

HEART FAILURE PATHWAY

This Calgary Zone Enhanced Primary Care Clinical Pathway has been developed with consideration of guidelines. The following is a best-practice clinical pathway for management of heart failure relevant to the primary care medical home that includes a flow diagram and expanded details

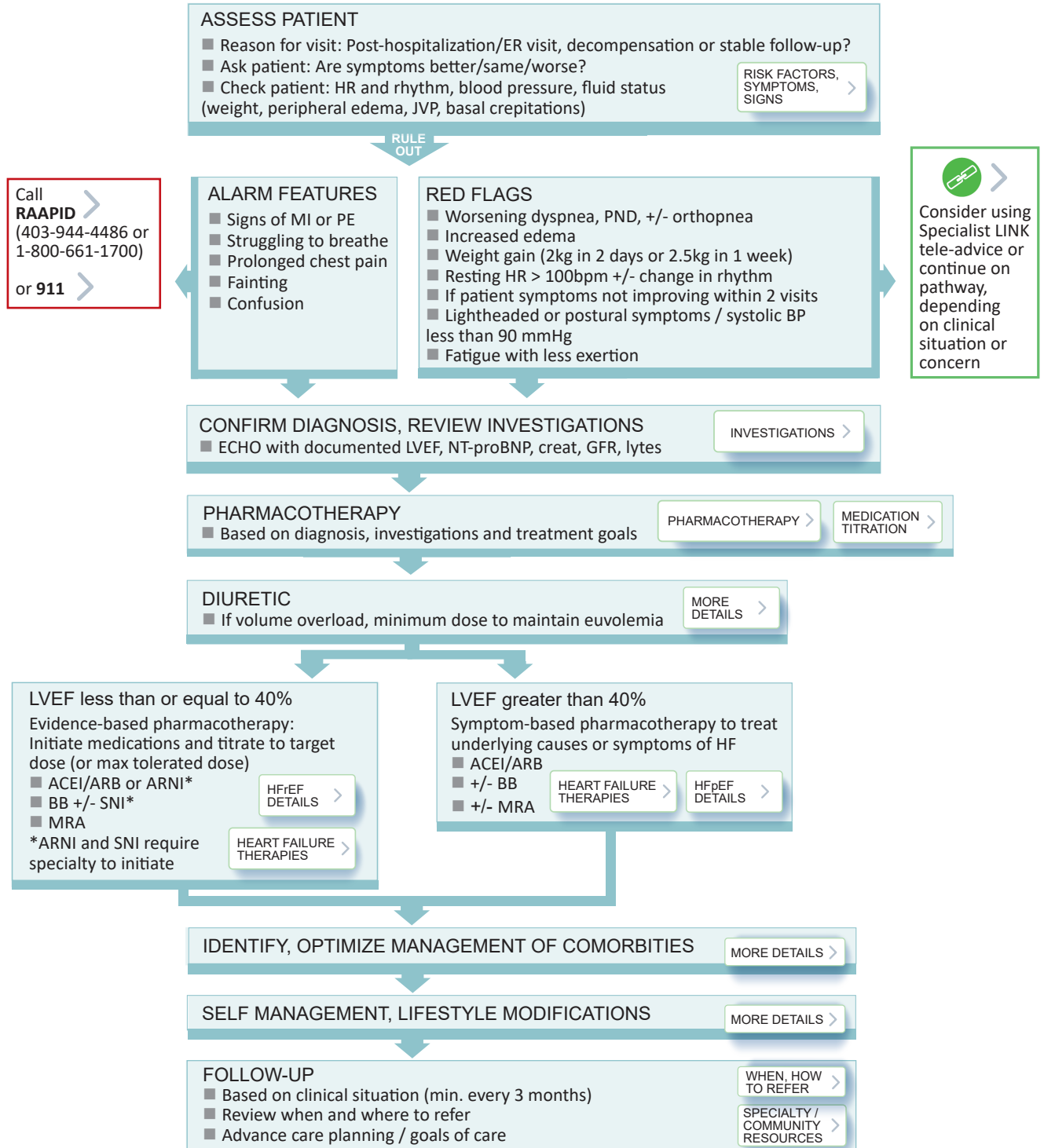
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CLINICAL FLOW DIAGRAM: CONFIRMED HEART FAILURE



Focused Summary on Heart Failure Relevant to Primary Care

Heart failure (HF) is a clinical syndrome characterized by myocardial damage, abnormal systolic and diastolic function, exercise intolerance and fluid retention. Patients with a diagnosis of heart failure have a high symptom burden and impact on quality of life, as well a high risk of hospitalization and mortality.

Heart failure (HF) affects approximately 2% of adults with close to 6000 in-patient HF admissions per year in Alberta. The goals of HF treatment are to prolong active, independent life by reducing symptoms and delay the progression of the underlying heart dysfunction.

