



Learning to **Live** Heart Failure

with

Editors

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UNC
HEALTH®

This Book Belongs To:

My Contacts

My primary care doctor:

Name: _____

Phone: _____

My cardiologist:

Name: _____

Phone: _____

My home or mail-order pharmacy:

Name: _____

Phone: _____

Mail-order: _____

Summary of my heart condition and goals:

Page 8: My Ejection Fraction (EF) is _____%.

My type of heart failure is with Reduced or Preserved EF (circle one)

Page 10: The cause of my heart failure is _____

Page 11: My blood pressure goal is _____ / _____ mmHg.

Page 28: My daily salt (sodium) limit is: _____

Page 29: My daily fluid limit is: _____

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Chapter 1

Understanding Heart Failure

Introduction

This book was created to help you learn about and better manage your heart failure. There **are** things you can do to help. Keep in mind:

- This book has a lot of information.
- Do not try to read the whole book in one sitting. Take your time!
- You will learn more each time you read it.
- Your health care provider can answer your questions.
- It will take time to make changes.

As you work with your doctor/health care provider to make changes to your medicines (medications) and your lifestyle, you will help your heart work better.

What is heart failure?

Heart failure is a condition that happens when your heart function can't meet the body's needs for blood and oxygen. Simply stated, the heart is either:

- Too **weak** to pump as much blood as your body needs
- or
- Too **stiff** to fill the way it should.

Heart failure does not mean that your heart has stopped or is about to stop!

What are the signs and symptoms of heart failure?

As the heart becomes weak or stiff, blood can back up into your lungs and throughout your body. This can cause fluid to build up and lead to signs of heart failure, such as:

- Weight gain of more than 3 pounds in one day or 5 pounds in a week
- Swelling in your ankles, legs, or stomach
- Shortness of breath when you are active or resting
- Sleeping on two or more pillows to breathe easier
- Sleeping in a chair to breathe easier instead of lying down
- Waking up at night with shortness of breath
- Frequent coughing or cough that happens when you lie flat
- Feeling tired or weak

The words “heart failure” may sound scary, but it is important to understand that there are medications, treatments, and other things that you can do to improve your heart health.

If your symptoms worsen, call your health care provider so you can stay out of the hospital!



What is ejection fraction, or EF?

Ejection fraction, also called **EF**, is the amount of blood the heart (the left ventricle) pumps out with every beat. A healthy EF is 50% to 75%, **not** 100%. Your EF helps us decide your heart failure type and which medications or other treatments may help.

- An echocardiogram or ECHO is a common test that uses sound waves to measure your EF.
- Other tests may also be used to measure your EF, such as cardiac catheterization or magnetic resonance imaging (MRI).



What are the two types of heart failure?

Heart failure occurs when the heart becomes too weak (with a *reduced* ejection fraction) or when it becomes too stiff (with a *preserved* ejection fraction).

Weak	Stiff
Heart Failure with Reduced Ejection Fraction (HFrEF) or Systolic Heart Failure	Heart Failure with Preserved Ejection Fraction (HFpEF) or Diastolic Heart Failure
This type of heart failure occurs when the heart becomes weak and enlarged. It is unable to pump as much blood as it should. The EF is less than 50%.	This type of heart failure occurs when the heart becomes stiff. It cannot fill properly because it has a problem relaxing. The EF is greater than 50%.

Ask your health care provider... What is my EF?

Date	Ejection Fraction (EF)

My type of heart failure is with:

- Reduced EF, which means **weak**.
- Preserved EF, which means **stiff**.

What causes heart failure?

Some of the causes of heart failure are:

- **Coronary Artery Disease (CAD)**

When the heart arteries become blocked or narrowed by cholesterol and fatty deposits, less blood is able to reach the heart. This may cause damage to the heart muscle or a heart attack, which may make the heart muscle weak and/or stiff. A stress test or cardiac catheterization may be done to check for blockages.

- **High Blood Pressure or Hypertension**

High blood pressure in the arteries makes the heart work harder and may cause the heart to become stiff and/or weak.

- **Dilated Cardiomyopathy**

Dilated cardiomyopathy may be due to many causes, such as familial (genetic) causes and infection (usually a viral infection). Sometimes the cause is unknown.

- **Thyroid Problems**

Too much or too little thyroid hormone can cause heart failure over time if not treated.

- **Toxins**

Drinking alcohol or taking illegal drugs (for example, cocaine or amphetamines) can cause heart failure. Certain cancer medications can also cause heart failure.

- **Other Heart Diseases**

Heart valve disease, such as leaking or tightness of the heart valves, and heart arrhythmias, such as fast, abnormal heart rhythms, may cause heart failure.

- **Other Systemic Diseases**

Other diseases that can affect other parts of the body, such as amyloidosis, sarcoidosis, connective tissue disease, can also cause heart failure.

- **Pregnancy**

Women may rarely develop heart failure during pregnancy or during the first few months after delivery.



The cause of my heart failure is: _____

What other diseases are related to heart failure?

High blood pressure, high cholesterol, and diabetes may be related to your heart failure. You should discuss these diseases with your health care provider. Several of the medications that treat heart failure will also treat these other diseases. Controlling these diseases may help prevent more damage to your heart.

- **High blood pressure**

Most people should have a blood pressure below 130/80 mmHg. You may have a different blood pressure goal. Your health care provider will check your blood pressure and decide if you need medication to lower it. Many of the medications that treat heart failure will also lower your blood pressure.

