

Supplementary Tables**Supplementary Table 1:** ICD-9 Diagnosis and Procedural Codes

<i>Diagnosis</i>	<i>ICD CODE</i>
STEMI	410.0x, 410.1x, 410.2x, 410.3x, 410.4x, 410.5x, 410.6x, 410.8x, 410.9x
Cardiogenic Shock	785.51
Mechanical Circulatory Support	
➤ Intra-aortic balloon pump	37.61
➤ Percutaneous vascular assist device	37.68 and 37.62
➤ Extracorporeal membrane oxygenation	39.6539.66
Bleeding complication:	
➤ Transfusion	99.00-99.09, V58.2, E873.0, E934.7, E876.0
➤ Hemorrhage or hematoma	998.11, 998.12

➤ Percutaneous or surgical intervention to control bleeding	34.09, 21.01-21.09, 42.33, 45.43, 44.44, 54.19, 39.41, 60.94, 6.02, 34.03, 54.12, 49.95, 57.93
Limb Ischemia	
➤ Acute Limb Ischemia	444.0, 444.22, 444.81
➤ Procedural interventions	38.06, 38.08, 38.16, 38.18, 38.46, 38.48, 39.25, 39.29, 39.49, 39.56, 39.57, 99.10, 39.50, 39.90, 00.55, 84.13, 84.14, 84.15, 84.16, 84.17

Supplementary table 2: List of Elixhauser comorbidities

No.	Comorbidities
1	Congestive heart failure
2	Cardiac arrhythmias
3	Valvular disease
4	Pulmonary circulation disorders
5	Peripheral vascular disorders
6	Hypertension (combined) Hypertension, uncomplicated Hypertension, complicated
7	Paralysis
8	Other neurological disorders
9	Chronic pulmonary disease
10	Diabetes, uncomplicated
11	Diabetes, complicated
12	Hypothyroidism
13	Renal failure
14	Liver disease
15	Peptic ulcer disease excluding bleeding
16	AIDS
17	Lymphoma
18	Metastatic cancer
19	Solid tumor without metastasis
20	Rheumatoid arthritis/collagen vascular disease
21	Coagulopathy
22	Obesity
23	Weight loss

24	Fluid and electrolyte disorders
25	Blood loss anemia
26	Deficiency anemias
27	Alcohol abuse
28	Drug abuse
29	Psychoses
30	Depression

For Review Only

Supplementary Table 3: Baseline characteristics of patients with and without bleeding complications for patients with No MCS, IABP, PVAD or ECMO.

	No MCS			IABP			PVAD			ECMO		
	Bleeding Complications			Bleeding Complications			Bleeding Complications			Bleeding Complications		
	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value	No	Yes	p-value
Female	41.1%	48.2%	<0.001	29.8%	38.5%	<0.001	26.0%	22.8%	0.125	40.4%	22.4%	<0.001
RACE												
White	66.3%	64.9%	<0.001	63.60%	65.60%	<0.001	64.5%	66.3%	0.035	52.7%	51.7%	0.001
Black	5.4%	6.7%		5.30%	5.90%		7.9%	5.5%		4.9%	6.2%	
Hispanic	5.6%	7.4%		6.30%	8.50%		6.1%	7.9%		2.5%	10.3%	
Asian or Pacific Islander	2.2%	4.0%		2.40%	3.30%		2.4%	3.2%		0.0%	2.1%	
Native American	0.5%	0.4%		0.50%	0.50%		1.0%	0.0%		2.5%	0.0%	
Other	3.2%	3.8%		3.60%	4.40%		5.0%	5.3%		13.8%	12.4%	
Primary expected payer												
Medicare	59.9%	63.7%	<0.001	47.0%	53.6%	<0.001	43.2%	35.4%	<0.001	34.0%	18.7%	0.003
Medicaid	6.4%	7.4%		8.0%	7.7%		10.6%	10.3%		9.4%	10.0%	
Private Insurance	24.3%	21.7%		33.0%	28.9%		33.2%	40.1%		44.3%	54.8%	
Self-pay	6.0%	5.1%		7.8%	6.5%		9.1%	7.9%		9.9%	10.4%	
No charge	0.5%	0.3%		0.7%	0.5%		1.4%	0.8%		0.0%	2.1%	
Other	2.8%	1.9%		3.4%	2.8%		2.6%	5.5%		2.5%	4.1%	
Median household income			<0.001			<0.001			<0.001			0.08
0-25 th percentile	28.1%			26.3%	24.6%		31.4%	22.4%		17.2%	12.0%	
		25.8%										
26 th – 50 th percentile	27.0%	26.2%		27.3%	26.1%		29.1%	31.0%		23.2%	33.2%	
51 st - 75 th percentile	24.1%	24.2%		25.1%	24.4%		22.8%	23.6%		26.1%	26.1%	
76 th – 100 th percentile	20.8%	23.8%		21.3%	24.9%		16.7%	23.1%		33.5%	28.6%	
Comorbidities												
Diabetes	29.4%	33.1%	<0.001	28.9%	33.1%	<0.001	34.4%	30.2%	0.06	11.8%	22.5%	0.01
Alcohol abuse	3.8%	4.3%	0.01	4.3%	4.6%	0.103	3.4%	3.1%	0.71	2.5%	2.1%	0.78
Chronic blood loss anemia	0.9%	4.3%	<0.001	1.0%	3.4%	<0.001	1.0%	2.4%	0.02	NA	NA	NA

