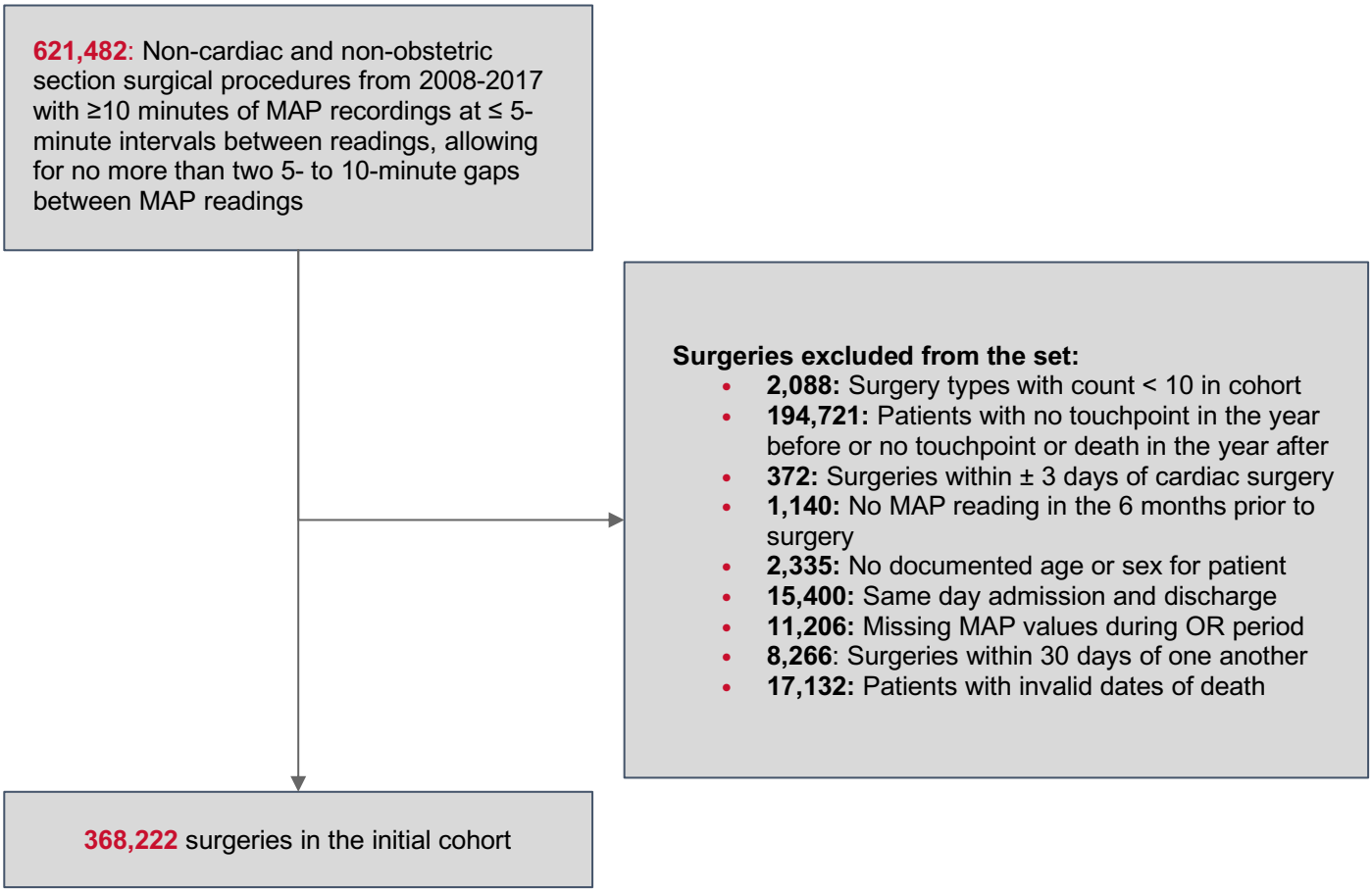
Additional File 1

Figure S1. Initial attrition diagram leading into cohort selection for current study



Footnote: MAP: mean arterial pressure; OR: operating room.

Method S1: Brief description of the machine learning approach to identify patients discharged to the ICU for patients with an undocumented post-surgery care location. Originally utilized in: Khanna AK, Shaw AD, Stapelfeldt WH, Boero IJ, Chen Q, Stevens M, et al. Postoperative Hypotension is Associated with Adverse Clinical Outcomes in Patients Without Intraoperative Hypotension, After Non-Cardiac Surgery. (in submission). 2020.

