

Supplementary Materials:

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

Comorbidity	International Classification of Diseases, Clinical Modifications codes
ECMO	ICD-9CM 39.65; ICD-10PCS 5A15223
IABP	ICD-9CM 37.61; ICD-10PCS 5A02110, 5A02210
pLVAD	ICD-9CM 37.68; ICD-10PCS 5A0211D, 5A0221D, 02HA3RJ, 02HA4RJ
Cardiac arrest	427.5
Cardiogenic shock	785.51
Acute kidney injury	584, 584.5, 584.6, 584.7, 584.8, 584.9
Respiratory failure	518.81, 518.82, 518.85, 786.09, 799.1, 96.7, 96.70, 96.71, 96.72
Hepatic failure	570.0, 572.2, 573.3, 573.4
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
Invasive hemodynamic assessment	37.21, 37.23, 204
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 mechanical ventilation	96.7, 96.70, 96.71, 96.72
Hemodialysis	39.95

Table S2. Characteristics of AMI-CS admissions supported with MCS stratified by race and MCS type.

Characteristic	IABP (N = 73,979)			pLVAD (N = 9890)			ECMO (N = 1386)			≥MCS (N = 4816)			P	
	White (N = 54,564)	Black (N = 5971)	Other ^a (N = 13,444)	White (N = 7304)	Black (N = 937)	Other ^a (N = 1649)	White (N = 888)	Black (N = 135)	Other ^a (N = 363)	White (N = 3558)	Black (N = 397)	Other ^a (N = 861)		
Age (years)	66.9 ± 11.9	63.8 ± 12.5	64.8 ± 12.3	65.9 ± 11.8	63.3 ± 12.4	63.4 ± 12.3	59.9 ± 10.6	54.2 ± 16.4	58.2 ± 10.8	63.4 ± 10.9	62.6 ± 12.1	62.4 ± 12.3	<0.001	
Female sex	31.6	40.2	27.3	27.7	42.2	24.3	23.0	34.8	28.1	21.4	30.0	19.7	<0.001	
Primary payer	Medicare	57.5	52.1	44.6	55.1	51.5	48.3	39.2	38.5	26.4	47.0	43.8	37.4	
	Medicaid	7.3	13.4	15.6	7.2	10.8	14.6	10.6	14.8	18.5	7.3	11.3	14.3	<0.001
	Private	26.7	23.3	25.5	29.0	28.7	23.5	42.6	35.6	44.9	35.9	27.5	38.7	
	Others ^b	8.5	11.2	14.2	8.7	9.0	13.6	7.7	11.1	10.2	9.7	17.4	9.6	
Quartile of median household income for zip code	0-25 th	25.5	54.3	31.2	29.3	57.4	30.3	23.3	50.4	12.6	23.4	64.5	27.5	
	26 th -50 th	28.3	18.3	21.7	29.5	23.2	25.7	26.3	19.3	27.9	24.8	16.8	20.0	
	51 st -75 th	25.1	16.2	22.9	23.3	9.7	22.7	24.9	11.1	22.1	26.0	9.2	23.0	<0.001
	75 th -100 th	21.2	11.2	24.2	17.9	9.8	21.2	25.5	19.3	37.4	25.8	9.4	29.5	
Charlson Comorbidity Index	0-3	37.2	39.3	39.1	38.6	39.5	37.9	51.0	63.0	49.0	41.5	35.3	45.2	
	4-6	43.4	38.8	41.7	42.5	42.4	36.9	42.2	33.3	42.7	43.3	40.8	37.4	<0.001
	≥ 7	19.4	21.9	19.2	18.9	18.1	25.2	6.8	3.7	8.3	15.2	23.9	17.4	
Hospital teaching status and location	Rural	5.2	2.4	1.3	4.0	1.6	1.2	0.7	0.0	0.0	3.4	0.0	0.0	
	Urban non-teaching	29.8	19.8	32.5	24.9	20.8	22.7	2.9	0.0	1.7	14.1	4.0	16.3	<0.001
	Urban teaching	65.0	77.8	66.3	71.1	77.6	76.0	96.4	100.0	98.3	82.5	96.0	83.7	
Hospital bed-size	Small	10.3	10.0	11.0	9.0	14.5	8.3	1.8	8.1	6.9	6.2	6.8	4.2	
	Medium	26.5	28.0	26.8	25.1	25.8	27.6	15.4	7.4	14.0	19.4	21.9	19.3	<0.001
	Large	63.1	62.0	62.2	66.0	59.7	64.1	82.8	84.4	79.1	74.3	71.3	76.5	
Hospital region	Northeast	17.8	15.4	14.9	13.4	14.6	14.6	31.3	27.4	38.3	27.7	17.1	28.0	
	Midwest	24.9	20.6	10.9	18.2	19.9	6.9	23.9	15.6	8.8	21.6	22.4	10.8	
	South	39.0	55.5	35.5	49.0	60.1	39.2	34.5	57.0	33.1	34.9	56.4	32.3	<0.001
	West	18.3	8.5	38.6	19.4	5.4	39.3	10.4	0.0	19.8	15.8	4.0	28.9	
AMI type	STEMI	67.0	62.0	64.6	65.8	62.2	62.2	75.2	57.0	67.8	68.6	69.3	63.0	<0.001

