providerloop

Heart Failure Protocol V5.0 (1/21/23)

Admission

- Upon admission each resident should be screened by the onsite provider for the diagnosis of heart failure:[1]
    - Review discharge/transfer summaries, physician notes, hospital records or diagnosis codes for mention of
        - Systolic heart failure (a.k.a. Heart failure with reduced ejection fraction)
        - Diastolic heart failure (a.k.a Heart failure with preserved ejection fraction)
        - Left ventricular dysfunction
        - Cardiomyopathy
        - Echocardiograms with mention of any of the above
        - Heart attack (a.k.a. Myocardial infarction)
    - Copies of echocardiograms, cardiology consultation reports and chest x-ray reports may be particularly useful when the patient is transferred from the hospital to the rehab facility
    - If possible, records of the above documents should be requested from the referring facility, agency etc.
- Once the diagnosis is made the heart failure protocol should be implemented.

Initial Assessment

New patients to the program should be entered into the App at cardiology123.com

- The "Heart failure protocol intake form" should be started [2]
- The resident's name should be entered into patient sheet and the appropriate fields filled including:
    - Admission date
    - Referring center
    - Diagnosis
    - Admission weight
    - Ejection fraction
- The resident's chart and room should be clearly identified with a heart sticker [2]
- Initial symptom assessment should be performed using the "long term care heart failure assessment tool" (appendix A) which is a tool that:

- Was developed for use specifically in long-term care nursing facilities and addresses specific characteristics of the residents in this setting.
- Provides baseline documentation of a patient's symptoms to which later evaluation can be compared against and allows for the assessment of progression in heart failure symptoms or unrelated functional decline.
- **It is important to have new patients uploaded ASAP so that they can be discussed at weekly virtual meetings with the medical team (see end of document).**

<u>Continued Assessment</u>

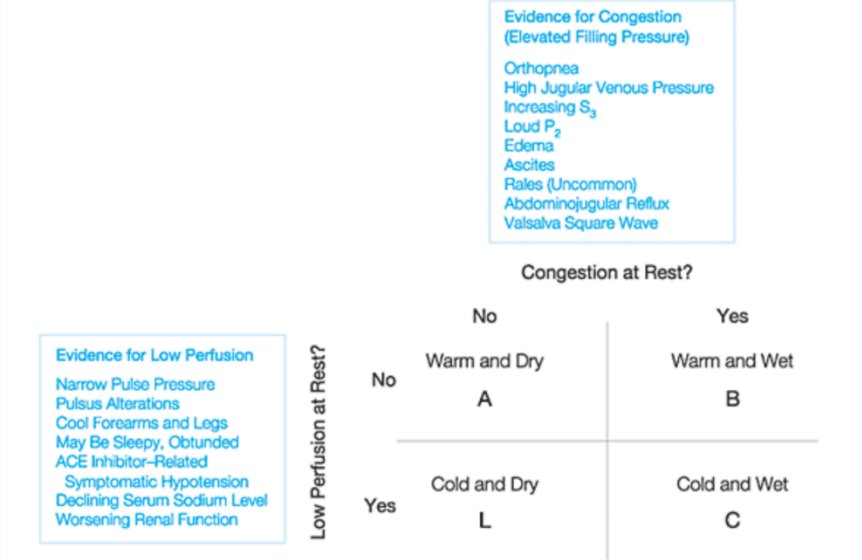
- Direct caregivers (i.e. LPNs) provide the majority of care and as a result have the greatest potential to influence their care:
  - Crucial to involve them in plan of care
  - Educate, with a standardized program (see below), in early assessment of heart failure exacerbations
  - Screen residents daily using a "A N-E-W L-E-A-F" card (appendix B)
  - If any notable signs or symptoms present the supervising nurse should be notified and be provided vital signs (Blood pressure, pulse, respiratory weight, oxygen saturation) and weight graphic.
- RNs:
  - When notified by LPN the RN is to carry out further assessment:
    A. The long-term care heart failure assessment tool should be completed and compared to previous.
    B. Evaluate for signs of decompensated heart failure including:
       - bulging neck veins
       - difficulty breathing while lying flat
       - increased work of breathing
       - lower extremity edema
       - worsening cough at night
       - pulse irregularity
       - "crackles" on auscultation
    C. Contact the medical provider (physician assistant or physician) if positive findings of a possible heart failure exacerbation are detected and follow further instructions from the provider.
  - Carry out an assessment with the long-term health care assessment tool monthly.
- Medical provider:
  - When asked to assess for a possible heart failure exacerbation, the medical provider should attempt to classify the patient in a particular heart failure profile (figure 1) which can help decide on need for further therapy:[3]
    A. Warm and dry
       - No evidence of congestion (elevated filling pressures) or hypoperfusion
       - Symptoms possibly not due to heart failure.
    B. Warm and wet