- We utilized 19,216 intensive care unit and 111,572 ward patients for model development and validation.
- To build the model we included patients' demographics (age, race, gender, region, ethnicity, income, education), diagnosis and procedure codes, laboratory values, surgical related variables (length of surgery, type of surgery, time and day of surgery etc.,) and acute comorbidities (7-day sepsis/delirium/electrolyte disorder; 30-day acute kidney injury/acute myocardial infarction/acute ischemic stroke/prolonged mechanical ventilation/continuous renal replacement therapy/dialysis).
- Variables were standardized and missing values were imputed using median.
- The model was trained by using l1-based regularized logistic regression including both feature selection and coefficients penalization.
- Eight hundred and twenty-seven features were finally selected.
- In order to minimize false negatives (patients who discharged to the intensive care unit but were identified as ward by our algorithm), we selected the threshold as 0.79 with the positive predictive value as 0.97.

Table S1: Comorbidities and additional cohort patient characteristics. Laboratory values and surgical demographics for non-cardiac/non-obstetric surgery patients discharged to the ICU after surgery without intraoperative hypotension (MAP ≤65-mmHg)

Patient Characteristics	Overall (n = 3,185)	POH MAP Threshold ≤55-mmHg (n = 654)	≤65-mmHg (n = 1,688)	≤75-mmHg (n = 2,674)	>75-mmHg (n = 511)
Baseline Creatine before surgery (closest test in the six months before surgery)					
≤0.9	1,717 (53.9%)	292 (44.7%)	853 (50.5%)	1,427 (53.4%)	290 (56.8%)
1.0 - 1.4	798 (25.1%)	187 (28.6%)	436 (25.8%)	678 (25.4%)	120 (23.5%)
1.5 - 1.9	220 (6.9%)	55 (8.4%)	127 (7.5%)	184 (6.9%)	36 (7.1%)
≥2.0	378 (11.9%)	111 (17.0%)	245 (14.5%)	329 (12.3%)	49 (9.6%)
unknown	72 (2.3%)	9 (1.4%)	27 (1.6%)	56 (2.1%)	16 (3.1%)
Baseline Hemoglobin before surgery (closest test in the six months before surgery)					
≤10.0	954 (30.0%)	220 (33.6%)	576 (34.1%)	848 (31.7%)	106 (20.7%)
10.1 - 13.0	1,370 (43.0%)	297 (45.4%)	741 (43.6%)	1,159 (43.3%)	211 (41.3%)
13.1 - 15.0	604 (19.0%)	104 (15.9%)	258 (15.3%)	466 (17.4%)	138 (27.0%)
≥15.1	202 (6.3%)	30 (4.6%)	95 (5.6%)	160 (6.0%)	42 (8.2%)
unknown	55 (1.7%)	3 (0.5%)	18 (1.1%)	41 (1.5%)	14 (2.7%)
Surgery types (10 most common)*					
Craniotomy	799 (25%)	63 (10%)	264 (16%)	600 (22%)	199 (39%)
Thoracic surgery (non-cardiac, non-vascular)	218 (7%)	54 (8%)	147 (9%)	206 (8%)	12 (2%)
Colon	192 (6%)	52 (8%)	117 (7%)	166 (6%)	26 (5%)
Spinal fusion	139 (4%)	41 (6%)	94 (6%)	126 (5%)	13 (3%)
Open reduction of fracture	83 (3%)	31 (5%)	55 (3%)	73 (3%)	10 (2%)
Gallbladder	70 (2%)	21 (3%)	36 (2%)	61 (2%)	9 (2%)
Limb amputation	61 (2%)	18 (3%)	41 (2%)	55 (2%)	6 (1%)
Spinal fusion laminectomy	55 (2%)	15 (2%)	37 (2%)	48 (2%)	7 (1%)
Hip prosthesis	55 (2%)	19 (3%)	48 (3%)	55 (2%)	0 (0%)
Knee prothesis	12 (0.4%)	4 (1%)	7 (0.4%)	9 (0.3%)	3 (1%)
Other	1,501 (47%)	336 (51%)	842 (50%)	1,275 (48%)	226 (44%)
Year of surgery					
2008-2011#	248 (8%)	65 (10%)	146 (9%)	205 (8%)	43 (8%)
2012-2013	639 (20%)	142 (22%)	364 (22%)	552 (21%)	87 (17%)
2014-2015	1,135 (36%)	235 (36%)	590 (35%)	941 (35%)	194 (38%)
2016-2017	1,163 (37%)	212 (32%)	588 (35%)	976 (37%)	187 (37%)
Length of surgery					
<1 hour	2,558 (80%)	527 (81%)	1,366 (81%)	2,158 (81%)	400 (78%)
1-2 hours	511 (16%)	99 (15%)	264 (16%)	423 (16%)	88 (17%)
>2 hours	116 (4%)	28 (4%)	58 (3%)	93 (3%)	23 (5%)
Date of surgery					
Weekend	843 (26%)	173 (26%)	438 (26%)	709 (27%)	134 (26%)
Night	576 (18%)	145 (22%)	326 (19%)	489 (18%)	87 (17%)

