Supplemental Material

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Supplemental Table 1: Summary of missing data.

Variable	Total (n)	Missing (n)	Missing (%)
Age	499	0	0
Sex	499	0	0
Charlson Comorbidity Score	498	1	0.2
CFS Score	462	37	7.4
SOFA Score	479	20	4.0
Cognitive Assessment	473	26	5.2
Pre-hospital Disposition	485	14	2.8
Diagnostic category	495	4	0.8
Mechanical Ventilation	482	17	3.4
Vasoactive Support	482	17	3.4
KRT Offered	499	0	0
KRT Initiated	499	0	0
Goals of Care Documentations	497	2	0.4
Vital status at 90 days	485	14	2.8
Abbreviations: CFS = Clinical Frailty Scale Score; SOFA = Sequential Organ Failure Assessment; KRT = Kidney Replacement Therapy			

Supplemental Table 2: Summary of patient characteristics stratified by whether ICU clinicians would be willing to offer RRT for treatment of severe AKI.

Variable	Willingness to Offer KRT		p-value
	Yes (n=361; 72%)	No (n=138; 28%)	
Age (mean [±SD]), years	74.9 (7.1)	76.0 (7.5)	0.14
Female sex, (n, %)	153 (42)	51 (37)	0.32
Charlson score, (mean [±SD])	2.8 (2.3)	3.3 (2.4)	0.05
Comorbid diseases, (n, %)			
Heart failure	83 (23)	35 (25)	0.67
Chronic obstructive pulmonary disease	95 (26)	49 (36)	0.06
Connective tissue disease	25 (7)	7 (5.1)	0.59
Diabetes mellitus	147 (41)	51 (37)	0.49
Peripheral vascular disease	48 (13)	29 (21)	0.05
Any cancer	61 (17)	31 (23)	0.20
Chronic liver disease	11 (3)	6 (4)	0.66
CFS Score (mean [±SD])	3.8 (2)	4.3 (2)	0.003
CFS Score ≥5	89 (27)	52 (40)	0.006
Cognition (CSI-D screen), (n, %)†			
Dementia	14 (4)	9 (8)	0.40
Impaired – not demented	52 (17)	20 (17)	
No impairment	250 (79)	89 (75)	
Pre-hospital location			
Home – independent	254 (72)	88 (66)	0.35
Home – with assistance	71 (20)	34 (2)	
Assisted living	26 (7)	12 (9)	
Hospitalized in prior 6 months, (n, %)	133 (38)	59 (44)	0.25
Primary diagnostic category, (n, %)			<0.0001§
Cardiovascular	76 (21)	54 (40)	
Respiratory	76 (21)	26 (19)	
Gastrointestinal/hepatic	42 (12)	14 (10)	
Metabolic/endocrine	39 (11)	4 (3)	
Neurologic	6 (2)	5 (4)	
Hematologic/oncologic	8 (2)	1 (1)	
Sepsis	106 (29)	27 (20)	
Trauma	7 (2)	4 (3)	
APACHE II score (mean [±SD])	28.7 (9)	25.9 (9)	0.001
SOFA score (mean [±SD])	10.7 (4)	10.3 (4)	0.38
Mechanical ventilation (n, %)	239 (68)	80 (63)	0.36
Vasoactive support (n, %)	233 (66)	81 (63)	0.68
Blood transfusion (n, %)	17 (5)	6 (5)	1.0
Total parenteral nutrition (n, %)	6 (2)	4 (3)	0.54
Baseline serum creatinine, (mean [±SD])	131 (102)	105 (56)	0.001
Baseline eGFR, (mean [±SD])	53 (32)	64 (27)	<0.0001
Peak serum creatinine, (mean [±SD])	432 (289)	289 (135)	<0.0001
Goals of care change during ICU admission (n, %)	253 (71)	68 (49)	<0.0001
Goals of care at ICU discharge (n, %)			0.09
Full support	186 (77)	53 (66)	
No CPR but ICU readmission	37 (15)	14 (18)	
No CPR with no ICU readmission	20 (8)	13 (16)	

† Not available/completed (n=26)

§This p-value is for grouping small categories of Hematologic, Neurologic and Trauma together

Abbreviations: APACHE: Acute Physiology and Chronic Health Evaluation; CFS: Clinical Frailty Scale Score; eGFR: estimated glomerular filtration rate; ICU: intensive care unit; SOFA: Sequential Organ Failure Assessment

Supplemental Table 3: Sensitivity analysis for willingness to offer RRT with imputation of missing data.

