191.6 ( 3.4)	-	428.2 ( 3.6)	424.7 ( 3.3)	0.003
Dialysis (%)	117.2 ( 1.5)	115.0 ( 1.7)	0.002	99.4 ( 2.8)	94.2 ( 1.7)	-	206.6 ( 1.7)	218.6 ( 1.7)	0.000
Gastroenterology (%)	752.9 ( 9.3)	581.6 ( 8.6)	-	332.9 ( 9.3)	528.2 ( 9.4)	-	1147.9 ( 9.6)	1277.5 ( 9.9)	0.003
Hepatology (%)	276.9 ( 3.4)	193.4 ( 2.8)	-	106.1 ( 3.0)	153.4 ( 2.7)	-	426.1 ( 3.6)	359.0 ( 2.8)	0.008
Homeless (%)	619.4 ( 7.7)	362.9 ( 5.3)	-	198.0 ( 5.5)	221.2 ( 3.9)	-	817.4 ( 6.8)	596.1 ( 4.6)	0.022
<b>Co-Medications</b>									
Prophylactic	5781.6	5062.6	-	2604.7	4253.2	-	8665.8	9589.0	-
Anticoagulants 1 <sup>st</sup> 48 hours (%)	(71.6)	(74.4)	0.028	(72.5)	(75.9)	0.034	(72.4)	(74.4)	0.020
Remdesivir, 1 <sup>st</sup> 48 hours (%)	1867.5 (23.1)	2555.9 (37.6)	-	1522.2 (42.3)	3510.2 (62.7)	-	3664.1 (30.6)	6050.4 (46.9)	0.163
<b>Laboratory values</b>									
Albumin, g/dL (%)	2971.4 3.5 + (36.8)	2217.8 (32.6)	-	1039.5 (28.9)	1501.5 (26.8)	-	4070.5 (34.0)	3839.1 (29.8)	0.042
3 - 3.49	2643.7 (32.8)	2356.3 (34.6)	-	1238.6 (34.5)	1983.4 (35.4)	-	3935.0 (32.9)	4550.6 (35.3)	0.024
< 3	2004.0 (24.8)	1951.3 (28.7)	-	1168.2 (32.5)	1931.2 (34.5)	-	3361.2 (28.1)	3986.4 (30.9)	0.028
Missing	453.0 ( 5.6)	276.0 ( 4.1)	-	148.3 ( 4.1)	186.8 ( 3.3)	-	596.9 ( 5.0)	510.9 ( 4.0)	0.010
Alanine aminotransferase, IU/L (%)	2424.1 < 20 (30.0)	1771.8 (26.1)	-	975.1 (27.1)	1310.1 (23.4)	-	3461.5 (28.9)	3151.6 (24.5)	0.045
20 - 39	3144.7 (39.0)	2722.1 (40.0)	-	1510.6 (42.0)	2396.5 (42.8)	-	4786.1 (40.0)	5418.4 (42.0)	0.020
40 +	2098.6 (26.0)	2136.3 (31.4)	-	1006.2 (28.0)	1789.2 (31.9)	-	3195.2 (26.7)	3995.4 (31.0)	0.043
Missing	404.7 ( 5.0)	171.0 ( 2.5)	-	102.7 ( 2.9)	107.1 ( 1.9)	-	520.8 ( 4.4)	321.6 ( 2.5)	0.019
Aspartate aminotransferase, IU/L (%)	1758.6 < 20 (21.8)	934.8 (13.7)	-	502.6 (14.0)	572.1 (10.2)	-	2285.0 (19.1)	1586.6 (12.3)	0.068
20 - 39	3510.0 (43.5)	2998.7 (44.1)	-	1591.8 (44.3)	2437.9 (43.5)	-	5309.3 (44.4)	5767.2 (44.8)	0.004
40 +	2803.5 (34.7)	2867.8 (42.2)	-	1500.3 (41.7)	2592.9 (46.3)	-	4369.3 (36.5)	5533.2 (42.9)	0.064
Creatinine, mg/dL (%)	3692.5 < 1.2 (45.7)	2972.3 (43.7)	-	1471.4 (40.9)	2501.2 (44.6)	-	5238.4 (43.8)	5616.3 (43.6)	0.002
1.2 – 1.99	2892.6 (35.8)	2574.4 (37.9)	-	1399.8 (38.9)	2118.8 (37.8)	-	4423.3 (37.0)	4862.7 (37.7)	0.008
2 +	1387.3 (17.2)	1224.0 (18.0)	-	708.7 (19.7)	974.1 (17.4)	-	2196.7 (18.4)	2367.4 (18.4)	0.000
Missing	99.6 ( 1.2)	30.6 ( 0.4)	-	14.8 ( 0.4)	8.8 ( 0.2)	-	105.2 ( 0.9)	40.6 ( 0.3)	0.006
Fibrosis-4 Index (%)	1753.2 < 1.45 (21.7)	1263.6 (18.6)	-	507.7 (14.1)	791.1 (14.1)	-	2289.3 (19.1)	2087.1 (16.2)	0.029

