

SUPPLEMENTAL MATERIAL

Table S1. Administrative codes used for identification of diagnoses and procedures.

Comorbidity		International Classification of Diseases 9.0 Clinical Modification Codes
Cardiac arrest	Cardiac arrest	427.5
	Ventricular fibrillation	427.41
	Cardiopulmonary Resuscitation	99.60
	Closed Chest Cardiac Massage	99.63
Coronary angiography		37.22, 37.23, 88.53-88.56
Percutaneous coronary intervention		00.66, 36.01, 36.02, 36.05, 36.06, 36.07, 88.57
Invasive hemodynamic assessment		89.63, 89.64, 89.66, 89.67, 89.68
Mechanical circulatory support		37.61, 37.68, 39.65
Invasive mechanical ventilation		96.7, 96.70, 96.71, 96.72
Hemodialysis		39.95
Hepatic failure		570.0, 572.2, 573.3, 573.4
Respiratory failure		518.81, 518.82, 518.85, 786.09, 799.1, 96.7, 96.70, 96.71, 96.72
Renal failure		584, 584.5, 584.6, 584.7, 584.8, 584.9
Hematologic failure		286.6-286.9, 287.4, 287.5
Neurological failure		293, 293.0, 293.1, 293.8, 293.81-293.84, 293.89, 293.9, 348.1, 348.3, 348.30, 348.81, 348.39, 780.01, 780.09, 89.14

Table S2. Univariate associations with in-hospital mortality in AMI-CA.

Total cohort (N=182,750)		Odds ratio	95% confidence interval		P
			Lower Limit	Upper Limit	
Race	White	Reference category			
	Black	1.30	1.26	1.34	<0.001
	Others*	1.30	1.27	1.34	<0.001
Age (years)	<75 years	Reference category			
	>75 years	2.98	2.92	3.05	<0.001
Female sex		1.54	1.51	1.57	<0.001
Primary payer	Medicare	Reference category			
	Medicaid	0.49	0.48	0.51	<0.001
	Private	0.33	0.33	0.34	<0.001
	Others#	0.54	0.52	0.56	<0.001
Quartile of median household income for zip code	0-25th	Reference category			
	26th-50th	0.86	0.83	0.88	<0.001
	51st-75th	0.78	0.76	0.80	<0.001
	75th-100th	0.78	0.76	0.80	<0.001
Hospital teaching	Rural	Reference category			

status and location	Urban Non-Teaching	0.87	0.83	0.91	<0.001
	Urban Teaching	0.85	0.82	0.89	<0.001
Hospital bed-size	Small	Reference category			
	Medium	1.01	0.97	1.04	0.67
	Large	0.95	0.92	0.98	<0.001
Hospital region	Northeast	Reference category			
	Midwest	0.86	0.83	0.89	<0.001
	South	1.01	0.98	1.04	0.44
	West	1.03	0.99	1.06	0.08
Charlson Comorbidity Index	0-3	Reference category			
	4-6	2.09	2.04	2.13	<0.001
	≥ 7	3.49	3.40	3.59	<0.001
Type of AMI	ST-segment elevation	Reference category			
	Non-ST-segment elevation	1.53	1.51	1.56	<0.001
Multi-organ failure		2.57	2.52	2.62	<0.001
Cardiogenic shock		1.89	1.85	1.92	<0.001
Atrial fibrillation/flutter		1.15	1.13	1.18	<0.001
Ventricular tachycardia/fibrillation		0.24	0.24	0.25	<0.001

Coronary angiography	0.20	0.20	0.21	<0.001
Percutaneous coronary intervention	0.26	0.26	0.27	<0.001
Coronary artery bypass grafting	0.40	0.39	0.41	<0.001
Pulmonary artery catheterization	1.07	1.01	1.13	0.03
Mechanical circulatory support	1.19	1.17	1.22	<0.001
Invasive mechanical ventilation	2.23	2.19	2.27	<0.001
Acute hemodialysis	2.08	1.93	2.24	<0.001

*Hispanic, Asian or Pacific Islander, Native American, Others; #Self-Pay, No Charge, Others

AMI: acute myocardial infarction; CA: cardiac arrest

Table S3. Multivariable regression for in-hospital mortality in AMI-CA.

