Heart Failure Provincial Full Bundle Implementation

Heart Failure Full Bundle Implementation Toolkit

Alberta Health Services
Cardiovascular Health & Stroke Strategic Clinical Network™

Alberta Health Services
Medicine Strategic Clinical Network™

Inspiring solutions. Together.

September 2021

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This Toolkit has been prepared by the Clinical Pathway Support Unit (CPSU)

This work is sponsored by the Medicine Strategic Clinical Network™ and the Cardiovascular Health & Stroke Strategic Clinical Network™

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Heart Failure Full Bundle Implementation Toolkit

This package is a comprehensive toolkit designed to help you implement the Heart Failure (HF) Acute Admission physician orders, along with supporting resources, into your acute care facility.

Grounded on evidence based clinical pathway care for HF patients, the objective of these full bundles is to improve care across the continuum from hospital admission through discharge into the community and primary care settings.

Background:

Patients with heart failure and chronic obstructive pulmonary disease (COPD) account for the highest hospital admission rates of all chronic diseases in Alberta. Individuals with these conditions experience long hospital stays, readmissions to hospital and frequent emergency room visits.

A provincial initiative is underway aimed at implementing and evaluating evidence based clinical pathways for heart failure and COPD. The objective is to improve care across the continuum from hospital admission through discharge into the community and primary care settings.

Supported by the Cardiovascular Health & Stroke Strategic Clinical Network™ (SCN), Medicine SCN™, and the Respiratory Health and Heart Failure provincial working groups, this initiative seeks to coordinate efforts within acute, community, and primary care to enhance management and timely follow-up.

Red Deer Regional Hospital, the proof of concept site, started this approach in February of 2017. Several sites have joined this initiative over the years and opportunity continues for additional sites to participate in this implementation of heart failure and COPD full bundles.

A coordinated, purposeful approach to implementation is recommended which includes collaboration between front line staff, patients, families, physicians, primary care, management and community care. Efforts to engage all stakeholders will serve to promote successful implementation and sustainability of this evidence based care.

This toolkit will focus on the heart failure component of this initiative.

Continuum of Care:

Clinical pathways are tools used to guide evidence-based health care. Their implementation reduces the variability in clinical practice and can improve outcomes[1].

Individuals with heart failure, like all of us, may require access to health care at any point throughout life. Clinical pathways seek to address the broad range of care which may be required throughout a patient's journey.

The continuum of care covers the delivery of health care over a broad period of time which may refer to care provided from prevention to end of life. Addressing the complete continuum of care would be an overwhelming and complex mission to start. Given this, the provincial heart failure clinical pathway team has chosen to focus efforts on the time period from acute hospital admission through discharge into the community and primary care setting (out to approximately 2 weeks post discharge). The Heart Failure Full Bundle addresses this time period as indicated on the graphic below.

Sites, communities and zones are encouraged to build additional linkages, relationships and supports further out into community and primary care. As these components of the pathway continue to be developed, heart failure patients will be able to experience enhanced care.

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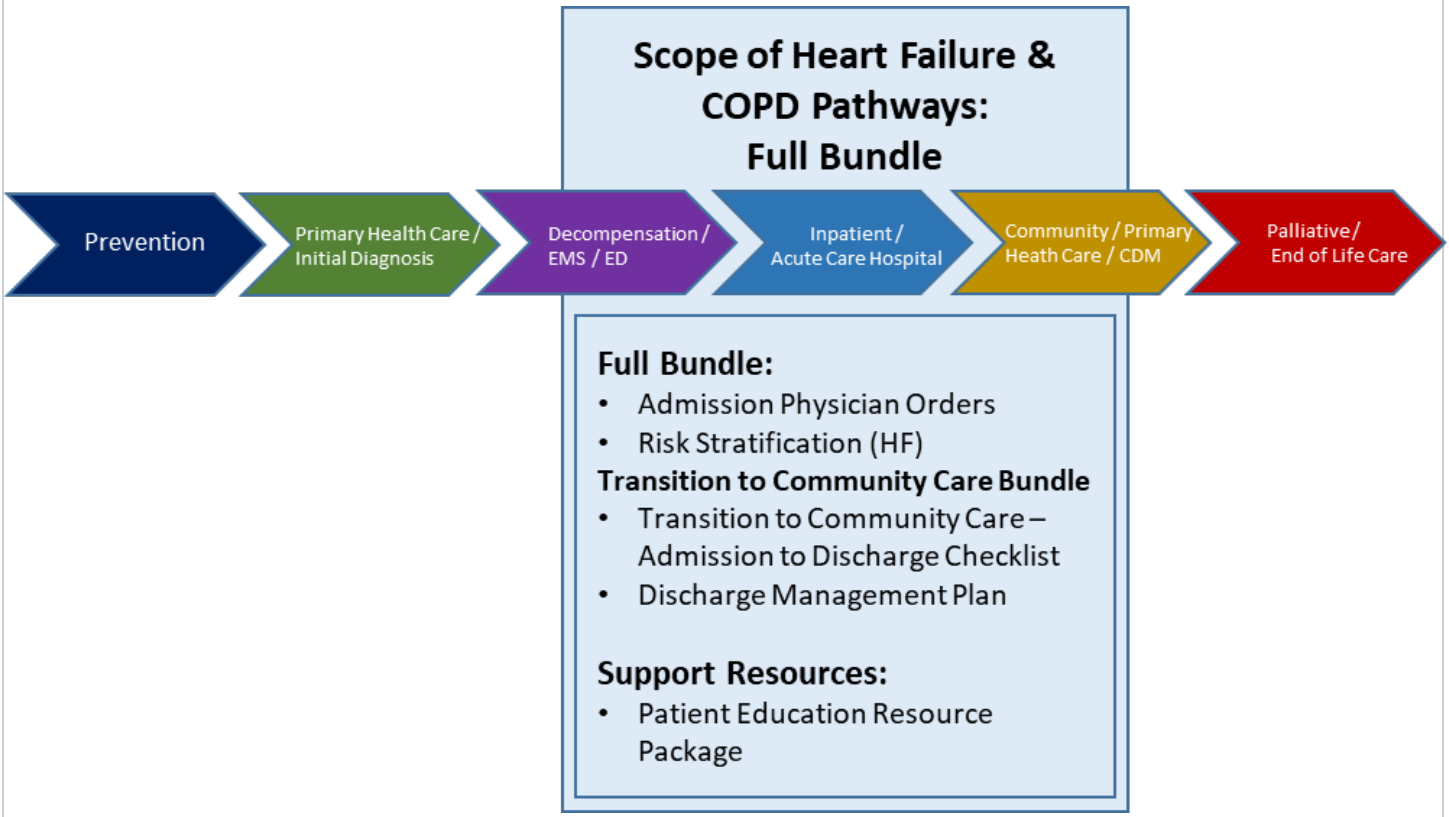
[1]: Lawal et al (2016). BMC Medicine, 14(35):1-5.
Rotter et al (2010). Cochrane Database of Systematic Reviews, 3:1-170.
Kwan (2004). Cochrane Database of Systematic Reviews, 4: 1-71.


