

Heart Failure Acute Admission Adult

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

Date (dd-Mon-yyyy)	Time (hh:mm)
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Last Name (Legal)		First Name (Legal)	
Preferred Name <input type="checkbox"/> Last <input type="checkbox"/> First		DOB(dd-Mon-yyyy)	
PHN	ULI <input type="checkbox"/> Same as PHN	MRN	
Administrative Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		<input type="checkbox"/> Non-binary/Prefer not to disclose (X) <input type="checkbox"/> Unknown	

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)

Lab/Tests – Specific to Heart Failure

- Electrocardiogram
- Chest X-Ray: Posterior Anterior and Lateral **or** Portable
- Transthoracic Echocardiogram as soon as possible if not performed within the past 12 months
- 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 Nephilysin 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.
 - OR** furosemide _____ mg IV twice daily x _____ days. Reassess daily.
 - OR** 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.
 - OR** ramipril _____ mg PO twice daily.
 - OR** perindopril 2 mg PO once daily.
 - OR** perindopril _____ mg PO once daily.

No (**Angiotensin Receptor Blocker (ARB)**)

- Choose ONE →
- candesartan 4 mg PO once daily.
 - OR** candesartan _____ mg PO once daily.
 - OR** valsartan 40 mg PO twice daily.
 - OR** valsartan _____ mg PO twice daily.

Prescriber Name (print)	Prescriber Signature	Prescriber Designation
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Table 1: Acute Heart Failure (AHF) – Diuretic Dosing

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

*eGFR is calculated from the Cockcroft-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

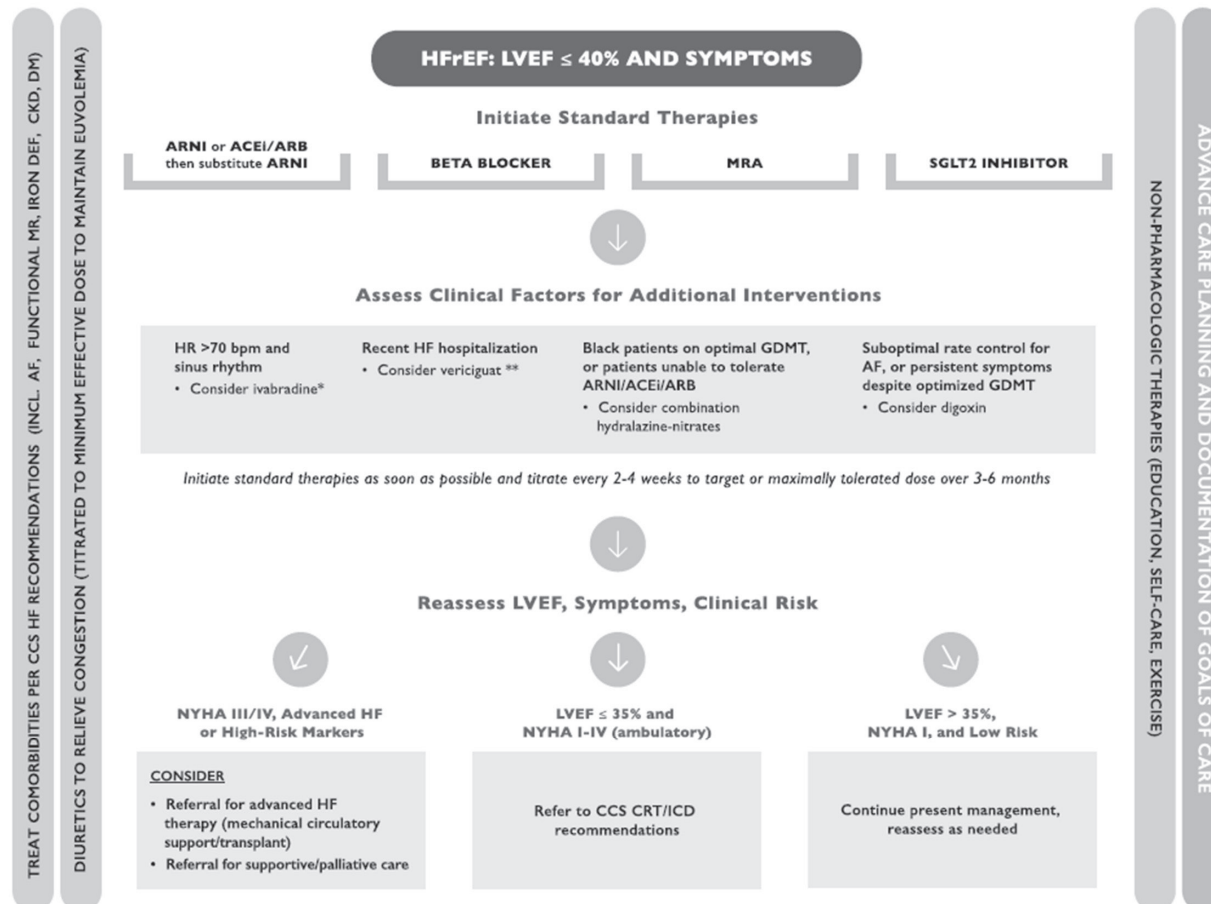


Figure 1: Simplified Treatment Algorithm for Management of HF with Reduced Ejection Fraction (HFrEF)

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Heart Failure Acute Admission Adult

Heart Failure Specific Medications continued

Beta Blockers

Choose ONE →

- bisoPROlol 1.25 mg PO once daily.
- OR** bisoPROlol _____ mg PO once daily.
- OR** carVEDilol 3.125 mg PO twice daily.
- OR** 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.
- OR** Ivabradine 5.0 mg PO twice daily.
- OR** Ivabradine 7.5 mg PO twice daily.