	No Imputation			Imputation		
	Effect	**95% CI Upper**	**95% CI Lower**	**Effect**	**95% CI Lower**	**95% CI Upper**
Age at enrollment (per 1 year increase)	-0.02	-0.06	0.02			
Odds Ratio	0.98	0.94	1.02	0.98	0.95	1.01
CCI score (per 1 unit increase)	-0.14	-0.26	-0.02			
Odds Ratio	0.87	0.77	0.98	0.93	0.85	1.02
CFS score (per 1 unit increase)	-0.14	-0.36	0.09			
Odds Ratio	0.87	0.69	1.09	0.80	0.65	0.97
SOFA score (per 1 unit increase)	0.18	0.09	0.27			
Odds Ratio	1.19	1.09	1.30	1.01	0.95	1.08
Female sex	0.31	-0.22	0.85			
Odds Ratio	1.37	0.80	2.35	1.38	0.88	2.18
Cognitive assessment:						
No impairment						
Demented	-0.57	-1.84	0.71			
Odds Ratio	0.57	0.16	2.03	0.58	0.19	1.70
Impairment – not demented	-0.02	-0.78	0.74			
Odds Ratio	0.98	0.46	2.09	0.98	0.50	1.92
Goals of Care documentation	-0.87	-1.38	-0.35			
Odds Ratio	0.42	0.25	0.71	0.44	0.28	0.69
Mechanical ventilation	-0.45	-1.14	0.24	0.23	-0.33	0.78
Odds Ratio	0.64	0.32	1.27	1.25	0.72	2.18
Vasoactive support	-0.79	-1.52	-0.05	-0.14	-0.68	0.4
Odds Ratio	0.46	0.22	0.95	0.87	0.5	1.5
Pre-hospital disposition						
Home independent	-	-	-	-	-	-
Assisted living facility/nursing home	0.67	-0.49	1.83			
Odds Ratio	1.95	0.61	6.26	1.41	0.52	3.77
Home with assistance	0.27	-0.50	1.05			
Odds Ratio	1.31	0.60	2.84	1.25	0.65	2.40
Diagnostic Category						
Septic	-	-	-	-	-	-
Cardiovascular	-0.69	-1.38	0.00			
Odds Ratio	0.50	0.25	1.00	0.38	0.21	0.68
Gastrointestinal/hepatic	0.01	-0.87	0.89			
Odds Ratio	1.01	0.42	2.42	0.68	0.31	1.50
Hematologic	0.99	-1.35	3.33			
Odds Ratio	2.68	0.26	27.81	1.78	0.20	15.80
Metabolic/endocrine	1.48	0.12	2.84			
Odds Ratio	4.40	1.13	17.19	2.79	0.88	8.87
Neurologic	-0.60	-2.46	1.26			
Odds Ratio	0.55	0.09	3.53	0.31	0.08	1.18
Respiratory	0.20	-0.60	1.00			
Odds Ratio	1.22	0.55	2.71	0.74	0.38	1.43
Trauma	-1.44	-3.26	0.39			
Odds Ratio	0.24	0.04	1.47	0.38	0.10	1.51
The Hosmer-Lemeshow goodness of fit test was performed using a range of groupings from 5-15. The resulting p-values ranged from 0.37 to 0.82 indicating a good fit. Additionally, the model was assessing using Bootstrap validation. Minimal overfit was found with the slope value 0.81 indicating a slight shrinkage factor of model coefficients would be necessary.						

Supplemental Table 4: Primary triggers for starting KRT and reasons for not starting KRT as judged by ICU clinicians, stratified by vital status at 90-days.

Reasons for Starting KRT (n, %)	**(n,%)**	**Vital status at 90 days (n, %)§**		**p**
	229	**Dead (n=112)**	**Alive (n=110)**	
Hyperkalemia‡	51 (22)	27 (24)	23 (21)	0.68
Acidemia†	75 (33)	44 (39)	29 (26)	0.06
Hypoxemia due to pulmonary edemaϕ	18 (8)	8 (7)	10 (9)	0.78
Fluid overload¶	81 (35)	37 (33)	42 (38)	0.51
Oligo-anuriaY	169 (74)	92 (82)	73 (66)	0.01
AzotemiaΨ	64 (28)	31 (28)	29 (26)	0.95
OtherK	15 (7)	5 (5)	10 (9)	0.27
2 or more indications	199 (40)	84 (34)	110 (46)	0.008
3 or more indications	111 (22)	38 (15)	72 (30)	<0.001
Reasons for Not Starting KRT	**270**	**(n=135)**	**(n=128)**	
Anticipated kidney recovery	181 (67)	58 (43)	116 (91)	<0.001
Death/deterioration prior to starting KRT	26 (10)	26 (19)	0 (0)	<0.001
Withholding or withdrawal of life-sustaining therapy	29 (11)	29 (22)	0 (0)	<0.001
Not consistent with patient goals-of-care	66 (24)	56 (42)	10 (8)	<0.001
Clinician perception that age too advanced	2 (1)	1 (1)	1 (1)	1.0
Clinician perception that patient not expected to benefit	19 (7)	15 (11)	4 (3)	0.02

Triggers for starting KRT and reasons for not starting KRT are not mutually exclusive.

§ In total, nine subjects withdrew consent before 90 days, five were lost to follow-up, and within these, data were missing for seven.

‡ Hyperkalemia defined as K+ ≥6.5 mmol/L or cardiac toxicity; †acidemia defined as pH <7.10; ϕ hypoxemia due to pulmonary edema defined as P_aO_2/FiO_2 ratio < 200 and clinical perception of pulmonary edema; ¶ fluid overload defined as cumulative percent fluid overload (%FO) > 5-10% or clinical perception; Y oligo-anuria defined as urine output <400 mL/24 hr; Ψ azotemia defined as serum urea ≥ 30 mmol/L or perception of uremic complications; K other included: acute tubular necrosis (n=2); cardiogenic shock (n=1); heart failure (n=1); devascularized kidney (n=1); hyperphosphatemia (n=1); rhabdomyolysis)(n=1); major vascular injury (n=1); sepsis (n=1); elevated lactate (n=1); elevated liver enzymes (n=1); other (n=4).

Abbreviations: ICU: intensive care unit; KRT: kidney replacement therapy

Supplemental Table 5: Summary of patient characteristics stratified by whether patients received KRT for treatment of severe AKI.

