Supplemental Table 1. Comparisons of individual ABO blood types A, B, AB, and O by acute kidney injury risk.

		European Descent		African Descent	
Population	ABO Blood Type Comparison	Adjusted AKI RD[a] (95% CI)	p[b]	Adjusted AKI RD[a] (95% CI)	p[b]
Trauma	A vs. O	0.14 (0.03,0.24)	0.015	0.03 (-0.09,0.15)	0.61
	A vs. B	0.03 (-0.14,0.20)	0.71	-0.04 (-0.19,0.11)	0.60
	A vs. AB	0.14 (-0.07,0.36)	0.19	0.18 (-0.05,0.41)	0.12
	B vs. O	0.10 (-0.06,0.26)	0.22	0.07 (-0.06,0.21)	0.29
	AB vs. O	-0.01 (-0.22,0.20)	0.90	-0.15 (-0.37,0.07)	0.17
	B vs. AB	0.11 (-0.13,0.36)	0.37	0.22 (-0.01,0.46)	0.061
Severe Sepsis	A vs. O	0.14 (0.04,0.23)	0.006	0.04 (-0.10,0.18)	0.55
	A vs. B	0.11 (-0.06,0.27)	0.21	0.05 (-0.12,0.21)	0.60
	A vs. AB	0.08 (-0.15,0.31)	0.49	0.08 (-0.19,0.36)	0.55
	B vs. O	0.03 (-0.14,0.19)	0.74	0.00 (-0.16,0.16)	0.97
	AB vs. O	0.06 (-0.17,0.28)	0.64	-0.04 (-0.31,0.23)	0.77
	B vs. AB	-0.02 (-0.29,0.23)	0.83	0.04 (-0.25,0.32)	0.80

AKI = acute kidney injury, RD = risk difference, CI = confidence interval, APACHE = Acute Physiology and Chronic Health Evaluation, ICU = intensive care unit.

[a]Risk Differences are the adjusted difference in acute kidney injury risk for each of the blood type comparisons.

[c]Multivariable logistic regression models were adjusted for age, APACHE III score without the renal components, body mass index, mechanism of injury, injury severity score, history of diabetes, and units of red blood cells transfused in the first 24 hours within the trauma cohort. In the severe sepsis cohort, final models were adjusted for APACHE III score without renal components, age, sex, history of diabetes, history of congestive heart failure, malignancy, pulmonary source of infection, and units of red blood cells transfused in the first 24 hours of ICU admission.

Supplemental Table 2. Associations of ABO blood type and acute kidney injury stage among patients of European descent

Population	No.	ABO Blood Type[a] A	B	AB	O	Adjusted RD[b] (95% CI)	p
Trauma Cohort							
Stage 2/3 AKI	17	12 (12%)	2 (7%)	0 (0%)	3 (2%)	0.09 (0.01,0.17)	0.027
Stage 1 AKI	31	15 (16%)	6 (21%)	1 (8%)	9 (5%)	0.09 (-0.01,0.19)	0.073
No AKI	181	67 (71%)	20 (71%)	11 (92%)	83 (47%)	reference	
Severe Sepsis Cohort							
Stage 2/3 AKI	107	53 (28%)	8 (20%)	4 (21%)	41 (22%)	0.08 (-0.01,0.18)	0.10
Stage 1 AKI	94	48 (26%)	9 (23%)	4 (21%)	33 (17%)	0.12 (0.02,0.22)	0.024
No AKI	236	87 (46%)	23 (58%)	11 (58%)	115 (61%)	reference	

AKI = acute kidney injury, RD = risk difference, CI = confidence interval, APACHE = Acute Physiology and Chronic Health Evaluation, ICU = intensive care unit.

[a]AKI stage are presented as number and percentage of patients with each particular blood type that develop each stage of AKI. These are unadjusted risks of AKI.

[b]Risk differences are the adjusted difference in stage 2/3 AKI risk, and separately stage 1 AKI risk, between blood type A and blood type O. All other comparisons between blood types A, B, AB, and O were not statistically significant and are not displayed. Multivariable logistic regression models were adjusted for age, APACHE III score without the renal components, body mass index, mechanism of injury, injury severity score, history of diabetes, and units of red blood cells transfused in the first 24 hours within the trauma cohort. In the severe sepsis cohort, final models were adjusted for APACHE III score without renal components, age, sex, history of diabetes, history of congestive heart failure, malignancy, pulmonary source of infection, and units of red blood cells transfused in the first 3 days of ICU admission.

Supplemental Table 3. Median (Interquartile range) serum creatinine by ABO blood type over the study period.