Appropriate HF management and the support of HF patients in the community are critical to optimizing patient outcomes and minimizing the strain on the health care system. HF care in Alberta is suboptimal with less than 2/3 of patients receiving assessment of left ventricular (LV) function and less than 40% being jointly followed by primary health care and specialist care, although both LV assessment and joint care plans are well evidenced clinical practices. Canadian Cardiovascular Society (CCS) HF Guidelines state that optimal HF care occurs when both primary health care and specialized HF teams are involved in the care of these critically ill patients. Data from Alberta support the CCS HF recommendation that patients seen by both a family physician and a specialist are more likely to have better 1-year mortality than those cared for by a family physician alone

Even though treatment for heart failure has improved, our aging population and improved treatment of acute cardiovascular disorders has led to a steady increase in the prevalence of heart failure. New advancements in management continue to transform the treatment of heart failure, but evidence has repeatedly shown that dissemination of these treatments into the general population occurs very slowly or not at all. This includes poor access to both new and older evidence-based medications, as well as poor initiation/adherence to disease management approaches which have been shown to work.

The clinical course of patients with HF is one of repeat emergency department visits, hospital readmissions, and high mortality. Consequently, HF readmissions are recognized as a major health care problem. Frequent users of healthcare services represent a relatively small group of patients who account for a disproportionately large amount of healthcare utilization, including emergency department visits.

After discharge, 25% of HF patients are readmitted within the first 30 days, and 50% within the first 6 months. Prompt follow-up of patients with HF has been associated with lower rates of death and readmission, and 30 day follow-up has been included as a quality-of-care indicator in Canada. A fully integrated project combining optimized inpatient care with enhanced transition services, such as integrated plans of care, enhances referral and communication between care providers thereby improving outcomes for patients with HF.

At this time, there have been three recent and significant changes in heart failure care that have prompted the development of this pathway. These include:

- a) Evidence to support the need for EARLY follow up of patients by primary care within 7-10 days post discharge from hospital or ED visit with Heart Failure Diagnosis or symptoms. This timely follow up has been shown to lower rates of readmission and death.

- b) Critical need to OBTAIN and DOCUMENT both LVEF and NT-proBNP at the time of diagnosis in patients with HF in order to stratify their medications and support follow up with specialist care.
- c) New standard of care medications for heart failure with low ejection fraction (≤ 40) (HFrEF). **Currently, in Alberta, prescriptions for Angiotension receptor-neprilysin inhibitor (ARNI) and Sinus node inhibitor (SNI) must be initiated by a specialist in Internal Medicine or Cardiology. Once initiated, dose adjustments and prescribing may be done without specialist involvement.**

Care for patients with Heart Failure is complex. Clinical pathways have been shown to improve access to evidence-based medical care for patients with heart failure and, when introduced, have been shown to be associated with improved outcomes. This pathway has been developed by the Calgary Zone Primary Care Networks in partnership with the Section of Cardiology and Alberta Health Services. These local guidelines are based on best available evidence, current local resources and are practical in a primary care setting. The pathway is designed to contain all critical elements of the heart failure visit, which are laid out in a manner that will mirror most clinical interactions, and therefore support care for the patient in the medical home.

This package includes: a focused summary of HF relevant to primary care; a checklist to guide your in-clinic patient review; links to additional resources for this specific condition and a clinical flow diagram with expanded detail.

Heart failure is best managed using a team approach. In particular post hospitalization follow up, teaching the basics of HF management including self-management and medication titration can occur in a variety of settings and involve members of the multidisciplinary team.

Finally, follow up with BOTH specialist and primary care following hospital discharge is associated with a 39% lower rate of death or repeat hospitalization. Collaboration between primary and specialty care is key.

Checklist to guide your in-clinic review of patient with heart failure

- Clarify whether visit is 1 week post hospitalization or post ER visit for HF-related symptoms, decompensation of HF symptoms or stable follow up.
- Review HF investigations: if recent hospitalization for diagnosis or decompensation of HF, ensure NT-pro-BNP and ECHO with documented LVEF have been done (if not done, or LVEF not documented, order in the community).
- For all follow up visits whether for recent diagnosis, decompensation or stable HF: check fluid status, HR, and BP; review medications and most recent electrolytes and creatinine/GFR. (These are usually ordered at the time of hospital discharge).
- Optimize medical management according to current guidelines and documented ejection fraction (HFrEF versus HFpEF).
- Provide patient with tools for self-management and lifestyle modification.
- Ensure referral to specialty care for co-management when ejection fraction equal to or less than 40% and/or medical management not optimized.

Expanded Detail

Safety Visit- Post hospitalization or ER visit (7 days post discharge)

Available Canadian-based evidence indicates a benefit of early follow up to patients discharge from hospital for acute heart failure, whether from an ED or in-hospital setting. **Follow-up** with any physician during the **first 7 days post discharge** is associated with a **15% lower rate of death or readmission** when compared to follow up within the first 30 days (estimated NNT of <10). Follow up with a familiar physician is associated with an additional 5-10% lower rate of death or readmission as compared to a non-familiar physician.

For these reasons, several societies now recommended early follow up of patients with acute heart failure who are discharged from an acute care facility, and that appointments be made (with the primary care provider) prior to their discharge.

Patients should be advised regarding self-monitoring (see Table 2), as well as advice about when to be seen (patient Handout). This will hopefully allow for patients to identify symptoms/signs of decompensation early, so that follow up may occur within the medical home.

