

Supplementary materials

Supplementary Table 1 Predictors of mortality of overall cohort

Variables	Adjusted odds ratio (95%CI)	P value
Female	0.87 (0.85-0.90)	< 0.001
Race		
White	Ref	
Black	0.96 (0.92-1.01)	0.151
Hispanic	1.24 (1.18-1.30)	< 0.001
Asian or Pacific Islander	1.06 (0.97-1.16)	0.196
Native American	1.43 (1.23-1.66)	< 0.001
Other	1.18 (1.09-1.28)	< 0.001
Age (years)		
< 65	Ref	
65+	1.68 (1.62-1.76)	< 0.001
Hospital bed size		
Small	Ref	
Medium	1.12 (1.05-1.20)	0.001
Large	1.16 (1.09-1.24)	< 0.001
Hospital teaching status		
Rural	Ref	
Urban non-teaching	1.25 (1.13-1.39)	< 0.001
Urban teaching	1.36 (1.24-1.49)	< 0.001
Hospital region		
Northeast	Ref	
Midwest	0.76 (0.70-0.83)	< 0.001
South	0.82 (0.75-0.89)	< 0.001

West	0.78 (0.71-0.85)	< 0.001
Primary payment coverage		
Medicare	Ref	
Medicaid	0.95 (0.90-1.01)	0.08
Private insurance	1.02 (0.97-1.06)	0.518
Self-pay	1.18 (1.08-1.29)	< 0.001
No charge	1.29 (0.88-1.90)	0.191
Other	1.11 (1.02-1.20)	0.012
Elective	1.42 (1.27-1.59)	< 0.001
Median household income (\$)		
1-28999	Ref	
29000-35999	0.88 (0.84-0.92)	< 0.001
36000-46999	0.81 (0.77-0.85)	< 0.001
47000+	0.73 (0.69-0.77)	< 0.001
Congestive heart failure	1.04 (1.00-1.08)	0.067
Atrial fibrillation	1.51 (1.45-1.57)	< 0.001
Peripheral vascular disease	0.95 (0.89-1.01)	0.094
Hypertension	0.93 (0.90-0.96)	< 0.001
Anemia	0.77 (0.72-0.82)	< 0.001
Cancer	1.08 (1.01-1.16)	0.026
Diabetes	0.98 (0.95-1.01)	0.271
Smoking	0.70 (0.66-0.75)	< 0.001
Chronic lung disease	0.98 (0.95-1.01)	0.249
Chronic kidney disease	1.13 (1.09-1.17)	< 0.001
Liver disease	1.93 (1.84-2.02)	< 0.001
Acquired immunodeficiency syndrome	0.79 (0.61-1.03)	0.086

Coagulopathy	1.57 (1.51-1.63)	< 0.001
Obesity	1.07 (1.03-1.11)	< 0.001
Coronary artery disease	1.04 (1.00-1.09)	0.039
Hyperlipidemia	0.92 (0.89-0.95)	< 0.001
Elixhauser 4+	1.53 (1.47-1.60)	< 0.001

Ref: Reference.

Supplementary Table 2 Predictors of mortality among Non-Hispanic White (model 1)

Variables	Odds ratio (95%CI)	P value
Age (years)		
< 65	Ref	
65+	1.50 (1.42-1.59)	< 0.001
Sex		
Male	Ref	
Female	0.87 (0.84-0.91)	< 0.001
Hospital teaching status		
Rural	Ref	
Urban Non-teaching	1.20 (1.07-1.34)	0.001
Urban Teaching	1.36 (1.23-1.51)	< 0.001
Hospital region		
Northeast	Ref	
Midwest	0.80 (0.72-0.88)	< 0.001
South	0.85 (0.77-0.93)	< 0.001
West	0.80 (0.73-0.88)	< 0.001
Insurance type		
Medicare	Ref	