My blood pressure goal is: _____/_____ mmHg

- **High cholesterol**

Usually, total cholesterol should be less than 200 mg/dl, LDL (bad or lousy cholesterol) should be less than 70 mg/dl, HDL (good or healthy cholesterol) should be greater than 40 mg/dl, and triglycerides should be less than 150 mg/dl. Many people take medication to lower their cholesterol if they have coronary artery disease (narrowing of the blood vessels of the heart), diabetes, or other risk factors for heart disease or stroke. Your health care provider will check your blood cholesterol levels and decide if you need medication.

- **Diabetes (high blood sugar)**

A blood test called hemoglobin A1C (or just A1C) shows what your average blood sugar level has been over the last three months. Most people should have an A1C less than 7%. Your health care provider will check your blood sugar and decide if you need medication to lower it.

Important things to do every day

- **Come to your clinic appointments.**

Bring all of your medications with you! Together we can make a plan to take care of your heart.

- **It is very important that you see your clinic provider soon after you leave the hospital.**

This can help you stay out of the hospital. Alert your heart failure provider if you are admitted to a hospital for illness or a procedure.

- **Take your medications exactly as you are told.**

This can help you get the most out of your medications.

- **Stay at your goal (or dry) weight.**

Weigh yourself at the same time each morning after you go to the bathroom. Use the same scale and wear the same amount of clothing each time. Write your weight down every day and take this record with you to your health care provider visits.

If your weight increases by more than 3 pounds in one day or 5 pounds in one week, you may need to increase your fluid pill (diuretic) dose for 1 to 2 days. Your health care provider will tell you how much extra medication (fluid pill) you should take. If your weight does not return to normal or you continue to gain weight, call your health care provider.



Weigh Yourself Daily!

Since weight gain often happens before other heart failure symptoms, it is important to weigh yourself daily to catch fluid build-up early!

- **Eat a heart healthy diet.**

Your food should be low in sodium (less than 3000 mg or 3 grams daily), low in fat, low in sugar, and high in fiber. Your fluid intake should be less than 2 quarts (½ gallon or 64 ounces) or 2 liters (2000 mL). Following this diet will improve the way you feel.

- **Exercise**

Become more active. Regular exercise will make your muscles stronger so you feel better and can do your daily activities easily. Exercise will help you avoid gaining body weight (fat weight, not fluid weight). Extra body weight puts a strain on your heart.

- **Avoid alcohol, cigarettes, and illegal drugs**

Alcohol and illegal drugs (for example, cocaine and methamphetamine) can damage your heart. Smoking increases blood pressure and makes it harder to exercise. Smoking also makes your blood more likely to clot, which puts you at a higher risk for heart attack or stroke. If you are having a hard time quitting, ask your health care provider for help.

- **Get vaccinated regularly.**

Get the influenza (flu) and Covid vaccine every year in October or November. Get the pneumonia and RSV vaccines. You can get your vaccine(s) at your local pharmacy or at your health care provider's office.



Exercise regularly
Walking every day is a
great way to stay active!

■ **Know the signs and symptoms of worsening heart failure.**

Each day, check the following:

- ___ Has your weight gone up by 3 pounds in one day or 5 pounds in one week from your goal or dry weight?
- ___ Do you have more swelling than usual in your legs or stomach?
- ___ Are you short of breath while at rest or more short of breath than usual?
- ___ Do you have to sleep upright in a chair or on more pillows than usual?
- ___ Do you have dizziness that is worse than usual, or have you passed out?

Call your healthcare provider if you have any of these symptoms. If you can catch these symptoms early, you can take action to stay out of the hospital.



Call your health care provider if you answered “yes” to any of the questions above.

Chapter 2

Know Your Medications

Introduction

Bring all medication bottles and your pillbox to each clinic visit and to every emergency room or hospital visit!

- It is also important to carry an updated medication list with you at all times.
- Use a pillbox marked with each day of the week. Fill the pillbox at the beginning of each week and place it somewhere easy to find.



Use a pillbox or set your cell phone alarm.

These can help you remember to take your medications and bring them to your clinic or hospital visits.

Tips for taking your medications

- If you forget to take a dose, do not double it. Instead, take it as soon as you remember, as long as the next dose is not due within a few hours. If it is due in a few hours, skip the missed dose and get back on your regular schedule.
- If you experience serious side effects, immediately get medical attention or ask your provider.
- If you are having side effects that are bothering you, do not stop taking the medication without talking with your health care provider.
- If you are having trouble paying for your medications, ask your health care provider or pharmacist about less costly drugs or for financial help programs.
- Your provider may refer you to our cardiology pharmacists to help start or increase your heart failure medications. These visits may happen in-person or over the phone to help get you to the goal doses of your medications faster.

Medications for a Weak Heart

Or Medications for **Heart Failure with Reduced Ejection Fraction (HFrEF)**

The most important medications for a **weak heart** are:

angiotensin receptor/neprilysin
inhibitor (ARNI)

Or

ACE Inhibitor or ARB

Beta Blocker

Aldosterone Blocker

SGLT2 Inhibitor

All patients who have an EF \leq (less than or equal to) 40% should take the combined neprilysin inhibitor + ARB pill (ARNI, angiotensin receptor/neprilysin inhibitor) or an angiotensin-converting enzyme (ACE) inhibitor or an angiotensin receptor blocker (ARB), plus a beta blocker, an aldosterone blocker, and an SGLT2 (sodium-glucose co-transporter 2) inhibitor. See specific names of these medications in **Appendix 1**. These medications make people live longer, feel better, and stay out of the hospital. If you have swelling in your legs or fluid in your lungs, you will receive a diuretic, also called a fluid pill. You may be given additional heart failure medications.