- Evidence of congestion pressures without hypoperfusion
- Will likely benefit from diuretic therapy

C. Cold and wet
- Evidence of hypoperfusion and congestion
- Consideration for inotropic support and inpatient hospitalization should be considered

D. Cold and dry
- Evidence of hypoperfusion but without elevated filling pressures

Figure 1



Interventions

- Weight monitoring [4]
  - Determine an Ideal or "dry weight" (admission weight can be used if patient appears well compensated when admitted)
  - Weigh 3 times per week in similar circumstances (similar clothes, same scale, same time of day etc.) until stable (weight gain of less than 2 pounds for 3 measurements).
  - After weight is determined to be stable residents are weighed weekly. At which time current weight is compared to previous weight measurements.
  - Weight increase of more than 2 pounds triggers a nursing assessment:
    - Long term care heart failure assessment tool
    - Evaluate for signs and symptoms of decompensated heart failure including:
      - Shortness of breath
      - difficulty breathing while lying flat
      - lower extremity swelling
      - cough at night
      - worsening cough at night
      - bulging neck veins

        - pulse irregularity
        - "crackles" on auscultation
    - Contact the medical provider if positive findings of possible heart failure exacerbation are detected and follow further instruction

- Lab monitoring
    - Initially labs will be checked every 2 weeks
        - Labs will include chem 7 (including potassium, BUN, creatinine), magnesium, phosphorus and brain natriuretic peptide (BNP)
        - **Entresto**: Monitor potassium and kidney function closely, adjusting dosage as needed.
        - **Jardiance**: Monitor eGFR, especially in patients with a history of kidney disease.

    - A management plan will be made based on the results of renal function, BNP and weight change:
        - Significant changes include:
            - BNP increase by 40% [5] and total value greater than 200 pg/ml
            - Creatinine increase by 0.3 mg/dl
            - Weight increase of >5 lbs. from admission weight or >2 lbs. from previous measurement
        - Important scenarios:
            - Scenario 1: ↑BNP ↑wgt → Likely volume overload → Initiate or increase diuretics
            - Scenario 2: ↑BNP = or ↓ wgt → Physician assessment for volume overload
            - Scenario 3: = or ↓BNP ↑wgt → Physician assessment for volume overload
            - Scenario 4: ↓wgt and ↑Cr → Possibly volume depleted → hold diuretics if being given
            - Scenario 5: ↑ or = wgt and ↑Cr → Physician assessment for cause of renal failure
    - If labs are not significantly changed for 2 weeks then check monthly
    - Designating patients as "stable"
        - If there are no significant clinical events (e.g. weight stable, no respiratory events) and labs are not significantly changed over 2 weeks then patients will be designated as stable
            - Box will be checked off on patient sheet
            - Labs will only be checked monthly

- Dietary management
    - A Registered dietician should be consulted upon initiation of the protocol.[6]
    - Fluid
        - Fluid restriction if determined necessary by a physician
        - In patients with symptomatic advanced heart failure fluid, intake should be restricted to less than 2 liters daily [7] with further restriction if thought to be necessary by the physician
    - Sodium
        - Dietary sodium should be restricted to less than 2 grams daily [7]

        - Herbal seasonings should be encouraged in lieu of salt or potassium based salt substitutes [1]
    - Potassium supplements
        - Should be considered in patients on diuretic therapy
- Medications
    - NSAIDs and COX-2 inhibitors should be avoided
    - Guideline driven heart failure therapy

1. Beta Blockers

- **Inclusion Criteria**:
    - Diagnosed with heart failure with reduced ejection fraction (HFrEF).
    - Stable on current heart failure treatment with no signs of acute decompensation.
    - Resting heart rate and blood pressure within acceptable limits to avoid bradycardia and hypotension.
- **Exclusion Criteria**:
    - Bradycardia (heart rate < 60 bpm), symptomatic hypotension, or other contraindications.
    - Severe asthma or reactive airway disease.
    - Recent or current decompensated heart failure with volume overload or hypoperfusion.
- **Documentation**: If beta blockers are not prescribed, the reason should be documented by the physician on the intake form.