(continued)

Table S1: Comorbidities and additional cohort patient characteristics. Laboratory values and surgical demographics for non-cardiac/non-obstetric surgery patients discharged to the ICU after surgery without intraoperative hypotension (MAP ≤65-mmHg) (continued)

Patient Characteristics	Overall (n = 3,185)	POH MAP Threshold ≤55-mmHg (n = 654)	≤65-mmHg (n = 1,688)	≤75-mmHg (n = 2,674)	>75-mmHg (n = 511)
Time dependent variables					
Evidence of major bleeding	740 (23%)	97 (15%)	319 (19%)	601 (22%)	139 (27%)
Vasopressor	447 (14%)	211 (32%)	370 (22%)	427 (16%)	20 (4%)
Antihypertensives	2,124 (67%)	409 (63%)	1,102 (65%)	1,761 (66%)	363 (71%)

Footnote: Due to rounding, categories will not always add to 100%. POH: postoperative hypotension

**Surgery types were not used for model adjustment but were used to evaluate the cumulative incidence of postoperative hypotension for the top 10 surgeries, among patients discharged to the ICU for 48-hours post non-cardiac/non-obstetric surgery.*

[#]Four years were combined due to small sample size in 2008 and 2009.

Table S2. International Classification of Diseases (ICD) codes

Condition	ICD 9	ICD 10	CPT
Prior myocardial infarction	410, 412	I21, I22, I252	
Cerebrovascular accident	430, 431, 433, 434, 436-438	I60-I63, I6782, I69	
Chronic obstructive pulmonary disease	49, 500-505	I278, I279, J684, J701, J703, J40-J47, J60-J67	
Heart failure	428	I0981, I110, I130, I132, I50, I9713	
Valvular heart disease	424, 394-397	I34-I39, I05-I07	
Pulmonary circulatory disorder	416	I27	
Peripheral vascular disease	4439, 441, 7854, V434	I70, I71, I73, I771, I790, I792, K551, K558, K559, Z958, Z959	
Hypertension	401, 4160	I10-I13, I15, I16	
Paralysis	3441, 342	G041, G114, G801, G802, G81-G83	
Diabetes	249, 250	E08-E11, E13, E14	
Hypothyroidism	243, 244	E03, E890	
Renal disease	582, 583, 585, 586, 588	I12, I13, N03, N05, N17-N19, N25-N29, Z49, Z940, Z992	
Liver disease	570-573	K70-K77	
Lymphoma	200-202	C81-C86, C88	
Solid tumor (local + meta)	140-172, 174-198, 1990, 1991, 200-208	C0, C1, C20-C26, C30-C34, C37-C41, C43, C45-C58, C60-C85, C88, C90-C97	
Rheumatoid arthritis/collagen vascular disease	3571, 710, 714	M05, M06, M32, M34, M35	
Coagulopathy	286	D65-D68	
Obesity	278	E66	
Anemia	280-285	D50-D53, D55-D59, D61-D64	
Alcohol abuse	291, 303, 3050	F10, Z714 (excluding F1022)	
Drug abuse	292, 304, 305 (excluding 3051, 3050, 30500, 30501, 30502, 30503, 3059, 30590, 30591, 30592, 30593)	F11-F19 (excluding F1111, F1121, F1211, F1221, F1311, F1321, F1411, F1421, F1511, F1521, F1611, F1621, F17210, F17211, F17213, F17218, F17219, F17200, F17201, F17203, F17208, F17209, F17221, F17291, F1811, F1821, F1911, F1921)	
Smoking	3051, 3052	F1720, F1721	
Depression	296, 311	F32, F33, F34	
Sleep apnea	32721, 32723, 32727, 78057	G4730, G4731, G4733, G4737, R0681	
Dementia	290	F051, G311, F00, F01, F02, F03, G30	
Supplemental oxygen use	V462	Z9981	
Dialysis	39.95, 54.98	5A1D70Z, 5A1D80Z, 5A1D90Z, 5A1D00Z, 3E1M39Z	90935, 90937, 90945, 90947, 4054F, 4055F