Variable	Receipt of KRT in ICU		p-value
	KRT (n=229; 46%)	No KRT (n=270; 54%)	
Age (mean [±SD]), years	73.6 [±6.4]	76.6 [±7.6]	<0.001
Female sex, (n, %)	93 (41)	111 (41)	0.98
Charlson score, (mean [±SD])	3.0 [±2.3]	3.0 [±2.3]	0.95
Comorbid diseases, (n, %)			
Heart failure	45 (20)	73 (27)	0.06
Chronic obstructive pulmonary disease	55 (24)	89 (33)	0.03
Connective tissue disease	14 (6)	18 (7)	0.94
Diabetes mellitus	96 (42)	102 (38)	0.41
Peripheral vascular disease	96 (42)	102 (38)	0.79
Any cancer	41 (18)	51 (20)	0.85
Chronic liver disease	6 (3)	11 (4)	0.51
CFS Score (mean [±SD])	3.7 [±1.5]	4.1 [±1.6]	0.008
CFS score ≥5, (n,%)	53 (25)	85 (37)	0.01
Cognition (CSI-D screen), (n, %)†			
Dementia	10 (5)	13 (6)	0.85
Impaired – not demented	36 (17)	36 (16)	
No impairment	162 (78)	177 (78)	
Pre-hospital location			
Home – independent	171 (76)	171 (66)	0.02
Home – with assistance	45 (20)	60 (23)	
Assisted living	10 (4)	28 (11)	
Hospitalized in prior 6 months, (n, %)	87 (38)	105 (40)	0.79
Primary diagnostic category, (n, %)			<0.0001§
Cardiovascular	48 (21)	82 (31)	
Respiratory	45 (20)	57 (21)	
Gastrointestinal/hepatic	23 (10)	33 (12)	
Metabolic/endocrine	29 (13)	14 (5)	
Neurologic	1 (0.4)	10 (4)	
Hematologic/oncologic	2 (1)	7 (3)	
Sepsis	77 (34)	56 (21)	
Trauma	3 (1)	8 (3)	
APACHE II score (mean [±SD])	30.2 [±8.4]	26.1 [±8.6]	<0.0001
SOFA score (mean [±SD])	11.7 [±3.8]	9.6 [±4.2]	<0.001
Mechanical ventilation (n, %)	167 (74)	152 (59)	<0.001
Vasoactive support (n, %)	173 (77)	141 (55)	<0.001
Blood transfusion (n, %)	14 (6)	9 (4)	0.24
Total parenteral nutrition (n, %)	4 (2)	6 (2)	0.91
Baseline serum creatinine, (mean [±SD])	141 [±98]	109 [±84]	<0.0001
Baseline eGFR, (mean [±SD])	48 [±30]	63 [±30]	<0.0001
Peak serum creatinine, (mean [±SD])	490 [±259]	310 [±238]	<0.0001
Goals of care documentation at ICU admission	160 (69)	161 (60)	0.03

† Not available/completed (n=26)
§This p-value is computed by comparing distribution of patients among groups, but with small categories of Hematologic, Neurologic and Trauma grouped together
Abbreviations: APACHE: Acute Physiology and Chronic Health Evaluation; CFS: Clinical Frailty Scale Score; eGFR: estimated glomerular filtration rate; ICU: intensive care unit; SOFA: Sequential Organ Failure Assessment; KRT: kidney replacement therapy

Supplemental Table 6: Sensitivity analysis for receipt of KRT with imputation of missing data.

	No Imputation			Imputation		
	Effect	**95% CI Lower**	**95% CI Upper**	**Effect**	**95% CI Lower**	**95% CI Upper**
Age at enrollment (per 1 year increase)	-0.06	-0.1	-0.03	-0.06	-0.09	-0.03
Odds Ratio3	0.94	0.91	0.97	0.94	0.91	0.97
CCI score (per 1 unit increase)	0.01	-0.10	0.12	0.01	-0.08	0.1
Odds Ratio	1.01	0.90	1.12	1.01	0.92	1.1
CFS score (per 1 unit increase)	-0.13	-0.34	0.08	-0.15	-0.34	0.04
Odds Ratio	0.88	0.71	1.09	0.86	0.71	1.04
SOFA score (per 1 unit increase)	0.27	0.18	0.36	0.1	0.03	0.16
Odds Ratio	1.31	1.2	1.43	1.1	1.04	1.17
Female sex	0.02	-0.47	0.52	0.03	-0.38	0.45
Odds Ratio	1.02	0.62	1.67	1.03	0.68	1.57
Cognitive assessment:						
No impairment	-	-	-	-	-	-
Demented	0.85	-0.49	2.19	0.73	-0.48	1.94
Odds Ratio	2.34	0.61	8.89	2.07	0.62	6.95
Impairment – not demented	0.34	-0.4	1.08	0.41	-0.23	1.06
Odds Ratio	1.41	0.67	2.95	1.51	0.8	2.87
Mechanical ventilation	-0.29	-0.95	0.37	0.2	-0.33	0.73
Odds Ratio	0.75	0.39	1.44	1.22	0.72	2.07
Vasoactive support	-0.33	-0.99	0.33	0.55	0.05	1.04
Odds Ratio	0.72	0.37	1.39	1.73	1.05	2.84
Pre-hospital disposition						
Home independent	-	-	-	-	-	-
Assisted living facility/nursing home	-0.91	-2.13	0.31	-1.07	-2.09	-0.05
Odds Ratio	0.4	0.12	1.37	0.34	0.12	0.96
Home with assistance	0.12	-0.6	0.85	-0.07	-0.69	0.55
Odds Ratio	1.13	0.55	2.35	0.93	0.5	1.73
Diagnostic Category						
Septic	-	-	-	-	-	-
Cardiovascular	-0.81	-1.46	-0.17	-0.95	-1.49	-0.41
Odds Ratio	0.44	0.23	0.85	0.39	0.23	0.66
Gastrointestinal/hepatic	-0.37	-1.17	0.44	-0.53	-1.24	0.18
Odds Ratio	0.69	0.31	1.55	0.59	0.29	1.2
Hematologic	-1.42	-3.32	0.48	-1.29	-2.99	0.4
Odds Ratio	0.24	0.04	1.61	0.27	0.05	1.49
Metabolic/endocrine	1.34	0.39	2.28	1.08	0.26	1.89
Odds Ratio	3.81	1.48	9.82	2.93	1.3	6.62
Neurologic	-2.25	-4.73	0.22	-2.29	-4.47	-0.12
Odds Ratio	0.11	0.01	1.25	0.1	0.01	0.89
Respiratory	0.02	-0.69	0.73	-0.22	-0.81	0.37
Odds Ratio	1.02	0.5	2.08	0.8	0.44	1.44
Trauma	-1.2	-3.16	0.76	-1.21	-2.73	0.3
Odds Ratio	0.3	0.04	2.14	0.3	0.07	1.36
Abbreviations: CCI = Charlson comorbidity index; CFS = Clinical Frailty Scale Score; SOFA = Sequential Organ Failure Assessment; KRT = kidney replacement therapy						
The Hosmer-Lemeshow goodness of fit test was performed using a range of groupings from 5-15. The resulting p-values ranged from 0.34 to 0.94 indicating a good fit. Additionally, the model was assessing using Bootstrap validation. Minimal overfit was found with the slope value 0.81 indicating a slight shrinkage factor of model coefficients would be necessary.						