Heart Failure: risk factors, symptoms and signs

Most Common risk factors for HF:

- Hypertension
- Ischemic heart disease
- Cardiomyopathy
- Obesity and/or diabetes
- Cardiac arrhythmia
- Valvular heart disease

Symptoms of HF (Diagnosis suspected/known or decompensation of HF):

- Breathlessness at rest or on exertion
- Orthopnea
- Paroxysmal nocturnal dyspnea (PND), defined as awakening from a recumbent position due to dyspnea with resolution of symptoms with rising to the upright position
- Peripheral/dependent edema
- Fatigue
- Confusion (particularly in elderly patients)

Signs of HF (Diagnosis suspected/known or decompensation of HF):

- Bilateral pitting edema
- Weight gain (over 2-5 days)
- Basal lung crackles/crepitations
- Elevated JVP or positive abdominojugular reflex
- Elevated HR (>100)
- Hypoxemia in severe cases
- Tachypnea

Essential HF investigations: ECHO, NT-proBNP; Cr,GFR,lytes

Echocardiography (ECHO): Echocardiography with documented left ventricular ejection fraction (LVEF). The **documentation of LVEF is ESSENTIAL** and ECHOs should only be ordered from providers who include documentation of LVEF BY NUMBER in the ECHO report. Echocardiography with documented LVEF should be ordered at the time of suspected HF diagnosis (either in acute care setting or community), during hospitalization for decompensated HF or if the last echocardiogram was done more than 2-3 years prior (or if LVEF has not been documented).

The documentation of LVEF allows for heart failure to be classified into the following two subgroups:

- Heart failure with reduced ejection fraction (HFrEF) when the echocardiogram reports a left ventricular ejection fraction of less than or equal to 40%
- Heart failure with preserved ejection fraction (HFpEF) when the echocardiogram reports a left ventricular ejection fraction of greater than 50%- HOWEVER those with LVEF 41-50% are treated the same as those for HFpEF, so, for this pathway, we consider ANY LVEF greater than 40% to mean HFpEF.
- Classification into HFrEF versus HFpEF should be based on lowest, previously documented LVEF. However, if EF is more recently above 40%, then newer evidence-based therapies do not need to be implemented.
- Treatment may improve LVEF: this is an indication that medications are **effective and target doses need to be maintained**.

NT-proBNP: NT-proBNP (N-terminal pro-Brain Natriuretic Peptide) or BNP (Brain Natriuretic Peptide) are naturally occurring peptides released by heart ventricles. These tests are useful in the diagnosis of heart failure, determination of severity of heart failure and for prognostication. In the Calgary Zone, NT-proBNP is available for testing. It is important to note that these values correspond to decompensated heart failure and do not apply when heart failure is stable. For this reason, we do NOT recommend routinely measuring NT-proBNP after a diagnosis of heart failure has been established. The following are exceptions:

- For outpatient risk assessment when referring to a heart failure clinic (as long as not already done in the preceding 3 months).
- At hospitalization and 24-48 hours prior to hospital discharge to help determine referral to a HF clinic.

Patient age	NT-proBNP level (pg/mL)	Interpretation (only for acute or decompensated HF)
50-75 years old	≤ 300	HF unlikely
	300 - 900	HF possible but other diagnoses need to be considered
	> 900	HF likely
>75 years old	≤ 300	HF unlikely
	300 – 1,800	HF possible but other diagnoses need to be considered
	> 1,800	HF likely

IMPORTANT: an NT-proBNP under 300 does not rule out a diagnosis of STABLE HF. The above values apply for SUSPECTED NEW DIAGNOSIS OR DECOMPENSATED HF.

In Alberta, certain evidence-based medications, such as sacubitril/valsartan (ARNI) will not be covered by Alberta Bluecross without a measurement of Natriuretic Peptides (this can be within the previous few months).

Creatinine/GFR, and electrolytes-regular monitoring to establish baseline and guide pharmacotherapy.

Additional investigations in HF depending on clinical situation:

- ECG- ascertain HR and rhythm, rule out ongoing ischemia, assess prior infarct/bundle branch block.
- CXR-PA/Lat-particularly helpful in assessing cardiomegaly, vascular redistribution, pleural effusion, pulmonary edema. May also consider if looking for concurrent or alternate explanation of symptoms.
- Creatinine/GFR, electrolytes-essential lab investigations for patients with HF.
- BUN-may be helpful if clinical question of volume depletion.
- CBC-helpful for many aspects of care including identifying anemia (which may exacerbate HF).
- Glucose-consider in context of patient (comorbidities/infection).
- TSH-hyperthyroidism may cause and/or aggravate HF. Hypothyroidism causes HF only with severe cases of myxedema. Treatment of thyroid condition will reverse/improve HF.

Pharmacotherapy

Diuretics: are used in the same manner for either HF_rEF or HF_pEF if patient is volume overloaded (increased weight, edema, increased JVP, crackles/rales). Initiate diuretics and titrate as necessary as per instructions in [Table 1](#). Use the minimum dose required to maintain euvolemia.

Heart failure may occur with any degree of left ventricular ejection fraction. However, treatment targets and evidence for therapies is based on whether LVEF is documented as 40% or less (HF_rEF) or greater than 40% (HF_pEF).

