

**Supplemental Digital Content 1.** Patient's demographic and baseline characteristics by combined outcome (in-hospital mortality of ICU LOS $\geq$ 3 days)

<i>Variable</i>	<i>Category</i>	<i>Overall (2796, 100%)</i>	<i>No combined outcome (2048, 73%)</i>	<i>Combined outcome (748, 27%)</i>	<i>P-Value</i>
Age, mean (SD)		58 (17)	56 (18)	64 (15)	<.001 <sup>a</sup>
median (Q1;Q3)		59 (48;70)	57 (45; 68)	64 (54; 74)	
Gender	Female	1431 (51)	1052 (51)	379 (51)	0.745 <sup>b</sup>
Race	Black	1400 (50)	1016 (50)	384 (51)	0.415 <sup>b</sup>
	White	1255 (45)	933 (46)	322 (43)	
	Other	141 (5)	99 (4)	42 (6)	
Comorbidities					
AIDS	Yes	89 (3)	74 (83)	15 (17)	0.032 <sup>b</sup>
Cancer	Yes	286 (10)	202 (71)	84 (29)	0.293 <sup>b</sup>
CHF	Yes	563 (20)	325 (58)	238 (42)	<.001 <sup>b</sup>
COPD	Yes	906 (32)	614 (68)	292 (32)	<.001 <sup>b</sup>
CVD	Yes	233 (8)	130 (56)	103 (44)	<.001 <sup>b</sup>
DM (no complications) <sup>1</sup>	Yes	852 (31)	611 (72)	241 (28)	0.229 <sup>b</sup>
DM (complications) <sup>2</sup>	Yes	204 (7)	154 (75)	50 (25)	0.450 <sup>b</sup>
Dementia	Yes	133 (5)	85 (64)	48 (36)	0.013 <sup>b</sup>
ESRD	Yes	200 (7)	114 (57)	37 (13)	<.001 <sup>b</sup>
Liver (mild) <sup>*</sup>	Yes	281 (10)	164 (58)	117 (42)	<.001 <sup>b</sup>
Liver (moderate-severe) <sup>#</sup>	Yes	63 (2)	33 (52)	30 (48)	<.001 <sup>b</sup>
Myocardial Infarctions	Yes	198 (7)	103 (52)	95 (48)	<.001 <sup>b</sup>
Metastatic cancer	Yes	98 (4)	62 (63)	36 (37)	<.001 <sup>b</sup>
Charlson comorbidity index, median (Q1;Q3)	Yes	2 (0; 4)	1 (0; 3)	3 (1; 4)	<.001 <sup>a</sup>
Alert Order <sup>a</sup>	Yes	337 (12)	294 (12)	43 (15)	0.087 <sup>b</sup>
Mechanical Ventilation	Yes	162 (6)	8 (5)	154 (95)	<.001 <sup>b</sup>
Vasopressors	Yes	722 (26)	202 (28)	520 (72)	<.001 <sup>b</sup>

Abbreviations: AIDS =acquired immune immune deficiency syndrome, CHF=congestive heart failure, COPD=chronic obstructive pulmonary disease, CVD=cerebrovascular disease, DM=diabetes mellitus, ESRD=end stage renal disease.

**Supplemental Digital Content 2.** Features of Sepsis Encounters by combined outcome (mortality or ICU LOS $\geq$ 3 days)