Supplemental Table 7: Summary of three different multivariable Cox regression analyses for the association between receipt of KRT and 90-day mortality evaluating i) complete case series (no imputation); ii) imputation for missing covariate data; and 3) consideration for the time-varying effect of timing of initiation of KRT on outcome.

	No Imputation			**Imputation**			**Time Dependent for KRT Initiation**		
Variable	**Effect**	**95% CI Lower**	**95% CI Upper**	**Effect**	**95% CI Lower**	**95% CI Upper**	**Effect**	**95% CI Lower**	**95% CI Upper**
Age at enrollment (per 1 year increase)	0.03	0.01	0.05	0.03	0.01	0.04	0.02	0.00	0.04
Hazard Ratio	1.03	1.01	1.05	1.03	1.01	1.04	1.02	1.00	1.04
CCI (per 1 unit increase)	0.06	0.00	0.12	0.05	0.00	0.11	0.03	-0.02	0.08
Hazard Ratio	1.06	1.00	1.12	1.05	1.00	1.11	1.03	0.98	1.08
SOFA (per 1 unit increase)	0.03	-0.01	0.07	0.04	0.00	0.07	0.03	0.00	0.07
Hazard Ratio	1.03	0.99	1.07	1.04	1.00	1.08	1.03	1.00	1.07
KRT started in ICU	-0.24	-0.55	0.06	-0.32	-0.60	-0.04	0.27	0.00	0.54
Hazard Ratio	0.78	0.58	1.06	0.72	0.55	0.96	1.31	1.00	1.72
Female sex	0.17	-0.10	0.45	0.13	-0.13	0.38	0.07	-0.17	0.31
Hazard Ratio	1.19	0.91	1.56	1.14	0.88	1.46	1.07	0.85	1.36
Worst AKI Stage 2 or 3	-0.30	-0.70	0.11	-0.29	-0.66	0.07	-0.45	-0.82	-0.08
Hazard Ratio	0.74	0.50	1.11	0.75	0.52	1.08	0.64	0.44	0.92
Mechanical ventilation	0.42	0.06	0.77	0.44	0.10	0.78	0.38	0.06	0.7
Hazard Ratio	1.52	1.07	2.17	1.55	1.10	2.18	1.46	1.07	2.01
Vasoactive support	0.47	0.12	0.81	0.46	0.11	0.82	0.56	0.25	0.87
Hazard Ratio	1.60	1.13	2.26	1.59	1.12	2.27	1.74	1.28	2.38
Diagnostic Category									
Septic	-	-	-	-	-	-	-	-	-
Cardiovascular	-0.04	-0.42	0.34	-0.14	-0.49	0.21	-0.15	-0.47	0.18
Hazard Ratio	0.96	0.66	1.40	0.87	0.61	1.23	0.86	0.62	1.19
Gastrointestinal/hepatic	0.15	-0.31	0.61	-0.07	-0.51	0.38	-0.06	-0.48	0.36
Hazard Ratio	1.16	0.73	1.84	0.93	0.60	1.46	0.94	0.62	1.43
Hematologic	-0.37	-1.54	0.81	-0.55	-1.71	0.62	-0.63	-1.79	0.54
Hazard Ratio	0.69	0.21	2.24	0.58	0.18	1.86	0.53	0.17	1.71
Metabolic	0.00	-0.56	0.56	0.09	-0.41	0.60	-0.02	-0.53	0.48
Hazard Ratio	1.00	0.57	1.76	1.10	0.66	1.83	0.98	0.59	1.62
Neurologic	0.9	0.08	1.73	0.78	0.02	1.55	0.66	-0.09	1.41
Hazard Ratio	2.47	1.08	5.62	2.19	1.02	4.70	1.94	0.91	4.12
Respiratory	0.19	-0.20	0.59	0.13	-0.23	0.49	0.25	-0.08	0.58
Hazard Ratio	1.21	0.82	1.80	1.14	0.79	1.64	1.28	0.92	1.78
Trauma	-0.30	-1.33	0.73	-0.50	-1.43	0.42	-0.34	-1.26	0.57
Hazard Ratio	0.74	0.26	2.08	0.60	0.24	1.52	0.71	0.28	1.77