HFrEF: Patients with low LVEF (less than 40%) have been well studied. For patients with HFrEF, there are several EVIDENCE-BASED therapies that have been shown to improve LVEF, heart failure symptoms, exercise tolerance, and quality of life. These therapies have also been shown to reduce hospitalization and mortality. For patients with HFrEF, **the EVIDENCE-BASED** treatment goal is to initiate medication and titrate to target dose (or maximum tolerated dose) to improve symptoms, hospitalizations and survival. (see [Table 1](#)).

- **ACEI or ARB (if ACEI intolerant) or ARNI (needs to be initiated by specialty):** If not already on, initiate while diuretic therapy is being optimized. Start with lowest dose and titrate to target dose (or maximum tolerated dose) as per instructions in Table 1. **Once initiated, does not require specialist to re-start or alter the dose.**
- **Mineralocorticoid Receptor Antagonists (MRA):** May initiate with above medications in patients with serum potassium less than 5.0 mmol/L and GFR greater than or equal to 30. Start with lowest dose and titrate to target dose (or maximum tolerated dose) as per instructions in Table 1. It is important to monitor creatinine, GFR and electrolytes with the MRA's as they may cause life-threatening hyperkalemia and/or renal insufficiency.
- **Beta-blocker (BB):** Initiate when stable on ACEI/ARB or ARNI ± diuretic. May initiate sooner if needed for heart rate regulation. Start with lowest dose and titrate to target dose (or maximum tolerated dose) as per instructions in [Table 1](#).
- **Sinus node inhibitor (Ivabradine):** May be initiated (**needs to be initiated by specialty**) if patient is in sinus rhythm and heart rate is at least 75 beats per minute despite target dose (or maximum tolerated dose) of beta-blocker. May also be used in patients who are unable to tolerate beta-blockers. Not useful for patients in atrial fibrillation. **Also does not require specialist to re-start or alter dose.**

HFpEF: Therapies have also been shown to mediate definite, but less significant effects in patients with heart failure and LVEF that is preserved (greater than or equal to 40%). For patients with HFpEF, the goal of therapies is **SYMPTOM-BASED**. In patients with HFpEF, these therapies have NOT been shown to reduce mortality or to improve LVEF (see [Table 1](#)).

- **ACEI or ARB:** Have been shown to improve symptoms of heart failure and exercise tolerance and modestly reduce hospitalization for heart failure. Start with lowest dose and target treatment to BP less than 130 systolic. See Table 1 for dosing and instruction.
- **MRA:** Consider initiating if stable on ACEI/ARB and diuretic. Has been shown to improve symptoms of heart failure and exercise tolerance and modestly reduce hospitalization for heart failure. Start with lowest dose only in patients with serum potassium of less than 5.0mmol/L and GFR greater than or equal to 30. It is important to monitor creatinine, GFR, and electrolytes with MRA's as they may cause life-threatening hyperkalemia and/or renal insufficiency. See Table 1 for dosing and instruction.
- **Beta-blockers:** Not recommended unless needed for HR regulation or additional BP lowering. See [Table 1](#) for dosing and instruction.

Medications to relieve symptoms in HFrEF or HFpEF:

- **Digoxin:** Not a first line medication in treating HF. May be used for patients in sinus rhythm who continue to have moderate to severe symptoms of HF despite target dose of beta-blockers and SNI (HFrEF). Alternatively, may be used for patients in atrial fibrillation who are not rate

controlled (ie. HR greater than 100) despite target dose of beta-blockers. May also be used in patients for whom beta-blockers are contraindicated (see [Table 1](#) for dosing instructions).

- **Nitrates:** May be used to reduce symptoms of angina and/or orthopnea. See Table 1 for dosing and instructions.
- **Hydralazine/Nitrate combination:** These medications, given together, are reserved for patients who unable to tolerate ACEI or ARB due to angioedema, or have severe renal dysfunction/hyperkalemia; or have persistent/severe symptoms despite optimal medical management. The major limitation of these medications is hypotension and they are therefore infrequently used.

TABLE 1: Evidence based heart failure therapies

Medication	Treatment goal	Start Dose (mg unless otherwise specified)	Target Dose	Interval for titration	Monitoring and tests to guide titration (LINK)	Comments
Evidence based heart failure therapies						
Diuretics						
Loop Diuretics (addition of thiazide in diuretic resistant cases)	HFrEF & HFpEF: symptoms and signs of congestion; Maintain euvolemia and assist in volume regulation	Furosemide 20 mg daily Metolazone 2.5 mg HCTZ 12.5 mg or 25 mg daily	As per response. Caution with increasing dosage. Use minimum dose to maintain euvolemia	Variable, as needed to control volume only	electrolytes, creatinine	High risk of electrolyte abnormality when concomitant/combinati on diuretic changes; Consider re-evaluation of diuretic strategy when total daily loop dose >160- 200 mg/day.
ACEI						
Enalapril	HFrEF: Improve LVEF and treat hypertension	1.25-2.5mg BID	10-20 BID in NYHA class IV	Titrate 2 weeks (increase dose 50-100%)	BP, electrolytes and creatinine 7-14 days after medication is initiated and with each dose adjustment.	Note: ACEI or ARB (ARB if intolerant to ACEI-ARB's not superior.
Lisinopril	HFpEF: treat hypertension	2.5-5mg daily	20-35 mg daily			
Perindopril		2-4 mg daily	4-8mg daily			
Ramipril		1.25-2.5 mg BID	5 mg BID			
Trandolapril		1-2 mg daily	4 mg daily			
ARB (If unable to tolerate ACEI)						
Candesartan	HFrEF: Improve LVEF and treat hypertension	4-8 mg daily	32 mg daily	Titrate every 4 weeks (increase	BP, electrolytes and creatinine 7-14 days after medication is initiated and	
Valsartan		40 mg BID	160 mg BID			