Scope of Heart Failure & COPD Pathways: Full Bundle
Prevention
Primary Health Care / Initial Diagnosis
Decompensation / EMS / ED
Inpatient / Acute Care Hospital
Community / Primary Heath Care / CDM
Palliative / End of Life Care
Full Bundle:
• Admission Physician Orders
• Risk Stratification (HF)
Transition to Community Care Bundle
• Transition to Community Care – Admission to Discharge Checklist
• Discharge Management Plan
Support Resources:
• Patient Education Resource Package

Heart Failure Full Bundle: Components

The heart failure full bundle includes 4 components.

The '**Heart Failure Acute Admission Adult'** (3 pages) physician orders are the first components of the bundle and are to be reviewed, completed and signed by the admitting physician.

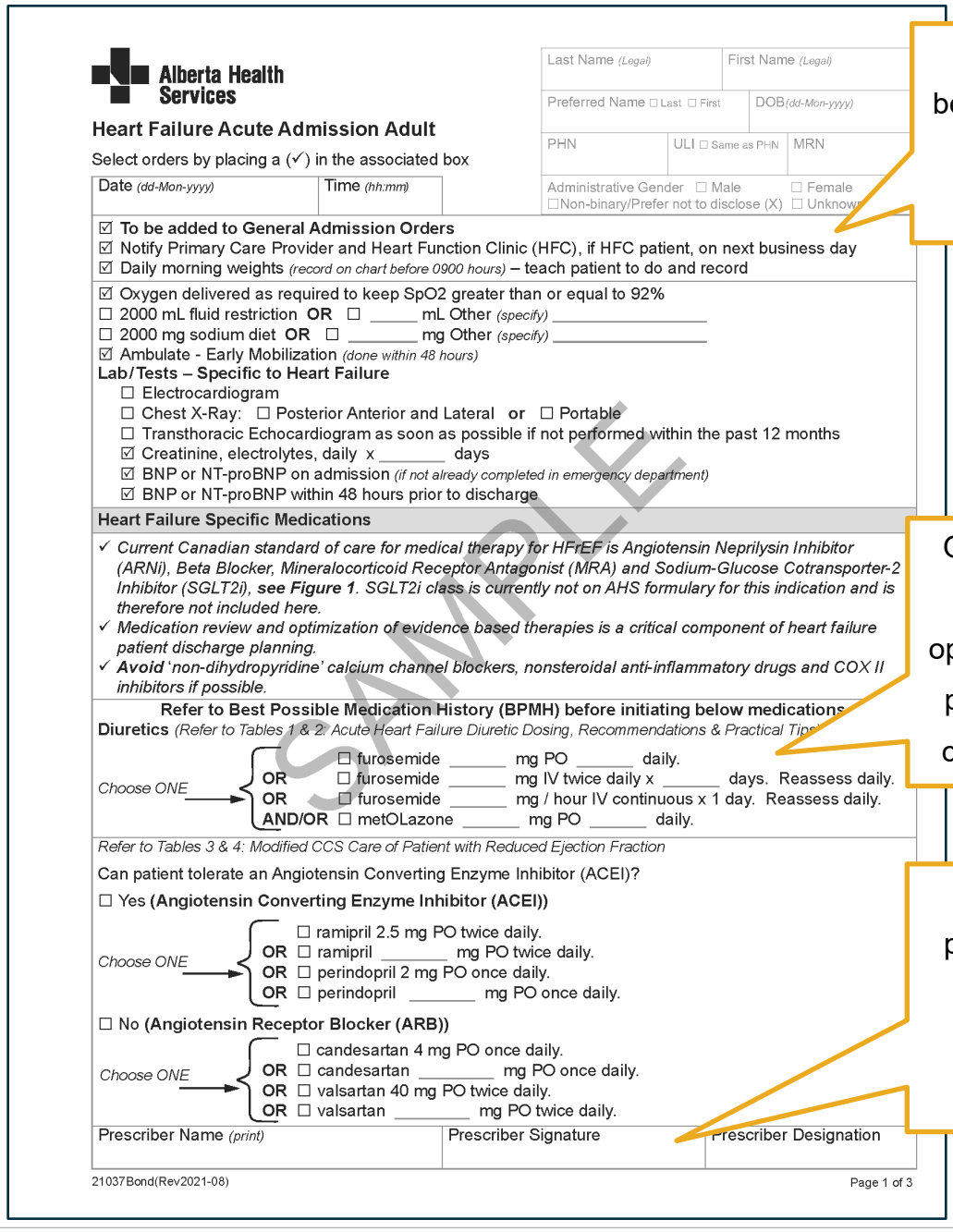
All other components are support resources for health care providers and patients.

Brief Description

Components	Description	Completed By
Admission Physician Orders	Evidence based acute admission full bundle recommendations	Physician
Risk Stratification (only in the HF bundle)	Algorithm to identify the recommended time period until follow-up with Heart Function Specialist/Clinic and with Primary Care Clinic based on patient risk.	Resource
Transition to Community Care - Admission to Discharge Checklist	Tool to assist staff identify and record completion of activities related to HF patient care	Health Care Provider(s)
Discharge Management Plan	- Resource to review with HF patient prior to hospital discharge. Identifies key messages, resources and follow up information. - Provide copy to patient, family or caregiver upon discharge	Health Care Provider(s)

Heart Failure Acute Admission Adult Physician Orders:

To be reviewed, completed and signed by the admitting physician. Information regarding diuretic dosing and treatment for management of HF with Reduced Ejection Fraction (HFrEF) is indicated on reverse side (see Appendix 1)



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Heart Failure Acute Admission Adult

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

Last Name *(Legal)* | First Name *(Legal)*

Preferred Name ☐ Last ☐ First | DOB *(dd-Mon-yyyy)*

PHN | ULI ☐ Same as PHN | MRN

Administrative Gender ☐ Male ☐ Female ☐ Non-binary/Prefer not to disclose (X) ☐ Unknown

