ACUTE RENAL FAILURE ORDERS

Authorization is hereby given to dispense the generic/therapeutic equivalent unless otherwise indicated by the prescriber.

Date: [Blank]  
Time: [Blank]

### PRESCRIBER ORDERS

**Level of care:**  
- Admit to:  
- Observation
- Ambulatory surgery (ASU)
- Inpatient

**Location:**  
- Med Surg
- Telemetry *(Indication)*
- Critical Care Unit
- Inpatient

**Diagnosis:** ________________________________________________________________________

**Admitting Physician:** ___________________________________________________________________

**Condition:**  
- Stable
- Fair
- Serious
- Critical

**Consults:**  
- Nephrology:________________________
- Urology: __________________________
- Other: ____________________________________ _________________________________

☑ Obtain Health Care Proxy if available

☑ Old records to floor

☑ Vital signs as per protocol

☑ Orthostatic BPs

**Notify MD if:**  
- Systolic BP less than 90 or greater than 170,  
- HR less than 50 or greater than 120,  
- RR greater than 24,  
- SPO2 less than 92%,  
- Temp less than 95°F or greater than 101°F

### 1. ACTIVITY:

- Bedrest *(Readress in 24 hours)*
- Elevate head of bed______
- Bedrest / Bathroom privileges
- Out of bed to chair
- Ambulate
- Activity as tolerated

### 2. DIET:

- 2 gram Na⁺
- 2 gram K⁺
- Other__________________________________
- Fluid restriction __________ ml/24 hours

### 3. NURSING ORDERS / ASSESSMENTS:

☑ Height and Weight on admission  
☑ Daily weights

☑ Insert foley catheter - routine catheter care

☑ Measure Intake/Output - Hourly urine output - **Notify MD if less than 30 mL/hour**

☑ Pulmonary Artery Catheter monitoring:__________________________

☑ CVP monitoring

### 4. RESPIRATORY:

☑ Nasal Cannula ____L/min  
Monitor O₂ saturation and titrate oxygen per protocol

☑ Other: __________________________________________

### 5. IV INFUSION:

☑ Dextrose 5% in Water at _______mL/hr

☑ Sodium Chloride 0.9% at _______ mL/hr

☑ Sodium Chloride 0.45% at _______mL/hr

☑ Other: at _______mL/hr

### 6. MEDICATIONS:

**Loop Diuretics:** *(Reminder: Avoid Use except in Oliguric ATN)*

☑ Furosemide *(Lasix)* _____mg IV every _____hrs

☑ Furosemide *(Lasix)* _____mg PO every _____ hrs

☑ Furosemide *(Lasix)* 250 mg in 250 mL D5W IV infusion at _____mg per hr

☑ Bumetanide *(Bumex)* _____ mg IV every _____ hs

☑ Bumetanide *(Bumex)* _____ mg PO every _____ hs

☑ Thiazide-Related Diuretic: Metolazone *(Zaroxolyn)* ______ mg PO every ______ hours

**Phosphate-Lowering Agents:** *(For Use in Hyperphosphatemia)*

☑ Calcium Acetate *(PhosLo)* 667 mg _____ gelcap(s) PO TID with meals

☑ Lanthanum Carbonate *(Fosrenol)* _____mg PO (to be chewed) TID with meals

☑ Sevelamer *(Renagel)* _____ mg PO TID with meals

**Prescriber Signature:** ___________________________________________________________________
### 6. MEDICATIONS:

#### Potassium-Lowering Agents: (For Use in Hyperkalemia)
- Sodium Polystyrene Sulfonate (Kayexalate) ____ grams PO X 1 dose
- Sodium Polystyrene Sulfonate (Kayexalate) ____ grams Rectally (retention enema) X 1 dose
- **Reminder! Oral route is preferred**
- Regular insulin ____ units IV  X1 dose
- 50% Dextrose 50 mL IV over 20 minutes X1 dose
- 10% Calcium Gluconate 10 mL in 50 mL D5W IV X 1 dose over 10 min *(Caution in digitalized patients)*
- Albuterol (Ventolin) nebulizer 10 mg diluted in 4 mL NS over 10 minutes X1 dose
- Sodium Bicarbonate 50 mEq/50 mL IV X 1 amp

#### Metabolic Acidosis
- Na Bicarbonate Infusion (severe metabolic acidosis HCO3 less than 10mEq or pH less than 7.2)
- Na Bicarbonate 50 mEq/50 mL ____ amp(s) in D5W 1,000 mL IV at _____ mL/hour

#### Potassium supplement:______________________________ ____________________

#### GI Prophylaxis:____________________________________ _____________________

### 7. STUDIES: If not done in the ED

#### Lab:
- CBC with diff.
- Anemia Panel
- ABG
- CMP
- BMP
- Uric acid
- Phosphorus level
- Magnesium
- Serum Toxicology
- Serum Osmolarity

