

Heart Failure Medications: A Patient & Caregiver Guide

Understanding Guideline-Directed Medical Therapy for
Heart Failure with reduced ejection fraction (HFrEF)



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What guides heart failure medication choices?

If you've been diagnosed with **heart failure with reduced ejection fraction (HFrEF)**, you may be wondering about your treatment options. Many medications are available to treat heart failure depending on your individual health and needs.

This guide has been created to:

- **Explain what medications may be recommended** to treat your symptoms and improve your quality of life.
- **Support your conversations with your health care team**, including your doctors, nurses, pharmacists, and others.
- **Help ensure that you receive the best heart failure care available** by understanding practice guidelines and advocating for them in your care.



Heart failure with reduced ejection fraction (HFrEF)

Heart failure caused by a problem with the pumping function of the heart, called 'reduced ejection fraction'.

What is Guideline-Directed Medical Therapy?

The Canadian Cardiovascular Society (CCS) sets the standards for optimal heart failure care in Canada, known as "Heart Failure Guidelines."¹ In 2021, the CCS updated its treatment guidelines for **people living with heart failure with reduced ejection fraction (HFrEF)**. These are the guidelines that your health care team follow to treat heart failure.

The Heart Failure Guidelines recommend that, whenever possible, people with HFrEF be treated with 4 different medications early after their diagnosis. **This combination of medications is known as "guideline-directed medical therapy"**. Additional medications may also be recommended, depending on your health and risk factors.

Note: The Guidelines were last updated in 2021. The next update may include new or additional recommendations for patients with a **higher or 'preserved' left ventricular ejection fraction (HFpEF)**.

¹ McDonald, M., Virani, S., Chan, M., Ducharme, A., Ezekowitz, J. A., Giannetti, N., ... & Yip, A. M. C. (2021). CCS/CHFS heart failure guidelines update: defining a new pharmacologic standard of care for heart failure with reduced ejection fraction. *Canadian Journal of Cardiology*, 37(4), 531-546. [https://www.onlinecjc.ca/article/S0828-282X\(21\)00055-6/fulltext](https://www.onlinecjc.ca/article/S0828-282X(21)00055-6/fulltext)

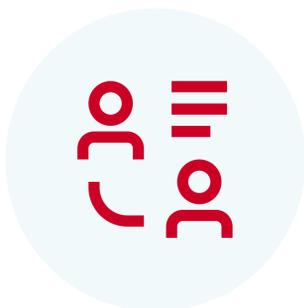
What guides heart failure medication choices?

Why optimal medication matters

Using all 4 guideline-directed medical therapy (GDMT) medications together could help you live 5 to 8 years longer.¹ People who are able to take 4 GDMT medications also experience a better quality of life and fewer hospital stays than people taking fewer GDMT medications.

Challenges with optimizing medications

Despite clear and important benefits, studies suggest only 4 in 10 people living with heart failure are being treated with optimal medication.² The reasons for this may include:



Knowledge

New research is always coming out and guidelines are updated every few years. It can be hard for health care providers and patients to stay 'up to date' with the latest treatment research. People with heart failure may also not fully understand their condition or how it should best be managed.



Uncertainty

Patients and/or providers may be unsure if they should change or add new medications. They may not realize the benefits of optimizing medications, or may not want to take additional pills everyday. Patients may not feel confident that their providers are up-to-date on their condition and needs.



Ability to access care

In Canada, most people with heart failure do not receive care from a heart failure specialist. Many face difficulties accessing care when it is needed most. GDMT requires close management by your health care provider.