Date *(dd-Mon-yyyy)* | Time *(hh:mm)*

☑ **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 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.
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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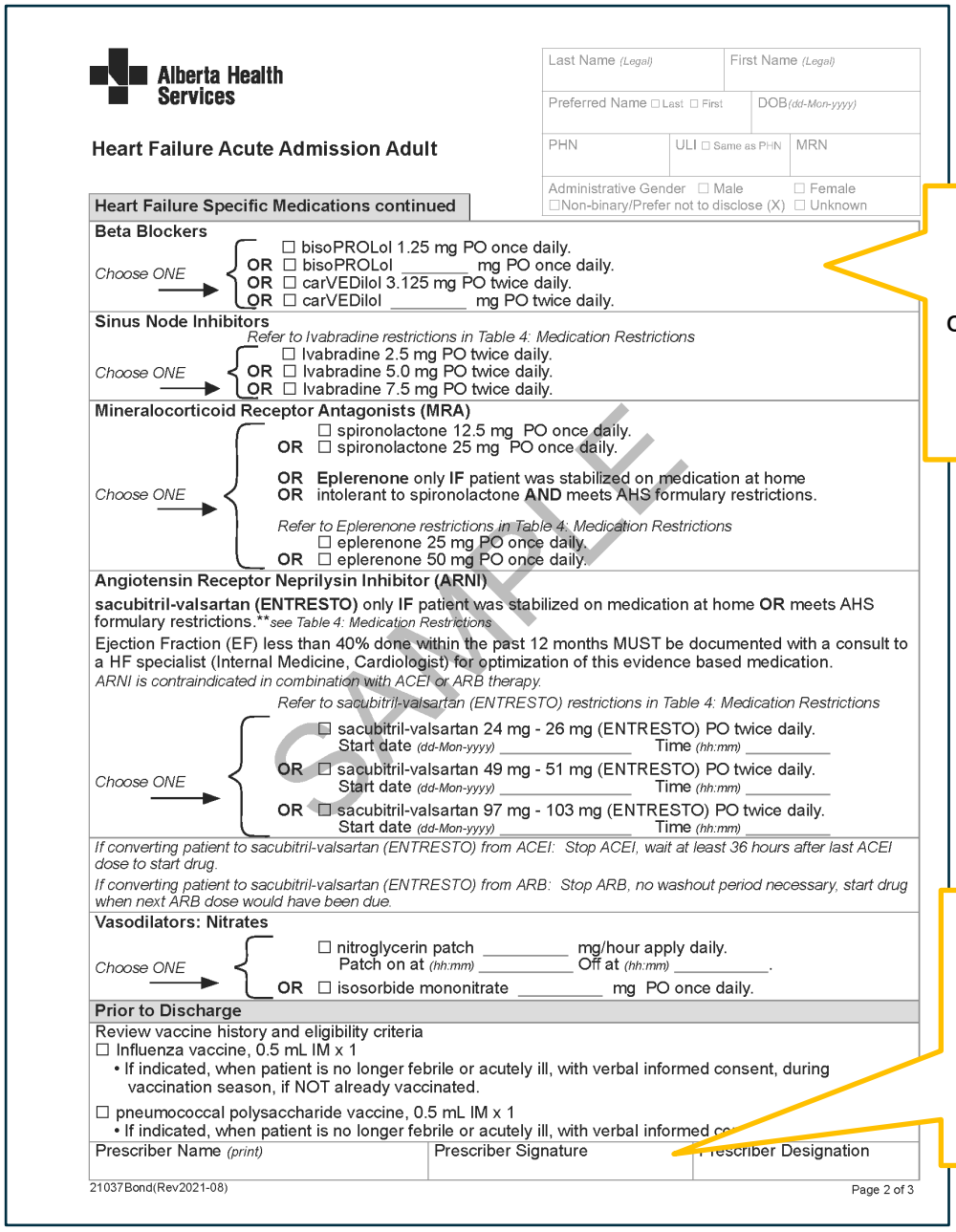
Checked boxes indicate required orders

Open boxes provide options for the physician to choose from

Admitting physician to sign once orders are completed

Heart Failure Acute Admission Adult Physician Orders: Page 2

To be reviewed, completed and signed by the admitting physician. Information regarding drug dosing is indicated on reverse side (see Appendix 2)



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Heart Failure Acute Admission Adult

Last Name *(Legal)*	First Name *(Legal)*
Preferred Name ☐ Last ☐ First	DOB *(dd-Mon-yyyy)*
PHN	ULI ☐ Same as PHN / MRN
Administrative Gender ☐ Male ☐ Female ☐ Non-binary/Prefer not to disclose (X) ☐ Unknown	

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

Refer to Ivabradine restrictions in Table 4: Medication Restrictions

Choose ONE
- ☐ 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.

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)* _____
- **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 co

Prescriber Name *(print)*	Prescriber Signature	Prescriber Designation

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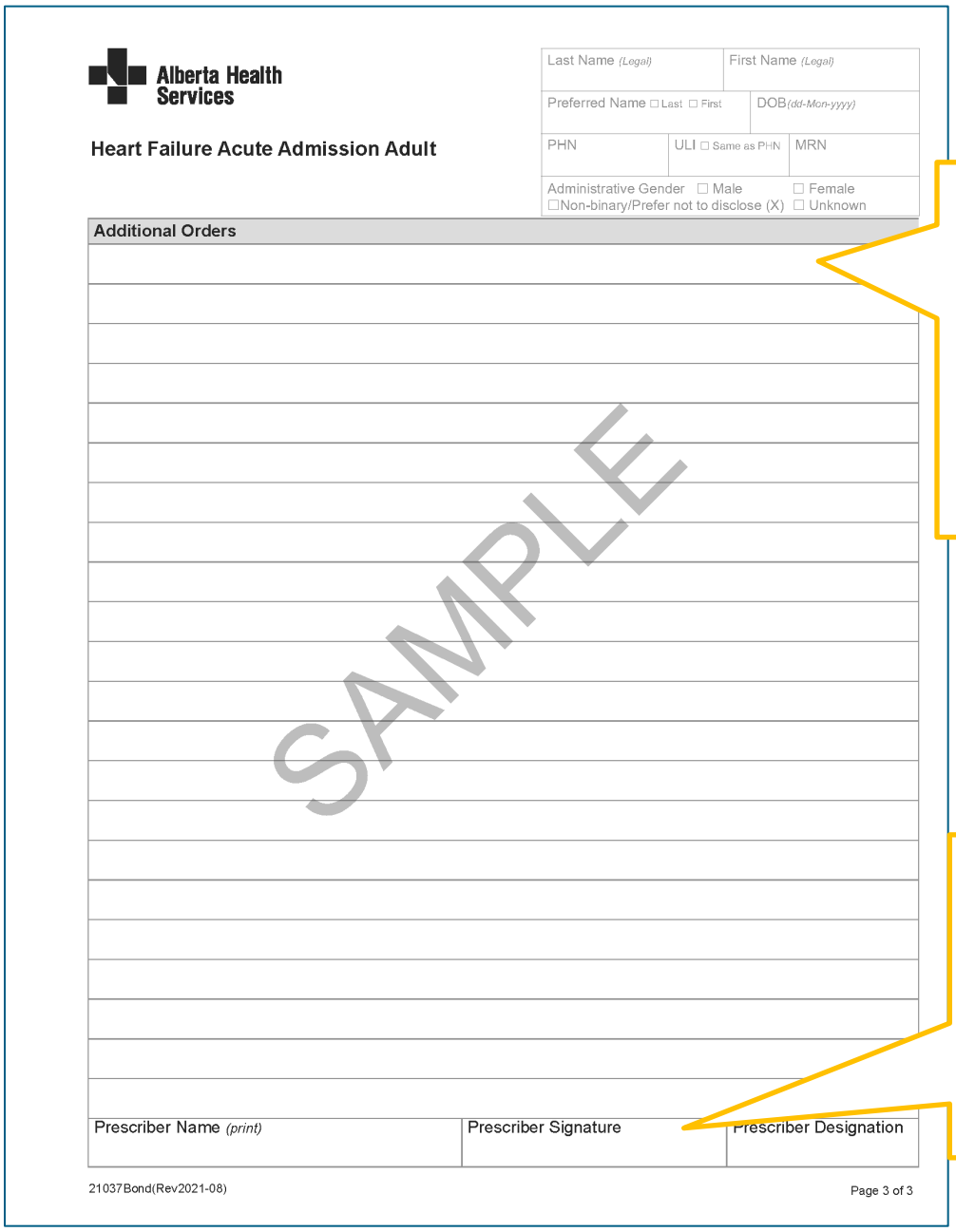
SAMPLE

