Heart Failure Acute Admission Adult

Select orders by placing a (✓) in the associated box

<table>
<thead>
<tr>
<th>Date (dd-Mon-yyyy)</th>
<th>Time (hh:mm)</th>
</tr>
</thead>
</table>

- To be added to General Admission Orders
- Notify Primary Care Provider and Heart Function Clinic (HFC), if HFC patient, on next business day
- Daily morning weights (record on chart before 0900 hours) – teach patient to do and record

- Oxygen delivered as required to keep SpO2 greater than or equal to 92%
- 2000 mL fluid restriction OR □ ______ mL Other (specify) ____________
- 2000 mg sodium diet OR □ ______ mg Other (specify) ____________
- Ambulate - Early Mobilization (done within 48 hours)

<table>
<thead>
<tr>
<th>Lab/Tests – Specific to Heart Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Electrocardiogram</td>
</tr>
<tr>
<td>□ Chest X-Ray: □ Posterior Anterior and Lateral or □ Portable</td>
</tr>
<tr>
<td>□ Transthoracic Echocardiogram as soon as possible if not performed within the past 12 months</td>
</tr>
</tbody>
</table>

- Creatinine, electrolytes, daily x _______ days
- BNP or NT-proBNP on admission (if not already completed in emergency department)
- BNP or NT-proBNP within 48 hours prior to discharge

Heart Failure Specific Medications

- Current Canadian standard of care for medical therapy for HFrEF is Angiotensin Neprilysin Inhibitor (ARNi), Beta Blocker, Mineralocorticoid Receptor Antagonist (MRA) and Sodium-Glucose Cotransporter-2 Inhibitor (SGLT2i), see Figure 1. SGLT2i class is currently not on AHS formulary for this indication and is therefore not included here.

- Medication review and optimization of evidence based therapies is a critical component of heart failure patient discharge planning.

- Avoid ‘non-dihydropyridine’ calcium channel blockers, nonsteroidal anti-inflammatory drugs and COX II inhibitors if possible.

Refer to Best Possible Medication History (BPMH) before initiating below medications

**Diuretics** (Refer to Tables 1 & 2: Acute Heart Failure Diuretic Dosing, Recommendations & Practical Tips)

Choose ONE

- □ furosemide ______ mg PO ______ daily.
- □ furosemide ______ mg IV twice daily x _______ days. Reassess daily.
- □ furosemide ______ mg / hour IV continuous x 1 day. Reassess daily.
- AND/OR □ metOLazone ______ mg PO ______ daily.

Refer to Tables 3 & 4: Modified CCS Care of Patient with Reduced Ejection Fraction

Can patient tolerate an Angiotensin Converting Enzyme Inhibitor (ACEI)?

- □ Yes (Angiotensin Converting Enzyme Inhibitor (ACEI))

Choose ONE

- □ ramipril 2.5 mg PO twice daily.
- □ ramipril ______ mg PO twice daily.
- □ perindopril 2 mg PO once daily.
- □ perindopril ______ mg PO once daily.

- □ No (Angiotensin Receptor Blocker (ARB))

Choose ONE

- □ candesartan 4 mg PO once daily.
- □ candesartan ______ mg PO once daily.
- □ valsartan 40 mg PO twice daily.
- □ valsartan ______ mg PO twice daily.
**Table 1: Acute Heart Failure (AHF) – Diuretic Dosing**

<table>
<thead>
<tr>
<th>eGFR*</th>
<th>Patient</th>
<th>Initial IV Dose^</th>
<th>Maintenance Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than or equal to 60 mL/min/1.73 m2</td>
<td>New-onset HF or no current diuretic therapy</td>
<td>Furosemide 20 to 40 mg 2 to 3 times daily</td>
<td>Lowest diuretic dose that allows clinical stability is the ideal dose</td>
</tr>
<tr>
<td></td>
<td>Established HF or chronic oral diuretic therapy</td>
<td>Furosemide dose IV equivalent of oral dose</td>
<td></td>
</tr>
<tr>
<td>Less than 60 mL/min/1.73 m2</td>
<td>New-onset HF or no current diuretic therapy</td>
<td>Furosemide 20 to 80 mg 2 to 3 times daily</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Established HF or chronic oral diuretic therapy</td>
<td>Furosemide dose IV equivalent of oral dose</td>
<td></td>
</tr>
</tbody>
</table>

*eGFR is calculated from the Cockroft-Gault, CKD-EPI, or Modification of Diet in Renal Disease formula.  
^IV continuous furosemide at doses of 5 to 20 mg per hour is also an option.

