

SUPPLEMENTAL MATERIAL

Table S1. Baseline hospital and patient characteristics excluding cardiac arrest.

Demographics	Total N= 202593	Non-RHC N=178852	RHC N=23740	P value
Demographics				
Mean age [y (SD)]	66.9 (14.4)	67.6 (14.2)	61.5 (14.5)	<0.001
Women (%)	38.1	38.9	31.8	<0.001
Elixhauser score (mean)	20.9 (10.1)	20.6(10.2)	23.9(9.5)	<0.001
Presentation				
Acute Coronary Syndrome (%)	44.0	45.7	31.4	<0.001
STEMI (%)	12.8	13.2	10.0	<0.001
NSTEMI (%)	24.3	25.2	17.6	<0.001
Comorbidities				
Congestive heart failure (%)	76.8	74.6	93.4	<0.001
Cardiac arrhythmias (%)	66.7	65.8	73.9	<0.001
Valvular heart disease (%)	28.2	26.7	39.1	<0.001
Pulmonary circulation disorder (%)	22.2	19.7	40.4	<0.001
Chronic Pulmonary disease (%)	28.5	28.7	26.4	<0.001
Peripheral vascular disease (%)	22.8	21.4	32.9	<0.001
Hypertension (%)	74.6	74.4	75.5	0.09
Renal failure (%)	40.5	39.3	50.0	<0.001
Diabetes, uncomplicated (%)	15.0	15.1	14.4	0.08
Diabetes, complicated (%)	26.4	26.0	29.5	<0.001
Obesity (%)	17.0	16.7	19.4	<0.001
Liver Disease (%)	20.2	19.6	24.3	<0.001
Electrolyte disorder (%)	67.4	66.7	72.4	<0.001
Deficiency anemia (%)	5.4	5.0	7.9	<0.001
Alcohol abuse (%)	6.1	6.1	6.0	0.94
Length of stay (days)	14.9 (15.9)	13.7(14.6)	22.5(20.8)	<0.001
Mechanical ventilation (%)	43.3	44.2	36.2	<0.001
Acute kidney injury (%)	63.5	62.1	73.6	<0.001
Left heart catheterization (%)	32.9	32.7	34.7	0.02

Percutaneous coronary intervention (%)	19.6	20.0	16.0	<0.001
Intra-aortic Balloon pump (%)	16.5	15.3	25.8	<0.001
Percutaneous ventricular assist device (%)	4.6	4.0	8.6	<0.001
Extracorporeal life support (%)	2.3	2.2	3.6	<0.001
Orthotopic heart transplantation (%)	1.0	0.4	5.0	<0.001
Left ventricular assist device (%)	2.0	1.0	9.4	<0.001
Primary insurance				
Medicare (%)	64.6	65.7	56.8	<0.001
Medicaid (%)	11.1	10.7	14.3	<0.001
Private insurance (%)	18.1	17.3	23.6	<0.001
Self-pay (%)	2.7	2.8	2.1	<0.001
No Charge (%)	0.2	0.2	0.2	0.50
Other (%)	2.9	2.9	2.6	0.16
Hospital Characteristics				
Hospital Size				
Small (%)	9.2	9.9	4.2	<0.001
Medium (%)	22.7	23.9	13.9	<0.001
Large (%)	67.9	66.1	81.7	<0.001
Hospital case volume (mean)(SD)	352.5 (500.3)	325(475)	558(617)	<0.001
Hospital type				
Metropolitan non-teaching (%)	18.5	20.1	6.4	<0.001
Metropolitan teaching (%)	77.3	75.3	92.2	<0.001
Non-metropolitan hospital (%)	4.1	4.5	1.3	<0.001

NSTEMI=Non-ST elevation myocardial infarction, RHC=Right Heart Catheterization, STEMI= ST elevation myocardial infarction

Table S2. Index admission in-hospital outcomes and therapies for patients without cardiac arrest.

Outcomes	Total N= 202592	Non-RHC N=178852	RHC N=23740	P value
Death (%)	33.6	35.0	23.4	<0.001
Stroke (%)	3.7	3.8	3.2	0.004
Hemodialysis (%)	2.6	2.5	3.2	0.015

RHC =Right Heart Catheterization

Table S3. In hospital comparison of outcomes in patients who did not receive LVAD/OHT.

Outcomes	Non-RHC N=207406	RHC N=22319	P value
Death (%)	39.7%	28.7%	<0.001
Hemodialysis (%)	3.1%	4.1%	0.01
Length of Stay (days)	13.7(6.85)	18.3(7.45)	<0.001

RHC= right heart catheterization, LVAD/OHT= Left ventricular assist device/Orthotopic heart transplant

Table S4. Index admission in-hospital outcomes and therapies.