Total cohort (N=182,750)		Odds ratio	95% confidence interval		<i>P</i>
			Lower Limit	Upper Limit	
Race	White	Reference category			
	Black	0.95	0.91	0.99	0.007
	Others*	1.11	1.08	1.15	<0.001
Age (years)	<75 years	Reference category			
	>75 years	1.73	1.68	1.79	<0.001
Female sex		1.13	1.10	1.16	<0.001
Primary payer	Medicare	Reference category			
	Medicaid	0.67	0.65	0.70	<0.001
	Private	0.60	0.58	0.62	
	Others#	0.92	0.88	0.96	<0.001
Quartile of median household income for zip code	0-25th	Reference category			
	26th-50th	0.92	0.89	0.95	<0.001
	51st-75th	0.85	0.83	0.88	0.78
	75th-100th	0.83	0.80	0.85	0.74
Hospital teaching	Rural	Reference category			

status and location	Urban Non-Teaching	1.04	0.99	1.10	0.13
	Urban Teaching	1.16	1.10	1.22	<0.001
Hospital bed-size	Small	Reference category			
	Medium	1.15	1.10	1.19	<0.001
	Large	1.15	1.11	1.20	<0.001
Hospital region	Northeast	Reference category			
	Midwest	1.05	1.01	1.09	0.02
	South	1.11	1.08	1.15	<0.001
	West	1.14	1.10	1.19	<0.001
Charlson Comorbidity Index	0-3	Reference category			
	4-6	1.20	1.17	1.24	<0.001
	≥ 7	1.42	1.37	1.47	<0.001
Type of AMI	ST-segment elevation	Reference category			
	Non-ST-segment elevation	0.77	0.75	0.79	<0.001
Multi-organ failure		1.51	1.47	1.56	<0.001
Cardiogenic shock		1.63	1.58	1.68	<0.001
Atrial fibrillation/flutter		0.82	0.80	0.84	<0.001
Ventricular tachycardia/fibrillation		0.36	0.35	0.36	<0.001

Coronary angiography	0.42	0.41	0.44	<0.001
Percutaneous coronary intervention	0.37	0.36	0.38	<0.001
Coronary artery bypass grafting	0.23	0.22	0.24	<0.001
Pulmonary artery catheterization	0.97	0.91	1.04	0.41
Mechanical circulatory support	1.79	1.74	1.84	<0.001
Invasive mechanical ventilation	1.37	1.34	1.41	<0.001
Acute hemodialysis	1.13	1.03	1.23	0.01

*Hispanic, Asian or Pacific Islander, Native American, Others; #Self-Pay, No Charge, Others

AMI: acute myocardial infarction; CA: cardiac arrest

Table S4. Baseline characteristics of AMI admissions with CA stratified by race.

Characteristic		White (N=136,698)	Black (N=19,468)	Hispanic (N=14,286)	Asian/Pacific Islander (N= 5,163)	Native American (N=890)	Other (N=6,245)	<i>P</i>
Age (years)		66.8 ± 12.9	63.9 ± 13.5	65.1 ± 13.2	66.4 ± 13.6	62.3 ± 12.3	63.6 ± 13.7	<0.001
Female sex		31.6	43.6	34.1	30.6	30.8	27.4	<0.001
Primary payer	Medicare	56.4	53.4	48.8	47.1	47.1	41.6	<0.001
	Medicaid	7.1	15.0	15.5	13.3	13.3	16.1	
	Private	27.7	20.2	21.3	30.7	26.9	28.6	
	Others*	8.8	11.4	14.3	8.9	12.8	13.7	
Quartile of median household income for zip code	0-25 th	26.0	53.0	40.8	13.8	44.3	26.2	<0.001
	26 th -50 th	28.0	22.3	24.7	17.2	23.8	22.0	
	51 st -75 th	25.3	15.1	22.2	27.1	16.4	24.9	
	75 th -100 th	20.7	9.5	12.3	41.9	15.5	26.9	
Charlson Comorbidity Index	0-3	40.9	39.3	39.2	39.3	41.7	46.2	<0.001
	4-6	40.0	36.5	38.3	37.2	42.0	38.6	
	≥ 7	19.1	24.2	22.5	23.5	16.3	15.2	

