**CONTINUOUS RENAL REPLACEMENT THERAPY (CRRT)**

**CITRATE ANTICOAGULATION**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
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</table>

**PATIENT DATA:**
- **DIAGNOSIS:**
  - ☐ AKI
  - ☐ ESRD
  - ☐ Other: ____________

- **WEIGHT:**
  - Today: ________kg
  - Admission Weight: ________kg
  - Dry Weight: ________kg

- **Access TYPE:**
  - ☐ Temporary Dialysis Catheter
  - ☐ Tunneled Dialysis Catheter

- **LOCATION:**
  - ☐ Internal Jugular
  - ☐ Right
  - ☐ Left
  - ☐ Femoral
  - ☐ Right
  - ☐ Left

- **Other:** ____________

- **Catheter Lock Solution:**
  - ☐ 4% Trisodium Citrate
  - ☐ Heparin (1000 IU/mL)
  - ☐ Other: ____________

**MODE OF THERAPY:**
- ☐ CVVHDF
- ☐ CVVHD
- ☐ CVVH
- ☐ SCUF

**FILTER SET:**
- ☐ HF 1400

**Prime options:**
- ☐ Heparin Flush followed by Normal Saline Rinse (add 10cc Heparin 1000 units/mL to 1 liter of 0.9% normal saline flushed through circuit followed by another 1 Liter of 0.9% normal saline flushed through circuit)
- ☐ Normal Saline (2 liters) (NO HEPARIN)

**LABS:**
- ☐ Potassium, Sodium, Chloride, Bicarbonate, Creatinine, BUN, Magnesium, Ionized Calcium, Phosphorus
- ☐ PT/PTT
- ☐ CBC
- ☐ Lactic Acid
- ☐ Total Calcium
- ☐ ABG

- ☐ Other: ____________

- ☐ At initiation, then at 3 AM, 11 AM, and 7 PM
- ☐ At 3 AM and then 3 PM

- ☐ Other: ____________

**CITRATE ANTICOAGULATION**

- ☐ REGIONAL CITRATE ANTICOAGULATION

  - ACD-A CITRATE (standard initial rate = 1.5 times blood flow rate/hour) (USE WHITE SCALES)

  - RATE: _______________mL/Hour

  - **Electrolyte Replacement:**
    - *Infuse IV only while CRRT is running.*
    - *Discontinue any electrolyte replacement infusion ordered here when CRRT is discontinued.*

  - ☐ Calcium Gluconate 75 grams in 250 mL NS (total volume 1000 mL) Infuse at a rate of _____grams/24 hours
  - (Note: *If NOT using Citrate as the anticoagulant, reduce Calcium Infusion by 50%*)

  - ☐ Sodium Phosphate: 30 mmol in 250 mL Normal Saline (total volume = 260 mL) infused at a rate of _____mmol/24 hours

  - ☐ Magnesium Sulfate: 4 grams in 100 mL Water for Injection (total volume = 100 mL) infused at a rate of _____grams/24 hours

  - *Hold for Mg++ levels > 2*
**CONTINUOUS RENAL REPLACEMENT THERAPY (CRRT)**

**CITRATE ANTIICOAGULATION**

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**Pharmacy Mnemonic:** CRRTCIT2

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**Blood Flow Rate:** __________mL/minute  
**Recommended minimum flow rate of 200 mL/minute**

**Replacement Solution and Flow Rate:**  
Total Replacement Rate: __________mL per hour  
(Standard Rate 25 ml/kg/hr)

**USE ONLY CALCIUM FREE FLUIDS WITH CITRATE**

**Predilution Replacement Fluid at ________%**  
**Postdilution Replacement Fluid at ________%**

<table>
<thead>
<tr>
<th><strong>PrismaSATE®</strong></th>
<th><strong>PrismaSATE®</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Bicarbonate</td>
<td>KCl: 4 mEq/L  B22GK 4/0</td>
</tr>
<tr>
<td>High Bicarbonate</td>
<td>KCl: 4 mEq/L  BGK 4/0/1.2</td>
</tr>
<tr>
<td>High Bicarbonate</td>
<td>KCl: 2 mEq/L  BGK 2/0</td>
</tr>
<tr>
<td>High Bicarbonate</td>
<td>KCl: 0 mEq/L  BK 0/0/1.2**</td>
</tr>
<tr>
<td>Other: ________________________________</td>
<td><strong>Normal Bicarbonate</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PrismaSate®</strong></th>
<th><strong>PrismaSate®</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Bicarbonate with 4 mEq/L KCl</td>
<td>(B22GK 4/0 PrismaSate®)</td>
</tr>
<tr>
<td>High Bicarbonate with 2 mEq/L KCl</td>
<td>(BGK 2/0 PrismaSate®)</td>
</tr>
</tbody>
</table>

**Dialysate Fluid:**  
RATE: _____________ mL/hour  
(CVVHDF or CVVHD)  
(USE GREEN SCALES)

- **Standard** = No Dialysate
- **PrismaSate®**  
  Normal Bicarbonate with 4 mEq/L KCl  
  (B22GK 4/0 PrismaSate®)
- **PrismaSate®**  
  High Bicarbonate with 2 mEq/L KCl  
  (BGK 2/0 PrismaSate®)

**NET VOLUME BALANCE:**  
- Match input with output
- Net Volume Negative _____ - _____mL/hour up to _____L per 24 hours  
  (0 to 2000 mL per hour)
- No Fluid Pull
- Other: ________________________________

- Consult Pharmacy for drug dosing while on CRRT.
- Consult Pharmacy to concentrate all fluids.