	HFpEF: treat hypertension			dose 50-100%).	with each dose adjustment.	
Beta Blocker						
Carvedilol	<p>HFrEF: Improve LVEF and regulate heart rate</p> <p>HFpEF: reduce BP and regulate heart rate</p>	3.125 mg BID	25 mg BID; 50 mg BID (>85kg)	titrate 2-4 weeks (increase dose 50-100%).	HR and BP	Tolerated by majority of patients with COPD. Patients with reactive airways disease (RAD) may develop increased bronchospasm with BB and in these patients you may wish to use the highly B1 selective Bisoprolol and you may need to use a lower dose. Ivabradine does not cause bronchospasm and can be used in patients with sinus rhythm who cannot take BB.
Bisoprolol	<p>HFrEF: Improve LVEF and regulate heart rate</p> <p>HFpEF: reduce BP and regulate heart rate</p>	1.25 mg daily	10 mg daily	titrate 2-4 weeks (increase dose 50-100%).	HR and BP	Indicated for prevention of HF, not yet indicated for treatment of HF Reduce diuretic by 30% when initiating Also must reduce insulin and SU.
Metoprolol	Metoprolol is not evidence based treatment in HF					
Mineralocorticoid Receptor Antagonists (MRA)						
Spironolactone	<p>HFrEF: improve LVEF;</p> <p>HFpEF: Assist in volume regulation and antifibrotic.</p>	12.5 mg daily	50 mg daily	2 weeks	Monitor electrolytes and creatinine 3-7 days after medication is initiated and with each dose adjustment	<p>More risk of hyperkalemia, less of hypotension. May precipitate hyponatremia.</p> <p>HFpEF: Consider if increased NT-pro-BNP.</p>

Evidence based medications for HFREF (LVEF less than 40)						
Sinus Node Inhibitor (SNI)						
Ivabradine	HFrEF: improve LVEF and regulate HR (to be used only in patients in sinus rhythm).	2.5-5mg	7.5mg BID	2 weeks	HR only, may need ECG if suspicious of AF;	Must be initiated by IM/CARD but can be continued or titrated without IM/CARD. Works only if patient is in sinus rhythm.
Angiotensin receptor-neprilysin inhibitor (ARNI)						
Sacubitril/ Valsartan	HFrEF: improve LVEF and treat hypertension	24/26 mg BID	97/103 mg BID	2-4 weeks	Monitor BP, electrolytes, creatinine 7-14 days after medication is initiated and with each dose adjustment.	indicated if not optimally managed with ACEI or ARB or depending on NT-pro-BNP/documented LVEF; Cannot use with ACEI or ARB, must have 36 hour washout; Must be initiated by IM or CARD but can be titrated without IM/CARD;
Symptom based therapies						
Nitrates	HFrEF: reduce symptoms of angina and/or orthopnea. HFpEF: reduce symptoms of angina and/or orthopnea.	0.2 mcg/hr topical patch or sustained release 30 mg od		No limit	BP only	Must have nitrate free period to avoid tachyphylaxis- minimum 8 hours daily.
Digoxin	HFrEF: For HR control if not optimally managed with other medications. Only for use in patients with systolic HF. HFpEF: For HR control if not optimally managed with other medications	0.0625 od to 0.125 mg od		No need to titrate	HR, electrolytes, creatinine and serum digoxin level 5-7 days after initiation and with dose adjustments.	Ensure at least 8 hours after last dose for TROUGH level. Do not titrate- only need to be certain level is < 1.2 nmol/L.

NOTE: If patient has a dehydrating illness (eg. Gastro/flu) consider holding MRA/Diuretic and possibly ACEI/ARB/ARNI until illness resolves.

Guide for titration of medications, general comments:

- 1. Assess HR (particularly with beta-blocker/sinus node inhibitor)**
 - a) Controlled HR is needed for optimal management.
 - b) HR should be ideally 50-70 bpm for sinus.
 - c) HR should be 90-100bpm for atrial fibrillation.
 - d) If HR is greater than 100, reassess medications- consider increase in dosage or call to Specialist Link for discussion.
 - e) If resting HR is less than 50, consider call to specialist LINK for discussion.

- 2. Assess for fatigue and its impact on function (particularly with beta-blocker)**

- 3. Assess BP**
 - a) The recommendation is to treat to current hypertension guidelines. Systolic BP less than 130 is ideal.
 - b) Be extremely careful when using multiple diuretics, because this will greatly increase the risk of hypotension (rapid diuresis) and hyponatremia.
 - c) If systolic BP <90 mmHg with symptoms, a review of medications and potential medication adjustment based on patient's fluid status may be required. Consider call to Specialist Link for advice.