FORM 1: OPTIMAL Selection for and Timing to Start Renal Replacement in Critically Ill Older Patients with **A**cute **K**idney **I**njury (**OPTIMAL-AKI**)

Version 8 – February 2, 2015

Enrolment/Subject ID #: ☐☐☐ - ☐☐☐☐

Patient Initials: ☐☐☐

FORM 1 –ELIGIBILITY	
Date of eligibility (dd/mmm/yyyy) ☐☐/☐☐☐/☐☐☐☐	
INCLUSION CRITERIA (Each of criteria 1 through 3 must be fulfilled)	
1. Age ≥ 65 years (on the day of ICU admission)	☐ Y ☐ N
2. Admission to an intensive care unit (ICU)	☐ Y ☐ N
3. Evidence of AKI, defined by at least ONE of the following criteria:	
i) 3-fold increase in serum creatinine from a known pre-morbid baseline§ (see definition below); OR	☐ Y ☐ N
ii) Achieved a serum creatinine > 354 mcmol/L with a minimum increase of 27 mcmol/L or 50% from pre-morbid baseline § (see definition below); OR	☐ Y ☐ N
iii) Urine output < 7.2 mL/kg during past 24 hours ; OR	☐ Y ☐ N
iv) Complete anuria for 12 hours; OR	☐ Y ☐ N
v) 2-fold increase in serum creatinine from a known pre-morbid baseline § (see definition below); and total urine output < 6.0 mL/kg over the preceding 12 hours (or prorated <2 mL/kg over 4 hours)	☐ Y ☐ N
§ Baseline (pre-morbid) serum creatinine will be defined as the outpatient serum creatinine closest to the date of hospitalization and within 365 days prior to index hospitalization or if unavailable, the lowest serum creatinine documented during the current hospitalization. Please insert value used	☐☐☐ μmol/L
EXCLUSION CRITERIA (Any one criterion fulfilled and the patient is ineligible)	
4. Presence of a drug overdose/toxicity that necessitates RRT initiation	☐ Y ☐ N
5. Receipt of any form of RRT in the past 4 weeks [includes receipt of chronic dialysis (hemodialysis or peritoneal dialysis) for end-stage kidney disease (ESKD) or any dialysis for AKI]	☐ Y ☐ N
ELIGIBILITY	
According to the screening criteria above, is the patient eligible for the study?	☐ Y ☐ N
If NO → PATIENT IS EXCLUDED → skip to signature block	
INFORMED CONSENT	
Was Informed Consent obtained from patient or SDM?	☐ Y ☐ N
Date/time of consent (dd/mmm/yyyy: 24hh/mm) ☐☐/☐☐☐/☐☐☐☐:☐☐/☐☐	
Was enrollment by deferral of consent?	☐ Y ☐ N

FORM 2 - BASELINE SOCIO-DEMOGRAPHIC INFORMATION

Year of birth (yyyy)	☐☐☐☐	
Sex:	[ ] Male [ ] Female	
Weight (estimated or measured):	☐☐☐.☐ kg	
Height (estimate or measured):	☐☐☐ cm	
Date of First Hospital Admission (dd/mmm/yyyy):	☐☐/☐☐☐/☐☐☐☐	
If patient was transferred from the admitting hospital to the study hospital, please indicate date (dd/mmm/yyyy):	☐☐/☐☐☐/☐☐☐☐ ☐ N/A, not transferred	
Date of ICU Admission at study hospital's ICU (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐	
Pre-hospital location	☐ Home independent ☐ Home with assistance ☐ Assisted living facility/nursing home	
GOC discussion/documentation at time of ICU admission	☐ Y ☐ N	
Pre-hospital inventory of ADL (Katz Index)	**Independent**	**Dependent/Incapable**
Bathing	☐	☐
Dressing	☐	☐
Toileting	☐	☐
Transferring	☐	☐
Continence	☐	☐
Feeding	☐	☐
Frailty Status (Clinical Frailty Scale [CFS] score)	☐ **(CFS score range 1-8 – see worksheet)**	
Cognitive assessment (score < 2 = demented) (score ≥ 2 and ≤ 4 = impairment – not demented) (score ≥ 5 =no impairment)	☐ No impairment ☐ Impairment – not demented ☐ Demented ☐ Not available	
Hospitalized in prior 6-months	☐ Y ☐ N	
ICU admission in prior 6-months	☐ Y ☐ N	

FORM 3 - DIAGNOSTIC CLASSIFICATION

Most responsible diagnosis for ICU admission (specify):	_____
Diagnostic category	
Cardiovascular	☐ Y ☐ N
Respiratory	☐ Y ☐ N
Gastrointestinal/hepatic	☐ Y ☐ N
Neurologic	☐ Y ☐ N
Metabolic	☐ Y ☐ N
Hematologic	☐ Y ☐ N
Septic	☐ Y ☐ N
Trauma	☐ Y ☐ N
Pre-hospital AKI Risk Factors (clinical diagnosis)	
Baseline serum creatinine¶	☐☐☐ μmol/L
Baseline estimated GFR based on CKD-EPI formula (online calculator at: http://www.qxmd.com/calculate-online/nephrology/ckd-epi-egfr)	☐☐☐.☐ mL/min/1.73m²
Hypertension	☐ Y ☐ N
Diabetes Mellitus	☐ Y ☐ N
Heart Failure	☐ Y ☐ N
Hospital-Acquired AKI Risk Factors	
Cardiac surgery with CPB (preceding 7 days)	☐ Y ☐ N
Aortic surgery/aneurysm repair (preceding 7 days)	☐ Y ☐ N
Major non-aortic vascular surgery (preceding 7 days)	☐ Y ☐ N
Major (non-cardiovascular) surgery (preceding 7 days)	☐ Y ☐ N
Trauma (preceding 7 days)	☐ Y ☐ N
IV contrast media exposure (preceding 7 days)	☐ Y ☐ N
Receipt of aminoglycoside/amphotericin (preceding 7 days)	☐ Y ☐ N
Sepsis (suspected or diagnosed in preceding 72 hours)	☐ Y ☐ N