Mineralocorticoid Receptor Antagonists (MRA)

Choose ONE →

- spironolactone 12.5 mg PO once daily.
- OR** spironolactone 25 mg PO once daily.
- OR** 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.
- OR** 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.

Choose ONE →

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

- sacubitril-valsartan 24 mg - 26 mg (ENTRESTO) PO twice daily.
Start date (dd-Mon-yyyy) _____ Time (hh:mm) _____
- OR** sacubitril-valsartan 49 mg - 51 mg (ENTRESTO) PO twice daily.
Start date (dd-Mon-yyyy) _____ Time (hh:mm) _____
- OR** 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) _____.
- OR** 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.

Prescriber Name (print)	Prescriber Signature	Prescriber Designation
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Table 3: Modified 2021 CCS/CHFS Evidence Based Heart Failure Drugs/Dosage for Care of Patients with Reduced Ejection Fraction

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

Source: CCS/CHFS Heart Failure Guidelines Update: Defining A New Pharmacologic Standard of Care for Heart Failure with Reduced Ejection Fraction. McDonald M et al. Can Journal Cardiol 2021; 37: 531-546.

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

** Refer to Table 4: Medication Restrictions

Version Date: May 18, 2021

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**

Last Name (Legal)		First Name (Legal)	
Preferred Name <input type="checkbox"/> Last <input type="checkbox"/> First		DOB(dd-Mon-yyyy)	
PHN	ULI <input type="checkbox"/> Same as PHN	MRN	
Administrative Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		<input type="checkbox"/> Non-binary/Prefer not to disclose (X) <input type="checkbox"/> Unknown	

Start at Admission

Date (dd-Mon-yyyy)	Time (hh:mm)	Completed	Not indicated*	Initials
Echocardiogram within the past 12 months	Ejection Fraction _____ %			
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				
<ul style="list-style-type: none"> ■ 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				
<input type="checkbox"/> Management Guide <input type="checkbox"/> Nutrition and Lifestyle Choices to Manage HF <input type="checkbox"/> Signs and Symptoms of HF <input type="checkbox"/> Managing HF - Action Plan (green/yellow/red) <input type="checkbox"/> HF Medicines <input type="checkbox"/> Online Patient Resources <input type="checkbox"/> 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				
<ul style="list-style-type: none"> ■ 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)				

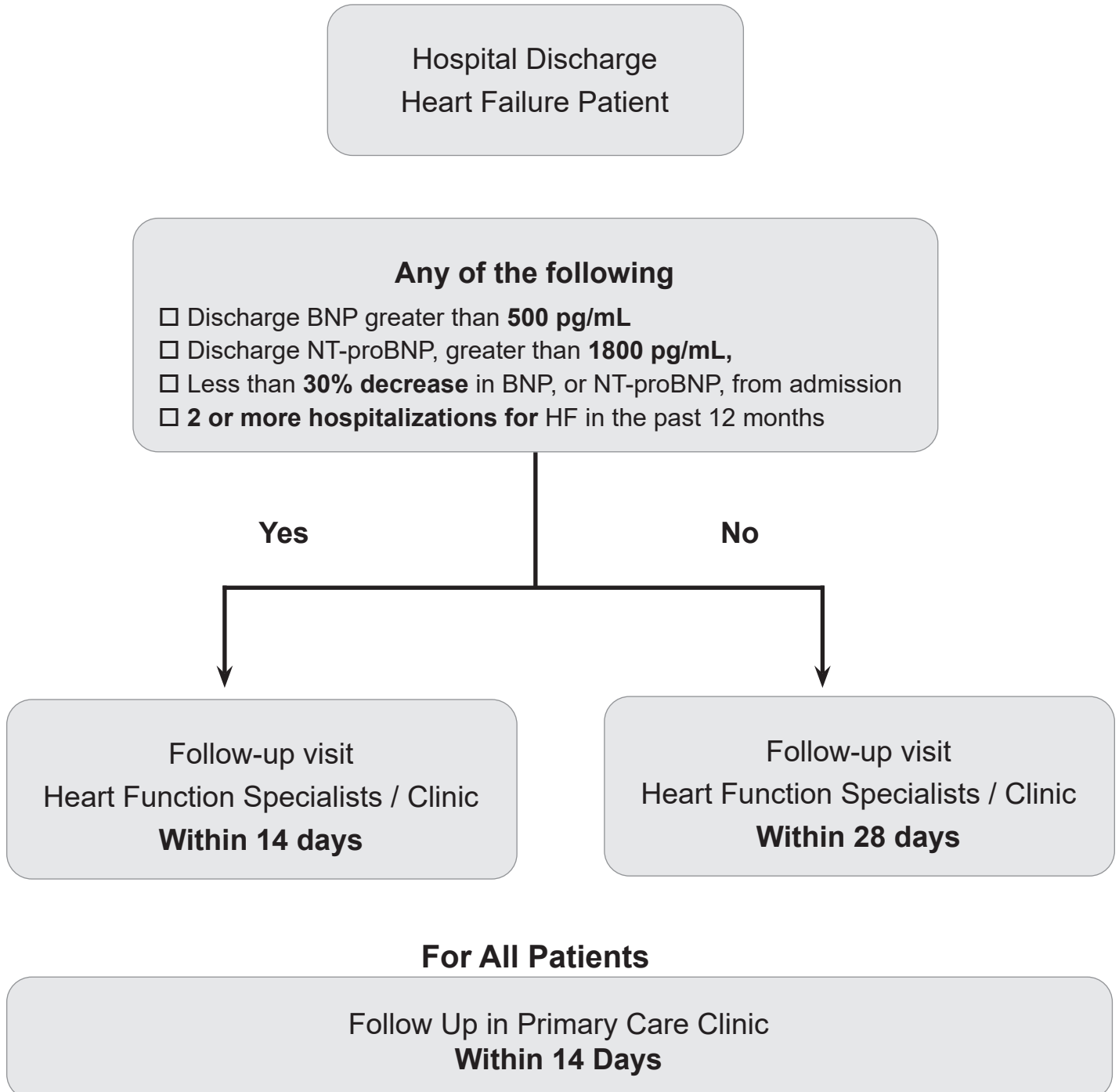
*Check 'Not Indicated' only if item would NOT benefit the patient. Identify reason by placing a (✓) in the appropriate box.