Medicaid	0.92 (0.84-1.00)	0.055
Private insurance	1.06 (0.99-1.13)	0.088
Self-pay	1.29 (1.12-1.48)	0.001
No charge	1.66 (0.97-2.84)	0.065
Other	1.22 (1.09-1.36)	< 0.001
Elective	1.43 (1.24-1.65)	< 0.001
Median household income		
(\$)		
1-28999	Ref	
29000-35999	0.89 (0.84-0.94)	< 0.001
36000-46999	0.81 (0.76-0.87)	< 0.001
47000+	0.72 (0.67-0.78)	< 0.001
Congestive heart failure	1.06 (1.01-1.11)	0.016
Atrial fibrillation	1.44 (1.37-1.51)	< 0.001
Coronary artery disease	1.03 (0.97-1.08)	0.33
Peripheral vascular disease	0.97 (0.89-1.05)	0.412
Hypertension	0.91 (0.87-0.95)	< 0.001
Diabetes	0.94 (0.90-0.98)	0.002
Chronic pulmonary disease	1.00 (0.95-1.04)	0.935
Chronic kidney disease	1.13 (1.08-1.19)	< 0.001
Chronic liver disease	1.92 (1.81-2.05)	< 0.001
Cancer	1.06 (0.98-1.16)	0.15
Coagulopathy	1.47 (1.39-1.54)	< 0.001
Obesity	1.06 (1.01-1.12)	0.012
Smoking	0.67 (0.62-0.72)	< 0.001
Elixhauser score ≥ 4	1.38 (1.31-1.47)	< 0.001

Ref: Reference.

Supplementary Table 3 Predictors of mortality among Non-Hispanic White (model 2 including model 1 + in-hospital events)

Variables	Odds ratio (95%CI)	P value
Age (years)		
< 65	Ref	
65+	1.88 (1.76-2.01)	< 0.001
Sex		
Male	Ref	
Female	1.04 (0.99-1.09)	0.1
Hospital teaching status		
Rural	Ref	
Urban non-teaching	1.06 (0.95-1.18)	0.327
Urban teaching	1.12 (1.02-1.23)	0.021
Hospital region		
Northeast	Ref	
Midwest	0.80 (0.73-0.88)	< 0.001
South	0.90 (0.82-0.98)	0.012
West	0.88 (0.80-0.97)	0.007
Insurance type		
Medicare	Ref	
Medicaid	0.83 (0.76-0.92)	< 0.001
Private insurance	0.99 (0.92-1.06)	0.692
Self-pay	1.35 (1.16-1.56)	< 0.001
No charge	1.68 (1.00-2.82)	0.05
Other	1.34 (1.18-1.52)	< 0.001

Elective	1.56 (1.33-1.83)	< 0.001
Median household income (\$)		
1-28999	Ref	
29000-35999	0.91 (0.85-0.97)	0.003
36000-46999	0.88 (0.82-0.94)	< 0.001
47000+	0.80 (0.74-0.87)	< 0.001
Congestive heart failure	1.10 (1.05-1.17)	< 0.001
Atrial fibrillation	1.38 (1.31-1.46)	< 0.001
Coronary artery disease	1.14 (1.08-1.21)	< 0.001
Peripheral vascular disease	1.12 (1.02-1.23)	0.015
Hypertension	1.04 (0.99-1.09)	0.121
Diabetes	0.91 (0.87-0.96)	< 0.001
Chronic pulmonary disease	1.04 (0.99-1.10)	0.092
Chronic kidney disease	1.11 (1.05-1.17)	< 0.001
Chronic liver disease	1.57 (1.46-1.68)	< 0.001
Cancer	1.33 (1.21-1.46)	< 0.001
Coagulopathy	1.18 (1.12-1.25)	< 0.001
Obesity	0.91 (0.87-0.96)	0.001
Smoking	0.75 (0.69-0.82)	< 0.001
Elixhauser score ≥ 4	0.98 (0.92-1.05)	0.563
Ventilation	6.67 (6.32-7.04)	< 0.001
AKI	1.81 (1.72-1.90)	< 0.001
AKI requiring dialysis	1.71 (1.57-1.85)	< 0.001

AKI: Acute kidney injury; Ref: Reference.

Supplementary Table 4 Predictors of mortality among Non-Hispanic Black (model 1)

Variables	Odds ratio (95%CI)	P value
Age (years)		
< 65	Ref	
65+	1.67 (1.52-1.82)	< 0.001
Sex		
Male	Ref	
Female	0.95 (0.88-1.01)	0.104
Hospital teaching status		
Rural	Ref	
Urban non-teaching	0.99 (0.77-1.26)	0.904
Urban teaching	1.05 (0.85-1.29)	0.666
Hospital region		
Northeast	Ref	
Midwest	0.75 (0.64-0.88)	< 0.001
South	0.79 (0.69-0.91)	0.001
West	0.65 (0.54-0.79)	< 0.001
Insurance type		
Medicare	Ref	
Medicaid	0.88 (0.79-0.99)	0.04
Private insurance	0.97 (0.88-1.08)	0.584
Self-pay	0.91 (0.73-1.14)	0.417
No charge	0.95 (0.49-1.83)	0.87
Other	1.02 (0.85-1.22)	0.853
Elective	1.34 (1.02-1.75)	0.034
Median household income (\$)		
1-28999	Ref	