(continued)

Table S2. International Classification of Diseases (ICD) codes (continued)

Condition	ICD 9	ICD 10	CPT
Coronary artery bypass grafting	36.10-36.16, 36.2	0210093, 02100A3, 02100J3, 02100K3, 02100Z3, 210493, 02104A3, 02104J3, 02104K3, 02104Z3, 021008W, 021009W, 02100AW, 02100JW, 02100KW, 021048W, 021049W, 02104AW, 02104JW, 02104KW, 021108W, 021109W, 02110AW, 02110JW, 02110KW, 021148W, 021149W, 02114AW, 02114JW, 02114KW, 021208W, 021209W, 02120AW, 02120JW, 02120KW, 021248W, 021249W, 02124AW, 02124JW, 02124KW, 021308W, 021309W, 02130AW, 02130JW, 02130KW, 021348W, 021349W, 02134AW, 02134JW, 02134KW, 210088, 210089, 021008C, 210098, 210099, 021009C, 02100A8, 02100A9, 02100AC, 02100J8, 02100J9, 02100JC, 02100K8, 02100K9, 02100KC, 02100Z8, 02100Z9, 02100ZC, 210488, 210489, 021048C, 210498, 210499, 021049C, 02104A8, 02104A9, 02104AC, 02104J8, 02104J9, 02104JC, 02104K8, 02104K9, 02104KC, 02104Z8, 02104Z9, 02104ZC, 211088, 211089, 021108C, 211098, 211099, 021109C, 02110A8, 02110A9, 02110AC, 02110J8, 02110J9, 02110JC, 02110K8, 02110K9, 02110KC, 02110Z8, 02110Z9, 02110ZC, 211488, 211489, 021148C, 211498, 211499, 021149C, 02114A8, 02114A9, 02114AC, 02114J8, 02114J9, 02114JC, 02114K8, 02114K9, 02114KC, 02114Z8, 02114Z9, 02114ZC, 021208C, 021209C, 02120AC, 02120JC, 02120KC, 02120ZC, 021248C, 021249C, 02124AC, 02124JC, 02124KC, 02124ZC, 021308C, 021309C, 02130AC, 02130JC, 02130KC, 02130ZC, 021348C, 021349C, 02134AC, 02134JC, 02134KC, 02134ZC	33510, 33511, 33512, 33513, 33514, 33516, 33517, 33518, 33519, 33521, 33522, 33523, 33530, 33534, 33535, 33536
Percutaneous coronary intervention	00.66, 36.07	02703, 02704, 02713, 02714, 02723, 02724, 02733, 02734	92920, 92924, 92928, 92933, 92937, 92941, 92943
Continuous renal replacement therapy	39.95	5A1D90Z	90935, 90937, 4054F
Acute myocardial infarction	410	I21, I22	
Acute ischemic stroke	43301, 43311, 43321, 43331, 43381, 43391, 43401, 43411, 43491, 436, 4371	I63	
Acute kidney injury	584	N17	
Delirium	F05	29011, 2903, 2930, 2931, 30011, 308, 78009, 78039	
Electrolyte disorders	276	E87	
Sepsis/SIRS	028, 77181, 9959	A40, A41, P36, R65	
Right side valve disease*	moderate or severe tricuspid regurgitation/insufficiency		
Left side valve disease*	moderate or severe mitral regurgitation/insufficiency, aortic regurgitation/insufficiency, or aortic stenosis		

**Using physicians' notes to define the variables*

Table S3: **List of antihypertensive drug classes**

List of hypertensive drug classes
Loop diuretics
Beta-adrenergic antagonists (beta blockers) w/o ISA
HMG & CoA reductase inhibitors (statins)
Anticoagulants; coumarin derivatives
Alpha- & beta-adrenergic antagonists
Angiotensin-converting enzyme (ACE) inhibitors
Thiazides & related agents
Angiotensin II receptor antagonists (ARB)
Calcium channel antagonists (calcium channel blockers)