Hospital teaching status and location	Rural	6.9	4.0	2.2	2.2	14.9	2.9	<0.001
	Urban non-teaching	32.2	22.5	34.8	31.7	28.3	28.9	
	Urban teaching	60.9	73.5	63.0	66.0	56.7	68.3	
Hospital bed-size	Small	12.0	11.4	12.3	13.2	12.0	10.6	<0.001
	Medium	28.5	29.9	30.4	27.3	25.5	25.4	
	Large	59.4	58.7	57.3	59.5	62.5	64.0	
Hospital region	Northeast	17.6	13.9	12.0	14.8	4.5	28.3	<0.001
	Midwest	23.4	19.8	6.9	8.8	23.6	13.9	
	South	40.9	56.9	45.2	14.7	38.0	37.1	
	West	18.1	9.4	35.9	61.8	33.9	20.7	
AMI type	STEMI	62.7	51.7	59.2	58.1	51.2	64.9	<0.001
	NSTEMI	37.3	48.3	40.8	41.9	48.8	35.1	
Atrial fibrillation or flutter		26.5	20.2	22.9	25.4	18.9	22.3	<0.001
Cardiac rhythm	Shockable	64.8	57.0	55.2	57.3	62.5	62.7	<0.001
	Non-shockable	35.2	43.0	44.8	42.7	37.5	37.3	

Acute organ failure	Multi-organ failure	55.1	62.3	62.7	65.8	63.4	62.3	<0.001
	Respiratory	51.9	57.8	60.6	60.3	55.2	57.9	<0.001
	Hepatic	10.3	13.2	11.9	15.0	12.0	13.8	<0.001
	Renal	34.7	41.4	39.4	41.6	39.3	38.1	<0.001
	Hematologic	9.9	12.5	12.0	17.5	10.3	14.5	<0.001
	Neurologic	25.5	33.1	28.9	33.3	25.3	30.2	<0.001
Cardiogenic shock		34.7	30.8	38.5	42.0	44.5	42.2	<0.001
Pulmonary artery catheterization		2.4	2.4	2.7	4.2	2.9	3.7	<0.001
Invasive mechanical ventilation		50.1	59.0	60.8	62.7	56.1	56.3	<0.001
Acute hemodialysis		1.4	2.0	2.3	3.0	3.4	2.4	<0.001

Represented as percentage or mean \pm standard deviation; *Self-Pay, No Charge, Others

AMI: acute myocardial infarction; CA: cardiac arrest; NSTEMI: non-ST-segment-elevation myocardial infarction; STEMI: ST-segment-elevation myocardial infarction

Table S5. Clinical outcomes of AMI admissions with CA stratified by race.

Characteristic		White (N=136,698)	Black (N=19,468)	Hispanic (N=14,286)	Asian/Pacific Islander (N= 5,163)	Native American (N=890)	Other (N=6,245)	<i>P</i>
In-hospital mortality		40.9	47.4	49.3	48.7	45.2	42.5	<0.001
Length of stay (days)		7.1 ± 9.2	8.9 ± 13.3	8.1 ± 11.5	8.1 ± 10.2	7.2 ± 6.5	8.7 ± 12.0	<0.001
Coronary angiography		73.1	61.9	69.8	66.8	71.1	73.8	<0.001
Early coronary angiography		52.8	41.4	50.1	48.2	41.9	53.2	<0.001
Mean time to angiography		3.0 ± 3.7	3.4 ± 4.2	3.2 ± 4.3	2.8 ± 2.8	2.2 ± 1.7	3.5 ± 3.9	<0.001
Percutaneous coronary intervention		58.1	44.6	52.6	47.8	59.7	57.1	<0.001
Mechanical circulatory support		23.5	19.4	26.1	27.6	25.7	32.5	<0.001
Coronary artery bypass grafting		9.3	7.3	9.6	12.4	8.0	11.1	<0.001
Palliative care consultation		9.8	10.5	9.9	10.2	8.2	8.6	<0.001
Do-not-resuscitate status		15.6	15.3	18.8	15.7	11.1	14.2	<0.001
Hospitalization costs (x1000 USD)		146.8 ± 186.9	151.5 ± 183.1	197.9 ± 239.4	203.6 ± 248.5	142.3 ± 129.4	205.7 ±	<0.001
Discharge disposition	Home	55.2	47.3	51.3	48.6	61.3	53.2	<0.001
	Transfer	8.7	10.0	9.6	14.9	9.4	10.8	