If your EF is \leq 40%, the plan is to reach the “goal dose” or “target dose” of these medications, if possible. Your health care provider will try to gradually increase your heart failure medications to reach the goal or target dose. It is very important that you only increase the doses when your health care provider or cardiology pharmacist tells you to do so. A list of all the medications for people with weak hearts, including starting and goal or target doses, can be found at the end of this book.

Here are ways these medications can help you if you have a **weak** heart:

Medication	Live Longer	Feel Better	Stay Out of Hospital
Angiotensin receptor/neprilysin inhibitor (ARNI)	✓	✓	✓
ACE Inhibitor	✓	✓	✓
Angiotensin Receptor Blocker (ARB)	✓	✓	✓
Beta Blocker	✓	✓	✓
SGLT2 Inhibitor	✓	✓	✓
Aldosterone blocker	✓	✓	✓
Diuretic		✓	✓
Isosorbide Dinitrate + Hydralazine	✓	✓	✓
Fish Oil	✓		✓
Digoxin		✓	✓
Ivabradine		✓	✓
Vericiguat			✓

Talk to your pharmacist or health care provider if you have questions about your medications.



Medications for a Stiff Heart

Or Medications for **Heart Failure with Preserved Ejection Fraction (HFpEF)**

The best medications for a **stiff heart** depend on your other health conditions. Blood pressure control is very important. If you have high blood pressure, you will likely receive an ACE inhibitor or ARB or ARNI and an aldosterone blocker. You may also be treated with other blood pressure-lowering medications. If you experience swelling or fluid in your lungs, you will also receive a diuretic or fluid pill. A list of common medications for people with stiff hearts can be found at the end of this book.

Here are ways these medications can help you if you have a **stiff** heart:

Medication	Live Longer	Feel Better	Stay Out of Hospital
Aldosterone Blocker		✓	✓
SGLT2 Inhibitor		✓	✓
ACE Inhibitor		✓	✓
Angiotensin Receptor Blocker (ARB)		✓	✓
Angiotensin receptor/neprilysin inhibitor (ARNI)		✓	✓
Diuretic		✓	✓

More information about medications for heart failure

You may need some or all of the medications listed in this book. It is also important that you take the goal dose of each one if possible. The following pages explain some of these heart failure medications in more detail. At the end of this book, you can find tables with the names and doses of these medications.

Angiotensin receptor/neprilysin inhibitor (ARNI)

- If your heart is **weak**: helps you live longer, feel better, and stay out of the hospital.
- If your heart is **stiff**: helps you feel better and stay out of the hospital.
- In patients with weak hearts, has been shown to be better than an ACE inhibitor or ARB.
- Works by making your blood vessels wider, which allows blood to flow more easily. This decreases the workload of the heart. It may also decrease the amount of fluid in the body.
- May increase your potassium level. Your potassium and kidney function should be checked regularly by your health care provider.
- Rarely may cause swelling and tingling of the lips and throat, which should immediately be reported to your health care provider (or call 911).
- There is only one combination drug in this group – sacubitril plus valsartan (Entresto®).
- **Never take Sacubitril/Valsartan and an ACE inhibitor together!**

Angiotensin Converting Enzyme (ACE) Inhibitor

- If your heart is **weak**: helps you live longer, feel better, and stay out of the hospital.
- If your heart is **stiff**: helps you feel better and stay out of the hospital.
- Works by making your blood vessels wider, which allows blood to flow more easily. This decreases the workload of the heart.
- May also be used to treat high blood pressure.
- May increase your potassium level. Your potassium and kidney function should be checked regularly by your health care provider.

- Rarely may cause swelling and tingling of the lips and throat, which should immediately be reported to your health care provider (or call 911).
- May cause a dry cough.
- Common ACE inhibitors are enalapril (Vasotec®), lisinopril (Zestril® or Prinivil®), and ramipril (Altace®).

Angiotensin Receptor Blocker (ARB)

- If your heart is **weak**: helps you live longer, feel better, and stay out of the hospital.
- If your heart is **stiff**: helps you feel better and stay out of the hospital.
- May be given to people who cannot take an ACE inhibitor due to side effects.
- Works by making your blood vessels wider, which allows blood to flow more easily. This decreases the workload of the heart.
- May also be used to treat high blood pressure.
- May increase your potassium level. Your potassium and kidney function should be checked regularly by your health care provider.
- Rarely may cause swelling and tingling of the lips and throat, which should immediately be reported to your health care provider (or call 911).
- Common ARBs are candesartan (Atacand®), losartan (Cozaar®), and valsartan (Diovan®).

Beta Blocker

- If your heart is **weak**: helps you live longer, feel better, and stay out of the hospital. It also makes your heart pump stronger (increases your EF).
- If you have had a heart attack and your heart is weak: helps you live longer.
- Works by slowing your heart rate and decreasing your heart's need for oxygen.
- Starting a beta blocker or increasing your dose may cause extra fluid to build up at first. Call your health care provider if this happens.
- Sometimes beta blockers cause wheezing, especially if you have asthma. Call your health care provider if this happens.

- Common beta blockers are carvedilol (Coreg®), metoprolol succinate (Toprol XL®), and bisoprolol (Zebeta®).

Sodium-Glucose Cotransporter-2 (SGLT2) Inhibitors

- If your heart is **weak**: helps you live longer, feel better, and stay out of hospital.
- If your heart is **stiff**: helps you stay out of the hospital.
- Helps prevent worsening kidney function over time.
- Helps prevent fluid buildup.
- This medication is also used to treat type 2 diabetes.
- May cause fluid loss. Losing too much fluid may cause dehydration, dizziness, and worsen gout. Keep track of your weight daily to prevent dehydration.
- May increase your risk of urinary tract infections or yeast infections. If you have pain or burning when urinating, bloody urine, or lower belly pain, talk to your healthcare provider.
- SGLT2 inhibitors are empagliflozin (Jardiance®), dapagliflozin (Farxiga®), sotagliflozin (Inpefa®).

