1. **ALLERGIES/REACTIONS:**

2. **PHYSICIAN:**

3. **CARDIOLOGIST OR NEPHROLOGIST:**

4. **LEVEL OF CARE:**
   - [ ] ICU
   - [ ] PCU

5. **DIAGNOSIS:**
   - [ ] Heart Failure _______(EF %)
   - [ ] Cor Pulmonale
   - [ ] Pre and/or Post Cardiac Surgery with fluid overload
   - [ ] Other: 

6. **EXCLUSION CRITERIA:**
   - High risk of bleeding (e.g., INR greater than 4.0)
   - Anticoagulation contraindicated
   - HCT greater than 40%
   - Cardiogenic Shock (relative exclusion)
   - Renal Insufficiency (if creatinine greater than 3 mg/dL consider Nephrology consult)
   - Systolic Blood Pressure less than 80 mmHg

7. **PATIENT SELECTION:** (Check all that apply)
   - [ ] Greater than 4.5 kg over dry weight
   - [ ] Inadequate response to diuretics
   - [ ] Greater than or equal to 0.3 mg/dl serum creatinine rise on standard care
   - [ ] Frequent hospitalizations for fluid overload

8. **INTAKE AND OUTPUT:**
   - [ ] Fluid restriction _______ ml/24 hours
   - [ ] Strict intake and output record every shift
   - [ ] Empty ultrafiltrate bag every shift and PRN after each liter collected – record separately as UF output

9. **DIAGNOSTICS:**
   - [ ] Draw labs through designated peripheral saline lock

   **2 Hours Prior to Treatment (Unless labs drawn within the last 12 hours):**
   - [ ] BMP
   - [ ] Hemogram
   - [ ] PTT
   - [ ] PT/INR
   - [ ] BNP
   - [ ] Magnesium
   - [ ] Other labs:

   **During Treatment:**
   - [ ] If on Heparin Infusion – draw STAT Anti-Xa level (Hep UFH) every 6 hours during treatment
   - [ ] If on Argatroban Infusion – draw STAT PTTs – per Argatroban physician order #637
   - [ ] ECG with arrhythmias or chest pain
   - [ ] BMP every 12 hours
   - [ ] Other labs:

Physician Initial:
9. **DIAGNOSTICS:** (Continued)

**Daily AM During Treatment:**
- ✗ Hemogram
- ☐ BNP ☐ PT/INR
- ☐ Chest x-ray- AP (single view): **REASON:** Fluid Overload OR __________________________
- ☐ ECG

Other labs: __________________________

**AM After Treatment Discontinued:**
- ✗ Hemogram
- ✗ BMP
- ☐ BNP

Other labs: __________________________

10. **ANTICOAGULATION THERAPY:**
- ✗ Administer anticoagulation through the withdrawal and/or infusion access ports on the UF 500 circuit

**HEPARIN:** (check one box)
- If heparin allergy or heparin-induced thrombocytopenia, initiate Argatroban (Page 3)
- Initiate Heparin infusion **AT LEAST** 30 minutes prior to start of treatment
- ☐ Patient is **NOT** taking warfarin (Coumadin)
  - Heparin bolus: 70 units/kg – maximum dose of 5,000 units
  - Heparin Infusion 15 units/kg/hour
  - Pharmacy to generate heparin worksheet: **Ultrafiltration – NOT on Warfarin**
  - Adjust heparin infusion based on worksheet generated by pharmacy to maintain Anti-Xa target level of 0.3-0.7 International Units/ml
- ☐ Patient IS taking warfarin (Coumadin) – INR is less than 2.0
  - ✗ RN to verify warfarin dose with prescriber daily
    - Heparin Bolus is usually not recommended
    - ☐ Patients’ clinical status warrants a bolus dose of heparin of 70 units/kg – (maximum dose of 5,000 units)
    - Heparin Infusion 15 units/kg/hour
    - Pharmacy to generate heparin worksheet: **Ultrafiltration – ON Warfarin, INR less than 2.0**
    - Adjust heparin infusion based on worksheet generated by pharmacy to maintain Anti-Xa target level of 0.3-0.7 International Units/ml
- ☐ Patient IS taking warfarin (Coumadin) – INR is **2.0 – 4.0**
  - ✗ RN to verify warfarin dose with prescriber daily
    - NO BOLUS
    - Heparin Infusion 15 units/kg/hour
    - Pharmacy to generate heparin worksheet: **Ultrafiltration – ON Warfarin INR 2.0 – 4.0**
    - Adjust heparin infusion based on worksheet generated by pharmacy to maintain Anti-Xa target level of 0.21-0.4 International Units/ml
  - ✗ Scan completed order (including height and weight) to pharmacy
  - ✗ Initiate Anticoagulation Record when heparin therapy is begun. Record all pertinent baseline labs, initial doses, and administration times on anticoagulation record.