29,000-35999	0.93 (0.85-1.03)	0.16
36000-46999	0.82 (0.73-0.92)	0.001
47000+	0.80 (0.71-0.91)	< 0.001
Congestive heart failure	1.09 (1.01-1.19)	0.036
Atrial fibrillation	1.63 (1.48-1.80)	< 0.001
Coronary artery disease	1.04 (0.94-1.15)	0.494
Peripheral vascular disease	0.93 (0.80-1.09)	0.352
Hypertension	0.82 (0.75-0.89)	< 0.001
Hyperlipidemia	0.93 (0.86-1.01)	0.092
Chronic pulmonary disease	1.05 (0.97-1.13)	0.265
Diabetes	1.06 (0.99-1.15)	0.095
Chronic kidney disease	1.12 (1.04-1.21)	0.004
Chronic liver disease	2.18 (1.96-2.43)	< 0.001
Cancer	1.29 (1.10-1.51)	0.002
Coagulopathy	1.75 (1.60-1.90)	< 0.001
Obesity	1.12 (1.03-1.21)	0.009
Smoking	0.67 (0.59-0.78)	< 0.001
Elixhauser score ≥ 4	1.70 (1.53-1.88)	< 0.001

Ref: Reference.

Supplementary Table 5 Predictors of mortality among Non-Hispanic Black (model 2 including model 1 + In-hospital events)

Variables	Odds ratio (95%CI)	P value
Age (years)		
< 65	Ref	
65+	1.91 (1.73-2.12)	< 0.001

Sex		
Male	Ref	
Female	1.03 (0.95-1.11)	0.519
Hospital teaching status		
Rural	Ref	
Urban non-teaching	1.13 (0.89-1.44)	0.31
Urban teaching	1.05 (0.85-1.31)	0.636
Hospital region		
Northeast	Ref	
Midwest	0.71 (0.61-0.84)	< 0.001
South	0.87 (0.76-1.00)	0.057
West	0.81 (0.66-0.98)	0.034
Insurance type		
Medicare	Ref	
Medicaid	0.79 (0.70-0.89)	< 0.001
Private insurance	0.87 (0.77-0.97)	0.013
Self-pay	0.91 (0.71-1.15)	0.421
No charge	1.05 (0.58-1.90)	0.866
Other	1.01 (0.81-1.26)	0.947
Elective	1.50 (1.06-2.10)	0.021
Median household income (\$)		
1-28999	Ref	
29000-35999	0.97 (0.87-1.07)	0.497
36000-46999	0.87 (0.77-0.98)	0.021
47000+	0.80 (0.70-0.93)	0.002
Congestive heart failure	1.08 (0.99-1.19)	0.098

Atrial fibrillation	1.52 (1.36-1.70)	< 0.001
Coronary artery disease	1.10 (0.98-1.23)	0.117
Peripheral vascular disease	1.11 (0.93-1.33)	0.248
Hypertension	0.99 (0.90-1.09)	0.832
Hyperlipidemia	0.93 (0.86-1.02)	0.129
Chronic pulmonary disease	1.05 (0.96-1.15)	0.276
Diabetes	1.07 (0.98-1.16)	0.118
Chronic kidney disease	1.09 (0.99-1.19)	0.069
Chronic liver disease	1.75 (1.55-1.98)	< 0.001
Cancer	1.68 (1.39-2.03)	< 0.001
Coagulopathy	1.32 (1.20-1.45)	< 0.001
Obesity	1.00 (0.92-1.10)	0.917
Smoking	0.81 (0.69-0.95)	0.009
Elixhauser score ≥ 4	1.10 (0.98-1.23)	0.098
Ventilation	8.22 (7.46-9.05)	< 0.001
AKI	1.55 (1.41-1.70)	< 0.001
AKI requiring dialysis	1.54 (1.37-1.73)	< 0.001

AKI: Acute kidney injury; Ref: Reference.