Open boxes provide options for the physician to choose from

Admitting physician to sign once orders are complete

Heart Failure Acute Admission Adult Physician Orders: Page 3

Blank page for additional orders (as required). To be completed and signed by the admitting physician. Medication restrictions related to sacubitril-valsartan, eplerenone and ivabradine are described on reverse side (see Appendix 3)



Alberta Health Services

Heart Failure Acute Admission Adult

Last Name *(Legal)*	First Name *(Legal)*	
Preferred Name ☐ Last ☐ First	DOB *(dd-Mon-yyyy)*	
PHN	ULI ☐ Same as PHN	MRN
Administrative Gender ☐ Male ☐ Female ☐ Non-binary/Prefer not to disclose (X) ☐ Unknown		

Additional Orders

SAMPLE

Prescriber Name *(print)*	Prescriber Signature	Prescriber Designation

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Blank spaces for the physician to write additional orders (as required)

Admitting physician to sign once orders are complete (as required)

Full Bundle Components: A Closer Look

This section will review the following Full Bundle components which will assist sites with implementation of the 'Heart Failure Acute Admission Adult' physician orders:

- Risk Stratification Algorithm (HF Full Bundle only)
- Transition to Community Care - Admission to Discharge Checklist
- Discharge Management Plan

Risk Stratification Algorithm (Heart Failure):

A decision making tool which assists health care providers to identify the recommended time period until follow-up within the Heart Function Clinic (HFC), or with a heart function specialist in sites where a HFC does not exist, and with the Primary Care Clinic.

Recommendations are based on the number of previous hospitalizations in the past 12 months, a brain natriuretic peptide (BNP), a N-terminal prohormone of brain natriuretic peptide (NT-proBNP), or blood test obtained within 48 hour prior to hospital discharge.

- **BNP and NT-proBNP** are substances that are produced in the heart and released when the heart is stretched and working hard to pump blood. In general, the level of these substances goes up when heart failure develops or gets worse, and it goes down when the condition is stable. They are primarily used to help detect, diagnose, and evaluate the severity of heart failure.

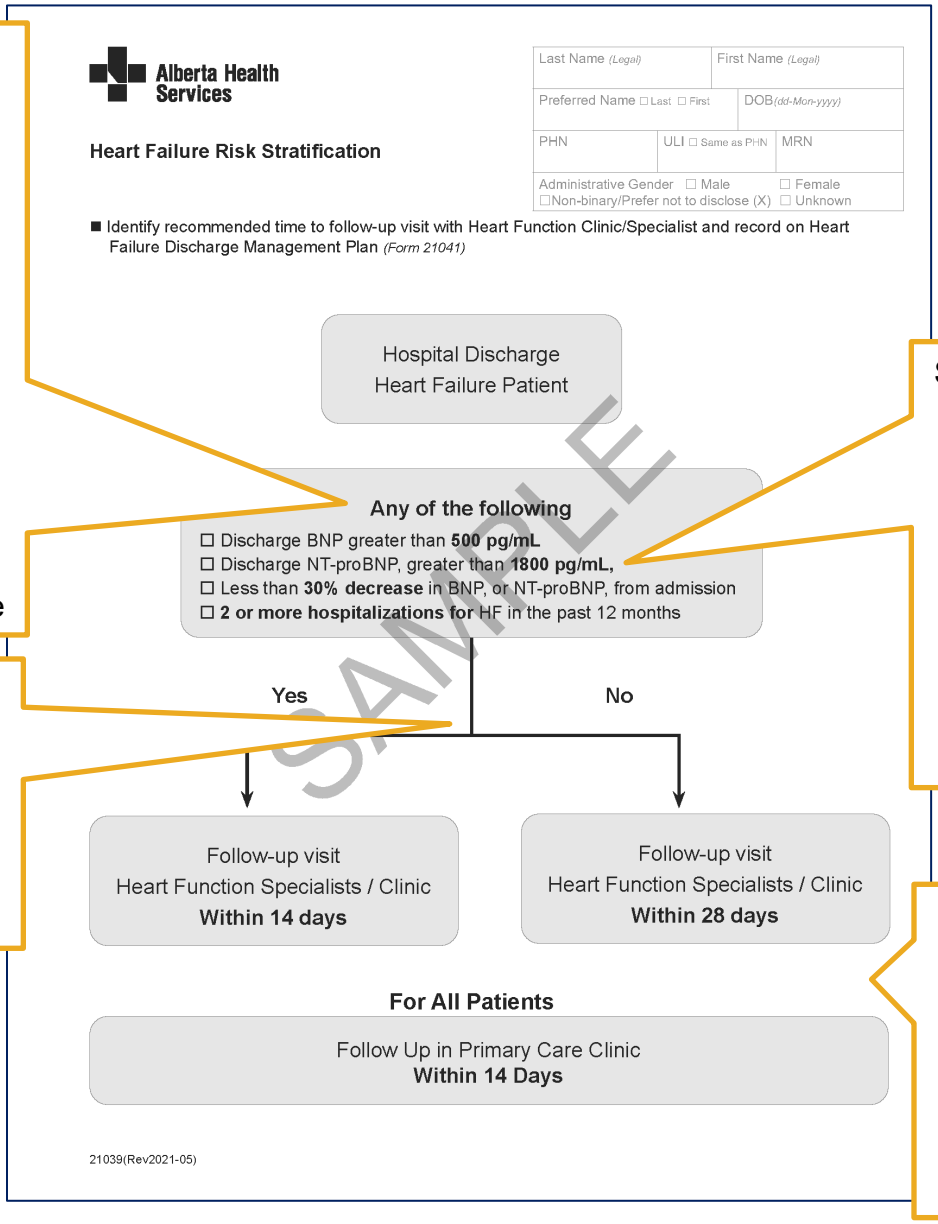
The Risk Stratification algorithm is a reference tool where the number of previous hospitalizations within the past 12 months, or the discharge BNP or NT-proBNP can be used to determine recommended follow-up. Risk stratification is completed on discharge, or near discharge, once date of discharge is determined and the required blood test results are received.

Check the box for the most recent BNP **or** NT-proBNP results, or past hospitalizations. Blood tests should be obtained within 48 hours before patient discharge

Follow algorithm according to blood test results or past hospitalizations

Some sites may test for BNP while others can test for NT-proBNP. Refer to the appropriate result

Record recommended follow-up on Discharge Management Plan



Transition to Community Care - Admission to Discharge Checklist:

This checklist is a tool to assist health care providers identify and record completion of activities related to the HF patient care.

Care providers are encouraged to use this form as a resource for communication among staff, confirmation of activity completion, and record of unique circumstances.