**ALWAYS Notify pharmacy when CRRT is initiated, discontinued, or placed on hold for any reason.**

- Notify Nephrologist if and when FILTER clots.
- Notify Nephrologist if ACCESS PRESSURES continue to trend toward out of range. (See Table Below)
- Notify Nephrologist if bicarbonate is < 15 mmol/L or > 30 mmol/L after 12 hours of therapy.

- Daily Weights

**Additional Orders:**

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**DOCTOR'S ORDERS**

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**BOTTOM EDGE OF PATIENT LABEL**

REV 02/18; SD40-3
ST. DOMINIC-JACKSON MEMORIAL HOSPITAL
JACKSON, MISSISSIPPI

CONTINUOUS RENAL REPLACEMENT THERAPY (CRRT)
CITRATE ANTICOAGULATION

STANDARD SOLUTIONS USED DURING CRRT:

<table>
<thead>
<tr>
<th></th>
<th>NORMAL BICARBONATE 4 K+</th>
<th>HIGH BICARBONATE 4 K+</th>
<th>HIGH BICARBONATE 2 K+</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrismaSATE®</td>
<td>B22GK 4/0</td>
<td>BGK 4/0/1.2</td>
<td>BGK 2/0</td>
</tr>
<tr>
<td>Potassium</td>
<td>4 mEq/L</td>
<td>4 mEq/L</td>
<td>2 mEq/L</td>
</tr>
<tr>
<td>Calcium</td>
<td>0.0 mEq/L</td>
<td>0.0 mEq/L</td>
<td>0.0 mEq/L</td>
</tr>
<tr>
<td>Magnesium</td>
<td>1.5 mEq/L</td>
<td>1.2 mEq/L</td>
<td>1.0 mEq/L</td>
</tr>
<tr>
<td>Sodium</td>
<td>140 mEq/L</td>
<td>140 mEq/L</td>
<td>140 mEq/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>120.5 mEq/L</td>
<td>110.2 mEq/L</td>
<td>108 mEq/L</td>
</tr>
<tr>
<td>Bicarbonate</td>
<td>22 mEq/L</td>
<td>32 mEq/L</td>
<td>32 mEq/L</td>
</tr>
<tr>
<td>Lactate</td>
<td>3 mEq/L</td>
<td>3 mEq/L</td>
<td>3 mEq/L</td>
</tr>
<tr>
<td>Dextrose</td>
<td>110 mg/dL</td>
<td>110 mg/dL</td>
<td>110 mg/dL</td>
</tr>
<tr>
<td>Osmolarity</td>
<td>296 mOsm/L</td>
<td>296 mOsm/L</td>
<td>292 mOsm/L</td>
</tr>
</tbody>
</table>

*******************************************************************************************************************

HIGH BICARBONATE 4K+

<table>
<thead>
<tr>
<th></th>
<th>High Bicarbonate 0K+</th>
</tr>
</thead>
<tbody>
<tr>
<td>PrismaSOL®</td>
<td>BK 0/0/1.2</td>
</tr>
<tr>
<td>Potassium</td>
<td>0 mEq/L</td>
</tr>
<tr>
<td>Calcium</td>
<td>0.0 mEq/L</td>
</tr>
<tr>
<td>Magnesium</td>
<td>1.2 mEq/L</td>
</tr>
<tr>
<td>Sodium</td>
<td>140 mEq/L</td>
</tr>
<tr>
<td>Chloride</td>
<td>106.2 mEq/L</td>
</tr>
<tr>
<td>Bicarbonate</td>
<td>32 mEq/L</td>
</tr>
<tr>
<td>Lactate</td>
<td>3 mEq/L</td>
</tr>
<tr>
<td>Dextrose</td>
<td>0 mg/dL</td>
</tr>
<tr>
<td>Osmolarity</td>
<td>282 mOsm/L</td>
</tr>
</tbody>
</table>

DOCTOR'S ORDERS

BOTTOM EDGE OF PATIENT LABEL

REV 02/18; SD40-3
### TABLE OF RECOMMENDED PRESSURES FOR CRRT:

<table>
<thead>
<tr>
<th>Pressure Type</th>
<th>Upper Limit</th>
<th>Lower Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ARTERIAL</strong></td>
<td>-50 mmHg</td>
<td>-150 mmHg</td>
</tr>
<tr>
<td><strong>VENOUS</strong></td>
<td>+50 mmHg</td>
<td>+150 mmHg</td>
</tr>
<tr>
<td><strong>PRE/FILTER</strong></td>
<td>+100 mmHg</td>
<td>+250 mmHg</td>
</tr>
<tr>
<td><strong>TMP</strong></td>
<td>&lt; 0 mmHg</td>
<td>&gt; +150 mmHg</td>
</tr>
<tr>
<td><strong>EFFLUENT</strong></td>
<td>&gt; +50 mmHg</td>
<td>- 150 mmHg</td>
</tr>
</tbody>
</table>

**Typically Negative** BLOOD “PULLED” OUT OF THE VEIN

**Typically Positive** BLOOD “PUSHED” BACK INTO THE VEIN

**Typically Positive** BLOOD “PUSHED” THROUGH NARROW FILTER FIBERS **WILL BECOME MORE POSITIVE AS FILTER FIBERS CLOT**

**Positive or Negative** PLASMA WATER PUSHED OUT OF THE WHOLE BLOOD (+VE) OR PLASMA WATER PULLED OUT OF THE WHOLE BLOOD (-VE) THROUGH THE FILTER FIBERS PORES BECOMING THE EFFLUENT **WILL BECOME MORE POSITIVE AS FILTER FIBERS PORES BLOCK**

**Positive or Negative** THERAPY DEPENDANT *WILL BECOME MORE NEGATIVE AS FILTER FIBERS PORES BLOCK*

_____________________________  ________________________________
 bottom edge of patient label  ________________________________
 Date        Time        Physician Signature