Drug costs

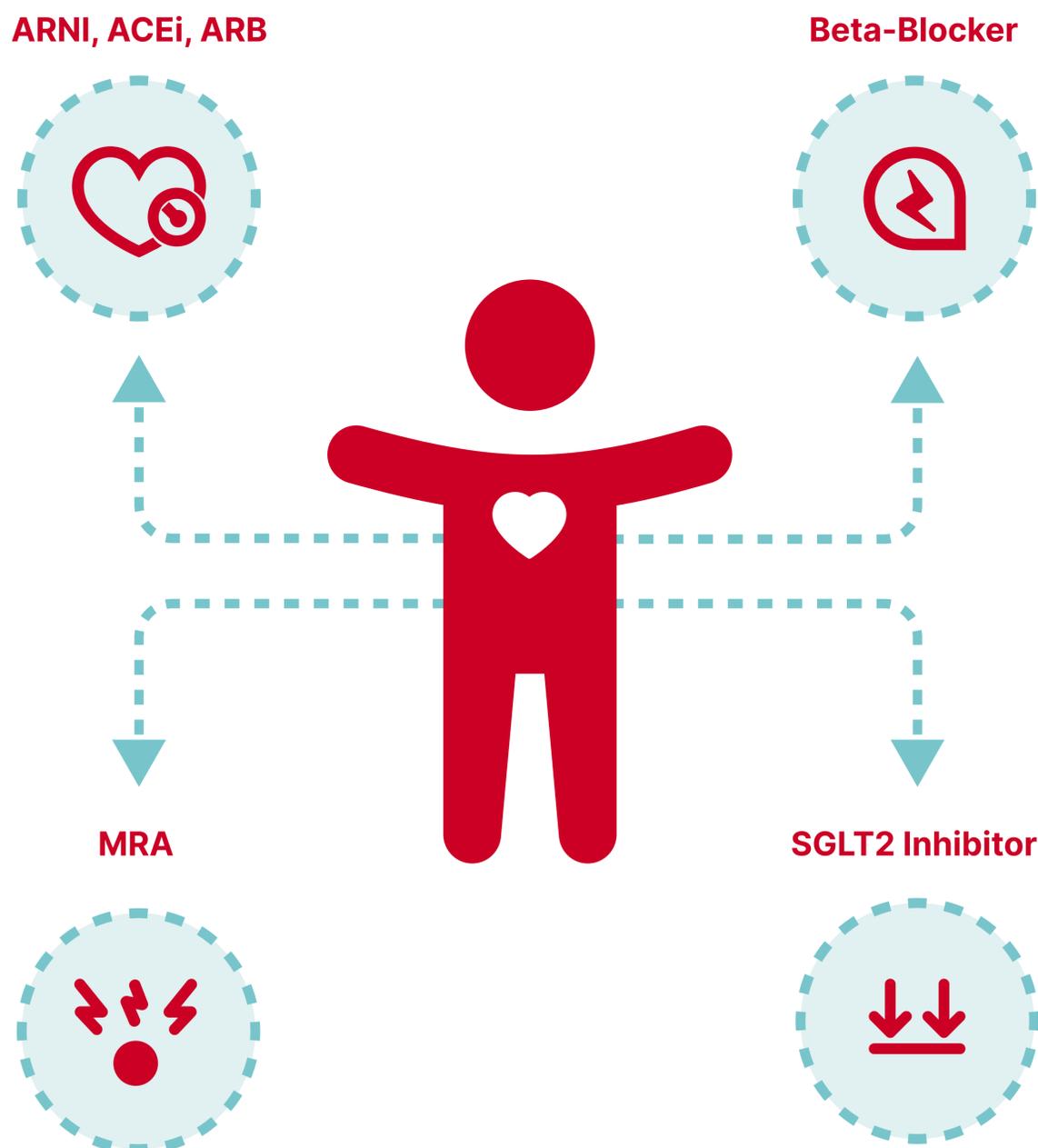
Not having coverage for your medications can be costly, particularly for newer medications. This can limit treatment choices.

² Tromp J, Ouwerkerk W, van Veldhuisen DJ, et al. A systematic review and network meta-analysis of pharmacological treatment of heart failure with reduced ejection fraction. *JACC: Heart Failure*. 2022;10(2):73-84. doi:10.1016/j.jchf.2021.09.004. <https://pubmed.ncbi.nlm.nih.gov/34895860/>

What is optimal medication?

The Canadian Heart Failure Guidelines currently recommend the use of 4 different types of medications for people with HFrEF, where possible. These include:

1. Angiotensin receptor-neprilysin inhibitors (**ARNI**) (sacubitril-valsartan), angiotensin converting enzyme inhibitors (**ACEi**) (“prils”), or angiotensin-receptor blockers (**ARBs**) (“sartans”)
2. **Beta-blockers** (“lols”)
3. Mineralocorticoid receptor antagonists (**MRAs**)
4. Sodium-glucose cotransporter-2 (**SGLT2**) inhibitors (“flozins”)



Each of these 4 medications works in a unique way, and they work best when used together. On average, each of these medications adds an extra 1 to 2 years of life.¹

What is optimal medication?

