

**Online Resource 7:** Study characteristics by Sepsis and AKI Severity + Temporality (AKI Severity gauged within first 48 hours, coinciding with Temporality assessment) (N=724)

Category, N (%)*	NO AKI (1) N=450 (62.2%)	MILD TRANSIENT AKI (2) N=92 (12.7%)	SEVERE TRANSIENT AKI (3) N=74 (10.2%)	MILD PERSISTENT AKI (4) N=32 (4.4%)	SEVERE PERSISTENT AKI (5) N=76 (10.5%)
<b>Demographics/Clinical</b>					
Age at ICU Admission (years)	3.8 (1.4, 11.9)	5.5 (1.7, 12.3)	5.7 (1.3, 12.7)	7.5 (1.3, 14.5)	5.9 (1.0, 13.5)
Male Gender	235 (52.2%)	48 (52.2%)	44 (59.5%)	16 (50%)	43 (56.6%)
Weight at ICU Admission (kg)	15.1 (9.7, 34)	19 (10.8, 44.1)	19.4 (9.4, 49.3)	23.4 (10.4, 48.1)	18.8 (9.8, 48.8)
Any Comorbid Conditions	377 (83.8%)	79 (85.9%)	66 (89.2%)	29 (90.6%)	63 (82.9%)
<b>Admission Diagnosis</b>					
Shock	239 (53.1%)	61 (66.3%)	57 (77%)	15 (46.9%)	58 (76.3%)
Medical Cardiac	13 (2.9%)	2 (2.2%)	3 (4.1%)	0 (0%)	4 (5.3%)
Respiratory Failure	218 (48.4%)	35 (38%)	26 (35.1%)	14 (43.8%)	41 (54%)
Post-Surgical/Minor Trauma	34 (7.6%)	6 (6.5%)	9 (12.2%)	1 (3.1%)	6 (7.9%)
CNS Dysfunction	99 (22%)	17 (18.5%)	19 (25.7%)	6 (18.8%)	10 (13.2%)
Pain/Sedation Management	8 (1.8%)	3 (3.3%)	3 (4.1%)	0 (0%)	0 (0%)
History of Transplant	17 (3.8%)	10 (10.9%)	9 (12.2%)	6 (18.8%)	10 (13.2%)
PRISM-III	4 (0, 10.5)	5 (0.5, 10.5)	11 (7, 22)	9 (7, 12)	10 (7, 16.5)
PIM-2	1.5 (1, 4)	1 (1, 3)	3 (1, 40)	2.5 (1, 5.5)	3 (1, 6)
PELOD	10 (1, 12)	10.5 (2, 12)	11.5 (10, 12)	12 (11, 22)	12 (11, 21)
Any Severity Score >75 <sup>th</sup> Percentile	65 (28.4%)	7 (18.9%)	13 (54.2%)	5 (29.4%)	16 (43.2%)
<b>Outcomes</b>					
Mechanical Ventilation Use	182 (43.3%)	33 (36.7%)	35 (49.3%)	21 (65.6%)	51 (67.1%)
CRRT Use	2 (0.4%)	0 (0%)	7 (9.5%)	3 (9.4%)	18 (23.7%)
ECMO Use	6 (1.3%)	0 (0%)	2 (2.7%)	2 (6.3%)	2 (2.6%)
28-Day Mortality	21 (4.7%)	4 (4.4%)	16 (21.6%)	3 (9.4%)	12 (15.8%)
28-Day MV-Free Days	24 (19, 26)	24 (21, 26)	22 (0, 26)	20.5 (4, 23.5)	19 (0, 23)
28-Day ICU-Free Days	24 (20, 25)	25 (20, 26)	24 (7, 25)	15 (8, 21)	18 (7, 22)
Complex ICU course	76 (16.9%)	14 (15.2%)	24 (32.4%)	16 (50%)	41 (54%)

AKI<sub>MT</sub> = MILD TRANSIENT AKI, AKI<sub>MP</sub> = MILD PERSISTENT AKI, AKI<sub>ST</sub> = SEVERE TRANSIENT AKI, AKI<sub>SP</sub> = SEVERE PERSISTENT AKI