CONTINUOUS RENAL REPLACEMENT THERAPY PLAN

1. Nephrology Attending Physician: ___________________________ Fellow ___________________________

2. Allergies: ☑ NKDA ☑ Allergic to: __________________________

3. Procedure:  _____ CVVH (ultrafiltration and replacement solution, no dialysate)  
   _____ CVVHD (ultrafiltration and dialysate, no replacement fluid)

4. Cartridge:  _____ CAR-500  
   Change CRRT tubing/cartridge system every 72 hours or 864 liters of blood filtered.

5. Access: Access lines are to be used for CRRT only, and for no other purpose. Contact Senior Surgical Resident and/or Intern for access catheter insertion.


7. Dialysate: (remember to break seal and mix for Prismsate solutions)
   ☑ Prismsate BGK 4/2.5 (see chart below for content)  
   ☑ PrismaSol BGK 2/3.5 (see chart below for content)  
   ☑ Prismsate BGK 0/3.5 (see chart below for content)  
   ☑ Prismsate B22GK4/0 (see chart below for content)( use this with citrate anticoagulation)
   Dialysate flow rate: _______________ ml/hr.

8. Replacement Solution: (remember to break seal and mix for Prismsol solutions)
   ☑ PrismaSol BGK 4/2.5 (see chart below for content)(same as Prismsate BGK 4/2.5)  
   ☑ NS _____ mEq/L Potassium Chloride  
   _____ mEq/L Magnesium Sulfate  
   _____ mEq/L Calcium Chloride
   Replacement Solution flow rate: _______________ ml/hr.
   Pharmacy to maintain 9 hour supply of dialysate at the patient’s bedside at all times.

<table>
<thead>
<tr>
<th>Solution</th>
<th>Potassium</th>
<th>Calcium</th>
<th>Magnesium</th>
<th>Sodium</th>
<th>Chloride</th>
<th>Lactate</th>
<th>Bicarb</th>
<th>Dextrose</th>
<th>Osmol</th>
</tr>
</thead>
<tbody>
<tr>
<td>BGK 4/2.5</td>
<td>4</td>
<td>2.5</td>
<td>1.5</td>
<td>140</td>
<td>113</td>
<td>3</td>
<td>32</td>
<td>110mg/dl</td>
<td>300</td>
</tr>
<tr>
<td>BGK 2/3.5</td>
<td>2</td>
<td>3.5</td>
<td>1</td>
<td>140</td>
<td>111.5</td>
<td>3</td>
<td>32</td>
<td>100mg/dl</td>
<td>296</td>
</tr>
<tr>
<td>BK 0/3.5</td>
<td>0</td>
<td>3.5</td>
<td>1.0</td>
<td>140</td>
<td>109.5</td>
<td>3</td>
<td>32</td>
<td>--------</td>
<td>287</td>
</tr>
<tr>
<td>B22GK4/0</td>
<td>4</td>
<td>0</td>
<td>1.5</td>
<td>140</td>
<td>120.5</td>
<td>3</td>
<td>22</td>
<td>100mg/dl</td>
<td>296</td>
</tr>
</tbody>
</table>

Order taken by Signature: ___________________________ Date/Time: ___________________________
9. **Fluid Balance**: Weigh patient via bed scale at start of procedure & every 24 hours. Target NET hourly fluid balance will be
   - Zero fluid balance (CRRT will remove fluid to account for fluids infused via other routes)
   - Zero fluid removal (CRRT will not remove fluid resulting in possible positive fluid balance)
   - ________ Net hourly fluid loss or
   - ________ Net hourly fluid gain

10. **Patient fluid removal** = Total hourly IN – Total hourly OUT. Net balance (given above & may be adjusted for the patient’s hemodynamic/fluid status).

11. **Laboratory Tests**:
   - Renal Panel every 4 hours X 6, then every 8 hours X 3, then every 12 hours X 2 (substitute CBC, CMP, Magnesium, Phosphorus below once daily to avoid duplication)
   - Magnesium level every 6 hours X 4
   - CBC, CMP, Magnesium, Phosphorus levels daily or other________.