- 4. Assess for postural lightheadedness**

Monitor for symptoms of orthostasis and assess patient for orthostatic hypotension. Symptoms for orthostasis may be most common in the morning when the patient is waking up.

- 5. Check electrolytes (Particularly with diuretics, ACEI/ARB/ARNI/MRA)**
 - a) If potassium 5.2-5.5mM-stop potassium supplements and reduce/hold MRA (if applicable). Reassess Potassium in 3-5 days.
 - b) If potassium 5.6-6.0-stop potassium supplements, MRA and hold ACEI/ARB. Reassess potassium in 2-3 days and assess ACE/ARB dose accordingly.
 - c) If potassium >6.0-send to ER (call RAAPID) for treatment of hyperkalemia.

- 6. Check creatinine (Particularly with diuretics, ACEI/ARB/ARNI/MRA)**
 - a) The more rapidly the creatinine changes, the more frequent reassessment is required. Changes of > 20%- 30% increase in creatinine should necessitate a review of medications and potential medication adjustment based on patient's fluid status. Consider call to Specialist Link for advice.
 - b) A common cause of increased creatinine is hypovolemia. A volume assessment of the patient is warranted and reduction/temporary cessation of diuretics is the first step.
 - c) Proactively reduce use of diuretics during concomitant episodes of dehydrating illnesses or periods of poor intake.
 - d) Most clinicians will stop the MRA and reassess before stopping the ACEI (or ARB) if the creatinine level is increasing.

Patients seen in follow up after hospitalization should have had creatinine and electrolytes ordered at the time of discharge to be reviewed in office visit 7-10 days post-hospitalization. Once stable, it may be worthwhile following up with the patient and monitoring labs once a month for 3 months and then every 3 months thereafter. In many HF clinics, serum electrolytes, creatinine/GFR and BUN are routinely measured every 1-3 months in stable patients. Creatinine, electrolytes, and BUN should also be checked within first few days of any intercurrent illness that may affect volume or renal status (eg. Gastroenteritis, influenza or recent surgery).

Comorbidity management

Comorbidities should be identified and treatment optimized when possible. Conditions that may contribute to/or are associated with heart failure include:

- 1) Diabetes-treatment should be optimized according to current diabetes guidelines. Use of sodium-glucose transporter 2 (SGLT2) inhibitors in this group may be beneficial. Starting dose of these medications in patients with HF is as per the product monograph. These medications are indicated for prevention of HF, but not yet indicated for the treatment of HF. If the patient is taking a loop diuretic, it is recommended to reduce diuretic by 30% when initiating SGLT2 inhibitors. Also, it is recommended to reduce the dose of insulin by 10-20% but depends on BS control- if HBA1c is > 8 you can probably just start it if no recent hypoglycemia.
- 2) Sleep apnea-this diagnosis should be considered in patients with risk factors and treatment initiated where appropriate (see Specialist Link for sleep apnea pathway).
- 3) COPD is a common co-morbidity and management should be optimized (see Specialist Link for COPD pathway).
- 4) Gout-avoid use of NSAIDs or steroids as both are known to affect BP and renal function (see Specialist Link for gout pathway). Colchicine is preferred for management of a gouty episode.
- 5) Heart failure is not a stand-alone indication for oral anticoagulants- the usual indications for this class of medications applies. Novel anticoagulants are safer than warfarin in patients with HF and just as efficacious and so preferred over warfarin.

Table 2: Self-management and lifestyle modifications

	Recommendations	Local resources
Weight monitoring	Daily monitoring. If weight increases more than 2kg in 2 days or more than 2.5kg in 7 days, should seek medical attention	heartandstroke.ca (Pages 7-9)
Salt intake	Goal is to limit daily intake to 2000mg sodium/day	Alberta Healthy Living Program (AHLP) Heartandstroke.ca (Pages 11-12) PCN resources- dietitian 1:1
Fluid intake	Goal is 1.5-2L per day	AHLP heartandstroke.ca (pages 13-14) PCN resources
Exercise	Goal is starting at 10 minutes, increasing to 30 minutes 2-3X/week	AHLP heartandstroke.ca (pages 19-23) Cardiac rehab
Smoking	Smoking cessation advised	Albertaquits.ca AHLP PCN resources

Alcohol	Abstinence is recommended if HF is felt to be secondary to alcohol use disorder. Otherwise a safe amount of alcohol consumption in HF is not known; therefore, the recommendation is as little as possible.	AHS resources -Access Mental Health -Addiction helpline -Adult addiction services -Community resources
Obesity counselling	Weight management recommended if obesity present as even 5-10lbs weight loss can impact symptoms and signs	AHLP Community resources PCN resources
Immunization*	Annual flu vaccine Periodic pneumococcal pneumonia immunization (as per product monograph) *Immunizations have been shown to reduce mortality and hospitalization by 20% in elderly patients with HF	PCN pharmacists, AHS and community resources
Mood and stress management	Discuss with health care providers May be more common in patients with HF and may impact sense of well being	heartandstroke.ca (pages 54-61) PCN, AHS and community resources
Advance Care Planning	Encourage patients to choose an agent, communicate their values and document these in a Personal Directive	conversationsmatter.ca