Outcomes	Teaching hospital (N=182211)			Non-teaching hospital (N=44580)		P value
	Non-RHC (N=158420)	RHC (N=23791)		Non-RHC (N=42878)	RHC (N=1702)	
Death (%)	39.0%	25.3%	<0.001	40.9%	31.7%	<0.001
Stroke (%)	4.2%	3.4%	0.001	3.1%	3.2%	<0.001
Hemodialysis (%)	3.2%	3.8%	0.07	2.8%	3.2%	0.53
Mechanical ventilation (%)	49.9%	38.6%	<0.001	51.8%	51.0%	0.69
Length of stay (days)	15.2 (16.0)	23.2 (21.3)	<0.001	11.6 (11.5)	16.1(16.3)	<0.001

RHC= right heart catheterization

Table S5. Comparison of index hospital outcomes of propensity matched patients.

Outcomes	Non-RHC N=25787	RHC N=25486	Odds Ratio	P value
Death (%)	33.1%	25.8%	0.69 (0.65-0.72)	<0.001

RHC= right heart catheterization

Table S6. Baseline comparison and outcomes of propensity matched patients.

Demographics	Non-RHC N=25787	RHC N=25486
Mean age [y (SD)]	61.5	61.5
Women (%)	31.4%	31.7%
Hospital Characteristics		
Hospital Size		
Small (%)	3.4%	4.2%
Medium (%)	14.5%	14.6%
Large (%)	81.9%	81.0%
Hospital case volume (mean)		
Hospital type		
Metropolitan non-teaching (%)	10.1%	6.5%
Metropolitan teaching (%)	82.8%	92.1%
Non-metropolitan hospital (%)	6.9%	1.3%
Elixhauser score (mean)	23.7(9.8)	24.0(9.5)
Presentation		
Acute Coronary Syndrome (%)	34.0%	33.0%
STEMI (%)	9.8%	11.0%
NSTEMI (%)	20.4%	18.1%
Comorbidities		
Congestive heart failure (%)	91.6%	92.8%
Cardiac arrhythmias (%)	67.4%	74.7%
Valvular heart disease (%)	37.3%	38.2%
Pulmonary circulation disorder (%)	38.7%	39.4%
Chronic Pulmonary disease (%)	25.6%	26.3%
Peripheral vascular disease (%)	22.9%	32.2%
Hypertension (%)	74.9%	75.2%
Renal failure (%)	48.2%	49.1%
Diabetes, uncomplicated (%)	14.2%	14.4%
Diabetes, complicated (%)	29.6%	29.7%

Obesity (%)		
Liver Disease (%)	25.4%	25.3%
Electrolyte disorder (%)		
Coagulopathy (%)	31.4%	31.9%
Deficiency anemia (%)	19.4%	19.6%
Alcohol abuse (%)	72.1%	73.1%
Depression (%)	11.3%	13.4%

NSTEMI=Non-ST elevation myocardial infarction, RHC=Right Heart Catheterization, STEMI= ST elevation myocardial infarction

Table S7. Outcomes and therapies for patient without cardiac arrest during readmission.

Outcomes	Total N= 134279	Non-RHC N=116113	RHC N=18166	P value
30-day readmission rate (%)*	19.7	19.9	18.7	0.03
Time to readmission [d, mean (SD)]	11.7(8.4)	11.5(8.4)	12.7(8.3)	<0.001
Death on readmission hospitalization (%)	9.3	9.6	8.0	0.03
Intra-aortic Balloon pump (%)	1.3	1.1	3.0	<0.001
Percutaneous ventricular assist device (%)	0.4	0.40	0.10	0.09
Extracorporeal life support (%)	0.3	0.2	0.9	0.01
OHT (%)	0.3	0.15	1.3	0.001
LVAD (%)	1.1	0.5	4.4	<0.001

RHC =Right Heart Catheterization, d=days, MCS=Mechanical circulatory support, RHC=Right Heart Catheterization, SD=standard deviation. *Only unplanned readmissions included.

Table S8. Causes of readmission.

Primary cause of readmission	Total N=160,547	Non-RHC N=124,727	RHC N=17,910	P value
Cardiogenic shock	0.32%	0.32%	0.34%	0.87
Heart failure	13.4%	12.6%	17.8%	<0.001
Acute Kidney Injury	3.01%	3.1%	2.5%	0.09

RHC=Right heart catheterization

Figure S1. Graphical representation of absolute standardized differences across different covariates used for propensity matching cohort.