ARNI, ACEi, ARBs



How they work:

They reduce salt and water retention and open up blood vessels. This makes it easier for your heart to pump blood to your body.

Commonly used drugs:³

ARNI Sacubitril-valsartan (Entresto™)

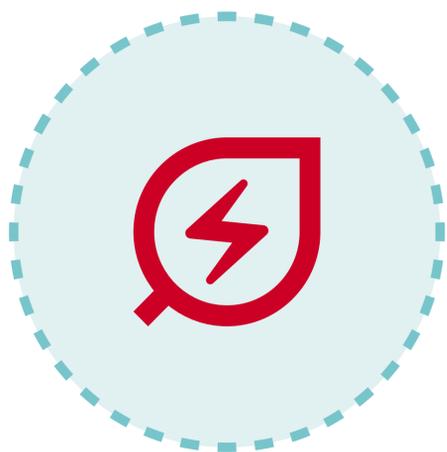
ACEi (“prils”) Perindopril, ramipril

ARB (“sartans”) Candesartan, valsartan

What to watch out for:

- Symptoms of low blood pressure.⁴
- ACEi and ARNI may cause a dry cough.
- Routine bloodwork to check kidney function and potassium (risk of high potassium).

Beta-Blockers



Commonly used drugs:

Bisoprolol

Carvedilol

Metoprolol

How they work:

They block **adrenaline** so your heart does not have to work as hard and beat as fast.

What to watch out for:

- Symptoms of low blood pressure or heart rate.⁴
- You may feel tired (low energy) when you first start this medicine. This will get better as your body gets used to the medicine.
- Do not stop this medicine suddenly unless your healthcare provider tells you to. Your heart may race if you stop it suddenly.

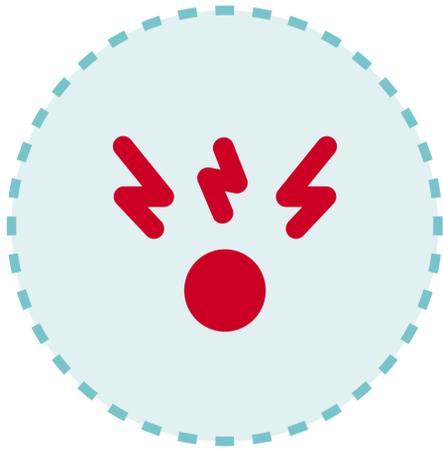
³This does not represent a comprehensive list of medications within these classes. In particular, different provinces/territories may use other ACEi not listed here.

⁴**Low blood pressure:** You may feel lightheaded, faint, or nearly faint, especially when you stand or sit up suddenly.

Low heart rate: You may feel tired, lightheaded, or faint or nearly fainting. Talk with a member of your healthcare team if you experience these symptoms and find them bothersome.

What is optimal medication?

MRAs



Commonly used drugs:

Eplerenone (Inspra™)

Spirolactone

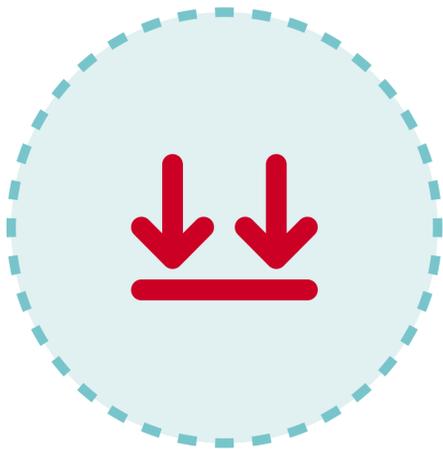
How they work:

They block stress hormones that make the heart stiff and cause scarring.

What to watch out for:

- Expect ongoing bloodwork for kidney function and potassium (risk of high potassium).
- Spirolactone: You may experience swelling of your breasts or tenderness. This is more common in men, and occurs in 9 out of 100 people.