**REMINDER! – Please calculate Fractional Excretion of Sodium**

Spot urine for:
- Protein
- Na
- Cl
- K
- Creatinine
- UA – Routine & Microscopy
- Urine Eosinophils
- Urine Osmolarity
- Urine Toxicology
- Urine protein/Urinary creatinine ratio (24 hour urine)
- UP/IP/UIFE
- SP/IP/SIFE

#### Microbiology:
- Blood culture x 2
- Urine culture

#### Serology:
- Hepatitis profile (Hep. A,B,C)
- Anti -Streptolysin O -Antibody titres
- Anti-GBM Antibody
- C-ANCA
- Complement C3
- Complement C4
- Complement CH50
- CK-total
- P-ANCA
- Sed. Rate
- 24 hour Proteinuria

#### Imaging:
- X-ray Chest
- MRA Abdomen
- Ultrasound Abdomen kidney
- CT Abdomen with contrast
- CT Pelvis with contrast
- Renal Flow Scan with contrast
- CT Abdomen without contrast
- CT Pelvis without contrast
- Renal Flow Scan without contrast

* Consider administration of Mucormyst and Sodium Bicarbonate for prevention of Contrast Nephrotoxicity

#### Cardiology:
- EKG

#### Other Tests:

### 8. Venous Thromboembolism Precautions: (VTE) (May Select more than One)
- Sequential Compression Device until ambulatory
- Enoxaparin (Lovenox) ____mg subcutaneous q daily
- Heparin 5000 units subcutaneous every 8 hours
- Heparin 5000 units subcutaneous every 12 hours
- No VTE Prophylaxis (REASON)
- Not a Candidate
- Contraindicated
- Other (________________)

### 9. See Dialysis order sheet * See Page 3 for recommendations for Dialysis

### 10. Other:

**Reminder! – Avoid use of contrast studies, ACE-inhibitors, Angiotensin Receptor Blockers, COX-2 Inhibitors, NSAIDS, Contrast, metformin (Glucophage). Consider need to check Drug levels if using Vancomycin**

Prescriber Signature:__________________________________________________________

Dev: 6/07
CSC Form # 9060
Proposed Criteria for Initiation of Renal Replacement Therapy in Critically Ill Patients with ARF

1. Oliguria - urine output < 200mL in 12 hours
2. Anuria - urine output < 50mL in 12 hours
3. Serum Potassium (K) > 6.5 mmol/L
4. Severe acidemia - pH < 7.0
5. Azotemia - BUN > 85 mg/dl
6. Uremic Encephalopathy
7. Uremic Neuropathy/Myopathy
8. Uremic Pericarditis
9. Plasma Sodium (Na) abnormalities: Conc >155mmol/L or < 120 mmol/L
10. Hyperthermia
11. Drug Overdose with dialyzable toxin

Indications for Renal Support

1. Nutrition
2. CHF
3. ARDS with Respiratory acidosis
4. Liver Failure
5. Pancreatitis
6. Fluid management in multi-organ failure
7. Lactic acidosis
8. Crush Injury
9. Tumor Lysis Syndrome
10. Sepsis

Fractional Excretion of Sodium: \( \text{FENa} \) is greater than 1% and usually greater than 3% with acute tubular necrosis and severe obstruction of the urinary drainage of both kidneys. It is generally less than 1% in patients with acute glomerulonephritis, hepatorenal syndrome, and states of prerenal azotemia such as congestive heart failure or dehydration.

\[
\text{FENa} = \frac{U_{\text{Na}} \times P_{\text{Cr}}}{P_{\text{Na}} \times U_{\text{Cr}}} \times 100
\]

Definition of Acute Renal Failure: Proposed classification scheme for acute renal failure (ARF) by ADQI workgroup (Adult Dialysis Quality Initiative). The classification system includes separate criteria for creatinine and urine output (UO). A patient can fulfill the criteria through changes in serum creatinine (SCreat) or changes in UO, or both. The criteria that lead to the worst possible classification should be used.

Note that the F component of RIFLE (Risk of renal dysfunction, Injury to the kidney, Failure of kidney function, Loss of kidney function and End-stage kidney disease) is present even if the increase in S.Creat. is under threefold as long as the new S.Creat. is greater than 4.0 mg/dl (350 µmol/l) in the setting of an acute increase of at least 0.5 mg/dl (44 µmol/l). The designation RIFLE-FO should be used in this case to denote ‘acute-on-chronic’ disease. Similarly, when the RIFLE-F classification is achieved by UO criteria, a designation of RIFLE-FO should be used to denote oliguria. The shape of the figure denotes the fact that more patients (high sensitivity) will be included in the mild category, including some without actually having renal failure (less specificity). In contrast, at the bottom of the figure the criteria are strict and therefore specific, but some patients will be missed. (Bellomo the ADQI workgroup et al. Critical Care 2004 8:R204 doi:10.1186/cc2872)