Please check the appropriate ‘Yes’ or ‘Not indicated’ column when an item is addressed. If the activity is not completed, provide additional comments beside the item or checkmark the appropriate box in the ‘Not indicated’ section at the bottom of the page.

This form, and the Discharge Management Plan form (described below), can be used for data collection. Clear rational and comments will assist to clarify item completion. Sites participating in the provincial implementation of this program will be asked to send a copy of these 2 forms to central office for data analysis.

Discharge Management Plan:

The final page included in the Full Bundle is the Discharge Management Plan (DMP). This resource is to be reviewed with the patient and/or care provider prior to hospital discharge. Key messages, resources and follow up information is identified as a reminder to the patient and adequate understanding should be assessed. Patient education handouts are referenced to ensure all resources are taken with the patient upon discharge.

Recommended follow-up appointments should be indicated in the Follow-up section. Try to confirm appointments are booked prior to hospital discharge if possible. If unable, ensure patient and/or care giver are able to arrange independently.

Ensure you review with the patient and/or caregiver to ensure adequate understanding prior to discharge. A copy of this form is to be given to the patient for reference and for communication with other health care providers. Encourage the patient to take this plan to the next health care visit.

Transition to Community Care - Admission to Discharge Checklist (HF):

Be sure to record EF %

Start at admission and continue throughout hospital stay

Complete any time during hospital stay

Review each resource with patient. Check and initial when complete.

If unable to complete any item, indicate why in comment section

Make every effort to provide hospitalization information to other providers

Alberta Health Services

Heart Failure Pathway:
Transition to Community Care
Admission to Discharge Checklist

Last Name *(Legal)*	First Name *(Legal)*
Preferred Name ☐ Last ☐ First	DOB *(dd-Mon-yyyy)*
PHN	ULI ☐ Same as PHN / MRN
Administrative Gender ☐ Male ☐ Female ☐ Non-binary/Prefer not to disclose (X) ☐ 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 serv*				
	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 learni*				
	Ambulate – Early Mobilization *(done within 48 hours)*				
	Provide and review HF education resources with patient/caregiver ☐ Management Guide ☐ Nutrition and Lifestyle Choices to Manage HF ☐ Signs and Symptoms of HF ☐ Managing HF - Action Plan *(green/yellow/red)* ☐ HF Medicines ☐ Online Patient Resources ☐ 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)*				

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

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

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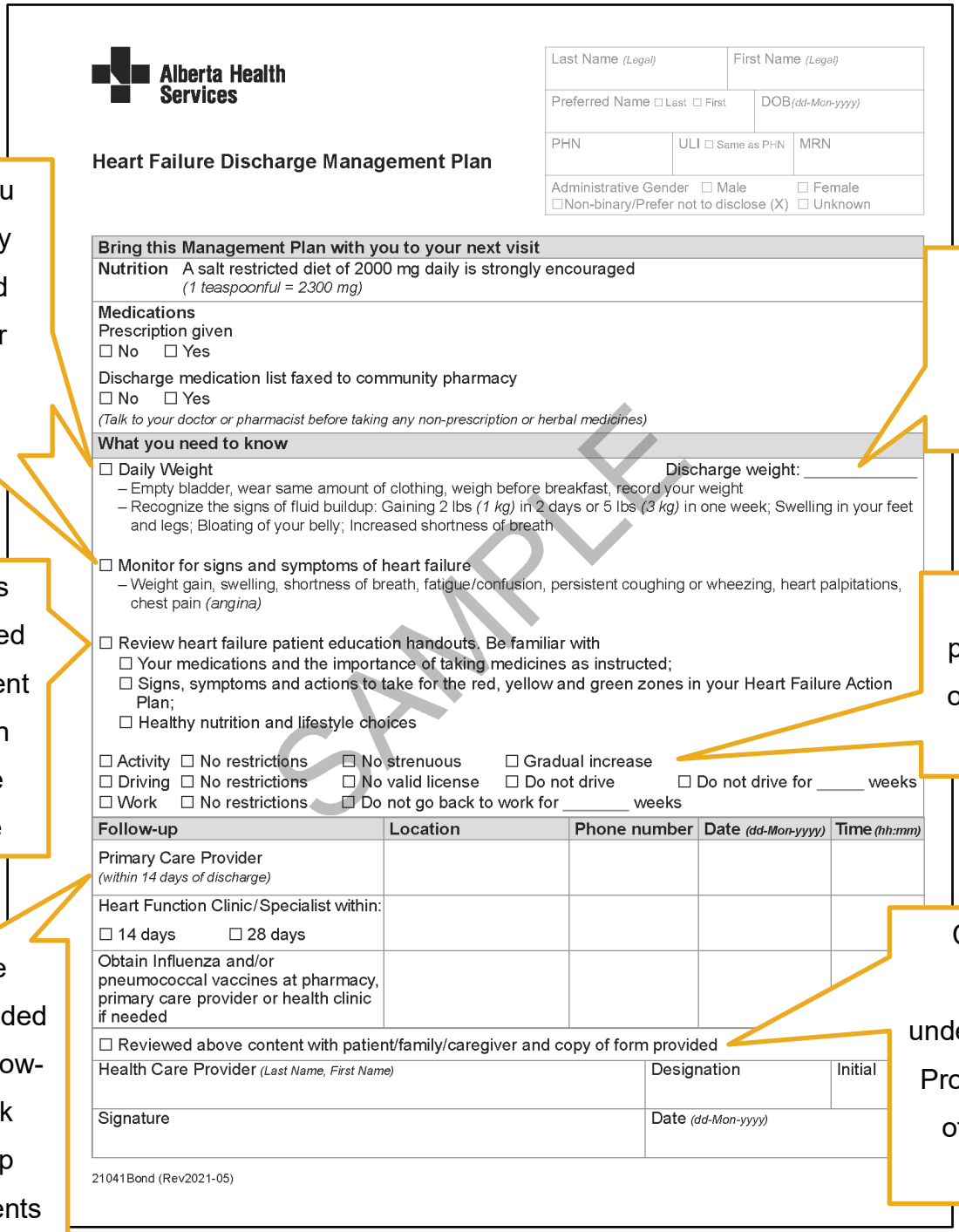
Discharge Management Plan (HF):



Alberta Health Services

Heart Failure Discharge Management Plan

Last Name *(Legal)*	First Name *(Legal)*	
Preferred Name ☐ Last ☐ First	DOB *(dd-Mon-yyyy)*	
PHN	ULI ☐ Same as PHN	MRN
Administrative Gender ☐ Male ☐ Female ☐ Non-binary/Prefer not to disclose (X) ☐ Unknown		

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 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

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

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

Health Care Provider *(Last Name, First Name)*	Designation	Initial
Signature	Date *(dd-Mon-yyyy)*	

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SAMPLE

Ensure you check daily weight and monitor for signs and symptoms

Ensure Discharge Weight is recorded

Handouts are included in the patient education resource package

Ensure patient has opportunity to review

Indicate recommended time to follow-up. Book follow-up appointments when possible

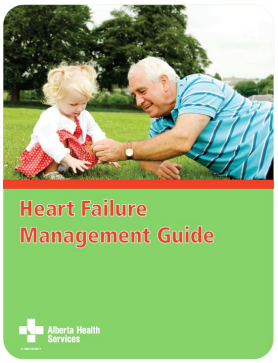
Confirm patient understanding. Provide copy of form to patient

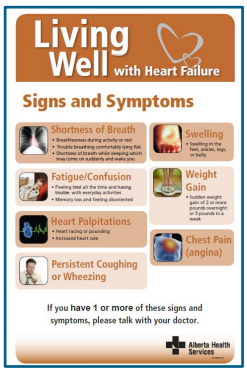
Patient Education Resource Package

A Heart Failure Patient Education Resource Package is available to support patient education efforts.