SGLT2 Inhibitors



Commonly used drugs:

Dapagliflozin (Forxiga™)

Empagliflozin (Jardiance™)

How they work:

They help lower stress on your heart.

What to watch out for:

- Genital yeast infection or bladder infection (less than 1 in 100 people). You can reduce this risk by paying close attention to your hygiene.
- Expect ongoing bloodwork for kidney function.
- This medicine is also used to treat diabetes. Other diabetes medicines may need to be adjusted when you take this medicine.

What is optimal medication?

Common side effects

You may also experience other common symptoms that are not serious but still noticeable. They can include:

- Insomnia or problems sleeping
- Problems with your stomach and digestion
- Sense of unease
- Feeling dizzy or lightheaded
- Feeling tired

You may also experience worry or anxiety through this process. Some side effects go away or become less bothersome with time. Some will continue. If you are concerned about a side effect, speak to your health care provider. Be aware that these symptoms are not always due to medications.

Severe side effects

Severe symptoms, such as extreme weakness, dehydration or losing consciousness, may require immediate medical attention.

MEDICATION	SEVERE SIDE EFFECTS	WHAT TO DO
ACEi, ARNIs	1 in 500 people may experience a severe allergic reaction called angioedema. This involves swelling of the face, tongue, lips, and hands. ⁵	Seek immediate medical attention.
Beta-blockers	If you have a history of asthma or COPD (also known as chronic bronchitis/emphysema), beta-blockers may make you feel wheezy or short of breath.	Contact your health care provider immediately.
ACEi/ARB/ARNIs, SGLT2 inhibitors, MRAs	If you develop another illness and as a result are not able to eat or drink , or if you are experiencing a lot of vomiting or diarrhea , contact your health care provider.	Contact your health care provider.
SGLT2 inhibitors	1 in 1,000 people may experience a serious condition called 'ketoacidosis' while taking SGLT2 inhibitors during times of medical stress or illness. Signs of ketoacidosis include dehydration, nausea and excessive fatigue.	This can be life-threatening if not treated and requires admission to hospital and stopping this medication.

You should make sure your **family and/or caregiver** are aware of severe side effects from your medications, and what to do if you need help.

⁵ Makani, H., Messerli, F. H., Romero, J., Wever-Pinzon, O., Korniyenko, A., Berrios, R. S., & Bangalore, S. (2012). Meta-analysis of randomized trials of angioedema as an adverse event of renin-angiotensin system inhibitors. The American Journal of Cardiology, 110(3), 383-391. <https://doi.org/10.1016/j.amjcard.2012.03.034>

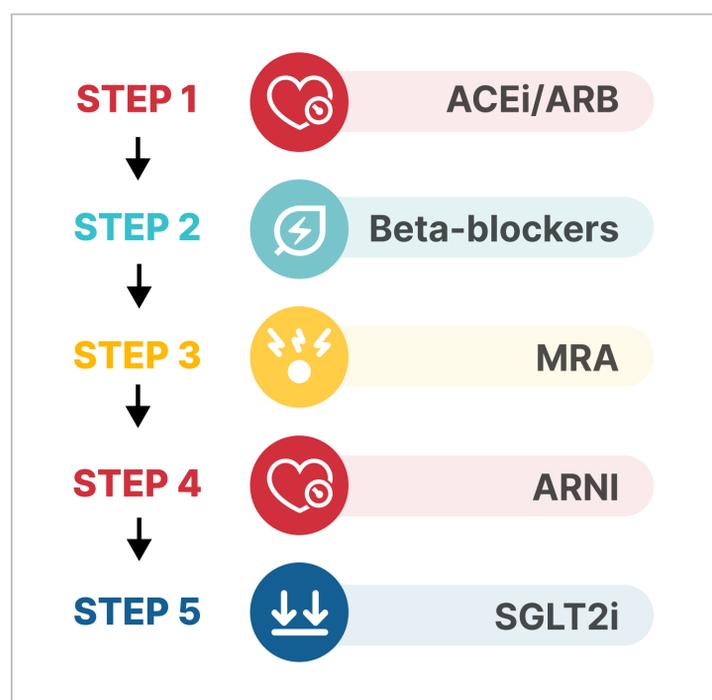
Getting to optimal medication

It is crucial that medications be started as soon as possible after heart failure diagnosis. There is no single best approach to starting and increasing your medications. Your health care team will work with you in making these decisions. Factors such as blood pressure, kidney function, medication coverage and possible side effects all play a critical role.