Physician Initial: __________________________
10. **ANTICOAGULATION THERAPY:** (Continued)

**ARGATROBAN:**
For patients with heparin allergy or heparin-induced thrombocytopenia
Initiate Argatroban infusion AT LEAST 30 minutes prior to start of treatment
- Initiate Argatroban Orders and Dosing Protocol Physician Order #637
- Scan completed order (including height and weight) to pharmacy
- Pharmacy to generate argatroban flowsheet
- Initiate Anticoagulation Record when argatroban therapy is begun. Record all pertinent baseline labs, initial doses, and administration times on anticoagulation record.

11. **VENOUS ACCESS CATHETER FOR WITHDRAWAL AND INFUSION:**
- 6 French Dual Lumen ELC (Extended Length Catheter) – blood flow set at 20-25 ml/minute
  - Do not choose the ELC if BMI greater than 35
- 7 French Dual Lumen Central Venous Catheter – blood flow set at 30-40 ml/minute
- Standard Dialysis Catheter – blood flow set at 30-40 ml/minute. **DO NOT use unless approved by Nephrologist.**
  - Do not use the following for UF treatment: PICC, Swan Ganz, or Implanted Access ports

12. **PRIOR TO TREATMENT – Ensure the following:**
- Insert 20 gauge peripheral saline lock – designate for lab draw only
- Venous access is patent and can deliver required blood flow
- Anticoagulation goal
- Blood circuit set is loaded properly
- Prime blood circuit with 500 ml 0.9% sodium chloride (Normal Saline) and prime is successfully completed

13. **MEDICATIONS:**

**During Treatment:**
- Gel foam for venous access catheter site dressing as needed
- Discontinue all PO/IV diuretics
- Discontinue all PO/IV potassium supplements
- Discontinue all subcutaneous heparin and low molecular weight heparin
  - Discontinue the following vasodilator infusions (e.g. dobutamine, nesiritide, nicardipine):

**Post Treatment:**
- Discontinue heparin or argatroban infusion at conclusion of treatment unless otherwise ordered to continue
- Contact physician at completion of treatment for evaluation of discontinued medications and order if necessary

Physician Initial: ____________________________
14. **TREATMENT:**
- Connect blood circuit to venous access and set Ultrafiltration rate at 50 ml/hour times 2 hours and then increase to ___________ ml/hour (10-500 ml/hour – typical Ultrafiltration rate is approximately 250 ml/hour) until ___________ liters removed OR ___________ hours OR ___________.
- Call MD for further orders prior to discontinuing Ultrafiltration treatment
- Monitor patient for clinical signs of hypovolemia and hypotension as appropriate. Patients in volume sensitive states (i.e. right heart failure, pulmonary hypertension, diastolic dysfunction, hepatic disease, cardiogenic shock) usually require rates lower than the average ultrafiltration rate (50-150 ml/hour).
- IV medications can be administered through the access port on the infusion side of the blood circuit.

15. **VITAL SIGNS:**
- Weigh patient (pre treatment, post treatment and every AM)
- Record baseline vital signs prior to initiating treatment
- Monitor cardiac rhythm, blood pressure, heart rate and respiratory rate, every 30 minutes times 2 hours, then every hour times 2 hours, then every 2 hours for duration of treatment and PRN
- During treatment if systolic blood pressure less than 80 mmHg or ___________ and heart rate is greater than 130 bpm or ___________ after 2 consecutive 5 minute observation periods:
  - Decrease Ultrafiltration rate by 100 ml/hour or place at 0 ml/hour for 30 minutes or until stabilized
  - THEN
  - resume Ultrafiltration rate at 100 ml/hour lower than level at which the patient became unstable

16. **HEMATOCRIT MONITORING** (if available):
- Allow up to 30 minutes to elapse in Run Mode to complete the measurement of the patient’s initial (baseline) hematocrit value. During this time, the text “Baselining” as well as the estimated time to complete will appear on screen.
- After baselining is complete, set the Hematocrit limit:
  - Accept the default Hematocrit limit (automatically enabled if less than -5%), or
  - Set Hematocrit limit to ___________.

17. **PARAMETERS NOTIFY PHYSICIAN:**
- Blood Pressure: systolic less than 80 mmHg or: ___________
  - systolic greater than 170 mmHg: ___________
- Heart rate: less than 50 or greater than 120: ___________
- Neuro: change in level of consciousness
- Pulmonary: respiratory distress: shortness of breath with increased oxygen requirements
- Lab: creatinine increase greater than 0.3 mg/dl over baseline
- Signs of Bleeding: hematuria, nosebleed, bleeding gums, bleeding IV sites, etc.
- Clotted Filter: continued treatment will require new filter
- Other: ___________

NOTE: These orders should be reviewed by the attending physician, appropriately modified for the individual patient, dated, timed and signed below.

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>PHYSICIAN’S SIGNATURE</th>
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Another brand of drug, identical in form and content, may be dispensed unless checked. ☐