Included are 8 recommended patient education resources:

1. Heart Failure Management Guide
2. Heart Failure Medicines
3. Heart Failure Sick Days
4. Heart Failure On-line Patient Resources
5. Nutrition and Lifestyle Choices to Manage Heart Failure
6. Signs and Symptoms of Heart Failure
7. Healthy Living with Heart Failure
8. Weight Chart





To Order:

Heart Failure Patient Education Resource Package (Item #104871):

Contact Data Group at https://dol.datacm.com/

- Items may also be ordered separately. See next page for ordering information.

Tobacco cessation resources should be ordered and available on site when required for patient education.

- AlbertaQuits brochure (Tobacco009)
- Let's Talk About Tobacco (Tobacco007)

Contact AlbertaQuits.ca

To Download: Access resources on-line at Primary Health Care Resources - AHS

Patient Education Resource Package: Heart Failure

Order from Data Group at: https://dol.datacm.com/

FORM / ITEM # (Order #)	Title / Description
104871	Heart Failure Patient Education Resource Package (with colour resources where required)
Individual Items	
C-1887	Heart Failure Management Guide
HF-001	Heart Failure Medicines
105287	Heart Failure Sick Days
HF-002	Heart Failure On-line Patient Resources
404103	Nutrition and Lifestyle Choices to Manage Heart Failure
FC-2265	Signs and Symptoms of Heart Failure
404164	Healthy Living with Heart Failure
HF-003	Weight Chart

*For a separate coloured 1 page of the Managing Heart Failure: HF Action Plan (green, yellow, red), order 607728

Living Well with Heart Failure – Heart & Stroke Foundation

Some sites have chosen to use the 'Living with Heart Failure' booklet from the Heart and Stroke Foundation. It is a free resource.

Living with Heart Failure: Resources to help you manage your heart failure

To order copies of the "Living with Heart Failure" booklet:

1. Visit the Heart & Stroke Foundation
2. Go to "What we do"
3. Scroll down to "Health information publications"
4. There is a "jump to" section with a link titled "How to order".
5. Access the order form and ordering guidelines.

Primary Health Care – Resource Centre

Resources can also be accessed from the Primary Health Care - Resource Centre

1. Visit the PHC Resource Centre.
2. Under Chronic Diseases & Conditions, go to Cardiovascular Diseases. Here you'll find Heart Failure resources under Provider Resources and Patient Resources.

Integrated Model of Care

The heart failure clinical pathway seeks to facilitate the implementation of evidence based heart failure care from hospital admission through to discharge and transition into community and primary care. The full bundle is unable to address the entire continuum of care so focuses up to 2 weeks from hospital discharge.

Additional community programs, supports and primary care services continue to provide heart failure care in an effort to support heart failure patients within their communities. Shared care plans, communication strategies, and collaboration between heath care providers should continue in an effort to prevent readmission to the hospital or emergency department.

Integrating acute, community and primary care services through the collaboration of healthcare providers, patients, families and managers will support heart failure patients on the road to sustained health.

Community Care

Many support services for heart failure patients may be available within your community. Health care providers are often unaware of these supports or don't have processes in place to easily access this care for their patients.

Sites are encouraged to compile a comprehensive list of available community support services including Alberta Health Services (AHS) programs (chronic disease management, cardiac rehab, tobacco reduction, heart function clinics, public health, social services, mental health, etc.), primary care network (PCN) programs, non-profit / non health affiliated programs, community agencies, and other organizations which may address the many social determinants of health.

Communication pathways and referral processes should be put in place to streamline access and support within programs.

Primary Care Integration

This clinical pathway initiative stimulates conversations among acute, primary and community healthcare providers to promote integration across transitions of care for all chronic disease patients. It provides an opportunity for collaborative work and can lay the groundwork for further assimilation with the management of other chronic diseases.

Local primary care networks (PCNs) are a key partner in supporting the care of patients. Promoting awareness, engagement and collaboration with primary care stakeholders is essential to the successful implementation of the full bundle. This can be sought through email notifications, educational sessions, and presentations at regularly scheduled meetings. For example, medical meetings/rounds (primary care, internal medicine, general medicine, hospitalists, etc.) and manager/leadership meetings.

Primary Health Care Leadership Engagement

Primary Health Care (PHC) may have varying levels of interest and involvement throughout the proposed work on implementation of the full bundle.

It’s recommended that formal communication with local, zone and provincial PHC programs be initiated when considering participation in this initiative.

Approach to Implementation

To support this initiative, it's recommended a Local Improvement Team (LIT) be established. A site executive sponsor, local leads, primary care partners and key stakeholders should be involved.

It's recommended both the HF and AECOPD Full Bundles be implemented together given the similarities and efficiencies.

Objective of Local Improvement Team

To successfully implement evidence based heart failure best practice within the identified site(s), surrounding community and primary care settings, by utilizing the full bundle, available local resources and provincial clinical pathway team support.

The LIT will work to identify areas of potential need and will inform the provincial clinical pathway team if additional support is required.

Local Implementation Team: Functions and Responsibilities

Suggested Local Implementation Team Members	
Executive Sponsor	Unit clerk – Medicine or Emergency Department
Lead (heart failure) (Heart Function Clinic Lead - nurse)	Emergency Department Clinical Educator / Pharmacist
Frontline nurse Medicine/Cardiac Unit	Clinical Inpatient Educator – Medicine/Cardiac
Inpatient Manager - Medicine	ED Manager
Inpatient Manager - Cardiac	Rehab representation – OT Clinical Lead / PT Clinical Lead
HF Clinic representation - Heart Function Clinic nurse	Pharmacy Manager - Inpatient
HF physician* (HF Clinic Director)	Transitional Care representative
Hospitalist*	Discharge Inpatient Planning representative
COPD physician*	Inpatient Dietitian
Family Medicine / Primary Care physician*	PCN representative

- Champion heart failure full bundle implementation and advocate for positive change
- Facilitate and promote local physician and staff engagement in the quality improvement work around HF patient care improvements
- Engage all staff members in implementation of the HF full bundle
- Promote HF best practice guidelines based on the acute care full bundle
- Identify opportunities for patient and family engagement
- Develop action plans to address specific care gaps identified within the full bundle
- Participate in teleconferences with provincial project team as needed
- Hold regular improvement team meetings as needed to discuss changes, improvements and activities relating to improvement goals/opportunities
- Provide representatives to participate in Innovation Learning Collaborative sessions if applicable

* Representatives need only attend LIT meetings on an ‘as need’ basis

Evidence Documents

The **Full Bundle** is grounded upon evidence based recommendations.