Congestive Heart Failure	1.7%	4.8%	<0.001	2.4%	3.6%	<0.001	2.6%	1.6%	0.16	41.4%	40.4%	0.84
Liver disease	1.4%	1.8%	0.001	1.1%	1.4%	<0.001	2.0%	0.8%	0.05	NA	NA	NA
Obesity	8.9%	9.7%	0.01	9.9%	11.4%	<0.001	10.8%	9.6%	0.44	14.8%	11.7%	0.33
Peripheral vascular disorders	11.3%	15.1%	<0.001	7.6%	11.7%	<0.001	12.3%	14.5%	0.17	21.2%	10.4%	0.01
Pulmonary circulation disorders	0.1%	0.4%	<0.001	0.2%	0.4%	<0.001	0.0%	1.0%	<0.001	4.9%	2.1%	0.1
Deficiency anemias	14.5%	31.0%	<0.001	14.5%	28.7%	<0.001	15.6%	28.4%	<0.001	4.9%	26.7%	<0.001
Chronic pulmonary disease	22.1%	25.1%	0.06	19.0%	21.1%	<0.001	16.4%	13.5%	0.09	9.4%	6.2%	0.216
Coagulopathy	7.2%	18.8%	<0.001	13.5%	26.5%	<0.001	21.8%	40.0%	<0.001	33.0%	42.9%	0.03
Dyslipidemia	39.7%	35.7%	<0.001	40.0%	38.3%	<0.001	38.3%	47.2%	0.01	24.6%	22.4%	0.581
Renal failure	16.8%	21.1%	<0.001	11.4%	16.8%	<0.001	16.6%	17.0%	<0.001	12.3%	8.3%	0.16
h/o MI	7.3%	6.0%	<0.001	6.0%	6.2%	0.469	9.2%	6.3%	0.03	4.9%	6.2%	0.55
h/o PCI	8.6%	8.6%	0.934	7.0%	6.8%	0.295	11.5%	11.7%	0.90	14.3%	16.3%	0.57
h/o CABG	4.1%	3.0%	<0.001	1.6%	1.4%	0.009	3.1%	1.6%	0.05	4.9%	0.0%	0.01
h/o Atrial fibrillation	22.8%	26.0%	<0.001	20.4%	26.4%	<0.001	19.7%	20.1%	0.85	12.3%	16.3%	0.23
Drug Abuse	1.9%	1.6%	0.03	1.9%	2.4%	<0.001	4.5%	4.7%	0.90	0.0%	2.1%	0.04
Fluid and electrolyte disorders	38.4%	51.0%	<0.001	40.4%	49.2%	<0.001	53.4%	60.5%	0.01	67.0%	62.7%	0.34
Revascularization strategies												
CABG during current admission	5.5%	20.6%	<0.001	17.5%	40.4%	<0.001	4.4%	17.5%	<0.001	16.7%	20.4%	0.32
PCI during current admission	54.9%	45.9%	<0.001	78.3%	60.9%	<0.001	83.0%	60.9%	<0.001	23.6%	24.6%	0.82

Supplementary Table 4: Baseline characteristics of patients with and without acute limb ischemia for patients with No MCS, IABP, PVAD or ECMO.