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2. ARNI (Entresto) / ARB

- **Inclusion Criteria**:
    - Diagnosed with HFrEF (left ventricular ejection fraction ≤ 40%) and not on ACE inhibitors or ARBs due to contraindications or inadequate response.
    - Blood pressure is stable enough to tolerate an ARNI without risk of hypotension.
    - Normal renal function or stable chronic kidney disease.
- **Exclusion Criteria**:
    - History of angioedema associated with previous ACE inhibitor or ARB therapy.
    - Severe renal impairment (eGFR < 30 mL/min/1.73 m^2) or hyperkalemia (potassium > 5.2 mEq/L).
    - Current use of ACE inhibitors within the last 36 hours (requires a washout period before starting Entresto).
    - Pregnancy or planning pregnancy.
- **Documentation**: If ARNI (Entresto) or ARB therapy is not initiated, the reason should be documented by the physician on the intake form.

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3. Diuretics

- **Inclusion Criteria**:
    - Evidence of volume overload or signs and symptoms of fluid retention (e.g., peripheral edema, jugular venous distention, pulmonary congestion).
    - Stable renal function, allowing for regular monitoring of electrolytes and kidney function.
- **Exclusion Criteria**:
    - Dehydration or signs of volume depletion.
    - Severe renal impairment or acute kidney injury, unless managed closely with dose adjustments and monitoring.
    - Significant electrolyte abnormalities (e.g., severe hypokalemia or hyperkalemia) without correction.
- **Documentation**: Diuretic therapy should be initiated and adjusted based on symptoms and signs of heart failure. Any reason for not prescribing diuretics should be documented by the physician.

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4. SGLT2 Inhibitors (e.g., Jardiance, Farxiga)

- **Inclusion Criteria**:
    - Diagnosed with HFrEF or HFpEF, with or without type 2 diabetes.
    - Stable renal function with eGFR ≥ 30 mL/min/1.73 m^2 (specific cutoffs may vary slightly based on the medication).
- **Exclusion Criteria**:
    - Severe renal impairment (eGFR < 30 mL/min/1.73 m^2) or acute kidney injury.
    - History of frequent urinary tract infections or genital mycotic infections, as SGLT2 inhibitors can increase risk.
    - Hypotension or volume depletion that cannot be corrected.
- **Documentation**: If SGLT2 inhibitors like Jardiance are not prescribed, the reason should be documented by the physician on the intake form.

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5. Mineralocorticoid Receptor Antagonists (MRAs) – Spironolactone, Eplerenone

- **Inclusion Criteria**:
    - Diagnosed with HFrEF with persistent symptoms despite initial treatment with beta blockers and ARNI (or ACE inhibitor/ARB if ARNI is contraindicated).
    - Serum potassium < 5.0 mEq/L and eGFR > 30 mL/min/1.73 m^2.
- **Exclusion Criteria**:
    - Hyperkalemia (potassium > 5.0 mEq/L) or risk of hyperkalemia.

- Severe renal impairment or acute kidney injury.
- History of potassium-sparing diuretic use without close monitoring.

- **Documentation**: If MRAs are not initiated, the reason should be documented by the physician.

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6. Ivabradine (If Channel Inhibitor)