A document describing the HF evidence, including references, is available to provide additional information.

Heart Failure Data Analysis

The average and median length of stay (LOS) data for implemented facilities within Alberta are identified below. This reflects **fiscal 2019/20** information where heart failure was the primary diagnosis. Data provided by AHS Tableau.

Site	HF Discharge	Average LOS	Median LOS
Foothills Medical Centre	673	9.9	7
Royal Alexandra Hospital	592	9.5	6
Rockyview General Hospital	566	10.3	8
University Of Alberta Hospital (MAZ)	517	11.4	7
Peter Lougheed Centre	458	10.4	7
South Health Campus	365	9.1	7
Grey Nuns Community Hospital	345	8.8	6
Misericordia Community Hospital	283	8.7	7
Red Deer Regional Hospital Centre	230	10.7	7
Sturgeon Community Hospital	202	8.8	7
Chinook Regional Hospital	178	11.6	8
Medicine Hat Regional Hospital	176	9.1	7
Queen Elizabeth II Hospital	109	10.8	7
Northern Lights Regional Health Centre	35	8.3	5
Westlock Healthcare Centre	34	10.2	6
Barrhead Healthcare Centre	31	8.4	6
St. Mary's Hospital	29	16.8	9

Heart Failure Data Analysis (cont.)

The 7 and 30 Day hospital readmission rates for discharged heart failure patients is provided below. Data tracks those patients with heart failure as the primary diagnosis. This information is tracked over a 4 year period (2016-2020).

Zone	Fiscal Year	HF Hospital Discharges	7-Day Readmits	7-Day Readmits (%)	30-Day Readmits	30-Day Readmits (%)
South	2016/17	383	25	8.2%	67	21.9%
	2017/18	376	17	5.5%	50	16.1%
	2018/19	407	14	4.1%	55	16.3%
	2019/20	354	11	3.9%	38	13.3%
Calgary	2016/17	1917	89	5.3%	315	18.9%
	2017/18	1996	73	4.2%	299	17.2%
	2018/19	1953	89	5.2%	300	17.6%
	2019/20	2062	86	4.7%	340	18.6%
Central	2016/17	328	17	6.3%	50	18.7%
	2017/18	284	15	6.3%	47	19.7%
	2018/19	313	14	5.7%	59	24.0%
	2019/20	259	10	5.0%	33	16.3%
Edmonton	2016/17	1810	114	7.3%	343	22.0%
	2017/18	1780	101	6.7%	334	22.3%
	2018/19	1954	136	8.1%	387	23.2%
	2019/20	1939	103	6.1%	352	20.9%
North	2016/17	223	14	7.9%	51	28.7%
	2017/18	215	11	5.9%	39	21.1%
	2018/19	190	15	9.3%	33	20.5%
	2019/20	209	6	3.4%	29	16.5%

Provincial data will continue to be captured by the HF Dashboard. This dashboard provide users with information regarding Inpatient (IP) admissions and readmissions with HF to healthcare facilities across Alberta.

Healthcare providers and decision makers can use this data to identify the healthcare resource utilization in order to facilitate better services and to optimize resource utilization.

It is anticipated implementation of these evidence based full bundle will have a positive impact on reducing hospital length of stay and readmission rates.

Evaluation

Throughout implementation, it's important to evaluate processes, successes and challenges. Sites are encouraged to gather data regarding specific items of care and work together with the Local Improvement Team (LIT) to improve measures.

The Menu of Metrics (Appendix 5) identifies those items sites are encouraged to track. Initially the key items are:

- **Full Bundle use**
    - Complete Full Bundle use or separate use of the Transition to Community Care Bundle alone
- **Patients who were given the HF education package with instruction**
    - Activities: Daily weights, HF Action Plan (green, yellow, red)

Once the full bundle is being used within your site, the LIT will be able to track specific items, identify problem areas, and focus their efforts to improve care where needed.

Data can be captured from the following support resources:

- Transition to Community Care - Admission to Discharge Checklist (ADC)
- Discharge Management Plan (DMP)

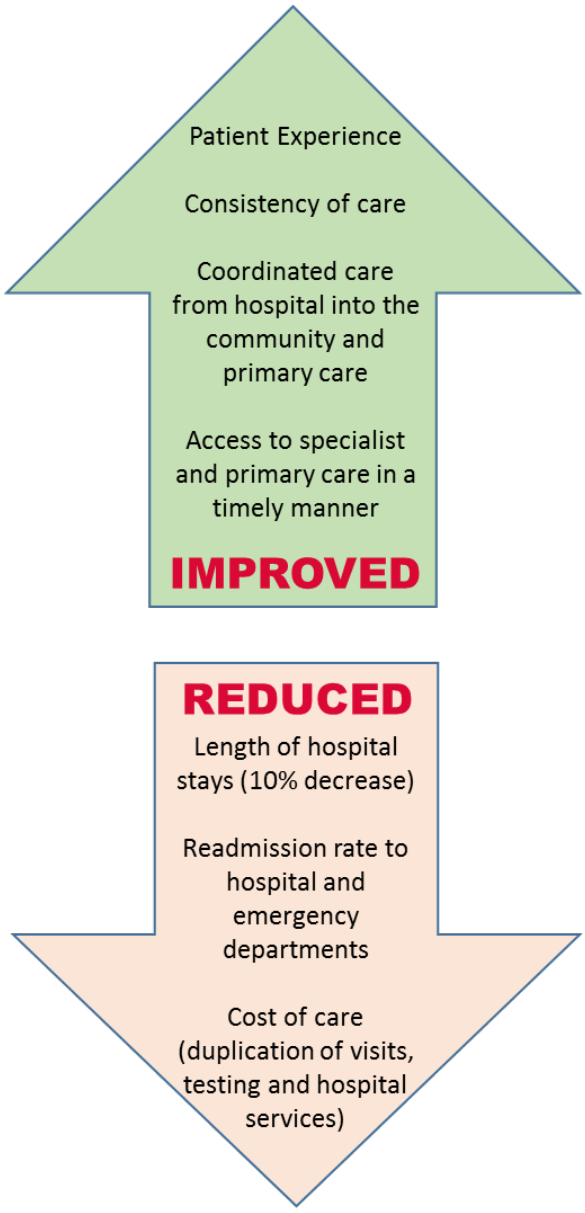
Sites participating in the coordinated provincial implementation of HF and COPD clinical pathway care are asked to send the ADC and DMP to central office for data capture and analysis. Please refer to Appendix 6, which describes this process.

A Data Dictionary is available to assist in the evaluation process (Appendix 7).

Anticipated Outcomes

Many positive outcomes are anticipated following implementation of the evidence based items included in this full bundle. As a result, patients may experience an enhanced quality of life and health care facilities may report reduced healthcare costs.

The following outcomes are anticipated:



Clinical Pathway Support Unit: Provincial Team

Alberta Health Services (AHS) strongly supports the heart failure and COPD clinical pathway work due to the positive impact it could have on patient outcomes, quality of life, reduced hospital stay, reduced readmissions and resulting financial savings.