Population	Blood Type	Initial Cr[a]	n.[b]	Day #1 Cr[c]	n.[b]	Day #2 Cr[c]	n.[b]	Day #3 Cr[c]	n.[b]	Day #4 Cr[c]	n.[b]	Day #5 Cr[c]	n.[b]	Last Cr[d]	n.[b]	Prior Cr[e]	n.
Trauma EA	A	1.0 (0.9,1.1)	94	0.9 (0.8,1.1)	93	0.8 (0.7,1.0)	89	0.8 (0.6,1.0)	83	0.7 (0.6,0.9)	82	0.8 (0.6,1.0)	72	0.7 (0.6,0.8)	94	1.0 (0.9,1.2)	10
	B	1.0 (0.9,1.3)	28	1.0 (0.7,1.2)	27	0.9 (0.7,1.2)	27	0.9 (0.7,1.1)	23	0.9 (0.6,1.1)	19	0.8 (0.6,1.1)	16	0.7 (0.5,1.0)	28	0.8 (0.7,1.0)	7
	AB	1.1 (0.8,1.3)	12	0.9 (0.7,1.2)	12	0.8 (0.8,1.1)	12	0.7 (0.6,1.1)	10	0.7 (0.6,1.0)	9	0.7 (0.5,0.9)	9	0.8 (0.6,0.8)	12	1.2 (0.9,1.6)	2
	O	1.0 (0.9,1.2)	95	0.9 (0.7,1.1)	94	0.8 (0.7,1.0)	89	0.7 (0.6,0.9)	77	0.7 (0.6,0.8)	66	0.7 (0.6,0.8)	59	0.7 (0.6,0.8)	95	0.9 (0.8,1.2)	20
	p[f]	0.87		0.29		0.21		0.093		0.22		0.22		0.86		0.35	
Trauma AA	A	1.2 (1.0,1.4)	64	1.0 (0.9,1.3)	63	1.0 (0.8,1.3)	59	0.9 (0.8,1.1)	53	0.9 (0.7,1.1)	39	0.9 (0.7,1.0)	37	0.8 (0.7,1.0)	64	1.0 (0.9,1.1)	12
	B	1.2 (1.0,1.4)	50	1.1 (0.9,1.5)	50	1.1 (0.9,1.3)	46	1.0 (0.8,1.4)	39	1.0 (0.8,1.3)	35	1.0 (0.7,1.1)	29	0.7 (0.6,1.0)	50	0.8 (0.7,0.9)	6
	AB	1.4 (1.0,1.6)	12	1.0 (0.9,1.3)	12	0.9 (0.8,1.3)	12	0.9 (0.7,1.7)	8	0.9 (0.7,1.6)	8	0.9 (0.7,1.4)	7	0.7 (0.5,1.0)	12	1.0 (0.9,1.0)	2
	O	1.2 (1.0,1.4)	127	1.1 (0.9,1.5)	124	1.0 (0.9,1.4)	119	0.9 (0.8,1.2)	105	0.9 (0.8,1.2)	90	0.9 (0.8,1.1)	74	0.8 (0.7,0.9)	127	0.8 (0.7,1.0)	25
	p[f]	0.43		0.16		0.21		0.20		0.26		0.27		0.97		0.06	
Sepsis EA	A	1.3 (0.9,2.1)	188	1.3 (0.9,2.0)	180	1.3 (0.9,1.9)	167	1.2 (0.8,1.9)	158	1.2 (0.8,1.9)	149	1.2 (0.8,1.8)	134	1.2 (0.8,1.9)	188	1.0 (0.7,1.5)	161
	B	1.3 (0.9,2.2)	40	1.0 (0.8,2.3)	36	1.0 (0.8,2.5)	34	0.9 (0.8,1.9)	33	0.8 (0.7,3.4)	26	1.0 (0.7,3.1)	23	0.9 (0.7,2.1)	40	1.0 (0.8,1.6)	32
	AB	1.4 (0.9,2.8)	19	1.3 (0.9,2.2)	19	1.0 (0.8,1.9)	17	1.0 (0.8,2.4)	15	1.1 (0.8,2.6)	14	1.0 (0.7,2.3)	15	1.1 (0.6,1.5)	19	1.2 (0.8,1.8)	15
	O	1.3 (0.8,2.0)	190	1.2 (0.8,1.9)	185	1.1 (0.7,1.8)	174	1.0 (0.7,1.8)	163	1.0 (0.7,1.8)	148	1.0 (0.7,1.8)	140	1.0 (0.7,2.0)	190	1.0 (0.7,1.4)	159
	p[f]	0.44		0.13		0.045		0.073		0.063		0.047		0.13		0.59	
Sepsis AA	A	1.4 (1.1,2.8)	76	1.5 (0.9,2.7)	72	1.4 (0.9,2.4)	68	1.3 (0.8,2.2)	64	1.2 (0.8,2.2)	60	1.2 (0.7,2.4)	56	1.2 (0.8,2.2)	76	1.2 (0.8,1.6)	53
	B	1.6 (1.1,2.5)	50	1.5 (1.0,2.4)	50	1.3 (0.8,2.3)	48	1.2 (0.8,2.2)	44	1.2 (0.7,1.9)	42	1.2 (0.7,1.6)	37	1.1 (0.8,1.6)	50	1.0 (0.7,1.6)	35
	AB	1.2 (1.0,2.3)	13	1.2 (0.7,2.5)	12	0.9 (0.7,1.8)	11	0.9 (0.8,1.0)	10	0.8 (0.7,0.9)	10	0.8 (0.8,1.4)	10	1.1 (0.7,1.8)	13	0.9 (0.7,1.4)	12
	O	1.6 (1.1,2.9)	103	1.4 (0.9,2.7)	98	1.2 (0.8,2.1)	96	1.1 (0.7,1.9)	89	1.1 (0.7,2.0)	83	1.2 (0.8,2.2)	73	1.0 (0.7,2.0)	103	1.1 (0.8,1.7)	74
	p[f]	0.50		0.70		0.22		0.27		0.46		0.89		0.35		0.78	