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

Last Name <i>(Legal)</i>		First Name <i>(Legal)</i>	
Preferred Name <input type="checkbox"/> Last <input type="checkbox"/> First		DOB <i>(dd-Mon-yyyy)</i>	
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Administrative Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		<input type="checkbox"/> Non-binary/Prefer not to disclose (X) <input type="checkbox"/> Unknown	

Heart Failure Risk Stratification

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



Last Name <i>(Legal)</i>		First Name <i>(Legal)</i>	
Preferred Name <input type="checkbox"/> Last <input type="checkbox"/> First		DOB <i>(dd-Mon-yyyy)</i>	
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Administrative Gender <input type="checkbox"/> Male <input type="checkbox"/> Female		<input type="checkbox"/> Non-binary/Prefer not to disclose (X) <input type="checkbox"/> Unknown	

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 <i>(1 teaspoonful = 2300 mg)</i>				
Medications Prescription given <input type="checkbox"/> No <input type="checkbox"/> Yes Discharge medication list faxed to community pharmacy <input type="checkbox"/> No <input type="checkbox"/> Yes <i>(Talk to your doctor or pharmacist before taking any non-prescription or herbal medicines)</i>				
What you need to know				
<input type="checkbox"/> Daily Weight Discharge 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				
<input type="checkbox"/> Monitor for signs and symptoms of heart failure – Weight gain, swelling, shortness of breath, fatigue/confusion, persistent coughing or wheezing, heart palpitations, chest pain (<i>angina</i>)				
<input type="checkbox"/> Review heart failure patient education handouts. Be familiar with <input type="checkbox"/> Your medications and the importance of taking medicines as instructed; <input type="checkbox"/> Signs, symptoms and actions to take for the red, yellow and green zones in your Heart Failure Action Plan; <input type="checkbox"/> Healthy nutrition and lifestyle choices				
<input type="checkbox"/> Activity <input type="checkbox"/> No restrictions <input type="checkbox"/> No strenuous <input type="checkbox"/> Gradual increase <input type="checkbox"/> Driving <input type="checkbox"/> No restrictions <input type="checkbox"/> No valid license <input type="checkbox"/> Do not drive <input type="checkbox"/> Do not drive for _____ weeks <input type="checkbox"/> Work <input type="checkbox"/> No restrictions <input type="checkbox"/> Do not go back to work for _____ weeks				
Follow-up	Location	Phone number	Date <i>(dd-Mon-yyyy)</i>	Time <i>(hh:mm)</i>
Primary Care Provider <i>(within 14 days of discharge)</i>				
Heart Function Clinic/Specialist within: <input type="checkbox"/> 14 days <input type="checkbox"/> 28 days				
Obtain Influenza and/or pneumococcal vaccines at pharmacy, primary care provider or health clinic if needed				
<input type="checkbox"/> Reviewed above content with patient/family/caregiver and copy of form provided				
Health Care Provider <i>(Last Name, First Name)</i>		Designation		Initial
Signature		Date <i>(dd-Mon-yyyy)</i>		

