EMERGENCY DEPARTMENT
OBSERVATION UNIT

CHF ADMISSION/DISCHARGE CRITERIA

ADMISSION CRITERIA
1. History of CHF
2. Normal or unchanged ECG
3. Initial cardiac enzymes within normal range
4. Stable Vital Signs
6. Elevated Serum Cr > 1.8
7. < 500cc of urine output within 2 hrs of IV diuretic
8. BNP assay > 500 pg/ml

EXCLUSION CRITERIA
1. ECG evidence of MI
2. High suspicion of MI
3. Unstable Vital Signs
4. Clear diagnosis of ACS by history
5. Mental status changes
6. Private attending chooses IP admission
7. Systolic BP less than 90 mmHg
8. Cardiogenic Shock
9. Evidence of low cardiac output syndrome

EMERGENCY DEPARTMENT INTERVENTIONS
1. IV, oxygen, ECG, CXR
2. Cardiac monitoring
3. Aspirin 325 mg po if not contraindicated
4. Initial cardiac enzymes obtained in Emergency Department
5. Nitrates as needed for pain
6. Emergency Department attending speaks with PMD or Cardiologist (on call)

OBSERVATION UNIT INTERVENTIONS
1. IV, oxygen, ST-segment monitoring
2. Obtain stat 12 lead ECG for worsening pain
3. Contact ED attending for rhythm abnormalities or ST-segment changes
4. Natrecor infusion for 15 hours, with repeat BNP
5. Time 0 and 4 hours CK, troponin, ECG
6. If cardiac enzymes abnormal, admit to hospital
7. If cardiac enzymes negative, order appropriate stress test.

DISPOSITION
1. HOME
   a. Stable VS
   b. Normal cardiac enzymes
   c. Unremarkable stress test
   d. No significant ECG changes
2. HOSPITAL
   a. Unstable VS
   b. Positive cardiac enzymes
   d. ECG changes
   f. ED/PMD/CARD clinical discretion

NOT A PART OF THE MEDICAL RECORD
1. Admit to Emergency Department Observation Unit
2. Initial Emergency Department Physician: _______________________________________________
3. Private Physician: ____________________________ Time Contacted: _______________________
4. Consult: __________________________________________________________________________
5. Condition: ___ Stable  ___ Serious
6. Copies of Emergency Department H&P on chart
7. Allergies: ______________________________________________________________________
8. Routine Vital Signs
9. ST segment - continuous monitoring until cardiac enzymes completed
10. Activity: ___ up ad lib ___ Other: __________________________________________________________________________
11. Diet: ___ Cardiac ___ 1800 cal ADA ___ Fluid Restrict ___ Other: __________________________
12. IV Fluids: ___ Saline Lock ___ Other: _______________________________________________
13. Oxygen: ___ Nasal cannula @ ___ L/minute ___ Other: __________________________________
14. Medications:
   ___ EC ASA 325 mg every am
   ___ Tylenol 1 gram po every 6 hours prn pain or fever > 101°
   ___ Motrin 800 mg po every 6 hours prn pain
   ___ Ultraflex 50 mg po every 6 hours prn pain
   ___ SL NTG 0.4 mg prn chest pain every 5 minutes x 3
   ___ Maalox 30 cc po every 4 hours prn indigestion
   ___ Ambien 10 mg po every hs prn sleep
   ___ Lovenox 40 mg SQ every day
15. Cardiac Medications:
   **Loop Diuretics**
   ___ Furosemide (Lasix) ____mg IV every 6 hours
   ___ Torsemide (Demadix) ____mg IV every 12 hours

   **ACE inhibitors**
   ___ Altace 2.5 mg po once daily
   ___ Vasotec 2.5 mg po BID

   **Angiotensin Receptor Blockers (ARB’s)**
   ___ Cozaar 50 mg po BID
   ___ Diovan 80 mg po BID

   **Beta Blockers (continue only if chronic therapy over 2 weeks)**
   ___ Coreg 3.125 mg po BID
   ___ Toprol XL 25 mg po daily

____________________________________________  ______________________
Emergency Department Physician Signature   Date/Time
16. Testing Orders:
   ___ CK and troponin at 0 and 4 hours from Emergency department arrival, results on flow sheet
   ___ 12 Lead ECG at 0 and 4 hours from Emergency department arrival
   ___ STAT 12 Lead ECG for monitor alert, chest pain
   ___ BNP at 18 hours
   ___ PT/INR, CMP, CBC in am
   ___ 2D Echo with Doppler, % EF

17. Contact Emergency Department Physician for positive tests results, abnormal rhythm or ST segment changes.

18. Re-evaluate for discharge every 3 hours.

19. Smoking cessation instructions.

____________________________________________  ________________________
Emergency Department Physician Signature   Date/Time

--- Flowchart Diagram ---

SBP >90?
  Yes
  Is Cr >1.8?
    Yes
    Start Natrecor
    Diuresis > 500 ml in 2 hours
      Add Loop Diuretic at a lower dose
    No
    Start Loop Diuretic
  No
  Start Dopamine