¶ *Baseline (pre-morbid) serum creatinine will be defined as the outpatient serum creatinine closest to the date of hospitalization and within 365 days prior to index hospitalization or if unavailable, the lowest serum creatinine documented during the current hospitalization.*

FORM 4 – BASELINE COMORBID ILLNESSES

Charlson Co-morbidity Score Components		**Weight**
Myocardial infarction	☐ Y ☐ N	1
Congestive heart failure	☐ Y ☐ N	1
Peripheral vascular disease	☐ Y ☐ N	1
Dementia	☐ Y ☐ N	1
Chronic pulmonary disease	☐ Y ☐ N	1
Connective tissue disease	☐ Y ☐ N	1
Ulcer disease	☐ Y ☐ N	1
Diabetes	☐ Y ☐ N	1
Hemiplegia	☐ Y ☐ N	2
Moderate or severe renal disease	☐ Y ☐ N	2
Diabetes with end-organ damage	☐ Y ☐ N	2
Any tumour	☐ Y ☐ N	2
Leukemia	☐ Y ☐ N	2
Lymphoma	☐ Y ☐ N	2
Moderate to severe chronic liver disease	☐ Y ☐ N	3
Metastatic solid tumour	☐ Y ☐ N	6
AIDS (not simply HIV positive status)	☐ Y ☐ N	6
Total Score		

FORM 5 - BASELINE PHYSIOLOGIC/LABORATORY DATA

Physiologic/laboratory parameters (within 24 hours preceding eligibility)			
Temperature (^{O}C)	Min: ☐☐.☐ Max: ☐☐.☐ ☐ Not Available	Hemoglobin (g/L)	High: ☐☐☐ Low: ☐☐☐ ☐ Not Available
Glasgow Coma Scale	Min: ☐☐ Max: ☐☐ ☐ Not Available	White cell count (10^3 cells/mm^3)	High: ☐☐☐.☐ Low: ☐☐☐.☐ ☐ Not Available
Heart Rate (beats/min)	Min: ☐☐☐ Max: ☐☐☐ ☐ Not Available	Platelets (10^3 cells/mm^3)	High: ☐☐☐ Low: ☐☐☐ ☐ Not Available
Respiratory Rate (breaths/min)	Min: ☐☐ Max: ☐☐ ☐ Not Available	Serum Na^+ (mEq/L)	High: ☐☐☐ Low: ☐☐☐ ☐ Not Available
Systolic BP (mmHg)	Min: ☐☐☐ Max: ☐☐☐ ☐ Not Available	Serum K^+ (mEq/L)	High: ☐☐.☐ Low: ☐☐.☐ ☐ Not Available
Diastolic BP (mmHg)	Min: ☐☐☐ Max: ☐☐☐ ☐ Not Available	Serum $HCO3^-$ (mEq/L)	High: ☐☐☐ Low: ☐☐☐ ☐ Not Available
MAP (mmHg)	Min: ☐☐☐ Max: ☐☐☐ ☐ Not Available	Serum pH	High: ☐.☐☐ Low: ☐.☐☐ ☐ Not Available
CVP (mmHg)	Min: ☐☐ Max: ☐☐ Not Available: ☐	Serum Lactate (mmol/L)	High: ☐☐.☐ Low: ☐☐.☐ ☐ Not Available
Lowest PaO2/ FiO2 ratio	☐☐☐ ☐ Not Available	Urine output (24 hr) Hours of Urine Collection	☐☐☐☐ mL ☐ Not Available ☐☐.☐☐ hr
Fluid balance (24 hr) (mL)	±☐ ☐☐☐☐☐ ☐ Not Available	Cumulative fluid balance (72 hr) (mL)	±☐ ☐☐☐☐☐ ☐ Not Available
APACHE II score (at ICU admission)	☐☐ ☐ Not Available	SOFA score (24 hours of eligibility)	☐☐ ☐ Not Available

FORM 6 - AKI AND DECISION TO INITIATE RRT

AKI AND RRT PARAMETERS	
Date of 1st AKI diagnosis in ICU (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
Worst AKI stage achieved in ICU *(RIFLE/KDIGO class)*	☐ Injury/Stage II ☐ Failure/Stage III
Date of worst AKI (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
Peak serum creatinine (current ICU admission)	☐☐☐ µmol/L
Date of peak serum creatinine (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
Peak serum urea (current ICU admission)	☐☐☐ mmol/L ☐ Not Available
Date of peak serum urea (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
If indicated, would RRT ever be initiated in this patient? *(obtained from intensivist/ – at time of patient eligibility)*	☐ Y ☐ N
During this patient's course in ICU, was RRT initiated? *(obtained from intensivist)*	☐ Y ☐ N
If started, date of RRT initiation (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
If started, please indicate the reason(s) why RRT initiated *(check all that apply)* *(obtained from intensivist/)*	☐ Hyperkalemia ☐ Acidemia ☐ Hypoxemia due to edema ☐ Fluid overload/accumulation ☐ Oligo-anuria ☐ Azotemia (urea >30 mmol/L) or uremia ☐ Other (Specify: _____)
If RRT was not started in this patient during their ICU course, please indicate the reason(s) why RRT was not initiated *(check all that apply)* *(obtained from intensivist/– at ICU discharge/death)*	1. ☐ Recovered kidney function 2. ☐ Death/deterioration prior to starting RRT 3. ☐ Limitation/withdrawal of medical therapy 4. ☐ Not consistent with patient "goals-of-care" 5. ☐ Not offered because age too advanced 6. ☐ Not offered because not expected to benefit 7. ☐ Other (Specify: _____)