Aldosterone Blocker

- If your heart is **weak**: helps you live longer, feel better, and stay out of hospital.
- If your heart is **stiff**: helps you stay out of the hospital.
- If you develop heart failure immediately after a heart attack, helps you live longer and stay out of the hospital.
- Helps prevent fluid buildup.
- May increase your potassium levels. Your potassium and kidney function should be checked regularly by your health care provider.
- May cause fluid loss. Losing too much fluid may cause dehydration, dizziness, and worsen gout. Keep track of your weight daily to prevent dehydration.
- May make your breasts bigger or tender, especially if you are a man. If this happens, talk to your health care provider.

- Aldosterone blockers are spironolactone (Aldactone®) and eplerenone (Inspra®).

Diuretic (“fluid pill”)

- Helps you feel better and stay out of the hospital.
- Helps you get rid of extra fluid in your lungs and other parts of the body, such as the stomach and legs. Helps you breathe easier.
- Losing too much fluid may cause dehydration, dizziness, and worsen gout. Keep track of your weight every day to prevent dehydration.
- Potassium, magnesium, and kidney function should be checked regularly by your health care provider.
- Common diuretics are furosemide (Lasix®), bumetanide (Bumex®), torsemide (Demadex®).

Other medications that might be added for heart failure

Isosorbide Dinitrate and Hydralazine

- Two different medications that work together but are usually taken as two separate pills.
- If your heart is **weak**: helps you live longer, feel better, and stay out of the hospital, especially if you are African American.
- If your heart is **weak** and you cannot take an ACE inhibitor or ARB: helps you live longer, feel better, and stay out of the hospital.
- Works by making your blood vessels wider, which decreases the workload of the heart.
- May also be used to treat high blood pressure (hydralazine) or chest pain (isosorbide dinitrate).
- Isosorbide dinitrate may cause a headache when you start taking it. Use acetaminophen (Tylenol®) until your body adjusts to the medication. If you have a headache that is severe or does not go away, call your health care provider.

Digoxin

- If your heart is **weak**: helps you feel better and stay out of the hospital.
- May help your heart beat stronger.
- May also be used to treat abnormal heart rhythms.
- May cause nausea, vomiting, blurred or colored vision, and abnormal heart rhythms that may cause your heart to race or pound or cause you to pass out. If you notice any of these effects, immediately notify your health care provider.
- The level of this medication can be checked. It is important that the level is not too high.

Ivabradine

- If your heart is **weak**: helps you stay out of the hospital.
- Works by slowing your heart rate.
- May be added to a beta blocker or used in people who cannot take beta blockers.
- If you have vision changes (such as increased brightness, halos, colored bright lights or double vision), contact your healthcare provider.
- The only medication in this group is ivabradine (Corlanor®).

Fish Oil (Omega-3 fatty acids, or PUFA)

- If your heart is **weak** or **stiff**: helps you live longer and stay out of the hospital.
- If your heart is **weak**: improves your EF.
- Can get as a prescription medication (Lovaza®) or over-the-counter (many varieties).

Vericiguat

- If your heart is **weak**: helps you stay out of the hospital.
- This medication is reserved for patients who are hospitalized frequently for heart failure needing intravenous fluid medicine.
- The only medication in this group is vericiguat (Verquvo®).

Other common medications you might take

Statin (Cholesterol Lowering Medication)

- Helps you live longer if you have had a heart attack, heart blockages or coronary artery disease, or a stroke. Also helps you live longer if you are at high risk for heart attack or stroke.
- Prevents heart attacks and strokes.
- Lowers LDL (“lousy” or “bad”) cholesterol, raises HDL (“healthy” or “good”) cholesterol, and lowers triglyceride levels.
- If you have yellowing of your eyes or skin, dark urine, unexplained and severe nausea or vomiting, or pain to the upper right of your stomach, call your healthcare provider.
- Your liver function may need to be checked every so often. Ask your healthcare provider.
- Common statins are atorvastatin (Lipitor®), pravastatin (Pravachol®), rosuvastatin (Crestor®), and simvastatin (Zocor®).
- Other cholesterol lowering medications include alirocumab (Pralent®), evolocumab (Repatha®), inclisiran (Leqvio®), cholestyramine (Questran®, Colestid®), colestevlam (Welchol®), and ezetimibe (Zetia®).

Arrhythmia Medications

- May be used for abnormal heart rhythms or irregular heartbeat.
- Some of these medications require close follow up with blood tests.
- Common arrhythmia medications are amiodarone (Cordarone®), dofetilide (Tikosyn®), sotalol (Betapace-AF®), and mexiletine (Mexitil®).

Antiplatelet Medications

- Helps you live longer if you have had a heart attack, heart blockages or coronary artery disease, or stroke. It may also help you live longer if you are at high risk for heart attack or stroke.
- Helps stop platelets from sticking together and making a clot.

- Helps prevent clots in people who have received a stent to open an artery in the heart.
- May increase the risk of bleeding if your blood becomes too thin.
- Common antiplatelet medications are aspirin, clopidogrel (Plavix®), prasugrel (Effient®), and ticagrelor (Brilinta®).