Table S4: Multivariate model results

Patient Characteristics	POH MAP Threshold ≤55-mmHg (n = 654) p-value	≤55-mmHg (n = 654) Hazard Ratio (98.4%CI)	≤65-mmHg (n = 1,688) p-value	≤65-mmHg (n = 1,688) Hazard Ratio (98.4%CI)	≤75-mmHg (n = 2,674) p-value	≤75-mmHg (n = 2,674) Hazard Ratio (98.4%CI)
Gender						
Male				reference		
Female	0.6275	1.05 (0.82, 1.35)	0.4382	1.08 (0.84, 1.39)	0.3946	1.09 (0.85, 1.41)
Race						
Caucasian				reference		
Non-white	0.141	0.83 (0.62, 1.12)	0.1467	0.84 (0.62, 1.13)	0.1331	0.83 (0.61, 1.12)
Age						
< 65				reference		
65+	0.5534	1.07 (0.81, 1.42)	0.4831	1.09 (0.82, 1.44)	0.3209	1.12 (0.85, 1.49)
Region						
West				reference		
Midwest	0.1313	1.42 (0.81, 2.50)	0.1159	1.45 (0.82, 2.57)	0.1001	1.48 (0.83, 2.62)
North	0.6247	1.22 (0.46, 3.22)	0.5938	1.24 (0.48, 3.21)	0.6228	1.21 (0.47, 3.15)
South	0.7755	1.07 (0.60, 1.92)	0.6776	1.11 (0.62, 1.99)	0.6384	1.12 (0.62, 2.02)
Other/Unknown	0.5018	0.78 (0.31, 1.92)	0.4835	0.77 (0.32, 1.87)	0.5317	0.80 (0.33, 1.92)
Within 30 days before surgery						
Acute kidney injury	0.048	1.31 (0.94, 1.82)	0.0473	1.31 (1.02, 1.73)	0.0194	1.38 (0.99, 1.92)
Dialysis	0.403	1.24 (0.67, 2.29)	0.4589	1.21 (0.65, 2.24)	0.4308	1.23 (0.66, 2.29)
Within 7 days before surgery						
Delirium	0.797	0.96 (0.65, 1.42)	0.6796	0.93 (0.63, 1.39)	0.5825	0.91 (0.61, 1.36)
Electrolyte disorder	0.0125	1.32 (1.01, 1.72)	0.0094	1.33 (1.02, 1.73)	0.0039	1.37 (1.05, 1.78)
Sepsis	<0.0001	1.98 (1.49, 2.62)	<0.0001	1.96 (1.48, 2.59)	<.0001	1.38 (0.99, 1.92)
Admitted from						
Home				reference		
Inpatient	0.4121	1.10 (0.83, 1.45)	0.4782	1.09 (0.82, 1.44)	0.4253	1.10 (0.83, 1.46)
Skilled nursing facility	0.0895	1.36 (0.88, 2.12)	0.0942	1.36 (0.87, 2.10)	0.1303	1.32 (0.85, 2.06)
Unknown	<.0001	3.29 (1.69, 6.42)	<.0001	3.52 (1.83, 6.79)	<.0001	3.61 (1.86, 7.02)

(continued)

Table S4: Multivariate model results (continued)