	No MCS			IABP			PVAD			ECMO		
	No ALI	ALI	p-value	No ALI	ALI	p-value	No ALI	ALI	p-value	No ALI	ALI	p-value
Female	42.2%	44.2%	0.30	31.4%	41.0%	<0.001	24.5%	40.5%	<0.002	28.5%	55.9%	0.001
Race			0.14			<0.001			<0.001	52.8%	45.5%	0.058
White	66.1%	64.2%		64.0%	64.0%		63.9%	93.3%		6.1%	0.0%	
Black	5.6%	7.0%		5.4%	5.5%		7.2%	6.7%		7.3%	0.0%	
Hispanic	5.9%	6.2%		6.8%	8.4%		6.9%	0.0%		1.2%	0.0%	
Asian or Pacific Islander	2.5%	1.4%		2.6%	0.0%		2.7%	0.0%		1.2%	0.0%	
Native American	0.5%	0.0%		0.5%	0.0%		0.7%	0.0%		11.7%	27.3%	
Other	3.3%	3.6%		3.7%	6.2%		5.3%	0.0%				
Comorbidities												
Hypertension	53.8%	47.9%	0.003	50.4%	44.0%	<0.001	52.3%	33.3%	0.001	38.0%	15.2%	0.009
Congestive Heart Failure	2.2%	5.2%	<0.001	2.6%	3.9%	0.02	2.1%	6.7%	0.01	40.6%	44.1%	0.69
Peripheral vascular disorders	11.4%	72.1%	<0.001	7.8%	72.4%	<0.001	10.2%	86.7%	<0.001	9.5%	84.8%	<0.001
Cardiac Arrest	19.1%	23.6%	0.004	21.7%	20.9%	0.58	30.8%	45.9%	0.006	27.3%	15.2%	0.12
Dyslipidemia	39.2%	28.7%	<0.001	39.8%	27.7%	<0.001	41.5%	26.7%	0.01	24.1%	15.2%	0.24
Alcohol abuse	3.9%	2.2%	0.02	4.4%	4.3%	0.94	3.4%	0.0%	0.12	2.4%	0.0%	0.36
Pulmonary circulation disorders	0.2%	0.0%	0.27	0.2%	2.5%	<0.001	0.3%	0.0%	0.63	3.7%	0.0%	0.26
Deficiency anemias	17.1%	17.4%	0.81	17.3%	16.8%	0.70	20.2%	0.0%	<0.001	15.6%	30.3%	0.02
Chronic pulmonary disease	22.6%	22.0%	0.72	19.4%	26.3%	<0.001	15.6%	13.3%	0.59	8.3%	0.0%	0.08
Coagulopathy	9.0%	13.6%	<0.001	16.0%	26.6%	<0.001	27.3%	25.7%	0.75	39.2%	29.4%	0.26
Diabetes	30.0%	30.3%	0.87	29.7%	24.0%		33.1%	33.3%	0.96	17.8%	15.2%	0.70
Renal failure	17.5%	13.5%	0.007	12.5%	13.0%	0.61	16.6%	20.3%	0.40	10.9%	0.0%	0.04
Fluid and electrolyte disorders	40.3%	55.6%	<0.001	42.0%	56.3%	<0.001	55.8%	47.3%	0.14	64.0%	72.7%	0.31
Liver disease	1.5%	1.6%	0.81	1.1%	2.0%	0.022	1.4%	6.7%	<0.001	0%	0%	
Obesity	9.0%	7.9%	0.32	10.2%	7.1%	0.003	10.1%	20.0%	0.006	11.7%	30.3%	0.002
Drug Abuse	1.8%	0.8%	0.05	2.0%	0.0%	<0.001	4.7%	0.0%	0.05	1.2%	0.0%	0.52
h/o MI	7.1%	3.8%	0.001	6.0%	4.8%	0.15	8.2%	12.2%	0.22	6.1%	0.0%	0.14