**Table 2: Recommendations & Practical Tips for Diuretic Use**

**Recommendations**
- *IV diuretics should be given as first-line therapy for patient with pulmonary or peripheral congestion.
- *For patients requiring IV diuretic therapy, furosemide may be dosed intermittently (eg, twice daily) or as a continuous infusion.

**Practical Tips**
- *When acute congestion is cleared, the lowest dose that is compatible with stable signs and symptoms should be used.
- *Target 0.5 to 1 kg of weight loss per 24-hour period while a patient with volume overload is actively diuresing. Patients who are losing less than 0.5 kg per day despite at least 40 mg of IV furosemide will need a reassessment of fluid status and might be diuretic resistant.
- *When transitioned from IV to oral diuretic therapy, the stability of symptoms, weight, and hemodynamics should be observed for approximately 24 hours before hospital discharge.
- *To transition a patient to oral diuretics, be aware that the oral version of furosemide has approximately 50% bioavailability compared with IV furosemide.
- *Add another type of diuretic with different site of action (thiazides, spironolactone).

2017 Comprehensive Update of the Canadian Cardiovascular Society Guidelines for the Management of Heart Failure

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**Figure 1: Simplified Treatment Algorithm for Management of HF with Reduced Ejection Fraction (HFrEF)**

CCS/CHFS Heart Failure 2021 Guidelines Update
Heart Failure Specific Medications continued

Beta Blockers

Choose ONE

- □ bisoprolol 1.25 mg PO once daily.
- □ bisoprolol _______ mg PO once daily.
- □ carvedilol 3.125 mg PO twice daily.
- □ carvedilol _______ mg PO twice daily.

Sinus Node Inhibitors

Choose ONE

Refer to Ivabradine restrictions in Table 4: Medication Restrictions

- □ Ivabradine 2.5 mg PO twice daily.
- □ Ivabradine 5.0 mg PO twice daily.
- □ Ivabradine 7.5 mg PO twice daily.

Mineralocorticoid Receptor Antagonists (MRA)

Choose ONE

- □ spironolactone 12.5 mg PO once daily.
- □ spironolactone 25 mg PO once daily.

- □ Eplerenone only IF patient was stabilized on medication at home
  OR intolerant to spironolactone AND meets AHS formulary restrictions.

Refer to Eplerenone restrictions in Table 4: Medication Restrictions

- □ eplerenone 25 mg PO once daily.
- □ eplerenone 50 mg PO once daily.

Angiotensin Receptor Neprilysin Inhibitor (ARNI)

** sacubitril-valsartan (ENTRESTO) only IF patient was stabilized on medication at home OR meets AHS formulary restrictions.** see Table 4: Medication Restrictions

Ejection Fraction (EF) less than 40% done within the past 12 months MUST be documented with a consult to a HF specialist (Internal Medicine, Cardiologist) for optimization of this evidence based medication.

ARNI is contraindicated in combination with ACEI or ARB therapy.

Refer to sacubitril-valsartan (ENTRESTO) restrictions in Table 4: Medication Restrictions

Choose ONE

- □ sacubitril-valsartan 24 mg - 26 mg (ENTRESTO) PO twice daily.
  Start date (dd-Mon-yyyy) __________ Time (hh:mm) _______

- □ sacubitril-valsartan 49 mg - 51 mg (ENTRESTO) PO twice daily.
  Start date (dd-Mon-yyyy) __________ Time (hh:mm) _______

- □ sacubitril-valsartan 97 mg - 103 mg (ENTRESTO) PO twice daily.
  Start date (dd-Mon-yyyy) __________ Time (hh:mm) _______

If converting patient to sacubitril-valsartan (ENTRESTO) from ACEI: Stop ACEI, wait at least 36 hours after last ACEI dose to start drug.

If converting patient to sacubitril-valsartan (ENTRESTO) from ARB: Stop ARB, no washout period necessary, start drug when next ARB dose would have been due.

Vasodilators: Nitrates

Choose ONE

- □ nitroglycerin patch _________ mg/hour apply daily.

  Patch on at (hh:mm) __________  Off at (hh:mm) __________.