- **Inclusion Criteria**:
  - Patients with HFrEF who are in sinus rhythm with a resting heart rate ≥ 70 bpm despite maximally tolerated doses of beta blockers.
  - Stable blood pressure to tolerate a heart rate-lowering medication.
- **Exclusion Criteria**:
  - Atrial fibrillation or other non-sinus rhythms.
  - Severe liver impairment, hypotension, or resting heart rate < 60 bpm.
  - Patients already experiencing bradycardia with current treatment.
- **Documentation**: If ivabradine is not prescribed when indicated, the reason should be documented by the physician.
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- Exercise
  - Exercise should be encouraged in the stable heart failure patient within the limits of the severity of disease.
    - Implement tailored aerobic and resistance training programs to improve functional capacity.
    - Use inspiratory muscle training (IMT) or neuromuscular electrical stimulation (NMES) for those unable to engage in traditional exercise
  - The resident should be encouraged to carry out activities of daily living and leisure activities that do not induce HF symptoms.[8]
- Immunizations
  - Vaccinations are recommended to prevent respiratory infections which may be detrimental to heart failure patients:
    - Influenza vaccines given every fall if not contraindicated.
    - Pneumococcal vaccines given as recommended based on current CDC recommendations if not contraindicated.
- Hospice care
  - When a resident is experiencing repeated episodes of decompensation and recurrent hospitalizations despite optimal medical therapy, services should be provided to help the residents and families assess their expectations and reflect on their prognosis. [4] If deemed appropriate by the medical team, patient and family, a hospice pathway should be explored.
- Education
  - **www.tinyurl.com/CHFeducation**
    - Taking Control of Your Heart Failure
    - How to Follow a Low-Sodium Diet

- Heart Failure Medicines
- Self-care: Following Your Treatment Plan and Dealing with Your Symptoms
- Exercise and Activity
- Managing Feelings About Heart Failure
- Tips for Family and Friends
- Lifestyle Changes: Managing Other Chronic Conditions
- Advance Care Planning
- Heart Rhythm Problems

- Smoking should always be discouraged. The use of smoking cessation aids such as nicotine replacement therapies should be actively encouraged
- Teach the rationale for prescriber avoidance of nonsteroidal anti-inflammatory drugs due to their deleterious effects on renal and cardiac function. [9]

Weekly Meetings

Each week (usually Friday) - the medical team meets virtually with each nursing facility's site Champion. These meetings provide an opportunity for nursing staff to discuss new patients, communicate clinical and functional status of patients, and allow the medical team to correlate weight or lab changes with a patient's clinical picture.

- Meetings can be accessed at the assigned times from: www.join.me/providerloop
- Please be prepared to discuss clinical status of patients, recent discharges (home or hospital) or deaths, as well as cause.

Documentation

- *Date and time of cardiology Conference Call*
- *Recommendations as discussed and documented on Spreadsheet*
- *PMD Notification*

Discharges

- Prior to the weekly call, the medical team will make note of discharges/deaths and make note of cause in the appropriate column.
- During the call, any new discharges will be communicated by the nursing facility team; same protocol as above.
- On a monthly basis all dc will be moved to a discharge sheet.Copy patient's information to the discharge section
    - Mark whether discharge to community or admission to hospital or death
    - Identify the reason.
- The medical team will statistically evaluate and report on admission/discharge data.

Appendix A (Continued)

Instructions: "A NEW LEAF" pocket card is used by direct caregivers to screen for symptoms of heart failure exacerbation. The pocket card, carried by facility nursing assistants serves as a reference for the signs and symptoms of heart failure exacerbation during routine daily resident care. Upon recognition of any of the symptoms, the certified nursing assistant should notify the primary nurse for further assessment and follow-up.

Appendix B

"A N-E-W L-E-A-F"

Screening Tool for Direct Caregivers

***A*: Acute Agitation/Anxiety**

***N*: Night time shortness of breath or ↑ night time urination**

***E*: Edema in lower extremities**

***W*: Weight gain (2-4 pounds/week)**

***L*: Lightheadedness**

***E*: Extreme shortness of breath lying down**

***A*: Abdominal Symptoms (nausea, pain, decreased appetite, distension)**

***F*: Fatigue**

Instructions: A number score is applied to the functional assessment component and is used as a baseline for the first assessment. Thereafter, on a monthly basis or as indicated by the resident's symptoms, the assessing nurse is observing for downward decline indicated by the score rising toward the maximum score of nine. For the dyspnea component, a score of one is given for each symptom the resident reports or exhibits. Any score of one or greater in this section indicates a need for evaluation by the primary provider. Should the resident have a score of zero in the dyspnea section but the functional status score indicates a decline, the nurse should refer the resident to the interdisciplinary team to assess for other causes in functional decline and schedule a visit with the primary care provider.