FORM 7 – CLINICAL/PHYSIOLOGIC/LABORATORY DATA FROM AKI DIAGNOSIS

Assessment Day After Eligibility (Day 0)**	**Day 1**	**Day 3**	**Day 7**	**Day 10**	**Day 14**	**Day 28**
Date (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐	☐☐/☐☐☐/☐☐☐☐	☐☐/☐☐☐/☐☐☐☐	☐☐/☐☐☐/☐☐☐☐	☐☐/☐☐☐/☐☐☐☐	☐☐/☐☐☐/☐☐☐☐
Details related to AKI (worst value on day of assessment)						
Creatinine (µmol/L)	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐
Urea (mmol/L)	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐
Urine output (mL)	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐	☐☐☐☐☐
Hours of Urine Collection	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐	☐☐.☐☐
Cumulative fluid balance (mL)	±☐☐☐☐☐	±☐☐☐☐☐	±☐☐☐☐☐	±☐☐☐☐☐	±☐☐☐☐☐	±☐☐☐☐☐
Serum Na^+ (mEq/L)	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐	☐☐☐
Serum $HCO3^-$ (mEq/L)	☐☐	☐☐	☐☐	☐☐	☐☐	☐☐
Serum K^+ (mEq/L)	☐☐.☐	☐☐.☐	☐☐.☐	☐☐.☐	☐☐.☐	☐☐.☐
AKI Present	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
AKI Stage III Present	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Details related to RRT						
Receiving RRT	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
If not, reason(s)? (check all that apply)	☐Not clinically indicated ☐Not part of GOC	☐Not clinically indicated ☐Not part of GOC	☐Not clinically indicated ☐Not part of GOC	☐Not clinically indicated ☐Not part of GOC	☐Not clinically indicated ☐Not part of GOC	☐Not clinically indicated ☐Not part of GOC
Interventions during the 24 hour assessment day						
Mechanical ventilation	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Vasoactive support	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Furosemide	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Other diuretic	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Enteral nutrition	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
TPN	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Red cell transfusion	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
Transfused other products	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N	☐ Y ☐ N
SOFA (worst score for each parameter during the 24 hour assessment day) (score 0-4)						
CV	☐	☐	☐	☐	☐	☐
Respiratory	☐	☐	☐	☐	☐	☐
CNS	☐	☐	☐	☐	☐	☐
Liver	☐	☐	☐	☐	☐	☐
Coagulation	☐	☐	☐	☐	☐	☐
Renal	☐	☐	☐	☐	☐	☐
SCORE	☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

*** Data obtained from index ICU admission associated with study enrolment only.*

FORM 8 - ADVERSE EVENTS IN ICU

ADVERSE EVENTS (while in ICU or until 28 days after eligibility if still in ICU)	
Date of occurrence of AE	☐☐/☐☐☐/☐☐☐☐
Adverse Event number	☐☐
Was AE classified as a serious adverse event (SAE)*	☐ Y ☐ N
RRT-related Adverse Event	
CVC insertion – arterial puncture	☐ Y ☐ N
CVC insertion – bleeding (transfusion required)	☐ Y ☐ N
CVC insertion – pneumothorax/hemothorax (chest drain required)	☐ Y ☐ N
CVC insertion – thrombus (ultrasound confirmed)	☐ Y ☐ N
CVC insertion – air embolism	☐ Y ☐ N
RRT related – hypotension (requiring fluid bolus/addition of vasopressor)	☐ Y ☐ N
RRT related – hypokalemia (K^+ <3.00 mmol/L)	☐ Y ☐ N
RRT related – hypophosphatemia (PO_4^- <0.50 mmol/L)	☐ Y ☐ N
RRT related – hypocalcemia (ionized Ca^+ <0.85 mmol/L)	☐ Y ☐ N
RRT related – arrhythmia	☐ Y ☐ N
RRT related – seizure	☐ Y ☐ N
RRT related – bleeding (transfusion required)	☐ Y ☐ N

*A serious adverse event meets one or more of the following criteria:

- Results in death
- Is life-threatening
- Requires inpatient hospitalization or prolongation of existing hospitalization
- Creates persistent or significant disability / incapacity
- A congenital anomaly / birth defect(s)