Follow up: when, who and how to refer

When to refer:

As the clinical course of HF progresses co-management with specialty (internal medicine or cardiology) is warranted. In particular, co-management with the Heart Failure clinics (also referred to as cardiac function clinic) can improve symptoms, quality of life, and outcomes. *Please note that HF clinics in Calgary operate under supervision of an Attending Cardiologist, so there will need to be a Cardiologist who will follow the patient while in the Clinic.*

The following are indications for referral:

- New onset HF, particularly if difficult to diagnose or uncertainty in diagnosis (especially with multiple co morbidities).
- HF following recent MI.
- Two or more hospitalizations for decompensated heart failure in the past year.
- HF with persistent, advanced symptoms/not responding to treatment.
- HF with persistent HR <50 or >100, systolic BP <90 with symptoms, chest pain, symptoms or severe renal disease (GFR ≤ 30).
- Moderate or severe valvular heart disease for discussion of surgery/optimized medical management.
- Patients with HF and syncope.
- Patients with LVEF less than 40 for periodic update for evidence-based medical management and decisions about device management (including implantable cardioverter defibrillator (ICD) or cardiac resynchronization therapy (CRT)).

Who to refer to (Specialty):

Possible referrals for patients with HF include:

- Cardiac Navigation
- Cardiology
- HF Clinic
- General Internal Medicine

Alberta Referral Directory may be helpful in assisting with referral criteria.

Physician/NP Resources

Community resources

Alberta Healthy Living Program (albertahealthservices.ca/info/Page13984.aspx)

For: patients with a chronic condition and a primary care provider that are physically able to attend sessions.

Services offered:

Education: health professionals or volunteers teach disease specific & general interest classes. Offered in English, Cantonese, Mandarin, and Punjabi.

Nutrition Services: RDs facilitate various classes. Individual appointments available in Cantonese, Hindi, and Punjabi.

Better Choices, Better Health: 6 wk self-management workshop to live successful, healthier lives. Offered in English, Cantonese, and Punjabi.
Group Exercise: Supervised group exercise monitored by health professionals.
Referral by: health care providers (any) or patient self-referrals.

Cardiac Rehabilitation

For: Those recovering from a heart event, heart surgery, or living with a heart condition (HF)
 Referral by family physician or specialty.

Services Offered:

Total Cardiology:

- 12 week exercise, education and health-coaching program
- Medically-supervised exercise program
- Risk reduction and screening
- Exercise stress test

*Total cardiology required \$500 fee. May be covered by health care coverage and some compassionate funding available

Heart Health Program (Mosaic PCN):

- FREE 8-week medically supervised exercise program.

Referral by: Must come from family physician, nurse practitioner, cardiologist, or other physician. Must be a cardiologist for the medically-supervised program.

Cardiac function clinics (CFC)

For: Patient with a designated cardiologist with a diagnosis of symptomatic HF, documented measured of LVEF and requires ongoing titration of medication or surveillance (>3 visits). Patients must be at least 18 years of age and physically attend appointments. Exceptions can be discussed between cardiology and medical director of CFC.

Services Offered: Multidisciplinary clinic dedicated to support HF patients that have complex care needs, requiring close monitoring and/or medication optimization. Physical assessments, management or medical and non-pharmacologic treatment, patient teaching.

Referrals from: Physicians or Nurse Practitioners. Must complete Referral form, attach discharge summary/consultation note, attach relevant tests, attach patient contact information, include most recent LVEF and BNP within last 6 months.

Community paramedics

For: adults with known HF requiring short term intervention(s).

Services offered: Short term crisis intervention. Mobile minor emergency service/clinic. Can provide treatments, draw labs, perform ECG's. Care needs to be provided in collaboration with primary care or specialty physician.

Referrals from: multiple providers in the form of telephone call or completion of community paramedic patient referral form (albertahealthservices.ca/frm-19552.pdf)

<p>Home care Heart Failure Team</p> <p>For: Patients 65 years or older and admitted to hospital in the last 12 months with a confirmed diagnosis of HF who would benefit from focused case management by the HF team and are willing and able to make lifestyle changes.</p> <p>Services offered: Clients with advanced HF for symptom management, end of life care, ED avoidance, assistance with aids to daily living and to improve quality of life.</p> <p>Referrals from: Currently must be referred through General Home Care Program and then will be assessed for HF specialty team.</p>
<p>Palliative Care</p> <p>Palliative Care referral early in disease course can help with illness understanding and coping, symptom and function concerns, advance care planning and care coordination in the setting of advanced HF (recognizing prognostic uncertainty is common use patient needs and symptoms not responding to management as a guide of when to refer). Later referrals can assist with end-of-life care at home/facility and hospice access. Access pathway and telephone advice at specialistlink.ca</p>