Intake Orders

Order Type	Order Details	Frequency
Vital Signs	**Temperature, heart rate, blood pressure, respiratory rate, oxygen saturation**	**Daily** **Notify MD if SBP < 90 or > 170; HR < 50 or > 120, RR > 24, SPO2 < 88%, Temp < 95 F or > 101 F**
Diet	**Low sodium (2g daily)** **Fluid restriction per MD**	**Daily**
Weight	**Weight should be measured at same per occurrence, with similar clothes and similar scale (standing weight).**	**1) Record admission weight if patient is "dry" and stable; or record known "dry" weight.** **2) Measure three times weekly for first two weeks. If net gain < 2 lbs, measure weekly.** **3) If weight increase of > 2 lb between measurements, or > 5 lb from admission/"dry" weight, trigger heart failure nursing assessment and exam for signs of fluid overload. If positive, notify MD.**
Activity	**Progressive activity as tolerated.**	**Out of bed to chair three time daily with meals; activity as tolerated and with assistance if needed.**
Labs	**Brain Naturetic peptide, Chem 7, Magnesium, Phosphate**	**1) Initially, check every 2 weeks x 2 occurrences** **-If patient on standing lasix dose and K < 3.5 with normal creatinine; start K-dur 20 mg tab x 2 po daily** **2) If patient clinically stable (no respiratory events, stable weight, etc.) and lab values stable check monthly.**
DVT prophylaxis	**PER PROTOCOL****	**PER PROTOCOL****
Pain	**Tylenol** **Avoid NSAIDs and COX-2 inhibitors**	**Tylenol 500 q6 hours as needed for mild to moderate pain, or for fever > 101F** **Max 4g / daily in patients < 65y** **Max 3g mg / daily in patients > 65y years old** **Max 2g / daily if patient has acute liver injury or liver cirrhosis.**
Immunizations	**Influenza** **Pneumococcal**	**Per USPSTF guidelines**

Appendix C:

Diuretics Protocol for patients with decompensated CHF

Furosemide:

- Maximum Single Dose [Oral or IV] - 160 mg
- Maximum Daily Dose [Oral or IV] - 320 mg

Table 1: Furosemide Dosage (Oral)

Usual Oral Dose	Increased Oral Dose
20 mg	40 mg
40 mg	80 mg
60 mg	120 mg
80 - 100 mg	160 mg

Table 2: IV Furosemide Dosage [10 mg/mL]

Usual Oral Dose	IV Dose [1.5 x usual oral dose]
20 mg	30 mg [3 mL]
40 mg	60 mg [6 mL]
60 mg	90 mg [9 mL]
80 mg	120 mg [12 mL]

Administration Rate = 40 mg/min

Pharmacy Orders:

- IV furosemide 30–120 mg (1–2 times/day) PRN.
- Metolazone 2.5 mg PO BID PRN.
- Potassium 20 meq PO BID PRN.

Day 1:

- **Double Dose of Lasix per Table 1** (if BID then increase BID, not just one dose).
    - Recheck vital signs q6h.
    - Draw labs: BMP, Mg++.

Day 2:

- If weight returns to baseline, resume the usual dose of diuretic and notify provider.
- If after 24 hours with the double dose of diuretic, the weight is not back to baseline, continue with an increased dose for an additional 24 hours and add **metolazone 2.5 mg PO with each dose** (to a daily max of 5 mg).
    - Draw labs: BMP, Mg++.
    - If K < 3.5, then give KDU 40 meq.

Day 3:

- If weight returns to baseline, resume the usual dose of diuretic and notify the provider of the outcome.
- If after 24 hours with the increased dose of diuretic and metolazone, the weight is still not back to baseline:
    - Give **IV Lasix per Table 2** (administration rate: furosemide 40 mg/min).
    - Discontinue all oral Lasix.
    - Max daily dose of IV furosemide: **240 mg**.
    - Draw labs: BMP, Mg++.

Day 4:

- If weight returns to baseline, resume the usual oral dose of diuretic.
    - Draw labs: BMP, Mg++.
    - If weight continues to rise or fails to improve, notify cardiology or Dr. Bander.

Weekly Checklist

1) Add new patients: www.tinyurl.com/cardiology123
2) Ensure orders are placed in medical records
3) Make sure weekly call is scheduled
    a) Be ready to discuss patients on list and document any recommendations

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