- □ isosorbide mononitrate _________ mg PO once daily.

Prior to Discharge

Review vaccine history and eligibility criteria

- □ Influenza vaccine, 0.5 mL IM x 1
  • If indicated, when patient is no longer febrile or acutely ill, with verbal informed consent, during vaccination season, if NOT already vaccinated.

- □ pneumococcal polysaccharide vaccine, 0.5 mL IM x 1
  • If indicated, when patient is no longer febrile or acutely ill, with verbal informed consent.
## Table 3: Modified 2021 CCS/CHFS Evidence Based Heart Failure Drugs/Dosage for Care of Patients with Reduced Ejection Fraction

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Specific Agent</th>
<th>Start Dose (orally)</th>
<th>Target Dose (orally)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angiotensin receptor-neprilysin inhibitor (ARNI)</td>
<td>sacubitril/valsartan**</td>
<td>24/26 mg Daily</td>
<td>97/103 mg BID</td>
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<tr>
<td>ACE inhibitors (ACEI)</td>
<td>enalapril</td>
<td>1.25 to 2.5 mg BID</td>
<td>10 mg BID / 20 mg BID in NYHA class IV</td>
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<tr>
<td></td>
<td>lisinopril</td>
<td>2.5 to 5 mg Daily</td>
<td>20 to 35 mg Daily</td>
</tr>
<tr>
<td></td>
<td>ramipril</td>
<td>1.25 to 2.5 mg BID</td>
<td>5 mg BID</td>
</tr>
<tr>
<td></td>
<td>perindopril</td>
<td>2 to 4 mg Daily</td>
<td>4 to 8 mg Daily</td>
</tr>
<tr>
<td></td>
<td>trandolapril</td>
<td>1 to 2 mg Daily</td>
<td>4 mg Daily</td>
</tr>
<tr>
<td>Angiotensin receptor blocker (ARB)</td>
<td>Candesartan</td>
<td>4 to 8 mg Daily</td>
<td>32 mg Daily</td>
</tr>
<tr>
<td></td>
<td>valsartan</td>
<td>40 mg BID</td>
<td>160 mg BID</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td>bisoproLol</td>
<td>1.25 mg Daily</td>
<td>10 mg Daily</td>
</tr>
<tr>
<td></td>
<td>carvedilol</td>
<td>3.125 mg BID</td>
<td>25 mg BID / 50 mg BID (greater than 85 kg)</td>
</tr>
<tr>
<td></td>
<td>Metoprolol CR/XL (not available in Canada)</td>
<td>12.2 to 25 mg Daily</td>
<td>200 mg Daily</td>
</tr>
<tr>
<td>Mineralocorticoid receptor antagonists (MRA)</td>
<td>spironolactone</td>
<td>12.5 mg Daily</td>
<td>50 mg Daily</td>
</tr>
<tr>
<td></td>
<td>eplerenone **</td>
<td>25 mg Daily</td>
<td>50 mg Daily</td>
</tr>
<tr>
<td>Sodium-glucose Cotransporter-2 Inhibitor (SGLT2i) *</td>
<td>dapagliflozin</td>
<td>10 mg Daily</td>
<td>10 mg Daily</td>
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<tr>
<td></td>
<td>empagliflozin</td>
<td>10 mg Daily</td>
<td>10 to 25 Daily</td>
</tr>
<tr>
<td></td>
<td>canagliflozin</td>
<td>100 mg Daily</td>
<td>100 to 300 mg Daily</td>
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<tr>
<td>Sinus node inhibitors</td>
<td>ivabradine **</td>
<td>2.5 to 5 mg BID</td>
<td>7.5 mg BID</td>
</tr>
<tr>
<td>Soluble guanylate cyclase (sGC) stimulator</td>
<td>vericiguat (not available in Canada)</td>
<td>2.5 mg Daily</td>
<td>10 mg Daily</td>
</tr>
<tr>
<td>Vasodilators</td>
<td>hydralazine</td>
<td>10 to 37.5 mg TID</td>
<td>75 to 100 mg TID to QID</td>
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<td></td>
<td>Isosorbide dinitrate (Isosorbide mononitrate 30 to 120 mg Daily may be ordered as a long acting formulation)</td>
<td>10 to 20 mg TID</td>
<td>40 mg TID</td>
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<tr>
<td>Cardiac glycosides</td>
<td>digoxin</td>
<td>0.0625 to 0.125 mg Daily</td>
<td>N/A: monitor for toxicity</td>
</tr>
</tbody>
</table>