Anticoagulant Medications (“Blood Thinners”)

- Prevents strokes in patients with an abnormal heart rhythm called atrial fibrillation or “A-Fib”.
- Prevents clots from becoming larger and causing more serious problems.
- Decreases the clotting ability of the blood in a different way than antiplatelet medications.
- May increase the risk of bleeding if your blood becomes too thin.
- Some of these medications require close follow up with blood tests.
- Call your health care provider if you have worsening bruising, nose bleeding, or gum bleeding.
- Call your health care provider immediately if you develop dark urine or stool, or if you cough up blood.
- Common anticoagulant medications are warfarin (Coumadin®, Jantoven®), enoxaparin (Lovenox®), apixaban (Eliquis®), dabigatran (Pradaxa®), rivaroxaban (Xarelto®), and edoxaban (Savaysa®).

Iron

- People with heart failure commonly have iron-deficiency anemia or low iron levels.
- Signs of low iron levels are tiredness, weakness, cold hands and feet, and harder work of breathing.
- Receiving intravenous iron has shown to improve heart failure symptoms and help stay out of the hospital. The same benefits are not seen with iron pills.
- Your healthcare provider may check iron levels 3 to 6 months to see if you need iron supplementation.

- Intravenous iron is given at UNC's outpatient infusion clinics. Each infusion may take up to two hours and may occur every 3 to 6 months.

Medications to avoid

Some medications can worsen your heart failure. These include:

- Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (Advil[®], Motrin[®]), naproxen (Aleve[®]), and meloxicam (Mobic[®]). If you need medication to treat mild pain such as a headache, acetaminophen (Tylenol[®]) is a safe alternative to NSAIDs in most patients. Ask your health care provider which pain medication is best for you.
- Decongestants, such as pseudoephedrine (Sudafed[®]), phenylephrine, and oxymetazoline (Afrin[®]) nasal spray. Several cough and cold products (NyQuil[®], for example) may also contain decongestants. Saline nasal spray is a safe alternative.
- Some herbal medications and vitamins may cause problems with your heart failure medications. It is important to ask your healthcare provider if herbal medications and vitamins are safe for you to take. Often these medications have not been tested in people.

Please tell your provider all of the medications you are taking!

Avoiding medication mistakes

Your medication list should include prescription medications, over-the-counter medications, herbs, and vitamins. You should keep a medication list with you at all times (for example, in your wallet or purse) in case of a medical emergency.

Before leaving the clinic or hospital, always:

- Ask for a list of the medications that you should be taking at home.
- Have a health care provider review the medications with you.

- Be sure you understand how these medications should be taken.
- Ask if a new medication means you should stop taking your old medication.

You should know the following about all your medications:

- Medication name and dose
- How to take it (for example, how often—twice daily or every 12 hours?)
- What to do if a dose is missed
- Possible side effects
- What foods or medications can interfere with your medications
- If any tests are needed
- Cost (in other words, do cheaper medications exist?)

Take all your medication bottles and your medication list with you when you go to clinic appointments, the emergency room, or the hospital!



Diet: Shaking the Salt Habit & Restricting Fluid Intake

Introduction

Decreasing salt (sodium) and the amount of fluid you drink can prevent and decrease fluid in your lungs and swelling in your legs.

- Even if you take a fluid pill (also called a diuretic) to remove fluid, it is still important to eat a low-salt diet.
- Too much salt and fluid makes your heart work harder.

A heart failure diet limits the amount of salt in your food and drinks to less than 3000 mg or 3 grams per day.

My daily salt (sodium) limit is: _____

Restricting Fluid Intake

When you have heart failure, your heart is less efficient at getting rid of fluid. If you drink too much fluid, you may retain the fluid and swell or become short of breath. A heart failure diet limits fluid intake to less than 2 quarts ($\frac{1}{2}$ gallon or 64 ounces) or 2 liters (2000 mL) per day.

- 1 cup = 250 ml = 8 ounces
- 1 liter = 1000 ml = 32 ounces
- 2 liters = 2000 ml = 64 ounces

Try to estimate your fluid intake per day.

My daily fluid limit is: _____

Following a low-salt (sodium) diet

Most sodium comes from salt. Keep in mind that most of this salt is already added to prepared foods. Here are some ways to reduce salt in your diet:

- **Avoid table salt**

1 teaspoon of table salt = 2,300 mg of sodium. This is almost the total amount you should have for the whole day!

- **Avoid processed foods**

Examples include canned foods, frozen meals, snack foods, “instant” foods, packaged meals, most cheeses, deli meats, canned meats, pickles and other pickled foods, cured or smoked meats, and pre-packaged ready-to-eat and boxed dishes. Some processed foods say “low sodium” or “low salt”, but they may still have too much sodium. Be sure to check the label!



Throw away the salt shaker!

- **Avoid sauces and seasonings**

Examples include bouillon cubes, broths, barbecue sauce, soy sauce, ketchup, and salad dressings.

Salt substitutes may be used in place of salt, but only use them from time to time because they contain potassium. If you have had problems with high potassium, you should not use salt substitutes. Ask your health care provider if you are not sure. Common examples of salt substitutes are: McCormick® salt-free seasoning, Nu Salt®, and Morton’s salt-substitute®.

Try these herbs and spices in place of salt:

- Pepper
- Mrs. Dash®
- Garlic or garlic powder
- Dill
- Oregano
- Thyme
- Lemon pepper (no salt added)
- Onion or onion powder
- Rosemary
- Cinnamon
- Basil
- Sage
- Paprika
- Turmeric
- Dry Mustard
- Curry powder

Other tips:

- Choose fresh or frozen vegetables (without sauces) and fruits.
- ‘No Salt Added’ canned vegetables may be used.
- Some foods say “low sodium” or “low salt”, but they may still have too much sodium. Be sure to check the label!
- When eating out, ask for your meal to be cooked without salt.
- Request sauces and salad dressings “on the side” so you can use less.



Important: Remember, less than 3000 mg or 3 grams of sodium per day is recommended!