FORM 9 – HOSPITAL and 90-DAY OUTCOMES

ICU Discharge	
Alive at ICU Discharge	☐ Y ☐ N ☐ N/A (still in ICU)
Date of ICU discharge (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
Receiving RRT at ICU Discharge	☐ Y ☐ N
Creatinine (μmol/L) (if not receiving RRT)	☐☐☐
Urea (mmol/L) (if not receiving RRT)	☐☐☐
GOC change during ICU admission	☐ Y ☐ N
GOC status at ICU discharge	☐ Full support ☐ No CPR but ICU readmission ☐ No CPR with no ICU readmission
Hospital Discharge	
Alive at Hospital Discharge	☐ Y ☐ N ☐ N/A (still in hospital)
Date of Hospital Discharge (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
Did the patient have a tunneled RRT catheter inserted during index hospitalization?	☐ Y ☐ N ☐ N/A, no RRT received
ICU readmission during index hospitalization	☐ Y ☐ N
Receiving RRT at Hospital Discharge	☐ Y ☐ N
If yes, RRT modality:	☐ Outpatient HD ☐ Home HD ☐ Home Peritoneal dialysis
Creatinine (μmol/L) (if not receiving RRT)	☐☐☐
Urea (mmol/L) (if not receiving RRT)	☐☐☐
Discharge Disposition	☐ Rehabilitation facility ☐ Assisted living facility ☐ Nursing home/LTC ☐ Home with assistance ☐ Home independent ☐ Other acute care hospital/facility
90-Day Outcomes	
Alive at 90-Days from eligibility	☐ Y ☐ N
Receiving RRT at 90 days	☐ Y ☐ N
If yes, RRT modality:	☐ Outpatient HD ☐ Home HD ☐ Home Peritoneal dialysis ☐ RRT in Hospital

FORM 10 - LONG-TERM OUTCOMES (6-months)

6 – Month Follow-Up (date) (If patient is deceased, skip to Form 12)	☐☐/☐☐☐/☐☐☐☐
Interview conducted with	☐ Patient ☐ Other ☐ Both [patient + other] ☐ None
Re-hospitalization	☐ Y ☐ N ☐ N/A (never discharged)
If yes, date of 1st re-hospitalization (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
Receiving RRT at 6-months	☐ Y ☐ N
If yes, RRT modality:	☐ Outpatient HD ☐ Home HD ☐ Home Peritoneal dialysis ☐ RRT in Hospital
If no, date of last RRT (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐ **OR** ☐ N/A (RRT never started)
Creatinine closest to 6 months (μmol/L) (if not receiving RRT)	☐☐☐
Disposition at 6-months	☐ Rehabilitation facility ☐ Assisted living facility ☐ Nursing home/LTC ☐ Home with assistance ☐ Home independent ☐ Other acute care facility/hospital
Cognitive assessment (see worksheet) (score < 2 = demented) (score ≥ 2 and ≤ 4 = impairment – not demented) (score ≥ 5 =no impairment)	☐ No impairment ☐ Impairment – not demented ☐ Demented ☐ Not available
HRQL assessment at 6-months complete (EQ-5D)	☐ Y ☐ N (see worksheet)
Mobility (score 1-5; missing 9)	☐
Self-care (score 1-5; missing 9)	☐
Usual activities (score 1-5; missing 9)	☐
Pain/discomfort (score 1-5; missing 9)	☐
Anxiety/depression (score 1-5; missing 9)	☐
EQ-VAS score (score 0-100)	☐☐☐
Frailty Status (Clinical Frailty Scale [CFS] score)	☐ (CFS score range 1-8 – see worksheet)

FORM 11 - LONG-TERM OUTCOMES (12-months)

12 – Month Follow-Up (date) (If patient is deceased, skip to Form 12)	☐☐/☐☐☐/☐☐☐☐
Interview conducted with	☐ Patient ☐ Other ☐ Both [patient + other] ☐ None
Re-hospitalization	☐ Y ☐ N ☐ N/A (never discharged)
If yes, date of 1st re-hospitalization (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐
Receiving RRT at 12-months	☐ Y ☐ N
If yes, RRT modality:	☐ Outpatient HD ☐ Home HD ☐ Home Peritoneal dialysis ☐ RRT in Hospital
If no, date of last RRT (dd/mmm/yyyy)	☐☐/☐☐☐/☐☐☐☐ **OR** ☐ N/A (RRT never started)
Creatinine closest to 12 months (μmol/L) (if not receiving RRT)	☐☐☐
Disposition at 12-months	☐ Rehabilitation facility ☐ Assisted living facility ☐ Nursing home/LTC ☐ Home with assistance ☐ Home independent ☐ Other acute care hospital/facility
Cognitive assessment (see worksheet) (score < 2 = demented) (score ≥ 2 and ≤ 4 = impairment – not demented) (score ≥ 5 =no impairment)	☐ No impairment ☐ Impairment – not demented ☐ Demented ☐ Not available
HRQL assessment at 12-months complete (EQ-5D)	☐ Y ☐ N (see worksheet)
Mobility (score 1-5; missing 9)	☐
Self-care (score 1-5; missing 9)	☐
Usual activities (score 1-5; missing 9)	☐
Pain/discomfort (score 1-5; missing 9)	☐
Anxiety/depression (score 1-5; missing 9)	☐
EQ-VAS score (score 0-100)	☐☐☐
Frailty Status (Clinical Frailty Scale [CFS] score)	☐ (CFS score range 1-8 – see worksheet)

FORM 12 – STUDY TERMINATION FORM

Did the patient complete the study to 12 months?	☐ Y ☐ N
If no, reason for not completing the full study:	☐ Patient or SDM withdrew consent Date of withdrawal: ☐☐/☐☐☐/☐☐☐☐ ☐ Lost to follow-up Date of last contact: ☐☐/☐☐☐/☐☐☐☐ ☐ Consent not obtained to conduct interviews ☐ Death Date of death: ☐☐/☐☐☐/☐☐☐☐ ☐ Other, specify: _____

Study Completion (Attestation)

Form completed by: Signature: Date: / /

Principal Investigator: _____ Signature of PI: _____ Date: ____/____/____