Supplementary Table 6 Predictors of mortality among Hispanics (model 1)

Variables	Odds ratio (95%CI)	P value
Age (years)		
< 65	Ref	
65+	1.94 (1.77-2.12)	< 0.001
Sex		
Male	Ref	

Female	0.79 (0.74-0.84)	< 0.001
Hospital teaching status		
Rural	Ref	
Urban non-teaching	1.54 (1.15-2.06)	0.004
Urban teaching	1.45 (1.10-1.92)	0.009
Hospital region		
Northeast	Ref	
Midwest	0.66 (0.55-0.80)	< 0.001
South	0.80 (0.69-0.92)	0.002
West	0.82 (0.71-0.94)	0.004
Insurance type		
Medicare	Ref	
Medicaid	1.03 (0.93-1.15)	0.562
Private insurance	1.01 (0.92-1.12)	0.827
Self-pay	1.34 (1.16-1.55)	< 0.001
No charge	1.51 (0.86-2.64)	0.15
Other	1.02 (0.86-1.20)	0.86
Elective	1.44 (1.11-1.86)	0.006
Median household income (\$)		
1-28999	Ref	
29000-35999	0.81 (0.73-0.88)	< 0.001
36000-46999	0.80 (0.73-0.88)	< 0.001
47000+	0.70 (0.62-0.78)	< 0.001
Congestive heart failure	1.00 (0.91-1.10)	0.96
Atrial fibrillation	1.65 (1.50-1.81)	< 0.001
Coronary artery disease	1.03 (0.92-1.15)	0.603

Peripheral vascular disease	0.91 (0.76-1.09)	0.316
Hypertension	1.00 (0.92-1.08)	0.948
Hyperlipidemia	0.91 (0.85-0.98)	0.009
Diabetes	0.97 (0.91-1.04)	0.439
Chronic kidney disease	1.08 (1.00-1.17)	0.059
Chronic liver disease	1.76 (1.60-1.93)	< 0.001
Human immunodeficiency virus	0.47 (0.25-0.89)	0.021
Cancer	1.06 (0.88-1.27)	0.553
Coagulopathy	1.62 (1.50-1.75)	< 0.001
Obesity	1.03 (0.96-1.10)	0.409
Smoking	0.78 (0.67-0.90)	0.001
Elixhauser score ≥ 4	1.73 (1.58-1.89)	< 0.001

Ref: Reference.

Supplementary Table 7 Predictors of mortality among Hispanics (model 2 including model 1 + in-hospital events)

Variables	Odds ratio (95%CI)	P value
Age (years)		
< 65	Ref	
65+	2.08 (1.88-2.30)	< 0.001
Sex		
Male	Ref	
Female	0.95 (0.89-1.03)	0.195
Hospital teaching status		
Rural	Ref	
Urban non-teaching	1.44 (1.03-2.01)	0.031

Urban teaching	1.27 (0.92-1.74)	0.144
Hospital region		
Northeast	Ref	
Midwest	0.68 (0.57-0.82)	< 0.001
South	1.21 (1.05-1.39)	0.009
West	1.06 (0.93-1.20)	0.374
Insurance type		
Medicare	Ref	
Medicaid	0.88 (0.78-0.99)	0.034
Private insurance	0.99 (0.87-1.12)	0.846
Self-pay	1.34 (1.14-1.58)	< 0.001
No charge	1.31 (0.74-2.33)	0.353
Other	0.94 (0.78-1.14)	0.526
Elective	1.55 (1.13-2.13)	0.007
Median household income (\$)		
1-28999	Ref	
29000-35999	0.79 (0.72-0.88)	< 0.001
36000-46999	0.78 (0.71-0.87)	< 0.001
47000+	0.74 (0.65-0.83)	< 0.001
Congestive heart failure	0.93 (0.83-1.03)	0.171
Atrial fibrillation	1.43 (1.29-1.60)	< 0.001
Coronary artery disease	1.20 (1.06-1.36)	0.005
Peripheral vascular disease	1.26 (1.05-1.52)	0.014
Hypertension	1.08 (0.99-1.17)	0.102
Hyperlipidemia	0.92 (0.85-1.00)	0.052
Diabetes	1.02 (0.94-1.10)	0.694

Chronic kidney disease	1.02 (0.93-1.13)	0.636
Chronic liver disease	1.54 (1.39-1.72)	< 0.001
Human immunodeficiency virus	0.55 (0.28-1.07)	0.076
Cancer	1.45 (1.17-1.80)	0.001
Coagulopathy	1.34 (1.23-1.45)	< 0.001
Obesity	0.99 (0.92-1.07)	0.84
Smoking	0.91 (0.76-1.09)	0.294
Elixhauser score ≥ 4	1.02 (0.92-1.13)	0.692
Mechanical Ventilation	6.86 (6.24-7.55)	< 0.001
AKI	2.27 (2.09-2.46)	< 0.001
AKI requiring dialysis	1.51 (1.34-1.70)	< 0.001

AKI: Acute kidney injury; Ref: Reference.