Tips for lowering sodium in some common foods:

Original	Better Option	Best Option
Peanut Butter 2 Tbsp = 150 mg	Low-Sodium Peanut Butter 2 Tbsp = 65-80 mg	Unsalted Peanut Butter 2 Tbsp = 5 mg
Ham Packaged or Deli 2 oz = 560 mg	Low-Sodium Ham 2 oz = 450 mg	Cooked Fresh Ham 2 oz = 36 mg
Turkey Packaged or Deli 2 oz = 540 mg	Low-Sodium Turkey 2 oz = 260-420 mg	No Salt Added Turkey 2 oz = 25-65 mg
Instant Oatmeal Flavored 1 packet = 170-200 mg	Instant Oatmeal Plain 1 packet = 75 mg	Old-Fashioned / Quick Oats 1/2 cup dry = 0 mg
French Fries Medium = 570 mg	French Fries - No salt Medium = 50-100 mg	1/2 Baked Potato Unsalted = 0 mg
Mashed Potatoes Tub 1/2 cup = 410 mg	Mashed Potatoes Dry (prepared with 2% milk) 1/2 cup = 380 mg	Homemade Mashed Potatoes without Salt 1/2 cup = 75 mg
Canned Green Beans 1/2 cup = 380 mg	Low-Sodium Canned Green Beans 1/2 cup = 10 mg	Fresh, Frozen or No Salt Added Canned Green Beans 1/2 cup ≤ 10 mg
Salad Dressing 2 Tbsp = 280-330 mg	Low-Sodium Salad Dressing Not readily available	Homemade Salad Dressing 2 Tbsp ≤ 20 mg
American Cheese* 1 oz = 230-460 mg	Cheddar* 1 oz = 125-140 mg	Swiss Cheese* 1 oz = 35 mg

*The above cheeses were in pre-sliced packages. Shredded cheese typically has more sodium per serving.

Homemade 'Low Sodium' Salad Dressing Recipes

Low Sodium Balsamic Vinaigrette (Sodium ≤ 10 mg per 2 Tbsp)	Low Sodium Ranch Dressing (Sodium ≤ 20 mg per 2 Tbsp)
1/2 cup olive oil 1/4 cup balsamic vinegar 1 tsp dijon mustard 1 tsp honey 1 garlic clove	2 6-oz containers of plain Greek yogurt 2 tsp dried dill 1/4 tsp orange peel or orange zest 1/4 tsp garlic powder 1/4 tsp onion powder 1/4 tsp onion flakes 1/4 tsp dry mustard

Reading a nutrition label

Nutrition Facts	
Serving Size 1 cup (228 g)	
Servings per Container about 2	
Amount per Serving	
Calories 250	Calories from Fat 110
% Daily Value	
Total Fat 12g	18%
Saturated Fat 3g	15%
<i>Trans</i> Fat 0g	
Cholesterol 30 mg	
Sodium 470 mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Proteins 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%
* Percent Daily Values are based on a 2000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.	

Step 1: Look at the Serving Size

- The information on the label for sodium is for one serving
- 1 serving = 1 cup

Step 2: Find the Amount of Sodium

- Look at the sodium per serving
- 1 serving = 470 mg

Step 3: Calculate the Total Amount of Sodium

- If you eat more or less than the listed serving size, you will get more or less sodium
- **How much sodium in 2 cups?**
 2 cups = 2 servings
 2 x 470 mg per serving = 940 mg sodium total!

Is this food item a good choice?

NO, because it has 940 mg sodium, which is **TOO MUCH** salt!

Eating fast food

Avoiding fast food is best but sometimes our only option. Most restaurants have nutrition information online – you can check ahead of time and choose the best option available. Below are some examples of healthier fast food options*.

Less Healthy Option	Better Option	Next Better Option
McDonald's		
Sausage Biscuit with Egg 530 calories 15 g Saturated fat 1190 mg sodium	Egg McMuffin 310 calories 6 g saturated fat 770 mg sodium	Hash Browns (2) 140 calories 1 g saturated fat 310 mg sodium
Wendy's		
Baconator & Medium Fries 1000 calories 18.5 g saturated fat 1780 mg sodium	Regular Chili & Plain Baked Potato 510 calories 4.5 g saturated fat 950 mg sodium	Kids Hamburger w/apples & milk 365 calories 5 g saturated fat 420 mg sodium
Bojangles		
Chicken leg & thigh, mashed potatoes, gravy & coleslaw 720 calories 10.5 g sat fat 1840 mg sodium	Chicken breast, green beans & small seasoned fries 920 cal 17 g sat fat 1400 mg sodium	Chicken Supreme Salad (does not include dressing) 490 calories 0.5 g saturated fat 870 mg sodium
Jersey Mike's		
The Original Italian Sub w/ Provolone 700 calories 14 g saturated fat 1960 mg sodium	Natural Turkey Sub w/ Provolone 670 calories 10 g saturated fat 878 mg sodium	Natural Turkey Sub (no cheese) 540 calories 5 gm saturated fat 603 mg sodium

*Nutritional facts obtained from each company's website in April 2024. This table is for information only and is not a recommendation for any of these restaurants.

Recommended Foods



Fresh fruits and vegetables



Frozen or canned fruit (in juice, water, or light syrup) and frozen vegetables



Greek yogurt



Eggs



2% milk, 1% milk, or skim milk



Fresh fish (baked, broiled, or grilled)



Fresh meats (baked, broiled, or grilled)



Low sodium cheese, such as Swiss cheese



Vinegar & oil

Foods to Avoid



Hot dogs and other smoked meats



Fast food



Frozen, boxed, and other prepared meals



Salty snacks
(plain popcorn with no butter or salt is OK)



Pizza



Pickles and other pickled foods



Dressings, ketchup, mustard, and sauces



Artificial and high-sodium cheeses



Canned meats

Chapter 4

Procedures, Surgeries, & Devices

Introduction

You will likely have procedures to better understand the cause of your heart failure. You may be eligible for surgeries and implantable devices that help manage your heart failure, to help you feel better and live longer. These treatments may even improve your ejection fraction if your heart is weak.