Patient Characteristics	POH MAP Threshold ≤55-mmHg (n = 654) p-value	≤55-mmHg (n = 654) Hazard Ratio (98.4%CI)	≤65-mmHg (n = 1,688) p-value	≤65-mmHg (n = 1,688) Hazard Ratio (98.4%CI)	≤75-mmHg (n = 2,674) p-value	≤75-mmHg (n = 2,674) Hazard Ratio (98.4%CI)
Procedures in the year before date of surgery						
Coronary artery bypass graft	0.4486	1.42 (0.47, 4.32)	0.7094	1.20 (0.37, 3.89)	0.622	1.26 (0.41, 3.85)
Percutaneous coronary intervention	0.1534	0.44 (0.11, 1.75)	0.1491	0.46 (0.13, 1.68)	0.1422	0.47 (0.13, 1.63)
Antihypertensive						
Use of antihypertensives	0.9997	1.00 (0.65, 1.55)	0.9002	1.02 (0.66, 1.58)	0.9601	0.99 (0.64, 1.53)
Comorbidities						
Myocardial infarction	0.2745	1.19 (0.81, 1.73)	0.3729	1.15 (0.78, 1.70)	0.3362	1.17 (0.79, 1.72)
Cerebrovascular accident	<.0001	1.93 (1.42, 2.62)	<.0001	1.94 (1.43, 2.63)	<.0001	1.95 (1.44, 2.64)
COPD	0.1639	1.17 (0.89, 1.53)	0.1044	1.20 (0.92, 1.57)	0.0842	1.21 (0.93, 1.58)
Heart failure	0.2974	1.14 (0.84, 1.56)	0.3504	1.13 (0.82, 1.55)	0.2608	1.16 (0.85, 1.58)
Pulmonary circulatory disorder	0.0665	1.35 (0.91, 2.02)	0.037	0.80 (0.58, 1.09)	0.0262	1.44 (0.97, 2.15)
Peripheral vascular disease	0.0887	0.80 (0.58, 1.10)	0.0818	1.37 (0.98, 1.90)	0.0729	0.79 (0.58, 1.08)
Hypertension	0.0298	1.34 (0.97, 1.86)	0.0223	1.15 (0.78, 1.70)	0.0235	1.37 (0.98, 1.91)
Paralysis	0.4698	1.12 (0.76, 1.66)	0.3802	1.16 (0.89, 1.52)	0.4911	1.12 (0.75, 1.66)
Diabetes	0.1703	1.16 (0.89, 1.52)	0.1801	1.00 (0.74, 1.36)	0.1562	1.17 (0.90, 1.53)
Hypothyroidism	0.8481	0.98 (0.72, 1.33)	0.9919	0.75 (0.52, 1.07)	0.9493	1.01 (0.74, 1.37)
Renal disease	0.0419	0.74 (0.51, 1.06)	0.0487	0.75 (0.52, 1.07)	0.0284	0.72 (0.50, 1.03)
Liver disease	0.1348	1.23 (0.88, 1.71)	0.1674	1.21 (0.87, 1.69)	0.1066	1.25 (0.89, 1.75)
Lymphoma	0.4445	0.75 (0.31, 1.84)	0.437	0.76 (0.32, 1.78)	0.4478	0.75 (0.31, 1.85)
Solid tumor (local)	0.0098	1.39 (1.02, 1.88)	0.0046	1.43 (1.05, 1.93)	0.0065	1.41 (1.04, 1.92)
RA/ collagen vascular disease	0.9999	1.00 (0.59, 1.68)	0.9328	0.98 (0.58, 1.65)	0.8559	0.96 (0.56, 1.64)
Coagulopathy	0.0041	1.51 (1.07, 2.14)	0.0072	1.48 (1.04, 2.10)	0.0118	1.45 (1.02, 2.06)
Obesity	0.0013	0.65 (0.47, 0.90)	0.0018	0.66 (0.47, 0.91)	0.0027	0.67 (0.48, 0.92)
Anemia	0.9339	0.99 (0.75, 1.30)	0.9218	0.99 (0.75, 1.30)	0.9111	1.01 (0.77, 1.34)
Alcohol abuse	0.36	0.85 (0.56, 1.30)	0.5294	0.90 (0.59, 1.36)	0.397	0.86 (0.55, 1.33)
Drug abuse	0.36	0.84 (0.54, 1.32)	0.3888	0.85 (0.54, 1.33)	0.4209	0.86 (0.55, 1.35)
Smoking	0.2476	1.15 (0.86, 1.53)	0.2666	1.14 (0.86, 1.52)	0.2785	1.14 (0.85, 1.51)

(continued)

Table S4: Multivariate model results (continued)