Provincial support resources have been made available to assist zones and sites with full bundle implementation and clinical pathway care.

A provincial Clinical Pathway Support Unit (CPSU) including project managers and consulting specialists in clinical practice, knowledge translation, primary care and data analysis are accessible for zone support.

Contact Information

For additional information or support regarding heart failure clinical pathway care or full bundle implementation, contact the Clinical Pathway Support Unit (CPSU) at: hfpathway@ahs.ca

Appendixes

Appendix 1: Acute Heart Failure – Diuretic Dosing

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 m2	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 m2	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 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

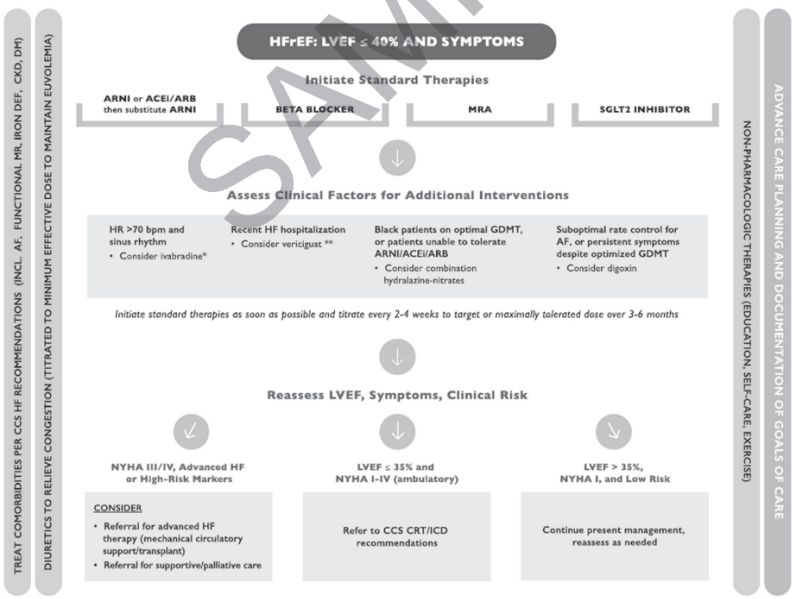


Figure 1: Simplified Treatment Algorithm for Management of HF with Reduced Ejection Fraction (HFrEF)

CCS/CHFS Heart Failure 2021 Guidelines Update

Appendix 2: Acute Heart Failure – Drugs and Dosing

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-neprilysin 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

Appendix 3: Medication Restrictions

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

Appendix 4: Evidence Documents

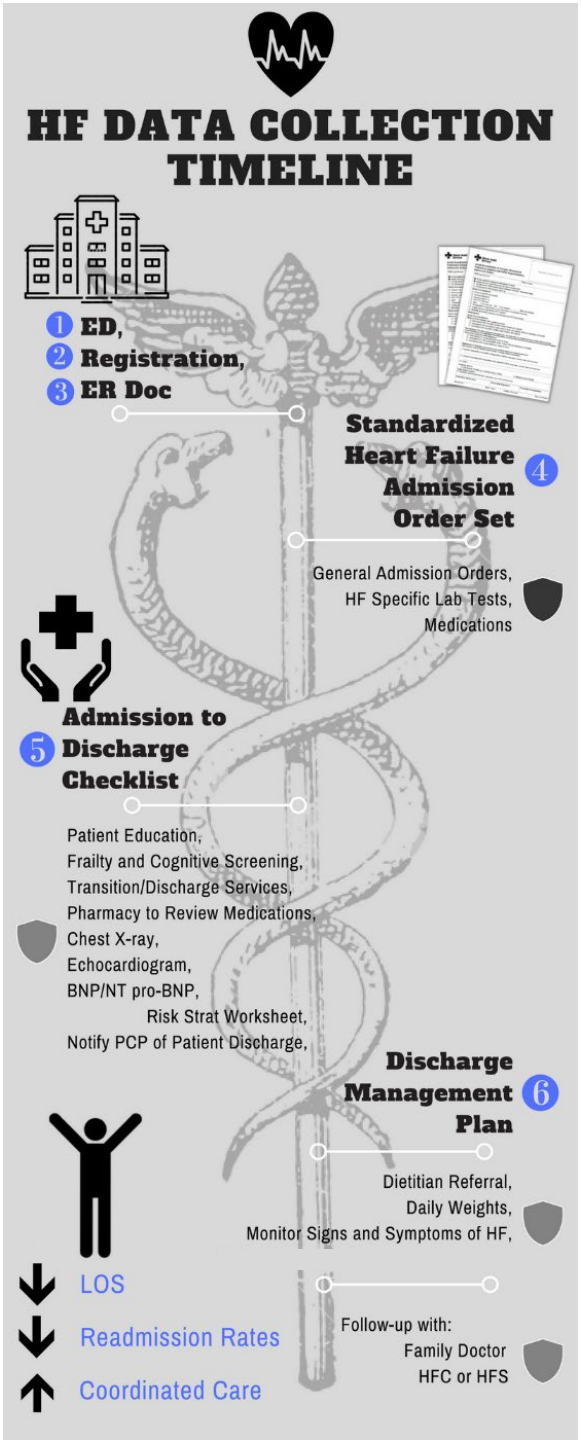
To obtain a copy of the Heart Failure Full Bundle Evidence Document, please send a request to hfpathway@ahs.ca

Appendix 5: Menu of Metrics

To obtain a copy of the Heart Failure Menu of Metrics, please send a request to hfpathway@ahs.ca

Appendix 6: Data Capture Process

Follow instructions on the below data cover page to send data to the Data Analyst.



DATA COVER PAGE
Hospital Data Submission

Send data to: hfcopd-data@ahs.ca

From (Unit): _____

Number of Pages (including cover): _____

Please **include the following** documents in a single scan for **each** discharged patient:

1. **Pathway:**
   - ☐ COPD
   - ☐ Heart Failure

2. **Discharge date** of patient (DD-MMM-YYYY): _____

3. **Uptake Information**:
   - ☐ **Full Bundle** used

     Checklist of data forms to include in submission:
     - ☐ Completed Data Cover Page (this form)
     - ☐ Patient Demographics (e.g., Inpatient Registration)
     - ☐ Physician Admission Orders (optional)
     - ☐ Transition to Community Care - Admission to Discharge Checklist (TCC-ADC)
     - ☐ Discharge Management Plan (DMP)

   - ☐ **Transition to Community Care Bundle** used
     ****NO Physician Admission Orders used**

     Checklist of data forms to include in submission:
     - ☐ Completed Data Cover Page (this form)
     - ☐ Patient Demographics (e.g., Inpatient Registration)
     - ☐ Transition to Community Care - Admission to Discharge Checklist (TCC-ADC)
     - ☐ Discharge Management Plan (DMP)

If you have any questions, please contact:
hfcopd-data@ahs.ca

Appendix 7: Data Dictionary

To obtain a copy of the Heart Failure Data Dictionary, please send a request to hfpathway@ahs.ca