Procedures

Cardiac Catheterization

- Heart failure can be caused by narrowing or blockages of the blood vessels that bring blood to your heart.
- If the blockages can be fixed, your heart function or ejection fraction (EF) may improve.
- A **left heart** cardiac catheterization (also called a coronary catheterization) is a procedure that looks at the arteries that bring blood to your heart.
- A **right heart** cardiac catheterization is a procedure through the veins that measures pressures inside the heart and gives more information about heart function.
- During a left heart catheterization, a small cut is made in the skin in your leg or wrist. Medications will be given to make sure you do not experience pain or discomfort. Special catheters (small tubes) are placed through those cuts into the blood vessels leading to your heart. Dye is passed through that catheter into the blood vessels and X-rays are taken to see if you have blockages.
- If a blockage is found, then a balloon can be inflated to open the narrowing and a small mesh tube called a stent can be placed in the narrowing to keep the blood vessel open.
- If a stent is placed, you will be given special medications to help keep the stented artery open. It is very important to take these medications unless your cardiologist tells you to stop.

A cardiac catheterization may be done to look for blocked arteries, which can cause heart failure.



Catheter Ablation

- The electrical system of the heart does not always work properly. When this happens you may have abnormal heart rhythms, also called arrhythmias. These abnormal rhythms can cause you to feel heart fluttering or palpitations. You may also have chest pain, dizziness, fainting, or shortness of breath.
- These abnormal heart rhythms may cause your heart function to become weak.
- If the abnormal rhythm can be fixed, your heart function or ejection fraction (EF) may improve.
- If medications do not control the abnormal heart rhythms, you may receive an ablation.
- During an ablation, a small cut is made in the skin in your leg. Medications will be given to make sure you do not experience pain or discomfort. Special catheters (small tubes) are placed through those cuts into your blood vessels. The special catheters are then passed into your heart to locate the abnormal heart rhythm. Radiofrequency is used to cause small areas of scar which stops the abnormal rhythm.

Surgeries

Coronary Artery Bypass Graft (CABG) Surgery

- If you have blockages in the blood vessels that bring blood to your heart, you may need heart surgery. The surgery uses grafts to bypass or go around the blockages.
- Grafts are blood vessels that the surgeon gets from your arm, leg, or chest. Artificial material may also be used instead of your own blood vessels.
- One end of the graft is sewn onto the major blood vessel, the aorta, and the other end is sewn onto the blood vessel below the blockage. This allows blood to flow around the blockage and gives more blood to your heart muscle.
- The surgery requires general anesthesia and a hospital stay. Patients usually need 3 months to fully recover from this surgery.
- Bypass surgery may improve your heart function or ejection fraction (EF).



If you have blockages, bypass surgery may improve your heart function.

Valve Surgery and Valvular Interventions

- If you have very tight or leaky valves (stenosis or regurgitation, respectively), you may be considered for valve surgery or valvular interventions through catheters. Fixing an abnormal valve may improve your heart function if you have a weak heart due to the abnormal valve.

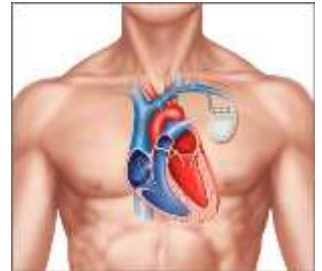
Devices for a Weak Heart

Or Devices for **Heart Failure with Reduced Ejection Fraction (HFrEF)**

You may need device therapy if your EF is still low (35% or less) after taking guideline directed medications for at least 3-6 months.

Implantable Cardioverter Defibrillator, also called an ICD

- An electronic device that is implanted in your chest that constantly checks your heart rate and rhythm.
- Treats dangerous heart rhythms that may cause you to feel dizzy, faint, or die suddenly.
- Delivers a shock if there is a life-threatening heart rhythm (like ventricular tachycardia). This brings your heart back to a normal rhythm.
- Helps you live longer.



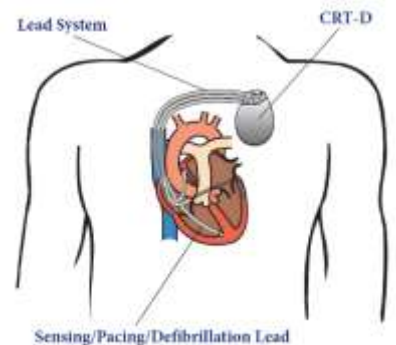
Wearable Cardioverter Defibrillator, also known as LifeVest®

- Worn underneath your clothes.
- Delivers a shock if there is a life-threatening heart rhythm. This brings your heart back to a normal rhythm.
- Helps you live longer.



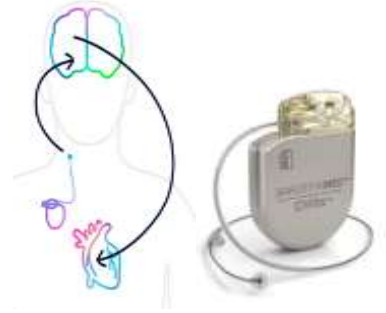
Biventricular pacemaker or cardiac resynchronization therapy, also called CRT

- Special pacemaker that improves the timing of your heartbeat.
- Helps you live longer and have fewer hospital stays.
- Helps your heart pump more efficiently and may increase your EF.
- Some patients may receive both an ICD and CRT in one device.