How are heart failure medications introduced?

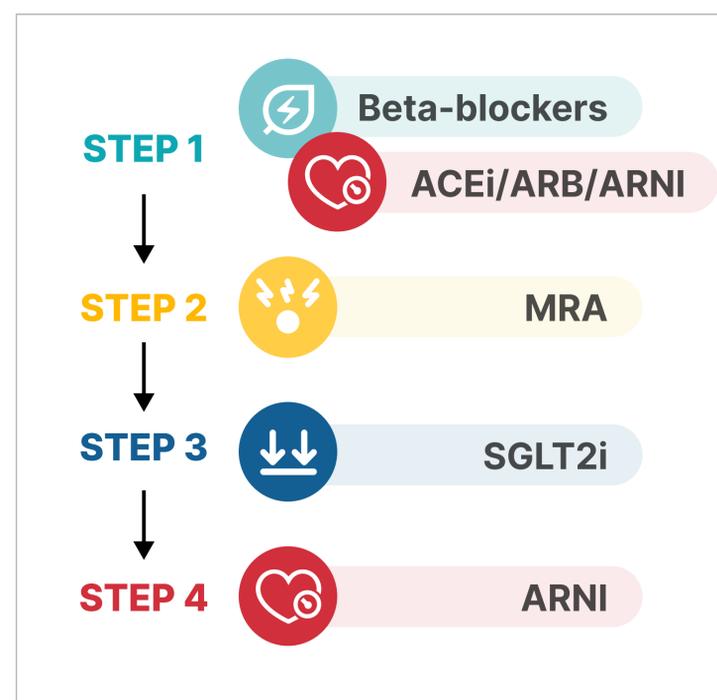
Generally, new medications are started at a low dose and increased over time until you reach your **maximally targeted dose**. Two common ways to start and increase medications are shown below. The goal is that people with HFrEF should be on all 4 guideline-directed medications, at a maximally tolerated dose for them, within 3 to 6 months from their initial diagnosis.

a. Strict sequential



a. Strict sequential: Introducing medications one at a time before adding a new drug. This typically requires 6 months or more.

b. In parallel



b. In parallel: Introducing and increasing medications all at once. All steps achieved within 4 weeks.

Depending on your unique health situation, your health care team may use either approach, or a **combination approach**, to best suit you and your needs. Your team may not follow this sequence; it will be adapted to your unique situation.