Patient Characteristics	POH MAP Threshold ≤55-mmHg (n = 654)		≤65-mmHg (n = 1,688)		≤75-mmHg (n = 2,674)	
	p-value	Hazard Ratio (98.4%CI)	p-value	Hazard Ratio (98.4%CI)	p-value	Hazard Ratio (98.4%CI)
Comorbidities (continued)						
Depression	0.394	0.90 (0.68, 1.20)	0.467	0.92 (0.69, 1.22)	0.3109	0.88 (0.66, 1.18)
Sleep apnea	0.3649	0.87 (0.60, 1.26)	0.3435	0.86 (0.60, 1.25)	0.27	0.84 (0.58, 1.22)
Dementia	0.0403	1.47 (0.93, 2.31)	0.0338	1.49 (0.95, 2.35)	0.0315	1.50 (0.95, 2.38)
Home oxygen	0.818	1.05 (0.65, 1.69)	0.7575	1.06 (0.66, 1.72)	0.8185	1.05 (0.64, 1.71)
Right side valve disease	0.0499	1.79 (0.87, 3.68)	0.0391	1.83 (0.90, 3.69)	0.0472	1.80 (0.88, 3.66)
Left side valve disease	0.226	0.68 (0.31, 1.47)	0.216	0.68 (0.31, 1.45)	0.2236	0.68 (0.32, 1.46)
Charlson Comorbidity Index (CCI)						
CCI 0-1				reference		
CCI 2-3	0.2522	0.85 (0.60, 1.20)	0.2469	0.85 (0.60, 1.19)	0.3958	0.89 (0.63, 1.25)
CCI ≥4	0.7964	1.05 (0.69, 1.59)	0.8472	1.03 (0.68, 1.56)	0.7144	1.07 (0.70, 1.61)
Income						
Quartile 1				reference		
Quartile 2	0.0857	1.26 (0.91, 1.73)	0.0863	1.25 (0.91, 1.72)	0.1169	1.23 (0.89, 1.69)
Quartile 3	0.2446	1.19 (0.83, 1.71)	0.2932	1.17 (0.82, 1.68)	0.3488	1.15 (0.80, 1.66)
Quartile 4	0.0152	1.56 (1.00, 2.44)	0.0198	1.54 (0.99, 2.41)	0.0259	1.51 (0.97, 2.36)
Missing value	0.0166	1.95 (1.03, 3.70)	0.0043	2.01 (1.11, 3.62)	0.0034	2.01 (1.13, 3.57)
Baseline Creatine before surgery (closest test in the six months before surgery)						
≤0.9				reference		
1.0 - 1.4	0.0671	1.27 (0.93, 1.75)	0.0408	1.31 (0.95, 1.79)	0.0557	1.28 (0.94, 1.76)
1.5 - 1.9	0.0696	1.43 (0.89, 2.31)	0.0523	1.48 (0.91, 2.39)	0.0721	1.43 (0.89, 2.31)
≥2.0	0.0193	1.56 (0.99, 2.46)	0.0154	1.58 (1.00, 2.49)	0.023	1.53 (0.97, 2.41)
unknown	0.6845	1.17 (0.46, 2.97)	0.6317	1.20 (0.47, 3.05)	0.7386	1.14 (0.44, 2.93)
Baseline Hemoglobin before surgery (closest test in the six months before surgery)						
≤10.0				reference		
10.1 - 13.0	0.2757	0.88 (0.66, 1.17)	0.4392	0.91 (0.68, 1.21)	0.4682	0.92 (0.69, 1.22)
13.1 - 15.0	0.343	0.86 (0.58, 1.26)	0.5142	0.90 (0.61, 1.33)	0.5917	0.92 (0.62, 1.36)
≥15.1	0.047	1.49 (0.92, 2.40)	0.0245	1.56 (0.97, 2.52)	0.0221	1.58 (0.98, 2.55)
unknown	0.6152	0.81 (0.30, 2.21)	0.4049	0.70 (0.25, 1.95)	0.3161	0.64 (0.22, 1.85)

(continued)

Table S4: Multivariate model results (continued)

Patient Characteristics	POH MAP Threshold ≤55-mmHg (n = 654)		≤65-mmHg (n = 1,688)		≤75-mmHg (n = 2,674)	
	p-value	Hazard Ratio (98.4%CI)	p-value	Hazard Ratio (98.4%CI)	p-value	Hazard Ratio (98.4%CI)
Year of surgery						
2008-2014				reference		
2015-2017	0.7548	1.03 (0.81, 1.31)	0.6054	1.05 (0.83, 1.34)	0.7622	1.03 (0.81, 1.31)
Length of surgery						
Surgical duration	0.5724	1.00 (1.00, 1.00)	0.5581	1.00 (1.00, 1.00)	0.7521	1.00 (1.00, 1.00)
Date of surgery						
Weekend	0.2152	0.87 (0.66, 1.14)	0.2151	0.87 (0.66, 1.14)	0.1562	0.85 (0.65, 1.12)
Night	0.0674	1.25 (0.93, 1.67)	0.0236	1.31 (0.98, 1.75)	0.0124	1.35 (1.01, 1.80)
Time dependent variables						
Evidence of major bleeding	<.0001	2.14 (1.60, 2.85)	<.0001	1.97 (1.48, 2.63)	<.0001	1.92 (1.44, 2.56)
Vasopressor	0.0006	1.60 (1.15, 2.24)	<.0001	2.03 (1.39, 2.95)	<.0001	2.64 (1.65, 4.21)
Antihypertensives	0.1949	1.15 (0.88, 1.51)	0.9266	0.99 (0.77, 1.28)	0.5941	0.94 (0.71, 1.24)

Table S5. P-values of hazard ratios for primary and secondary outcomes. P-values for hazard ratios describing the association of POH with primary and secondary endpoints among patients discharged to the ICU without IOH (MAP ≤65-mmHg) (n=3,185).