Is Cr >1.8?
  Yes
  Start Natrecor
  Diuresis > 500 ml in 2 hours
    Yes
    Continue Loop Diuretic 3-4 x a day for >2000 ml / day
    No
    Start Natrecor
  No
  Start Loop Diuretic
  Diuresis > 500 ml in 2 hours
    Yes
    Continue Loop Diuretic 3-4 x a day for >2000 ml / day
    No
    Start Natrecor
Nesiritide (Natrecor®) Standing Orders

Date: _______________ Time: ___________ Patient Weight: _______ lbs _______ kg

Inclusion Criteria: (Check all that apply)

- Elevated Serum Cr > 1.8
- < 500cc of urine output within 2 hrs IV diuretic
- BNP assay > 400 pg/ml
- Severe volume overload - risk of intubation

Exclusion Criteria: (Check all that apply)

- Systolic BP less than 90 mmHg
- Cardiogenic Shock
- Evidence of low cardiac output syndrome
  - Cold, clammy skin
  - Mental status changes

Bolus Volume and Infusion Flow Rate

1.5 mg in 250 mL = 6 mcg/ml concentration

<table>
<thead>
<tr>
<th>Patient Weight (kg)</th>
<th>Volume of Bolus (mL)</th>
<th>Infusion Rate (mL/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mcg/kg</td>
<td>2 mcg/kg</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>70</td>
<td>11.5</td>
<td>23</td>
</tr>
<tr>
<td>80</td>
<td>13.5</td>
<td>27</td>
</tr>
<tr>
<td>90</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>100</td>
<td>16.5</td>
<td>33</td>
</tr>
<tr>
<td>110</td>
<td>18.5</td>
<td>37</td>
</tr>
<tr>
<td>120</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

Bolus Volume (mL)

For 1 mcg/kg: bolus = patient weight (kg) ÷ 6
For 2 mcg/kg: bolus = patient weight (kg) ÷ 3

Infusion flow rate (mL/hr)

For 0.01 mcg/kg/min (mL/hr) = patient weight (kg) ÷ 10

3. Begin Nesiritide (Natrecor®) bolus of
   - 1 mcg/kg over ____ 1 min. ____ 15 min.
   - 2 mcg/kg over ____ 1 min. ____ 15 min.
   - No bolus

NOTE: Bolus should be drawn from diluted 250 mL bag, NEVER from the reconstituted vial

4. Begin Nesiritide infusion at 0.01 mcg/kg/min

5. Check BP Q15 minutes x 1 hr following bolus, then
6. Check BP Q30 minutes x 1 hr, then
7. Check BP Q 1 hour x 2 hrs, then
8. Check BP Q 4 hours for duration of infusion
9. 1-2 hours prior to next infusion bag assess to determine need for continued therapy
10. For BP less than ____mmHg, call Doctor and decrease infusion by ½ (0.005 mcg/kg/min)

11. For BP less than ______mmHg, call Doctor and D/C Nesiritide
12. Stop Nesiritide at 18 hours of infusion or Stop at _____ hours/days of infusion

Signature: 

Note: The bolus should be drawn from the diluted 250 mL bag and NEVER from the reconstituted vial.
Please date and sign each entry.

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PROTOCOL:** CHF

**RELEVANT HISTORY/PHYSICAL FINDINGS:**

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**OBSERVATION INTERVENTIONS:**

<table>
<thead>
<tr>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>0₂% Saturation Monitor</td>
</tr>
<tr>
<td>Natrecor infusion</td>
</tr>
<tr>
<td>Cardiac Monitor</td>
</tr>
<tr>
<td>Cardiac Enzymes</td>
</tr>
</tbody>
</table>

**GOALS OF OBSERVATION PERIOD:**

<table>
<thead>
<tr>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

**HOW OFTEN WILL PATIENT BE EVALUATED BY PHYSICIAN:**

**MORNING PLAN**

**PRIMARY PHYSICIAN CONTACTED:**

<table>
<thead>
<tr>
<th>Contacted</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>

**ATTENDING SIGNATURE / DATE**

Houston Northwest Medical Center
EMERGENCY DEPARTMENT
OBSERVATION UNIT

CHF
DISCHARGE NOTE

DATE: ____________________
TIME: ____________________

PRESENTING COMPLAINT: ____________________

OBSERVATION COURSE:

___ ECG 1
___ ECG 2
___ 0 hour CK
___ 4 hour CK
___ 0 hour Troponin
___ 4 hour Troponin
___ BNP 1
___ BNP 2
___ ECHO
___ Natrecor

PHYSICAL EXAM: ____________________

DIAGNOSIS: ____________________

DISPOSITION: ___ Home ___ Admission

DISCHARGE INSTRUCTION GIVEN: ___ Yes ___ No

PRIMARY PHYSICIAN CONTACTED: ___ Yes ___ No

NAME: ____________________

FOLLOW UP: ____________________

ATTENDING SIGNATURE / DATE

Houston Northwest Medical Center