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
1.45 – 3.25	3175.6 (39.3)	2785.6 (41.0)	0.016	1477.8 (41.1)	2418.4 (43.2)	0.021	4791.3 (40.0)	5341.2 (41.4)	0.014
3.25 +	2686.8 (33.3)	2565.5 (37.7)	0.044	1502.2 (41.8)	2276.9 (40.6)	0.012	4308.2 (36.0)	5107.3 (39.6)	0.036
Missing	456.5 ( 5.7)	186.6 ( 2.7)	- 0.029	107.0 ( 3.0)	116.5 ( 2.1)	- 0.009	574.8 ( 4.8)	351.5 ( 2.7)	- 0.021
Lactate, mmol/L (%)									
<1.2	1079.9 (13.4)	1033.2 (15.2)	0.018	606.2 (16.9)	924.8 (16.5)	- 0.004	1764.8 (14.8)	2009.6 (15.6)	0.008
1.2 - <2.0	1932.7 (23.9)	1911.1 (28.1)	0.042	1028.3 (28.6)	1747.7 (31.2)	0.026	3020.2 (25.2)	3732.9 (29.0)	0.037
2.0+	1091.5 (13.5)	1077.5 (15.8)	0.023	579.7 (16.1)	908.6 (16.2)	0.001	1626.1 (13.6)	2027.5 (15.7)	0.021
Missing	3968.0 (49.2)	2779.5 (40.9)	- 0.083	1380.4 (38.4)	2021.8 (36.1)	- 0.023	5552.5 (46.4)	5117.0 (39.7)	- 0.067
Platelet count per microL (%)									
150 or higher	5456.1 (67.6)	4504.8 (66.2)	- 0.014	2273.1 (63.2)	3709.6 (66.2)	- 0.030	7892.8 (66.0)	8381.1 (65.0)	- 0.009
< 150	2542.9 (31.5)	2288.1 (33.6)	0.021	1312.2 (36.5)	1885.7 (33.7)	- 0.029	3988.7 (33.3)	4482.4 (34.8)	0.014
Missing	73.1 ( 0.9)	8.5 ( 0.1)	- 0.008	9.3 ( 0.3)	7.7 ( 0.1)	- 0.001	82.1 ( 0.7)	23.6 ( 0.2)	- 0.005
Total bilirubin, mg/dL (%)									
<1	5850.6 (72.5)	5009.8 (73.7)	0.012	2738.6 (76.2)	4170.8 (74.4)	- 0.017	8779.4 (73.4)	9524.9 (73.9)	0.005
1 - 1.2	650.1 ( 8.1)	602.3 ( 8.9)	0.008	291.0 ( 8.1)	556.4 ( 9.9)	- 0.018	1004.1 ( 8.4)	1187.0 ( 9.2)	0.008
1.2 +	1163.5 (14.4)	1014.1 (14.9)	0.005	461.2 (12.8)	769.4 (13.7)	- 0.009	1664.4 (13.9)	1857.2 (14.4)	0.005
Missing	407.9 ( 5.1)	175.2 ( 2.6)	- 0.025	103.9 ( 2.9)	106.3 ( 1.9)	- 0.010	515.7 ( 4.3)	318.0 ( 2.5)	- 0.018
White Blood Count per microL (%)									
4-10	4515.2 (55.9)	3361.8 (49.4)	- 0.065	1926.9 (53.6)	2578.4 (46.0)	- 0.076	6641.3 (55.5)	6266.6 (48.6)	- 0.069
<4	2095.3 (26.0)	1972.6 (29.0)	0.030	997.2 (27.7)	1699.2 (30.3)	- 0.026	3139.3 (26.2)	3812.3 (29.6)	0.033
>10	1461.7 (18.1)	1466.9 (21.6)	0.035	670.6 (18.7)	1325.3 (23.7)	- 0.050	2183.1 (18.2)	2808.2 (21.8)	0.035
C-reactive protein measured (%)	4320.2 (53.5)	4113.1 (60.5)	- 0.070	2174.7 (60.5)	3484.6 (62.2)	- 0.017	6674.9 (55.8)	7810.0 (60.6)	0.048
D-dimer measured (%)	5648.2 (70.0)	5406.0 (79.5)	- 0.095	2876.9 (80.0)	4655.2 (83.1)	- 0.031	8791.6 (73.5)	10350.8 (80.3)	0.068
<b>Vital Signs</b>									
Highest Temperature (F) (%)									
< 99	3407.6 (42.2)	2500.0 (36.8)	- 0.055	986.1 (27.4)	1746.3 (31.2)	- 0.037	4466.1 (37.3)	4443.3 (34.5)	- 0.029
99 - 100	1974.6 (24.5)	1607.0 (23.6)	- 0.008	799.8 (22.3)	1331.8 (23.8)	- 0.015	2919.2 (24.4)	3106.8 (24.1)	- 0.003
100 - 102	1848.1 (22.9)	1773.1 (26.1)	- 0.032	1163.4 (32.4)	1708.9 (30.5)	- 0.019	3077.0 (25.7)	3567.9 (27.7)	- 0.020
102 +	811.4 (10.1)	881.4 (13.0)	- 0.029	639.1 (17.8)	800.7 (14.3)	- 0.035	1459.9 (12.2)	1719.3 (13.3)	- 0.011
Missing	30.4 ( 0.4)	39.8 ( 0.6)	- 0.002	6.1 ( 0.2)	15.2 ( 0.3)	- 0.001	41.4 ( 0.3)	49.7 ( 0.4)	- 0.000
Mean Arterial Pressure, mmHg (%)									
< 60	212.6 ( 2.6)	149.6 ( 2.2)	- 0.004	97.1 ( 2.7)	106.8 ( 1.9)	- 0.008	320.4 ( 2.7)	282.2 ( 2.2)	- 0.005
60 – 69	1044.4 (12.9)	827.9 (12.2)	- 0.008	625.3 (17.4)	784.1 (14.0)	- 0.034	1627.5 (13.6)	1682.2 (13.1)	- 0.006