* SGLT2i - This class is currently not on AHS formulary for this indication

** Refer to Table 4: Medication Restrictions

Version Date: May 18, 2021
<table>
<thead>
<tr>
<th>Last Name (Legal)</th>
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<td>Preferred Name</td>
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<td></td>
<td>First Name (Legal)</td>
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<tr>
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<table>
<thead>
<tr>
<th>PHN</th>
<th>ULI</th>
<th>Same as PHN</th>
<th>MRN</th>
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<table>
<thead>
<tr>
<th>Administrative Gender</th>
<th>Male</th>
<th>Female</th>
<th>Non-binary/Prefer not to disclose (X)</th>
<th>Unknown</th>
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</thead>
<tbody>
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</tbody>
</table>

**Heart Failure Acute Admission Adult**

**Additional Orders**

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Prescriber Name (print) | Prescriber Signature | Prescriber Designation
-------------------------|----------------------|----------------------

Page 3 of 3
Table 4: Medication Restrictions

**sacubitril-valsartan (ENTRESTO) restrictions:**
Only use sacubitril-valsartan (ENTRESTO) for:
1. Heart failure patients on Entresto prior to admission; or
2. The treatment of heart failure in patients with the following criteria:
   a. Reduced left ventricular ejection fraction [less than 40%]; and
   b. New York Heart Association class II or III heart failure symptoms despite at least 4 weeks of treatment with:
      ▪ a stable dose of an ACE inhibitor or an ARB; and
      ▪ in combination with a beta-blocker and other recommended therapies, including an aldosterone antagonist [if tolerable]; and
   c. Those patients who have plasma BNP greater than or equal to 150 pg/mL or NT-proBNP greater than or equal to 600 pg/mL, or if the patient has been hospitalized for heart failure within the past 12 months and has plasma BNP greater than or equal to 100 pg/mL or NT-proBNP greater than or equal to 400 pg/mL levels

*All new starts must be ordered by a specialist in Cardiology or Internal Medicine as per Alberta Blue Cross requirements.

**eplerenone restrictions:**
Only use eplerenone for:
1. Patients on eplerenone prior to admission; or
2. Patients with New York Heart Association (NYHA) Class II chronic heart failure (HF) with left ventricular systolic dysfunction (LVSD) with ejection fraction (EF) equal to or less than 35% and who are intolerant to spironolactone (e.g., gynecomastia, loss of libido, menstrual irregularities)

**ivabradine restrictions:**
Only use ivabradine for:
1. Heart failure patients on ivabradine prior to admission; or
2. The treatment of heart failure in patients with the following criteria:
   a. Reduced left ventricular ejection fraction (LVEF) of 35% or less; and
   b. New York Heart Association (NYHA) class II or III heart failure symptoms despite at least 4 weeks of optimal treatment with:
      ▪ a stable dose of an ACE inhibitor or an ARB in combination with a beta-blocker; and – if tolerated, a MRA; and
   c. Patients who are in sinus rhythm with a resting heart rate of 77 beats per minute (bpm) or more, using either an ECG or by continuous monitoring; and
3. Heart rate reduction in computed tomography coronary angiography (CTCA) with the following criteria:
   a. Use of a beta blocker is deemed unsafe; or
   b. Target heart rate cannot be achieved despite two beta-blocker doses, which may include an output trial of beta blocker as one of those doses and

*All new starts must be ordered by a specialist in Cardiology or Internal Medicine. Ivabradine should be initiated and titrated under the supervision of a physician who is experienced with the treatment of patients with chronic heart failure

Source: AHS Provincial Drug Formulary

Please refer to Heart Failure guidelines at www.ccs.ca for further information.