Cr = Creatinine, n. = number of patients with creatinine measured at each time point, EA = European ancestry, AA = African Ancestry.
[a]Initial Cr represents the first serum creatinine measurement (mg/dL) in the emergency department or upon intensive care unit presentation and did not differ by ABO blood type in any population.
[b]All patients had an initial creatinine available; however, the number of patients with a creatinine available on subsequent days decreased with each day due to the competing risks of death and discharge, affecting the daily analyses of creatinine by ABO blood type.
[c]The daily creatinines presented represent the highest creatinine measured on each study day. Patients who died, where discharged, or did not have an available creatinine were not included when median creatinine was generated.
[d]Last Cr represents the last measured creatinine in a patients entire hospitalization prior to discharge or death and was available in all patients.
[e]Prior Cr represents the lowest creatinine available in the medical record from the 6 months prior to enrollment in the trauma or sepsis cohorts. A prior creatinine was only available in 18% of trauma patients and 80% of sepsis patients and did not differ by ABO blood type in any population.
[f]P-values are for the Wilcoxon rank-sum test comparing the measured creatinine for blood type A to blood type O at each time point.

Supplemental Table 4. Severe sepsis qualifying new organ dysfunction by ABO blood type.

Organ Dysfunction[a]	Overall Cohort (n=752)	ABO Blood Type				p[i]
		A (n=283)	B (n=105)	AB (n=36)	O (n=328)	
Renal[b]	279 (37%)	100 (35%)	41 (39%)	12 (33%)	126 (38%)	0.79
Coagulation[c]	265 (35%)	115 (41%)	26 (25%)	15 (42%)	109 (33%)	0.020
Hepatic[d]	111 (15%)	52 (18%)	10 (10%)	6 (17%)	43 (13%)	0.093
Respiratory[e]	365 (49%)	147 (52%)	51 (49%)	19 (53%)	148 (45%)	0.29
Neurological[f]	138 (18%)	57 (20%)	14 (13%)	8 (22%)	59 (18%)	0.47
Hemodynamic[g]	440 (59%)	167 (59%)	54 (51%)	26 (72%)	193 (58%)	0.16
Hypoperfusion[h]	477 (63%)	176 (62%)	67 (64%)	28 (78%)	206 (63%)	0.18

[a]Organ dysfunctions were new onset and defined based on the American College of Chest Physicians consensus definition of severe sepsis. Only one organ dysfunction was required to qualify for severe sepsis; however, many patients had multiple organ dysfunctions at enrollment.
[b]Renal dysfunction was defined as a urine output <30 ml/hr for 2 hours or a creatinine increase >0.5 mg/dL
[c]Coagulation dysfunction was defined as an international normalized ratio >1.5, a partial thromboplastin time >60, or a platelet count <100,000/mm^3, unrelated to anticoagulant therapy.
[d]Hepatic dysfunction was defined as a total bilirubin >4mg/dL.
[e]Respiratory dysfunction was defined as a ratio of arterial partial pressure of oxygen to inspired fraction of oxygen of <300 or a ratio of oxygen saturation to inspired fractional of oxygen of <315.
[f]Neurologic dysfunction was defined as a Glasgow Coma Scale score <13.
[g]Hemodynamic dysfunction was defined as a systolic blood pressure ≤90 mmHg (or a >40 mmHg drop), or a mean arterial pressure ≤60 mm Hg.
[h]Hypoperfusion was defined as a lactate >2 mmol/L.
[i]P-values are for the Chi-square test comparing the counts of each organ dysfunction across the four ABO blood types.