	Skilled nursing facility	23.1	28.3	23.3	21.8	19.1	24.1
	Home with HHC	12.2	13.5	14.6	14.5	10.2	11.5
	Against medical advice	0.8	0.9	1.2	0.2	0.0	0.4

Represented as percentage or mean \pm standard deviation

AMI: acute myocardial infarction; CA: cardiac arrest; HHC: home health care; USD: United States Dollars

Table S6. Multivariable regression for in-hospital mortality in AMI-CA.

Total cohort (N=182,750)		Odds ratio	95% confidence interval		P
			Lower Limit	Upper Limit	
Race	White	Reference category			
	Black	0.95	0.91	0.99	0.008
	Hispanic	1.16	1.11	1.21	<0.001
	Asian/Pacific Islander	1.11	1.03	1.19	0.003
	Native American & Other*	1.03	0.97	1.09	0.32
Age (years)	<75 years	Reference category			
	>75 years	1.74	1.68	1.79	<0.001
Female sex		1.13	1.10	1.16	<0.001
Primary payer	Medicare	Reference category			
	Medicaid	0.67	0.65	0.70	<0.001
	Private	0.60	0.58	0.62	<0.001
	Others[#]	0.92	0.88	0.96	<0.001
Quartile of median household income for zip code	0-25th	Reference category			
	26th-50th	0.92	0.90	0.95	<0.001
	51st-75th	0.85	0.83	0.88	<0.001

	75th-100th	0.83	0.80	0.86	<0.001
Hospital teaching status and location	Rural	Reference category			
	Urban Non-Teaching	1.04	0.99	1.09	0.16
	Urban Teaching	1.16	1.10	1.22	<0.001
Hospital bed-size	Small	Reference category			
	Medium	1.15	1.10	1.19	<0.001
	Large	1.15	1.11	1.20	<0.001
Hospital region	Northeast	Reference category			
	Midwest	1.05	1.01	1.09	0.02
	South	1.11	1.07	1.15	<0.001
	West	1.14	1.10	1.18	<0.001
Charlson Comorbidity Index	0-3	Reference category			
	4-6	1.20	1.17	1.24	<0.001
	≥ 7	1.42	1.37	1.47	<0.001
Type of AMI	ST-segment elevation	Reference category			
	Non-ST-segment elevation	0.77	0.75	0.79	<0.001
Multi-organ failure		1.515	1.472	1.560	<0.001
Cardiogenic shock		1.630	1.585	1.676	<0.001

Atrial fibrillation/flutter	0.82	0.80	0.84	<0.001
Ventricular tachycardia/fibrillation	0.36	0.35	0.36	<0.001
Coronary angiography	0.42	0.41	.44	<0.001
Percutaneous coronary intervention	0.37	0.36	0.38	<0.001
Coronary artery bypass grafting	0.23	0.22	0.24	<0.001
Pulmonary artery catheterization	0.97	0.91	1.04	0.43
Mechanical circulatory support	1.79	1.74	1.84	<0.001
Invasive mechanical ventilation	1.37	1.34	1.41	<0.001
Acute hemodialysis	1.13	1.03	1.23	0.01

*Hispanic, Asian or Pacific Islander, Native American, Others; #Self-Pay, No Charge, Others

AMI: acute myocardial infarction; CA: cardiac arrest