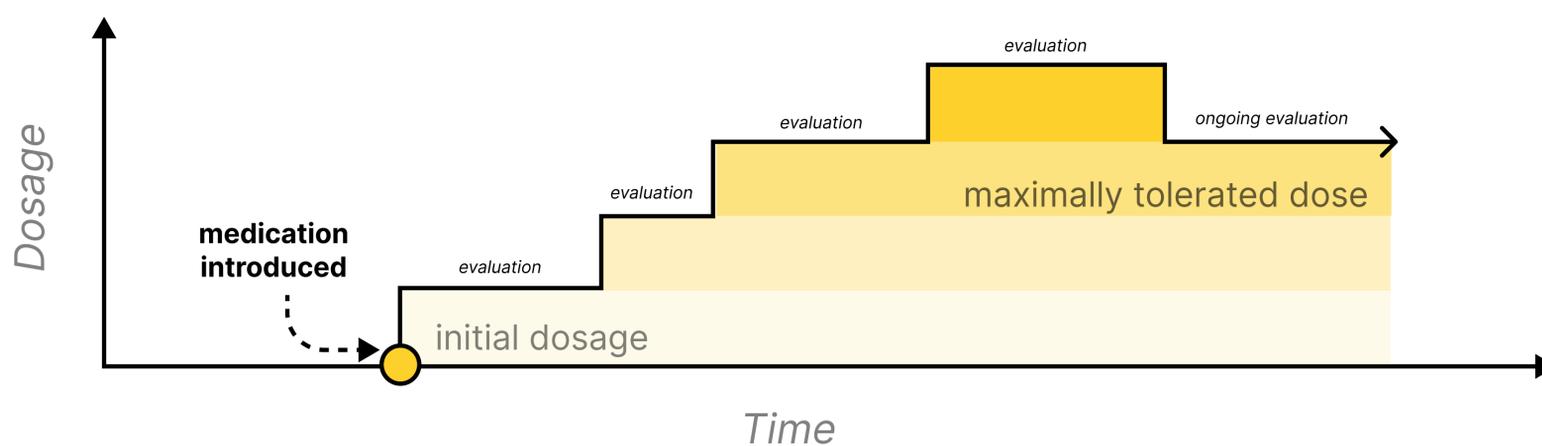
Getting to optimal medication

The **maximally tolerated dose** is the dose that you can take without having bothersome side effects such as dizziness, low blood pressure and light-headedness. Not everyone can tolerate a full dose, also known as a **target dose**. Your care provider may have to reduce or stop other medications that have less proven benefit (like **diuretics**) in order to maximize doses of GDMT.

How are medications increased?

Medications are introduced at low doses and gradually, based on your response. This process is called “titration.” During titration, your health care provider will assess your symptoms, ask about any side effects and monitor your bloodwork as needed. The doses of your medication may be adjusted (increased or decreased) based on your response.

Here is how titration works:



Titration: Medication titration consists of adjusting a dose every 1 to 4 weeks, depending on how well you are tolerating changes and on the timing of follow-up appointments with your health care team.

You play an essential role during titration by communicating how you are feeling with your care provider. Do not adjust medications without guidance from your health care team.

Beyond optimal medication

There is no “one-size-fits-all.” For some people, optimal medical therapy will mean fewer medications than the 4 in the guidelines. You could need to avoid a medication due to a **contraindication** or because of how it interacts with another drug you are taking. People with heart failure are often on medications to treat other conditions, such as high cholesterol (“statins”), or to reduce the risk of blood clots (“blood thinners”). You might also be prescribed other medications not described here like water pills or diuretics, digoxin or ivabradine.

● How does my health care team measure my response to treatment?

After you are on maximally tolerated doses of your medication for 3 to 6 months, your health care provider will discuss ordering an **echocardiogram or other diagnostic test** with you to reassess your ejection fraction. Those results may guide next steps, such as a referral for **pacemaker, implantable cardioverter defibrillator (ICD), or a cardiac synchronization therapy device (CRT or CRT-D)**. You may not need any further drug changes, or you may need to consider other medications to help your heart.



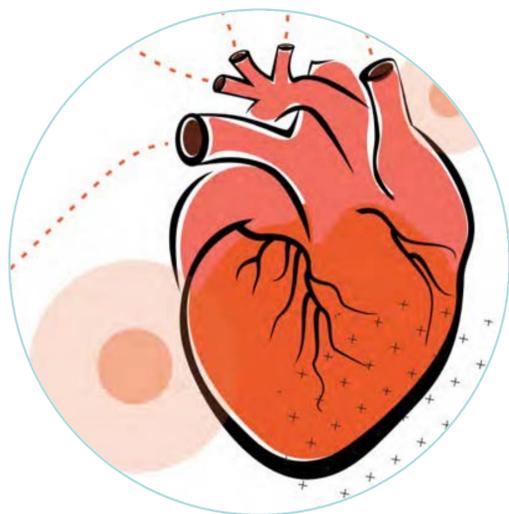
Beyond optimal medication**Ongoing evaluations with your team**

Most people with heart failure will need to continue medications long-term, many for the rest of their lives. In addition to taking medications as prescribed, learning about self-care is an important part of managing heart failure. Note any new symptoms, side effects or changes in your quality of life. Talk to your health care provider about how you feel you are managing.

Never adjust your own medications without guidance from your health care team.

Ask questions, take notes and make sure you feel comfortable with the treatment options being offered and chosen.