Outcome	POH Threshold		
	≤55-mmHg	≤65-mmHg	≤75-mmHg
	p-value	p-value	p-value
30-day MACCE	**<0.001***	**<0.001***	0.224
30-day mortality	**<0.001***	**<0.001***	0.099
90-day mortality	**<0.001***	**<0.001***	0.143
30-day AIS	0.877	0.820	0.717
7-day AKI	**0.013***	0.065	0.280
30-day AMI	0.154	0.060	0.978
30-day readmission	0.574	0.696	0.715
Dialysis	0.366	0.235	0.230
Sepsis	0.080	0.352	0.476

*Footnote: * Significant after applying Bonferroni adjustment (p-value of ≤ 0.05/3 or 0.016). POH: postoperative hypotension; MAP: mean arterial pressure; MACCE: major adverse cardiovascular and cerebrovascular events; AIS: acute ischemic stroke; AKI: acute kidney injury; AMI: acute myocardial infarction*

Table S6. E-values to assess the magnitude of an unobserved or unaccounted confounding effect for postoperative hypotension in intensive care unit setting. E-values were calculated as a sensitivity analysis to determine unobserved or unaccounted confounding effects for POH at three thresholds among patients without IOH (MAP ≤65-mmHg) for primary and secondary endpoints. E-values represent the effect size required for an unmeasured confounding to reduce the observed effect to OR 1.0.

Outcome	POH Threshold		
	MAP ≤55-mmHg	MAP ≤65-mmHg	MAP ≤75-mmHg
	E-value	E-value	E-value
30-day MACCE	3.46	2.41	1.67
30-day mortality	3.35	2.49	1.83
90-day mortality	2.96	2.34	1.69
30-day AIS	1.31	1.34	1.53
7-day AKI	2.75	2.17	1.83
30-day AMI	3.91	4.15	1.11
30-day readmission	1.36	1.24	1.28
Dialysis	2.13	2.34	2.45

Footnote: POH: postoperative hypotension; MAP: mean arterial pressure; MACCE: major adverse cardiovascular and cerebrovascular events; AIS: acute ischemic stroke; AKI: acute kidney injury; AMI: acute myocardial infarction.

E-values were calculated as previously described by VanderWeele and Ding (VanderWeele TJ, Ding P. Sensitivity Analysis in Observational Research: Introducing the E-Value. Annals of Internal Medicine. 2017;167(4):268. Specifically, following formula was used: ***E-value=HR+sqrt{HR×(HR-1)}*** *This formula applies to a risk ratio greater than 1; for a risk ratio less than 1, we first took the inverse of the observed risk ratio and then applied the same formula.*

Table S7. Hazard/Incidence rate ratios and p-values for length-of-stay and use of intensive care unit-specific endpoints for intensive care unit patients with postoperative hypotension (exploratory outcomes). Data shown for procedures (n=3,185) without preceding IOH (≤65-mmHg) at three absolute POH thresholds (≤55-, ≤65-, and ≤75-mmHg).

Outcome	POH Threshold					
	MAP ≤55-mmHg		MAP ≤65-mmHg		MAP ≤75-mmHg	
	Hazard Ratio (98.4%CI)	p-value	Hazard Ratio (98.4%CI)	p-value	Hazard Ratio (98.4%CI)	p-value
Readmission to ICU after 72 hours	1.03 (0.36, 2.97)	0.947	0.61 (0.27, 1.42)	0.159	0.58 (0.21, 1.62)	0.200
	Incidence Rate Ratio (98.4%CI)	p-value	Incidence Rate Ratio (98.4%CI)	p-value	Incidence Rate Ratio (98.4%CI)	p-value
ICU free days in first 30-days	0.92 (0.84, 1.01)	0.026	0.95 (0.88, 1.01)	0.056	0.98 (0.89, 1.08)	0.623
DAF of vasopressors	0.98 (0.95, 1.00)	0.020	0.98 (0.96, 1.00)	0.063	0.99 (0.97, 1.02)	0.647

*Footnote: * Significant after applying Bonferroni adjustment (p-value of ≤ 0.05/3 or 0.016). POH: postoperative hypotension; MAP: mean arterial pressure; ICU: intensive care unit; DAF: days alive and free.*