<i>Variable (n, % of total)</i>	<i>Overall (2796, 100%)</i>	<i>No combined outcome (2048, 73%)</i>	<i>Combined outcome (748, 27%)</i>	<i>P-Value</i>
<i>Initial Vital Signs*</i>				
SBP (mm Hg), n	124 (30.3);2700	127.0 (27.7);2000	116.3 (35.5);700	<.001 <sup>a</sup>
HR (beats/min), n	103.2 (22.9);2685	101.8 (20.8);1947	106.8 (27.3);738	0.017 <sup>a</sup>
RR (breaths/min), n	19.8 (5.1);2791	19.1 (3.9);2048	21.7 (7.0);743	<.001 <sup>a</sup>
Temperature (°F), n	99.1 (2.4);2793	99.3 (2.0);2047	98.3 (3.1);746	<.001 <sup>a</sup>
SpO <sub>2</sub> (%), n	96.1 (5.5);2791	96.7 (4.2)	94.6 (7.9);747	<.001 <sup>a</sup>
<i>Lab Findings</i>				
Initial WBC* (thous/mm <sup>3</sup> ), n	14.5 (7.8);2795	14.5 (7.4);2047	14.7 (8.8);748	0.567 <sup>a</sup>
Lactate*, (mmol/L), n	2.9(3.0);1387	2.1 (1.4);791	4.0 (4.1);596	<.001 <sup>a</sup>
Lactate, (mmol/L)				
≥ 4, n	398 (18)	211 (12)	187 (41)	<.001 <sup>b</sup>
2 to 3.9, n	782 (36)	622 (36)	160 (35)	
< 2, n	987 (46)	873 (52)	114 (24)	
Creatinine (mg/dL), n	1.8 (2.1);2796	1.6 (1.9);2048	2.4 (2.5);748	<.001 <sup>a</sup>
Positive culture				
Any, n	2279	1226	1053	
Blood, n	785 (34)	453 (37)	332 (32)	<.001 <sup>b</sup>
Respiratory, n	594 (27)	205 (17)	389 (37)	
Urine, n	757 (33)	456 (37)	301 (29)	
Wound, n	143 (6)	112 (9)	31 (2)	

Abbreviations: SBP = systolic blood pressure, WBC = white blood cell count, HR = heart rate, RR = respiratory rate. Data are counts (percentages), unless otherwise specified \* for means (SDs); n <sup>a</sup>Wilcoxon rank sum test; <sup>b</sup>Pearson's Chi-square test.

**Supplemental Digital Content 3.** Results models for in-hospital mortality.

Predictor SOFA component	Additional Variables in the Final model	Residual Chi-Square test p-value	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Respiration	Age, Charlson, Vasopressors, Mechanical Ventilation	0.570	1.77 (1.62, 1.92)	1.33 (1.021, 1.47)
Coagulation	Age, Charlson, Vasopressors, Mechanical Ventilation	0.379	1.81 (1.56, 2.10)	1.60 (1.32, 1.93)
Liver	Age, Charlson, Vasopressors, Mechanical Ventilation	0.284	1.83 (1.58, 2.12)	1.58 (1.32, 1.90)
Cardiovascular	Age, Charlson, Vasopressors, Mechanical Ventilation	0.806	2.01 (1.92, 2.27)	1.13 (1.01, 1.25)
Renal	Age, Charlson, Vasopressors, Mechanical Ventilation	0.477	1.47 (1.34, 1.61)	1.14 (1.02, 1.27)
Neurologic	Age, Charlson, Vasopressors, Mechanical Ventilation	0.540	0.75 (1.59, 1.92)	1.20 (1.07, 1.35)

Abbreviations: SOFA, sequential organ failure assessment score; Charlson, Charlson Comorbidity score; OR, odds ratio.

**Supplemental Digital Content 4.** Results models for combined outcome (mortality or ICU LOS $\geq$ 3 days).

Predictor SOFA component	Final model	Residual Chi-Square test p-value	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Respiration	Age, Charlson, Vasopressors, Mechanical Ventilation	0.912	2.29 (2.12, 2.48)	1.97 (1.79, 2.16)
Coagulation	Age, Charlson, Vasopressors, Mechanical Ventilation	0.719	1.54 (1.35, 1.73)	1.30 (1.10, 1.54)
Liver	Age, Charlson, Vasopressors, Mechanical Ventilation	0.439	1.47 (1.29, 1.66)	Not in the final model
Cardio	Age, Charlson, Vasopressors, Mechanical Ventilation	0.583	2.53 (2.32, 2.75)	1.38 (1.23, 1.54)
Renal	Age, Charlson, Vasopressors, Mechanical Ventilation	0.813	1.47 (1.38, 1.57)	1.19 (1.08, 1.30)
Neurologic	Age, Charlson, Vasopressors, Mechanical Ventilation	0.906	2.12 (1.95, 2.30)	1.72 (1.54, 1.92)

Abbreviations: SOFA, sequential organ failure assessment score; Charlson, Charlson Comorbidity score; OR, odds ratio.