Version Date: May 18, 2021
## Heart Failure Pathway:
### Transition to Community Care
#### Admission to Discharge Checklist

### Consultations
(For all consultations, utilize the most appropriate/available health care provider(s) at your site to deliver services)

- Screen for Malnutrition
- Screen for Frailty
- Screen for Cognitive status

Refer to Transition/Discharge Services if anticipated need at discharge
Consider involving the following healthcare providers as necessary
- Social Worker
- Speech Language Pathologist for swallow assessment

### Heart Failure (HF) Education and Self-Care Instructions
- use teach-back technique to reinforce learning

**Ambulate – Early Mobilization (done within 48 hours)**

Provide and review HF education resources with patient/caregiver

- Management Guide
- Signs and Symptoms of HF
- HF Medicines
- Weight Chart

Dietitian to provide/arrange for education regarding sodium/fluid intake as necessary

### Discharge Plan

Determine HF Risk and recommended follow-up with Heart Function Specialist/Clinic as per HF Risk Stratification *(Form 21039)*

Complete Heart Failure Discharge Management Plan *(Form 21041)*

### Follow-up as Required

Assess tobacco use of patient
- Provide tobacco cessation counselling and resources where appropriate
- Refer to tobacco cessation program where appropriate

Notify Primary Care Provider & Heart Function Clinic/Specialists of discharge
*(include designated supportive living and home care, where appropriate)*

Provide above healthcare providers with Discharge Summary and HF Discharge Management Plan *(Form 21041)*

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*Check ‘Not Indicated’ only if item would NOT benefit the patient. Identify reason by placing a (√) in the appropriate box.

- Recently completed
- End-of-life
- Deceased
- Service/assessment is unavailable
- Other, Specify reason(s): ____________________________

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21038Bond (Rev2021-05)
Identify recommended time to follow-up visit with Heart Function Clinic/Specialist and record on Heart Failure Discharge Management Plan (Form 21041)

Hospital Discharge
Heart Failure Patient

Any of the following
- Discharge BNP greater than 500 pg/mL
- Discharge NT-proBNP, greater than 1800 pg/mL,
- Less than 30% decrease in BNP, or NT-proBNP, from admission
- 2 or more hospitalizations for HF in the past 12 months

Yes
Follow-up visit
Heart Function Specialists / Clinic
Within 14 days

No
Follow-up visit
Heart Function Specialists / Clinic
Within 28 days

For All Patients
Follow Up in Primary Care Clinic
Within 14 Days
# Heart Failure Discharge Management Plan

**Bring this Management Plan with you to your next visit**

**Nutrition**
A salt restricted diet of 2000 mg daily is strongly encouraged

*(1 teaspoonful = 2300 mg)*

**Medications**
Prescription given
☐ No ☐ Yes
Discharge medication list faxed to community pharmacy
☐ No ☐ Yes

*(Talk to your doctor or pharmacist before taking any non-prescription or herbal medicines)*

**What you need to know**

☐ Daily Weight
  - Empty bladder, wear same amount of clothing, weigh before breakfast, record your weight
  - Recognize the signs of fluid buildup: Gaining 2 lbs (1 kg) in 2 days or 5 lbs (3 kg) in one week; Swelling in your feet and legs; Bloating of your belly; Increased shortness of breath

☐ Monitor for signs and symptoms of heart failure
  - Weight gain, swelling, shortness of breath, fatigue/confusion, persistent coughing or wheezing, heart palpitations, chest pain *(angina)*

☐ Review heart failure patient education handouts. Be familiar with
  - Your medications and the importance of taking medicines as instructed;
  - Signs, symptoms and actions to take for the red, yellow and green zones in your Heart Failure Action Plan;
  - Healthy nutrition and lifestyle choices

☐ Activity ☐ No restrictions ☐ No strenuous ☐ Gradual increase
☐ Driving ☐ No restrictions ☐ No valid license ☐ Do not drive ☐ Do not drive for _____ weeks
☐ Work ☐ No restrictions ☐ Do not go back to work for _______ weeks

**Follow-up**

<table>
<thead>
<tr>
<th>Location</th>
<th>Phone number</th>
<th>Date (dd-Mon-yyyy)</th>
<th>Time (hh:mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Care Provider <em>(within 14 days of discharge)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Function Clinic/Specialist within:</td>
<td>14 days</td>
<td>28 days</td>
<td></td>
</tr>
<tr>
<td>Obtain Influenza and/or pneumococcal vaccines at pharmacy, primary care provider or health clinic if needed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

☐ Reviewed above content with patient/family/caregiver and copy of form provided

**Health Care Provider** *(Last Name, First Name)*

<table>
<thead>
<tr>
<th>Designation</th>
<th>Initial</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
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</table>

Signature

Date (dd-Mon-yyyy)