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
70 – 89	5161.5 (63.9)	4474.7 (65.8)	0.018	2372.0 (66.0)	3785.1 (67.6)	0.016	7805.2 (65.2)	8623.3 (66.9)	0.017
90 +	1632.3 (20.2)	1325.1 (19.5)	- 0.007	495.4 (13.8)	915.0 (16.3)	0.025	2183.3 (18.2)	2266.1 (17.6)	- 0.007
Missing	21.3 ( 0.3)	24.0 ( 0.4)	0.001	4.8 ( 0.1)	11.9 ( 0.2)	0.001	27.2 ( 0.2)	33.3 ( 0.3)	0.000
Lowest Oxygen Saturation (%)									
< 88	269.7 ( 3.3)	412.6 ( 6.1)	0.027	386.2 (10.7)	709.6 (12.7)	0.019	643.0 ( 5.4)	1099.6 ( 8.5)	0.032
88 - 92	2760.1 (34.2)	3021.3 (44.4)	0.102	1974.6 (54.9)	3319.6 (59.2)	0.043	4961.0 (41.5)	6515.0 (50.6)	0.091
93 - 95	3462.4 (42.9)	2437.4 (35.8)	- 0.071	967.7 (26.9)	1188.9 (21.2)	- 0.057	4459.7 (37.3)	3888.3 (30.2)	- 0.071
96 +	1387.7 (17.2)	776.4 (11.4)	- 0.058	209.8 ( 5.8)	272.9 ( 4.9)	- 0.010	1651.6 (13.8)	1106.9 ( 8.6)	- 0.052
Missing	192.3 ( 2.4)	153.7 ( 2.3)	- 0.001	56.4 ( 1.6)	111.8 ( 2.0)	- 0.004	248.3 ( 2.1)	277.2 ( 2.2)	- 0.001

### **C. Propensity weighted pseudo population estimating the average treatment effect in the treated population (ATT)**



Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
<b>Cardiology (%)</b>	441.0 (24.5)	809.0 (25.9)	-	709.1 (30.5)	1262.0 (28.8)	-	1159.7 (26.2)	2071.0 (27.6)	0.014
<b>Coagulation (%)</b>	28.7 ( 1.6)	59.0 ( 1.9)	0.003	23.2 ( 1.0)	58.0 ( 1.3)	0.003	64.5 ( 1.5)	117.0 ( 1.6)	0.001
<b>Pacemaker (%)</b>	54.2 ( 3.0)	81.0 ( 2.6)	-	95.8 ( 4.1)	127.0 ( 2.9)	-	145.2 ( 3.3)	208.0 ( 2.8)	-
<b>Dialysis (%)</b>	24.2 ( 1.3)	29.0 ( 0.9)	-	61.1 ( 2.6)	53.0 ( 1.2)	0.014	75.6 ( 1.7)	82.0 ( 1.1)	0.006
<b>Gastroenterology (%)</b>	174.2 ( 9.7)	292.0 ( 9.3)	-	228.9 ( 9.8)	434.0 ( 9.9)	-	448.6 (10.1)	726.0 ( 9.7)	0.005
<b>Hepatology (%)</b>	50.6 ( 2.8)	72.0 ( 2.3)	-	66.8 ( 2.9)	109.0 ( 2.5)	0.004	122.8 ( 2.8)	181.0 ( 2.4)	0.004
<b>Homeless (%)</b>	97.2 ( 5.4)	124.0 ( 4.0)	-	120.5 ( 5.2)	139.0 ( 3.2)	0.020	199.0 ( 4.5)	263.0 ( 3.5)	-
<b>Co-Medications</b>									
Prophylactic									
Anticoagulants 1 <sup>st</sup> 48 hours (%)	1351.7 (75.1)	2375.0 (76.0)	0.009	1726.9 (74.3)	3404.0 (77.7)	0.034	3315.3 (74.9)	5779.0 (77.0)	0.021
Remdesivir, 1 <sup>st</sup> 48 hours (%)	800.6 (44.5)	2115.0 (67.7)	0.232	1275.1 (54.9)	3302.0 (75.3)	0.205	2391.0 (54.0)	5417.0 (72.2)	0.181
<b>Laboratory values</b>									
Albumin, g/dL (%)									
3.5 +	542.4 (30.1)	916.0 (29.3)	-	632.6 (27.2)	1122.0 (25.6)	0.016	1291.8 (29.2)	2038.0 (27.1)	0.020
3 - 3.49	642.2 (35.7)	1116.0 (35.7)	-	826.5 (35.6)	1581.0 (36.1)	0.005	1479.2 (33.4)	2697.0 (35.9)	0.025
< 3	539.9 (30.0)	971.0 (31.1)	-	790.4 (34.0)	1550.0 (35.4)	0.014	1493.7 (33.8)	2521.0 (33.6)	0.002
Missing	75.4 ( 4.2)	121.0 ( 3.9)	-	75.0 ( 3.2)	130.0 ( 3.0)	0.003	160.6 ( 3.6)	251.0 ( 3.3)	0.003
Alanine aminotransferase, IU/L (%)									
< 20	492.9 (27.4)	633.0 (20.3)	-	556.7 (23.9)	931.0 (21.2)	0.027	1117.4 (25.2)	1564.0 (20.8)	0.044
20 - 39	759.2 (42.2)	1348.0 (43.1)	-	1010.7 (43.5)	1873.0 (42.7)	0.007	1883.3 (42.6)	3221.0 (42.9)	0.003
40 +	515.2 (28.6)	1105.0 (35.4)	-	724.9 (31.2)	1526.0 (34.8)	0.036	1351.1 (30.5)	2631.0 (35.0)	0.045
Missing	32.7 ( 1.8)	38.0 ( 1.2)	-	32.3 ( 1.4)	53.0 ( 1.2)	0.002	73.5 ( 1.7)	91.0 ( 1.2)	0.004
Aspartate aminotransferase, IU/L (%)									
< 20	232.9 (12.9)	287.0 ( 9.2)	-	227.3 ( 9.8)	331.0 ( 7.6)	0.022	480.6 (10.9)	618.0 ( 8.2)	0.026
20 - 39	837.7 (46.5)	1344.0 (43.0)	-	1043.5 (44.9)	1848.0 (42.2)	0.027	2013.5 (45.5)	3192.0 (42.5)	0.030
40 +	729.4 (40.5)	1493.0 (47.8)	-	1053.8 (45.3)	2204.0 (50.3)	0.050	1931.2 (43.6)	3697.0 (49.2)	0.056
Creatinine, mg/dL (%)									
< 1.2	774.8 (43.0)	1427.0 (45.7)	-	947.0 (40.7)	2015.0 (46.0)	0.052	1816.1 (41.0)	3442.0 (45.9)	0.048
1.2 – 1.99	695.2 (38.6)	1235.0 (39.5)	-	928.6 (39.9)	1655.0 (37.8)	0.022	1742.2 (39.4)	2890.0 (38.5)	0.009
2 +	326.3 (18.1)	443.0 (14.2)	-	447.4 (19.2)	706.0 (16.1)	0.031	840.9 (19.0)	1149.0 (15.3)	0.037
Missing	3.7 ( 0.2)	19.0 ( 0.6)	-	1.5 ( 0.1)	7.0 ( 0.2)	0.001	26.1 ( 0.6)	26.0 ( 0.3)	0.002
Fibrosis-4 Index (%)									
< 1.45	327.4 (18.2)	539.0 (17.3)	-	302.8 (13.0)	599.0 (13.7)	0.006	667.6 (15.1)	1138.0 (15.2)	0.001

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
1.45 – 3.25	743.3 (41.3)	1313.0 (42.0)	0.007	990.9 (42.6)	1923.0 (43.9)	0.012	1836.7 (41.5)	3236.0 (43.1)	0.016
3.25 +	683.9 (38.0)	1226.0 (39.2)	0.013	996.3 (42.9)	1800.0 (41.1)	0.018	1834.5 (41.5)	3026.0 (40.3)	0.011
Missing	45.5 ( 2.5)	46.0 ( 1.5)	- 0.011	34.6 ( 1.5)	61.0 ( 1.4)	- 0.001	86.4 ( 2.0)	107.0 ( 1.4)	- 0.005
Lactate, mmol/L (%)									
<1.2	299.2 (16.6)	482.0 (15.4)	- 0.012	404.8 (17.4)	707.0 (16.1)	- 0.013	718.7 (16.2)	1189.0 (15.8)	- 0.004
1.2 - <2.0	495.8 (27.5)	929.0 (29.7)	0.022	717.7 (30.9)	1423.0 (32.5)	0.016	1307.9 (29.6)	2352.0 (31.3)	0.018
2.0+	276.8 (15.4)	564.0 (18.1)	0.027	376.3 (16.2)	727.0 (16.6)	0.004	672.5 (15.2)	1291.0 (17.2)	0.020
Missing	728.3 (40.5)	1149.0 (36.8)	- 0.037	825.9 (35.5)	1526.0 (34.8)	- 0.007	1726.1 (39.0)	2675.0 (35.6)	- 0.034
Platelet count per microL (%)									
150 or higher	1175.4 (65.3)	2099.0 (67.2)	0.019	1500.3 (64.5)	2962.0 (67.6)	0.030	2834.3 (64.0)	5061.0 (67.4)	0.034
< 150	617.5 (34.3)	1019.0 (32.6)	- 0.017	823.2 (35.4)	1416.0 (32.3)	- 0.031	1579.1 (35.7)	2435.0 (32.4)	- 0.032
Missing	7.1 ( 0.4)	6.0 ( 0.2)	- 0.002	1.2 ( 0.0)	5.0 ( 0.1)	- 0.001	11.9 ( 0.3)	11.0 ( 0.1)	- 0.001
Total bilirubin, mg/dL (%)									
<1	1336.7 (74.3)	2299.0 (73.6)	- 0.007	1793.5 (77.2)	3219.0 (73.4)	- 0.037	3313.1 (74.9)	5518.0 (73.5)	- 0.014
1 - 1.2	163.8 ( 9.1)	295.0 ( 9.4)	0.003	181.8 ( 7.8)	467.0 (10.7)	0.028	395.4 ( 8.9)	762.0 (10.2)	0.012
1.2 +	266.5 (14.8)	473.0 (15.1)	0.003	312.8 (13.5)	640.0 (14.6)	0.011	620.3 (14.0)	1113.0 (14.8)	0.008
Missing	33.0 ( 1.8)	57.0 ( 1.8)	- 0.000	36.4 ( 1.6)	57.0 ( 1.3)	- 0.003	96.4 ( 2.2)	114.0 ( 1.5)	- 0.007
White Blood Count per microL (%)									
4-10	937.2 (52.1)	1443.0 (46.2)	- 0.059	1198.0 (51.5)	1890.0 (43.1)	- 0.084	2251.8 (50.9)	3333.0 (44.4)	- 0.065
<4	512.2 (28.5)	915.0 (29.3)	- 0.008	655.4 (28.2)	1344.0 (30.7)	- 0.025	1271.5 (28.7)	2259.0 (30.1)	- 0.014
>10	350.6 (19.5)	766.0 (24.5)	0.050	471.2 (20.3)	1149.0 (26.2)	0.059	902.0 (20.4)	1915.0 (25.5)	0.051
C-reactive protein measured (%)	1092.7 (60.7)	1947.0 (62.3)	- 0.016	1472.5 (63.3)	2793.0 (63.7)	- 0.004	2725.4 (61.6)	4740.0 (63.1)	- 0.016
D-dimer measured (%)	1430.4 (79.5)	2635.0 (84.3)	- 0.049	1925.8 (82.8)	3682.0 (84.0)	- 0.012	3590.4 (81.1)	6317.0 (84.1)	- 0.030
<b>Vital Signs</b>									
Highest Temperature (F) (%)									
< 99	652.8 (36.3)	1071.0 (34.3)	- 0.020	602.2 (25.9)	1409.0 (32.1)	- 0.062	1392.3 (31.5)	2480.0 (33.0)	- 0.016
99 - 100	443.5 (24.6)	752.0 (24.1)	- 0.006	489.9 (21.1)	1026.0 (23.4)	- 0.023	1007.8 (22.8)	1778.0 (23.7)	- 0.009
100 - 102	439.7 (24.4)	888.0 (28.4)	0.040	776.7 (33.4)	1316.0 (30.0)	0.034	1325.2 (29.9)	2204.0 (29.4)	- 0.006
102 +	247.6 (13.8)	397.0 (12.7)	0.010	451.6 (19.4)	614.0 (14.0)	- 0.054	673.5 (15.2)	1011.0 (13.5)	- 0.018
Missing	16.4 ( 0.9)	16.0 ( 0.5)	- 0.004	4.1 ( 0.2)	18.0 ( 0.4)	- 0.002	26.4 ( 0.6)	34.0 ( 0.5)	- 0.001
Mean Arterial Pressure, mmHg (%)									
< 60	51.8 ( 2.9)	55.0 ( 1.8)	- 0.011	45.7 ( 2.0)	74.0 ( 1.7)	- 0.003	93.5 ( 2.1)	129.0 ( 1.7)	- 0.004
60 – 69	224.7 (12.5)	342.0 (10.9)	- 0.015	410.9 (17.7)	550.0 (12.5)	- 0.051	630.6 (14.3)	892.0 (11.9)	- 0.024

Dexamethasone	No Oxygen			Nasal Canula			Combined Cohort		
	No	Yes	SMD	No	Yes	SMD	No	Yes	SMD
70 – 89	1182.3 (65.7)	2092.0 (67.0)	0.013	1546.3 (66.5)	2998.0 (68.4)	0.019	2968.3 (67.1)	5090.0 (67.8)	0.007
90 +	330.9 (18.4)	625.0 (20.0)	0.016	317.8 (13.7)	747.0 (17.0)	0.034	716.7 (16.2)	1372.0 (18.3)	0.021
Missing	10.3 ( 0.6)	10.0 ( 0.3)	- 0.003	3.8 ( 0.2)	14.0 ( 0.3)	- 0.002	16.2 ( 0.4)	24.0 ( 0.3)	0.000
Lowest Oxygen Saturation (%)									
< 88	98.5 ( 5.5)	319.0 (10.2)	0.047	274.2 (11.8)	622.0 (14.2)	0.024	383.4 ( 8.7)	941.0 (12.5)	0.039
88 - 92	850.7 (47.3)	1660.0 (53.1)	0.059	1355.9 (58.3)	2702.0 (61.6)	0.033	2262.9 (51.1)	4362.0 (58.1)	0.070
93 - 95	629.6 (35.0)	863.0 (27.6)	- 0.073	566.8 (24.4)	794.0 (18.1)	- 0.063	1357.3 (30.7)	1657.0 (22.1)	0.086
96 +	172.2 ( 9.6)	216.0 ( 6.9)	- 0.026	93.3 ( 4.0)	165.0 ( 3.8)	- 0.002	315.4 ( 7.1)	381.0 ( 5.1)	0.021
Missing	49.2 ( 2.7)	66.0 ( 2.1)	- 0.006	34.4 ( 1.5)	100.0 ( 2.3)	- 0.008	106.3 ( 2.4)	166.0 ( 2.2)	0.002

**Supplemental Table E2. Sensitivity analyses estimating the average treatment effect in the treated population (ATT) in weighted Cox proportional hazards models for 90-day mortality associated with early dexamethasone exposure in patients hospitalized for COVID-19 not on IRS**

	No oxygen supplementation	Nasal cannula	Combined group: no oxygen plus NC
	HR (95% CI)	HR (95% CI)	HR (95% CI)
<b>Primary analysis</b>	1.99 (1.60-2.48)	1.04 (0.78-1.39)	1.60 (1.32-1.94)
<b>Sensitivity and subgroup analyses</b>			
Restricted to positive SARS-CoV-2 test within 24 hours	1.50 (1.04-2.17)	1.30 (0.90-1.88)	1.39 (1.03-1.88)
Restricted to positive SARS-CoV-2 test within 48 hours	1.52 (1.05-2.21)	1.32 (0.92-1.90)	1.43 (1.06-1.92)
Any systemic corticosteroids	1.90 (1.53-2.36)	1.15 (0.88-1.52)	1.58 (1.31-1.90)
Excluding patients admitted to ICU in initial 48 hours	1.23 (0.88-1.74)	1.28 (0.88-1.86)	1.27 (0.96-1.67)
Restricted to patients age 70 and older	1.45 (1.05-2.01)	1.33 (0.93-1.89)	1.45 (1.11-1.91)

Models present the ATT (average treatment effect in treated population).

CI = confidence interval

HR = hazard ratio

IRS = intensive respiratory support

**Supplemental Table E3. Sensitivity analyses with unweighted, multivariable Cox proportional hazards models for 90-day mortality associated with early dexamethasone exposure in patients hospitalized for COVID-19 not on IRS**

	No oxygen supplementation	Nasal cannula	Combined group: no oxygen plus NC
	HR (95% CI)	HR (95% CI)	HR (95% CI)
<b>Primary analysis</b>	1.75 (1.47-2.07)	1.31 (1.08-1.60)	1.63 (1.44-1.85)
<b>Sensitivity and subgroup analyses</b>			
Restricted to positive SARS-CoV-2 test within 24 hours	1.86 (1.55-2.23)	1.33 (1.08-1.64)	1.69 (1.48-1.93)
Restricted to positive SARS-CoV-2 test within 48 hours	1.89 (1.58-2.26)	1.33 (1.08-1.63)	1.70 (1.49-1.94)
Any systemic corticosteroids	1.69 (1.44-1.99)	1.33 (1.09-1.61)	1.61 (1.43-1.82)
Excluding patients admitted to ICU in initial 48 hours	1.63 (1.35-1.98)	1.18 (0.96-1.44)	1.49 (1.30-1.70)
Restricted to patients age 70 and older	1.76 (1.46-2.12)	1.31 (1.06-1.60)	1.61 (1.41-1.84)

CI = confidence interval

HR = hazard ratio

IRS = intensive respiratory support

**Supplemental Table E4. STROBE Checklist of items for cohort studies**

	<b>Item No</b>	<b>Recommendation</b>	<b>Section/Paragraph</b>
<b>Title and abstract</b>	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	Abstract: Methods
	(b) Provide in the abstract an informative and balanced summary of what was done and what was found		Abstract: Methods, Findings, Interpretation
<b>Introduction</b>			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Introduction: Paragraphs 1-2
Objectives	3	State specific objectives, including any prespecified hypotheses	Introduction: Paragraph 3
<b>Methods</b>			
Study design	4	Present key elements of study design early in the paper	Methods: Paragraph 1
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Methods: Paragraph 1
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	Methods: Paragraphs 1-2
		(b) For matched studies, give matching criteria and number of exposed and unexposed	N/A
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Methods: Paragraphs 3-6
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Methods: Paragraphs 3-6
Bias	9	Describe any efforts to address potential sources of bias	Methods: Paragraphs 7-8
Study size	10	Explain how the study size was arrived at	All hospitalized COVID+ patients with at least 48h stay, concatenating length of stay to

			include emergency department/ observational status
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Methods: paragraphs 4, 6, Table 2, Supplemental Table 1
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding  (b) Describe any methods used to examine subgroups and interactions  (c) Explain how missing data were addressed  (d) If applicable, explain how loss to follow-up was addressed  (e) Describe any sensitivity analyses	Methods: paragraphs 7, 8  Methods: paragraph 9  Methods: paragraph 8, Table 2, Supplemental Table 1  N/A  Methods: paragraph 9
<b>Results</b>			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed  (b) Give reasons for non-participation at each stage  (c) Consider use of a flow diagram	Methods: paragraph 1-2  Results: paragraph 1  Figure 1  Methods: paragraph 2  Figure 1  Figure 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders  (b) Indicate number of participants with missing data for each variable of interest  (c) Summarise follow-up time (eg, average and total amount)	Results: paragraphs 1-2  Table 1  Table 2, Supplemental Table 1  Figure 2
Outcome data	15*	Report numbers of outcome events or summary measures over time	Results: paragraph 2  Table 1, Figure 2, Figure 3

Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Results: paragraph 2 Results: paragraphs 4, 5  <b>Table 3</b>  (b) Report category boundaries when continuous variables were categorized
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Results: paragraph 6
<b>Discussion</b>			
Key results	18	Summarise key results with reference to study objectives	Discussion: paragraph 1-2
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Discussion: paragraph 7
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Discussion: paragraphs 1, 2, 3, 5, 6
Generalisability	21	Discuss the generalisability (external validity) of the study results	Discussion: paragraph 3, 4, 5, 6
<b>Other information</b>			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Metadata

\*Give information separately for exposed and unexposed groups