h/o PCI	8.6%	8.1%	0.62	7.0%	5.6%	0.11	11.8%	6.7%	0.17	16.8%	0.0%	0.01
h/o CABG	3.9%	0.8%	<0.001	1.6%	2.6%	0.01	2.7%	0.0%	0.14	2.4%	0.0%	0.36
h/o Atrial fibrillation	23.4%	22.5%	0.61	21.6%	23.0%	0.33	19.5%	26.7%	0.12	15.6%	0.0%	0.01
h/o smoking	30.6%	29.9%	0.70	30.5%	30.9%	0.79	38.1%	33.3%	0.40	23.9%	12.1%	0.12
h/o CVA	5.4%	4.7%	0.46	3.7%	4.2%	0.40	4.5%	0.0%	0.06	6.1%	0.0%	0.14
Revascularization strategies												
PCI during current admission	54.3%	54.4%	0.93	75.0%	65.8%	<0.001	76.3%	81.1%	0.34	22.9%	42.4%	0.01
CABG during current admission	7.9%	9.8%	0.07	21.9%	30.4%	<0.001	8.4%	6.7%	0.59	20.2%	0.0%	0.004
Expected primary payer			<0.001						0.003			0.24
Medicare	60.6%	53.0%		48.4%	40.4%	<0.001	40.6%	47.3%		25.2%	29.4%	
Medicaid	6.6%	6.8%	8.0%	10.7%			10.2%	20.3%		9.5%	14.7%	
Private	23.8%	33.4%	32.2%	35.0%			35.3%	32.4%		49.5%	55.9%	
Elixhauser Comorbidities			<0.001			<0.001			0.008			0.001
0	9.3%	5.1%		10.8%	1.1%		6.0%	0.0%		4.9%	14.7%	
1-3	63.3%	53.6%		63.9%	54.5%		61.4%	53.3%		55.9%	26.5%	
≥4	27.4%	41.3%		25.3%	44.4%		32.6%	46.7%		39.3%	58.8%	

Supplementary Table 5: Adjusted risk of having an event of bleeding complications and ALI among patients with IABP, PVAD or ECMO in comparison to those with no MCS.

	Bleeding Complications	ALI
Device type	Adjusted OR (95% CI)/ p - value ^a	Adjusted OR (95% CI)/ p - value ^a
No MCS	(reference)	(reference)
IABP	1.11 (1.08 - 1.14)/<0.001	1.37 (1.23 - 1.53) /<0.001
PVAD	2.34 (2.15 - 2.63) /<0.001	3.97 (3.04 – 5.19) /<0.001
ECMO	4.89 (3.99 – 5.99) /<0.001	7.34 (4.81-11.20) /<0.001

^aAdjusted for: Age, Gender, race, DM, Smoking, Obesity, Htn, HLD, Ischemic heart disease, CKD, CHF ESRD, PVD, COPD, Thrombocytopenia, Cirrhosis, prior CABG, prior MI, previous heart transplantation, previous VTE, coagulopathy, deficiency anemia, anticoagulation treatment, CABG current admission, fibrinolytic therapy.

Supplementary Table 6: Adjusted adverse event risk by number of transfusions in patients with CS-STEMI and bleeding complications.

CS with STEMI (Total)			
No. of transfusion events	In Hospital mortality (% of total number)	Adjusted odd ratio* (95% CI)	P-value
No transfusion	30%	1 (reference)	
1 transfusion	28%	0.83 (0.76-0.90)	<0.001
2 transfusion	32%	1.43 (1.19-1.71)	<0.001
≥3 transfusion	25%	1.41 (1.11-1.77)	0.004

^{*}Adjusted for: Age, Gender, race, DM, Smoking, Obesity, Htn, HLD, Ischemic heart disease, CKD, CHF ESRD, PVD, COPD, Thrombocytopenia, Cirrhosis, prior CABG, prior MI, previous heart transplantation, previous VTE, coagulopathy, deficiency anemia, anticoagulation treatment, CABG current admission, fibrinolytic therapy.

Supplementary Table 7: In-hospital mortality with and without surgical/endovascular intervention in patients with ALI.

Outcome by procedure type	In- Hospital mortality in patients with Acute limb ischemic requiring surgical/endovascular intervention*		P VALUE
	<u>With surgical or endovascular intervention</u>	<u>Without any intervention</u>	
Cardiogenic shock with STEMI	278/825 (33.7%)	307/803 (38.2%)	0.057
CS with STEMI without MCS	112/269 (41.6%)	152/362 (42.0%)	0.92
CS with STEMI and IABP	125/461 (27.1%)	107/344 (31.1%)	0.21
CS with STEMI and PVAD	10/35 (28.6%)	15/39 (38.5%)	0.36
CS with STEMI and ECMO	10/24 (41.7%)	10/10 (100%)	0.002
*Included patients only developing ALI			