	NSTEMI	33.0	38.0	35.4	34.2	37.8	37.8	24.8	43.0	32.2	31.4	30.7	37.0	<0.001
	Respiratory	57.1	55.2	58.6	71.7	68.3	71.2	82.9	68.1	67.5	70.4	71.0	80.1	<0.001
	Renal	44.0	50.9	45.8	52.9	53.4	55.8	72.4	72.6	71.3	64.8	73.0	67.9	<0.001
Acute organ failure	Hepatic	13.3	14.0	15.0	19.6	22.4	19.5	49.1	29.6	36.4	29.8	27.2	31.6	<0.001
	Hematologic	17.4	19.3	21.4	21.3	18.2	22.2	44.0	43.0	49.6	33.2	33.0	41.3	<0.001
	Neurologic	19.0	21.1	20.7	20.9	20.4	19.5	28.2	48.9	36.9	25.0	21.7	26.6	<0.001
	Cardiac arrest	30.2	29.0	28.2	32.8	39.9	35.5	41.1	34.1	52.3	43.1	41.8	36.9	<0.001
	Coronary angiography	91.3	89.5	93.2	90.8	92.3	91.3	32.0	37.8	49.9	81.8	78.8	80.7	<0.001
	PCI	65.9	63.9	62.3	78.0	77.3	77.7	30.3	25.9	34.2	68.9	78.1	70.3	<0.001
	PAC	7.3	7.2	6.7	7.8	8.6	6.4	8.1	12.6	8.8	11.5	15.6	11.7	<0.001
	IMV	47.7	49.0	53.7	53.5	51.9	57.0	66.1	45.2	69.1	52.2	61.0	57.7	<0.001
	Non-invasive ventilation	4.3	4.5	4.8	3.8	2.9	3.2	1.2	0.0	0.0	2.2	0.0	3.7	<0.001
	Acute hemodialysis	2.0	2.6	3.1	2.3	2.1	3.0	5.1	7.4	2.8	3.5	1.3	1.7	<0.001

Legend: Represented as percentage; ^aHispanic, Asian or Pacific Islander, Native American, Others; ^bSelf-Pay, No Charge, Others. **Abbreviations:** AMI: acute myocardial infarction; CS: cardiogenic shock; ECMO: extracorporeal membrane oxygenation; IABP: intraaortic balloon pump; IMV: invasive mechanical ventilation; MCS: mechanical circulatory support; NSTEMI: non-ST-segment-elevation myocardial infarction; PAC: pulmonary artery catheterization; PCI: percutaneous coronary intervention; pLVAD; percutaneous left ventricular assist device; STEMI: ST-segment-elevation myocardial infarction.

Table S3. Predictors of mortality in AMI-CS admissions supported with MCS.

	Total cohort (N = 90,071)	Odds ratio	95% confidence interval		P
			Lower Limit	Upper Limit	
Race	White		Reference category		
	Black	0.98	0.93	1.05	0.60
	Others ^a	0.96	0.92	1.01	0.10
Age (years)	<75 years		Reference category		
	>75 years	1.48	1.42	1.55	<0.001
Female sex		1.12	1.08	1.16	<0.001
Primary payer	Medicare		Reference category		
	Medicaid	0.64	0.60	0.68	<0.001
	Private	0.62	0.59	0.65	<0.001
	Others ^b	0.91	0.86	0.97	0.004
Quartile of median household income for zip code	0-25 th		Reference category		
	26 th -50 th	0.89	0.86	0.94	<0.001
	51 st -75 th	0.81	0.78	0.85	<0.001
	75 th -100 th	0.77	0.74	0.81	<0.001
Hospital teaching status and location	Rural		Reference category		
	Urban Non-Teaching	0.91	0.83	0.99	0.03
	Urban Teaching	0.97	0.89	1.06	0.51
Hospital bed-size	Small		Reference category		
	Medium	1.10	1.03	1.17	0.003
	Large	1.13	1.06	1.19	<0.001
Hospital region	Northeast		Reference category		
	Midwest	0.81	0.77	0.86	<0.001
	South	0.99	0.95	1.04	0.84
	West	0.92	0.87	0.97	0.002
Charlson Comorbidity Index	0-3		Reference category		
	4-6	1.04	1.00	1.09	0.04
	≥ 7	0.95	0.90	1.00	0.05
Type of AMI	STEMI		Reference category		