Provider Resources	
2017 ACC Expert Consensus Decision Pathway on Optimization of Heart Failure Treatment: Answers to 10 Pivotal Issues about Heart Failure with Reduced Ejection Fraction	sciencedirect.com/science/article/pii/S073510971741641X?via%3Dihub
The Canadian Cardiovascular Society: Is it heart failure and what should I do?	ccs.ca/images/Guidelines/PocketGuides_EN/HF_Gui_2017_PG_EN_web.pdf
The CCS Heart Failure Companion: Bridging Guidelines to your Practice	ccs.ca/images/Guidelines/Companion_Resources/CCS_Guidelines_eng.pdf
BC Guidelines: Chronic Heart Failure Diagnosis and Management	gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/heart-failure-chronic
Advance care planning	albertahealthservices.ca/info/Page9099.aspx

Patient Resources

Heart and Stroke: Living with heart failure: Resources to help manage your heart failure	heartandstroke.ca/-/media/pdf-files/canada/health-information-catalogue/en-living-with-heart-failure.ashx?la=en&hash=84BE0AF1FA336336A78EA963B65C4F19E53CD1D0
My Health Alberta	myhealth.alberta.ca/Alberta/Pages/heart-failure-action-plan.aspx
Medline Plus: Heart Failure	medlineplus.gov/languages/heartfailure.html#Chinese,Traditional(CantoneseDialect)
Advance care planning	conversationsmatter.ca



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Tools to manage your heart failure



Cardiac Services BC

An agency of the Provincial Health Services Authority



BC's HEART FAILURE NETWORK

Quality care for quality life.

The Heart and Stroke Foundation gratefully acknowledges Cardiac Services BC and the experts at British Columbia's Heart Failure Network as the original creators of this resource.

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Heart Failure Zones

EVERY DAY

EVERY DAY

- Weigh yourself in the morning before breakfast. Write it down. Compare your weight today to your weight yesterday.
- Keep the total amount of fluids you drink to only 6 to 8 glasses each day. (6-8 glasses equals 1500-2000 mL or 48-64 oz)
- Take your medicine exactly how your doctor said.
- Check for swelling in your feet, ankles, legs, and stomach.
- Eat foods that are low in salt or salt-free.
- Balance activity and rest periods.



Which zone are you in today?

GREEN SAFE ZONE

ALL CLEAR – This zone is your goal!

Your symptoms are under control. You have:

- No shortness of breath.
- No chest discomfort, pressure, or pain.
- No swelling or increase in swelling of your feet, ankles, legs, or stomach.
- No weight gain of more than 4 lbs (2 kg) over 2 days in a row or 5 lbs (2.5 kg) in 1 week.



YELLOW CAUTION ZONE

CAUTION – This zone is a warning

Call your Health Care provider (eg. Doctor, nurse) if you have any of the following:

- You gain more than 4 lbs (2 kg) over 2 days in a row or 5 lbs (2.5 kg) in 1 week.
- You have vomiting and/or diarrhea that lasts more than 2 days.
- You feel more short of breath than usual.
- You have increased swelling in your feet, ankles, legs, or stomach.
- You have a dry hacking cough.
- You feel more tired and don't have the energy to do daily activities.
- You feel lightheaded or dizzy, and this is new for you.
- You feel uneasy, like something does not feel right.
- You find it harder for you to breathe when you are lying down.
- You find it easier to sleep by adding pillows or sitting up in a chair.



Healthcare Provider: _____ Phone Number: _____

RED DANGER ZONE

EMERGENCY – This zone means act fast!

Go to emergency room or call 9-1-1 if you have any of the following:

- You are struggling to breathe.
- Your shortness of breath does not go away while sitting still.
- You have a fast heartbeat that does not slow down when you rest.
- You have chest pain that does not go away with rest or with medicine.
- You are having trouble thinking clearly or are feeling confused.
- You have fainted.



Self-Monitoring Sheet

Patient's Name: _____

SELF-MONITORING: Record your findings below						
Days	Changes in Your Breathing Pattern	Weight	Swelling	Fatigue	Side Effects of Medication	Action Taken and Your Results
Day 1						
Day 2						
Day 3						
Day 4						
Day 5						
Day 6						
Day 7						

Questions to ask yourself:

1. What was I doing when the change was noticed? _____
2. What time of day did the change happen? _____
3. How did I decide to report or not to report it? _____
4. To whom did I report the change? _____

Daily Weight Information

Patient Name: _____

Heart Function Clinic or Physician's office: _____

Health Care Provider: _____ Contact phone number: _____

Check your weight every day

Why?

- Checking your weight every day lets you know if your body is retaining fluid.
- Excess fluid build up in your body makes your heart work harder.
- When you report weight gain early to your health care provider, they can help you prevent your heart failure from getting worse. This can help prevent a hospital admission.



If your weight increases by:

- More than 2 kg (4 lb) in two days, or
- More than 2.5 kg (5 lb) in 1 week.



You are retaining fluid.

You should call your health care provider.

For further directions, please refer to '**Heart Failure Zones**' information sheet.

When?

- Same time every day
- Preferably before breakfast

How?

- After you have emptied your bladder (gone 'pee')
- Wear the same amount of clothing

Record your weight on the calendar below.

(You may prefer to use your own method such as a notebook, a computer.)

Remember to bring your record to your doctor or clinic appointment.

Your 'Dry Weight' (when you don't have excess fluid in your body): _____

Write down your weight each day compare today's weight to yesterday's weight.

Month _____						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday