

SUPPLEMENTAL MATERIALS

Supplemental Table I. Comparison of patients with and without documented race/ethnicity

Characteristic	Race Documented (N=7,902)	Race Not Documented (N=688)	Standardized Difference (%)
Baseline Demographics			
Age, years	63.0 (49.0-75.0)	61.0 (47.5-73.0)	9.85
Female	3,555 (45.0%)	282 (41.0%)	8.09
Insurance			19.19
Private/Commercial	2,468 (31.2%)	218 (31.7%)	
Medicare	3,100 (39.2%)	245 (35.6%)	
Medicaid	1,350 (17.1%)	151 (21.9%)	
Other Government	47 (0.6%)	2 (0.3%)	
Other/ND	221 (2.8%)	34 (4.9%)	
Uninsured/Self-pay	518 (6.6%)	32 (4.7%)	
Education			
Advanced degree	11.63 (5.64-19.50)	12.11 (8.04-21.13)	20.81
College degree	26.41 (20.18-33.55)	26.09 (23.12-31.88)	6.11
High School	43.82 (33.34-51.99)	35.55 (30.10-45.45)	46.50
Did not complete high school	14.97 (7.65-25.20)	19.15 (9.90-29.64)	25.93
Household income	56,015 (41,097-80,179)	56,383 (43,862-80,542)	4.67
Unemployment rate	6.00 (4.30-8.50)	7.00 (4.70-9.20)	15.64
Medical History			
Diabetes	2,927 (37.0%)	238 (34.6%)	5.11
Hypertension	4,751 (60.1%)	348 (50.6%)	19.29
Prior coronary artery disease	732 (9.3%)	53 (7.7%)	5.60
Prior heart failure	936 (11.8%)	40 (5.8%)	21.38
Prior cerebrovascular disease	714 (9.0%)	37 (5.4%)	14.18
Prior PAD	218 (2.8%)	13 (1.9%)	5.77
Atrial fibrillation/flutter	772 (9.8%)	32 (4.7%)	19.89
Pulmonary Disease	1,475 (18.7%)	102 (14.8%)	10.30
PE/DVT	352 (4.5%)	30 (4.4%)	0.46
Cancer	885 (11.2%)	55 (8.0%)	10.90
Immune Disorder	366 (4.6%)	25 (3.6%)	5.02
Kidney Function			12.06
GFR \geq 90	2,078 (26.3%)	188 (27.3%)	
GFR 60-<90	2,648 (33.5%)	234 (34.0%)	
30-<60	1,776 (22.5%)	156 (22.7%)	
GFR <30	836 (10.6%)	71 (10.3%)	
Dialysis	321 (4.1%)	14 (2.0%)	
Smoking/Vaping	519 (6.6%)	34 (4.9%)	6.99
Diagnosis Data			
Days from symptom onset to diagnosis	5.0 (2.0-8.0)	6.0 (3.0-9.0)	18.23
Timing of COVID-19 diagnosis			6.49
Prior to hospital arrival	2,163 (27.4%)	169 (24.6%)	
During Hospitalization	5,614 (71.0%)	508 (73.8%)	
After hospital discharge	73 (0.9%)	6 (0.9%)	
Unknown	26 (0.3%)	2 (0.3%)	
Off-hour presentation	4,485 (56.8%)	414 (60.2%)	2.60

Supplemental Table II. Odds ratios of clinical outcomes stratified by age groups

Odds ratios of clinical outcomes by races among patients < 55 years old

Outcome	Model 1			Model 2			Model 3			Model 4		
	OR	(95% CI)	P-value	OR	(95% CI)	P-value	OR	(95% CI)	P-value	OR	(95% CI)	P-value
Mortality												
Non-Hispanic White (ref)			0.4194			0.5554			0.6963			0.6109
Black	1.03	(0.65-1.63)		0.92	(0.56-1.51)		0.79	(0.47-1.33)		0.83	(0.48-1.43)	
Hispanic	0.74	(0.47-1.17)		0.71	(0.42-1.19)		0.76	(0.44-1.29)		0.70	(0.40-1.22)	
Asian	0.82	(0.35-1.91)		0.96	(0.40-2.33)		1.05	(0.42-2.59)		1.03	(0.40-2.64)	
MACE												
Non-Hispanic White (ref)			0.0968			0.3083			0.5588			0.432
Black	1.03	(0.69-1.53)		0.99	(0.64-1.52)		0.80	(0.51-1.25)		0.82	(0.51-1.31)	
Hispanic	0.67	(0.45-1.00)		0.69	(0.44-1.09)		0.71	(0.44-1.14)		0.66	(0.41-1.08)	
Asian	0.72	(0.34-1.53)		0.82	(0.38-1.77)		0.82	(0.36-1.84)		0.83	(0.36-1.91)	
WHO Severity score*												
Non-Hispanic White (ref)			0.164			0.2376			0.1204			0.0867
Black	0.97	(0.72-1.29)		0.98	(0.71-1.34)		0.83	(0.60-1.15)		0.84	(0.60-1.17)	
Hispanic	0.80	(0.60-1.06)		0.87	(0.63-1.19)		0.88	(0.63-1.22)		0.76	(0.54-1.07)	
Asian	1.23	(0.78-1.95)		1.40	(0.87-2.26)		1.49	(0.91-2.43)		1.40	(0.83-2.34)	

Odds ratios of clinical outcomes by races among patients 55-70 years old

Outcome	Model 1		Model 2		Model 3		Model 4	
	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
Mortality								
Non-Hispanic White (ref)		0.1703		0.3812		0.9442		0.8824
Black	1.17 (0.89-1.54)		1.11 (0.81-1.51)		0.98 (0.71-1.36)		1.01 (0.72-1.42)	
Hispanic	0.85 (0.63-1.16)		0.84 (0.60-1.18)		0.90 (0.63-1.29)		0.89 (0.61-1.28)	
Asian	0.82 (0.49-1.39)		0.85 (0.50-1.46)		0.98 (0.56-1.72)		0.89 (0.50-1.62)	
MACE								
Non-Hispanic White (ref)		0.0573		0.2196		0.8309		0.6863
Black	1.20 (0.93-1.56)		1.11 (0.83-1.48)		1.01 (0.75-1.36)		1.03 (0.75-1.41)	
Hispanic	0.83 (0.62-1.11)		0.81 (0.59-1.11)		0.88 (0.63-1.22)		0.85 (0.60-1.20)	
Asian	0.81 (0.50-1.33)		0.85 (0.51-1.41)		0.96 (0.57-1.63)		0.88 (0.51-1.53)	
WHO Severity score*								
Non-Hispanic White (ref)		0.0913		0.2708		0.1795		0.3377
Black	1.03 (0.83-1.29)		1.00 (0.78-1.27)		0.91 (0.71-1.17)		0.91 (0.70-1.18)	
Hispanic	0.78 (0.61-0.99)		0.82 (0.63-1.07)		0.90 (0.68-1.19)		0.85 (0.63-1.13)	
Asian	1.07 (0.73-1.57)		1.16 (0.78-1.71)		1.41 (0.94-2.11)		1.23 (0.81-1.89)	

Odds ratios of clinical outcomes by races among patients > 70 years old

Outcome	Model 1			Model 2			Model 3			Model 4		
	OR	(95% CI)	P-value	OR	(95% CI)	P-value	OR	(95% CI)	P-value	OR	(95% CI)	P-value
Mortality												
Non-Hispanic White (ref)			0.0293			0.0214			0.0232			0.0177
Black	0.78	(0.61-0.99)		0.73	(0.56-0.96)		0.76	(0.57-1.00)		0.78	(0.58-1.04)	
Hispanic	0.83	(0.65-1.07)		0.81	(0.62-1.06)		0.87	(0.66-1.16)		0.97	(0.72-1.30)	
Asian	1.34	(0.93-1.93)		1.33	(0.90-1.96)		1.47	(0.98-2.20)		1.67	(1.09-2.56)	
MACE												
Non-Hispanic White (ref)			0.0139			0.0181			0.0287			0.0204
Black	0.80	(0.64-1.02)		0.79	(0.61-1.02)		0.85	(0.65-1.11)		0.88	(0.66-1.16)	
Hispanic	0.80	(0.63-1.02)		0.79	(0.61-1.03)		0.88	(0.67-1.16)		0.98	(0.74-1.31)	
Asian	1.39	(0.98-1.98)		1.40	(0.96-2.04)		1.59	(1.07-2.34)		1.79	(1.18-2.71)	
WHO Severity score*												
Non-Hispanic White (ref)			0.0186			0.0141			0.02			0.0188
Black	0.78	(0.62-0.98)		0.73	(0.57-0.94)		0.75	(0.58-0.97)		0.77	(0.58-1.01)	
Hispanic	0.83	(0.66-1.05)		0.80	(0.62-1.03)		0.86	(0.66-1.11)		0.94	(0.71-1.24)	
Asian	1.33	(0.94-1.88)		1.28	(0.89-1.84)		1.40	(0.96-2.04)		1.56	(1.04-2.33)	

Model 1 adjusts for age alone. Model 2 includes Model 1 and sociodemographic factors. Model 3 includes Model 2 and medical history. Model 4 includes Model 3 and presentation features.

* Proportional odds model for ordinal outcomes

MACE: death, myocardial infarction, stroke, heart failure;

COVID-19 cardiorespiratory ordinal severity score (from worst to best): death, cardiac arrest, mechanical ventilation with mechanical circulatory support, mechanical ventilation with vasopressors/inotrope support, mechanical ventilation without requiring hemodynamic support, and hospitalization without any of the above

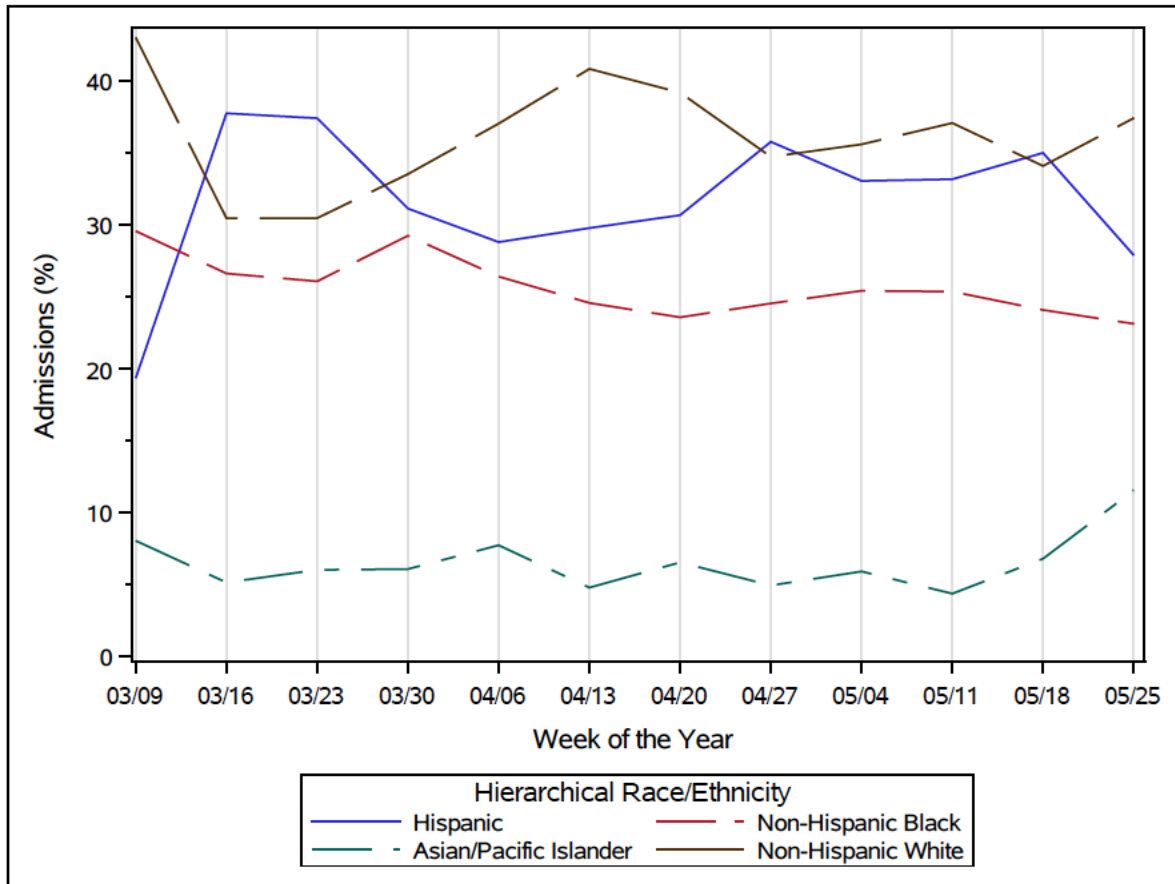
Supplemental Table III. Sensitivity analyses examining association between race/ethnicity and outcomes with generalized estimating equations modeling adjusting for sociodemographic, clinical, and presentation features among 7,868 patients hospitalized for COVID-19

	OR (95% CI)	P-value	Global P-value
Mortality			
Non-Hispanic White	Reference		0.0535
Black	0.96 (0.80-1.15)	0.6639	
Hispanic	0.95 (0.73-1.23)	0.7050	
Asian	1.29 (1.05-1.58)	0.0159	
MACE			
Non-Hispanic White	Reference		0.0873
Black	1.02 (0.86-1.20)	0.8585	
Hispanic	0.92 (0.73-1.16)	0.4707	
Asian	1.27 (1.02-1.57)	0.0290	
COVID-19 Disease Severity			
Non-Hispanic White	Reference		0.0010
Black	0.92 (0.78-1.08)	0.2986	
Hispanic	0.90 (0.72-1.13)	0.3634	
Asian	1.36 (1.14-1.63)	0.0007	

MACE: death, myocardial infarction, stroke, heart failure; COVID-19 cardiorespiratory ordinal severity score: death, cardiac arrest, mechanical ventilation with mechanical circulatory support, mechanical ventilation with vasopressors/inotrope support, mechanical ventilation without requiring hemodynamic support, and hospitalization without any of the above

Supplemental Figure I. Weekly hospitalizations for COVID-19 by race/ethnicity March-May

2020



Supplemental Figure II. Ratio of patient race/ethnicity over race/ethnicity of residents in site zip code, with non-Hispanic White as the comparator.