	NSTEMI	0.75	0.72	0.78	<0.001
Acute organ failure	Respiratory	1.49	1.43	1.55	<0.001
	Renal	1.40	1.35	1.45	<0.001
	Hepatic	1.58	1.51	1.65	<0.001
	Hematologic	0.90	0.85	0.93	<0.001
	Neurologic	1.05	1.01	1.09	0.02
	Out of hospital cardiac arrest	2.26	2.18	2.34	<0.001
	Coronary angiography	0.70	0.66	0.73	<0.001
	Percutaneous coronary intervention	0.93	0.90	0.97	<0.001
	Pulmonary artery catheterization	1.05	0.99	1.12	0.11
	Invasive mechanical ventilation	1.66	1.60	1.72	<0.001
	Acute hemodialysis	1.51	1.37	1.67	<0.001
	Do-not-resuscitate status	8.18	7.79	8.60	<0.001

Legend: ^aHispanic, Asian or Pacific Islander, Native American, Others; ^bSelf-Pay, No Charge, Others. **Abbreviations:** AMI: acute myocardial infarction; CS: cardiogenic shock; MCS: mechanical circulatory support; NSTEMI: non-ST-segment elevation myocardial infarction; STEMI: ST-segment elevation myocardial infarction.

Table S4. Clinical outcomes of AMI-CS admissions supported with MCS stratified by race and MCS type.

Characteristic	IABP (N = 73,979)			pLVAD (N = 9890)			ECMO (N = 1386)			≥MCS (N = 4816)			P	
	White	Black	Other ^a	White	Black	Other ^a	White	Black	Other ^a	White	Black	Other ^a		
	(N = 54,564)	(N = 5971)	(N = 13,444)	(N = 7304)	(N = 937)	(N = 1649)	(N = 888)	(N = 135)	(N = 363)	(N = 3558)	(N = 397)	(N = 861)		
In-hospital mortality	28.1	27.3	26.8	43.2	44.2	41.8	54.1	73.3	60.9	48.8	48.6	48.8	<0.001	
Length of stay (days)	9.9 ± 9.5	11.9 ± 14.1	10.8 ± 10.6	9.5 ± 10.7	10.5 ± 11.9	9.3 ± 11.1	21.9 ± 29.5	13.6 ± 12.5	13.5 ± 14	14.8 ± 20.7	17.7 ± 19.2	15.7 ± 16.6	<0.001	
Palliative care	8.6	7.9	7.2	12.9	7.5	10.1	22.2	26.7	19.6	13.0	14.4	16.0	<0.001	
Do-not-resuscitate status	12.6	10.9	12.4	16.0	15.4	14.5	17.0	23.0	9.9	14.8	11.3	15.4	<0.001	
Total costs (x1000 USD)	210 ± 201	224 ± 231	275 ± 259	315 ± 228	332 ± 291	358 ± 293	667 ± 763	503 ± 486	481 ± 469	488 ± 527	461 ± 354	615 ± 605	<0.001	
Durable LVAD	0.3	0.4	0.3	0.8	1.1	1.6	14.9	3.7	2.8	3.8	2.5	3.5	<0.001	
Cardiac transplantation	0.0	0.1	0.0	0.1	0.0	0.0	0.7	0.0	0.0	0.3	0.0	0.6	<0.001	
Discharge disposition	Home	38.4	39.6	44.4	34.2	38.2	36.8	14.0	0.0	19.7	17.5	20.6	19.5	<0.001
	Transfer	12.9	12.9	12.4	17.4	8.7	20.2	25.0	27.8	26.8	31.8	14.7	30.4	
	SNF	30.4	30.7	24.5	32.9	42.3	25.1	43.9	41.7	24.6	33.3	42.6	38.8	
	Home/HHC	17.8	16.4	18.3	15.4	9.8	16.4	17.2	30.6	28.9	17.2	22.1	10.2	
	AMA	0.5	0.5	0.4	0.1	1.0	1.6	0.0	0.0	0.0	0.3	0.0	1.1	

Legend: Represented as percentage or mean ± standard deviation; ^aHispanic, Asian or Pacific Islander, Native American, Others. **Abbreviations:** AMA: against medical advice; AMI: acute myocardial infarction; CS: cardiogenic shock; ECMO: extracorporeal membrane oxygenation; HHC: home health care; IABP: intraaortic balloon pump; LVAD: left ventricular assist device; MCS: mechanical circulatory support; pLVAD; percutaneous left ventricular assist device; SNF: skilled nursing facility; USD: United States Dollars.