   Notify physician if (1) platelet decreased by more than 50% from baseline **AND/OR** (2) Hemoglobin dropped by 2 gm/dL

   **Refer to Electrolyte Replacement Order set**

12. **Anticoagulation**:
   - No anticoagulation
   - Heparin Systemic Anticoagulation
     - Refer to UMC Heparin Infusion Orders
   - Citrate Regional Anticoagulation
     - See Citrate anticoagulation protocol

13. **Priming**: Prime cartridge with normal saline

   *Notify the Nephrologist/Nephrology Fellow on call immediately if there is a significant change in ultrafiltration, bleeding, or change in vital parameter trends.*
Regional Citrate Anticoagulation Orderset for CRRT

1. Run the blood pump (blood flow rate #6 above) as specified in the CRRT order form _______ mL/min

2. Run ACDA (Anticoagulant Citrate Dextrose Formula A) @ 2.5% of blood flow rate _______ mL/Hr
   (e.g. 1.5 mL/Hour ACDA for blood flow rate of 1 mL/minute)
   A. ACDA comes as premixed bag.
   B. Infuse via prefILTER injection port.

3. 8 Gm Calcium Chloride / 1 liter of 0.9% NS @ 1/3 of ACDA rate (see #2 above) _______ mL/Hr
   A. Infuse calcium solution via separate central access.

4. Usual initial settings: Blood flow rate 150 mL/min, ACDA 220 mL/Hr, Calcium infusion 75 mL/Hr

5. Laboratory:
   A. Baseline systemic (Patient) ionized calcium, renal panel, and magnesium levels
   B. Systemic (patient) and post filter ionized calcium 4 hours after initiation of ACDA, then every 4 hours X 5, then every 8 hours X 3, then every 12 hours
   C. Renal Panel every 4 hours X 6
   D. CBC, CMP, Magnesium, and Phosphorus levels daily
   E. Blood to be drawn from patient and post filter, not dialysis lines

6. Sliding Scale for ACDA (adjust according to “POST FILTER” ionized calcium levels)
   (adapted and modified from ACDA nomogram from The Sunnybrook and Women’s College Health Sciences Centre, Toronto, Ontario, Canada and Harris Methodist Hospital, Fort Worth, TX)

<table>
<thead>
<tr>
<th>FILTER iCa++mmol/L</th>
<th>Adjustments to ACDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.26</td>
<td>Decrease by 10 mL/hr and recheck in 2 hours and CALL MD</td>
</tr>
<tr>
<td>0.26 – 0.35</td>
<td>No change</td>
</tr>
<tr>
<td>0.36 – 0.45</td>
<td>Increase by 10 mL/hr</td>
</tr>
<tr>
<td>&gt;= 0.46</td>
<td>Increase by 20 mL/hr and recheck in 2 hours and CALL MD</td>
</tr>
</tbody>
</table>

7. Sliding Scale for calcium infusion (adjust according to systemic or “Patient” ionized calcium levels)
   (adapted and modified from calcium infusion nomogram from The University of California San Diego Medical Center, San Diego, CA)

<table>
<thead>
<tr>
<th>PATIENT iCa++(mmol/L)</th>
<th>Adjustments to Calcium Infusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.80</td>
<td>HOLD ACDA for 4 hours, then resume at previous rate minus 20 mL/hr and CALL physician</td>
</tr>
<tr>
<td>0.81 – 0.85</td>
<td>Increase by 10 mL/hr and 2 gm Calcium Gluconate IV and recheck in 2 hours</td>
</tr>
<tr>
<td>0.85 – 0.94</td>
<td>Increase by 10 mL/hr and 2 gm of Calcium Gluconate IV</td>
</tr>
<tr>
<td>0.95 – 1.04</td>
<td>Increase by 5 mL/hr and 1 gm of Calcium Gluconate IV</td>
</tr>
<tr>
<td>1.05 – 1.11</td>
<td>Increase by 5 mL/hr</td>
</tr>
<tr>
<td>1.12 – 1.20</td>
<td>No change</td>
</tr>
<tr>
<td>1.21 – 1.30</td>
<td>Decrease by 5 mL/hr</td>
</tr>
<tr>
<td>1.31 – 1.45</td>
<td>Decrease by 10 mL/hr</td>
</tr>
<tr>
<td>&gt; 1.45</td>
<td>Decrease by 15 mL/hr and recheck in 2 hours and CALL physician</td>
</tr>
</tbody>
</table>