Resources that may be helpful to you, your caregiver or family:



**Health Quality
Ontario's
Heart Failure
Conversation Guide**



HeartLife's Toolkit



The Heart Hub

**Ted Rogers Centre for Heart Research &
Peter Munk Cardiac Centre**

Beyond optimal medication

Managing your care and medications

- Take medications as prescribed by your healthcare team.
- Know what side effects to watch out for and discuss them with your health care provider in a timely fashion.
- Do not adjust your medications unless instructed by your health care team.
- Be patient and understand that it may take time for your body to adapt to certain medications.
- If you are vomiting, experiencing diarrhea, or are dehydrated you may need to stop taking some medications for a short time.
- If you are not sure what to do with your medications when dehydrated, ask your healthcare team about sick day management of your medications.
- Work with your team to determine the best treatment.
- Try to be consistent with the time of day that you take your medication. Timing when you take your medication with another activity that you do at the same time everyday, such as brushing your teeth, can be helpful.
- Keep a list of the name, dosage, how often, and why you take each of your medications in your wallet or on your phone.
- Keep a list of everyone on your heart failure team (doctors, pharmacists, peer support, caregivers) and carry it with you to appointments.
- Don't take over-the-counter medicine, vitamins, or supplements without checking first with your doctor or pharmacist. Medications to **AVOID** include:
 - Anti-inflammatory medications, like ibuprofen (Advil™, Motrin™) or naproxen (Aleve™).
 - Decongestant pills ("cold & sinus") that include pseudoephedrine or phenylephrine.
 - Acetylsalicylic acid (Aspirin), except for the 81-mg dose if prescribed or recommended by your healthcare team.
- Notify your healthcare team if any changes are made to your medicines by a different provider.



Glossary of terms

Adrenaline

Also known as “epinephrine”, this is a chemical messenger that controls the sympathetic nervous system and causes the “fight or flight” response.

Contraindication

Anything (i.e., a symptom or medical condition) that is a reason for a person to not receive a particular treatment or procedure because it may be harmful.

Diuretics

Diuretics (commonly called ‘water pills’) rid the body of excess fluid, help to reduce swelling and bloating and make it easier to breathe.

Echocardiogram

An echocardiogram (ECHO) is an ultrasound of the heart that shows details of the heart’s structure and function.

Guideline-directed medical therapy (GDMT)

Wherever possible, HF Guidelines recommend that people with HFrEF be treated with 4 different types of medications early after diagnosis. This combination of medications is known as GDMT.

Heart failure with preserved ejection fraction (HFpEF)

Heart failure occurring as a result of a problem with the heart’s ability to relax, called ‘preserved ejection fraction.’

Heart failure with reduced ejection fraction (HFrEF)

Heart failure caused by a problem with the pumping function of the heart, called ‘reduced ejection fraction.’

Maximally tolerated dose

The maximal dose of a medication that you can tolerate without experiencing side effects such as dizziness, low blood pressure and light-headedness.

Target dose, optimal dose

A target, or “optimal” dose, is the goal dose of medication recommended by the heart failure treatment guidelines.

Partners & acknowledgements

This guide was created by a group of patient and clinical advisors, representing organizations that aim to improve heart failure care for all people in Canada.

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We acknowledge our partner organizations:



The Canadian Heart Failure Society (CHFS) provides a forum for cardiovascular professionals to exchange ideas, advance knowledge, improve practice and care delivery in the prevention, diagnosis, and management of all Heart Failure phases and complications. CHFS is an affiliation of CCS, providing guidance for medical trainees and advocating for heart failure patients, their families, and professionals.



The Canadian Cardiovascular Society is the national voice for cardiovascular clinicians and scientists, representing more than 2,300 cardiologists, cardiac surgeons and other heart health specialists across Canada. We advance heart health for all by setting standards for excellence in heart health and care, building the knowledge and expertise of the heart team, and influencing policy and advocating for the heart health of all Canadians.



HeartLife Foundation is Canada's first – and only – national patient-led Heart Failure organization. HeartLife's mission is to transform the quality of life for people living with heart failure by engaging, educating, and empowering a global community to create lasting solutions and build healthier lives.



Peter Munk Cardiac Centre (PMCC) at University Health Network (UHN) is a world leader in the diagnosis, care and treatment of patients with both simple and complex cardiac and vascular disease.

The Heart Hub is the patient and caregiver education site of the Ted Rogers Centre for Heart Research at UHN.