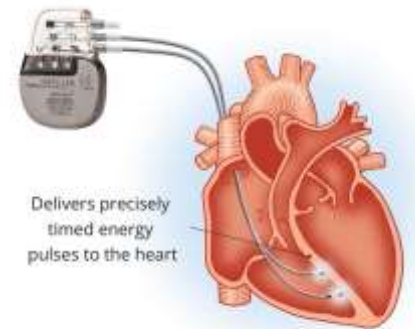
Barostim® System

- An implantable device that helps rebalance the negative effects of heart failure on the brain
- Restores normal electrical signals to the brain, and decreases the “flight or fight” response by sending signals to a receptor on your carotid artery
- Helps you feel better and walk farther



Cardiac Contractility Modulator, CCM® or Optimizer® Smart Mini System

- An implantable device that sends signals to your heart at specific intervals
- Helps you feel better and walk further
- Indicated for EF 25-45%



Here are ways these devices can help you if you have a **weak** heart:

Device	Live Longer	Feel Better	Stay Out of Hospital
Implantable Cardioverter Defibrillator (ICD)	✓		
Wearable Cardioverter Defibrillator (LifeVest®)	✓		
Biventricular pacemaker or cardiac resynchronization therapy (CRT)	✓	✓	✓
ICD plus CRT	✓	✓	✓
Barostim®		✓	
Cardiac Contractility Modulator (CCM®)		✓	

Heart Failure Fluid Monitoring Devices

for Heart Failure with Reduced Ejection Fraction (HFrEF) OR Heart Failure with Preserved Ejection Fraction (HFpEF)

- An electronic device that either estimates your fluid level or directly measures pressures in your heart.
- Can prevent hospitalization if you have a weak or stiff heart.
- Some of these devices are already part of a pacemaker or defibrillator, such as the Medtronic Optivol®, St. Jude Medical CorVue®, or Boston Scientific HeartLogic®.
- CardioMEMS® is a single device that is specifically implanted into your pulmonary artery to directly measure pressures in your heart that reflect your fluid level



Device	Live Longer	Feel Better	Stay Out of Hospital
Heart failure fluid monitor in a pacemaker/defibrillator (e.g., Optivol®, CorVue®, HeartLogic®)			✓
CardioMEMS®	✓		✓

Monitoring your device and telephone follow-up can help keep you out of the hospital!



Lifestyle

Introduction

It is important to live as well as you can despite having heart failure. Following recommendations about exercise, weight loss, sleep, smoking cessation, and other healthy habits can help minimize heart failure symptoms, slow your disease's progression and improve your everyday life. Although easier said than done, making these lifestyle changes and working them into your daily routine can make a real difference in your quality of life. In fact, people with mild to moderate heart failure often can lead nearly normal lives.

Exercise

Exercising when you have a weak or stiff heart is important to keep your body in shape and make you feel better. With regular exercise, you may feel less short of breath and have more energy. Ask your provider about a referral to a Cardiac Rehabilitation program



Steps to Exercise Safely

- Start slowly. Start exercising for 10 minutes, 3 to 5 times a week.
- Stop if you feel chest pain, dizziness, or severe shortness of breath.
- Exercise with a friend or partner if possible.
- Wear clothes and shoes that are comfortable.
- Do not exercise in extreme heat or humidity, in a sauna, or a heated pool.
- Do not exercise in extremely cold weather.
- If the weather is bad, you can walk inside (for example, in a mall or shopping center).
- Exercise 1-2 hours after you eat.
- Choose low-impact aerobic exercise like walking, swimming, or cycling.
- Choose the activities that you will enjoy the most.
- Walking is fun and free!

Steps for Doing More

- Your body needs time to get used to being more active. You will notice that it will get easier and you will be able to do more over time.
- When you feel comfortable doing more, try adding another 5 minutes.

Your goal should be to exercise at least 30 minutes to 1 hour on most days, but more is better!

Sexual activity

Ask your health care provider if you are healthy enough to have sex. There are some medications that you may be able to take if you need help. Certain medications that help with sexual dysfunction, such as sildenafil (Viagra®), tadalafil (Cialis®) and vardenafil (Levitra®), interfere with some heart medications (for example, nitrates) and cause very low blood pressure, chest pain, and heart attack. Only take medications prescribed by your health care provider!

If you experience chest pain, nausea, or any other discomfort during sex, **STOP IMMEDIATELY** and get medical help.

Managing your mood

You may have feelings or emotions such as depression or anxiety. If you have any of the following symptoms for more than two weeks, call your health care provider:

- Feeling sad
- Feeling moody
- Losing interest in things you used to enjoy
- Withdrawing from others
- Extreme sleepiness
- Feeling worthless or guilty
- Feeling hopeless

Some ways to decrease stress and anxiety:

- Getting enough rest
- Exercising
- Making plans for activities with family and friends
- Doing outdoor activities
- Treating yourself to something special, especially when you are feeling sad

Alcohol, cigarettes, and illegal drugs

Alcohol and illegal drugs (for example, cocaine and methamphetamine) can damage your heart. Smoking tobacco and vaping increases blood pressure and makes it harder to exercise. Smoking also makes your blood more likely to clot, which puts you at a higher risk for heart attack or stroke. If you are having a hard time quitting, ask your health care provider for help.

Smokefree.gov <http://www.smokefree.gov/>

QuitlineNC <http://www.quitlinenc.com/>

Alcoholics Anonymous <https://alcoholicsanonymous.com/aa-meetings/north-carolina/>

Narcotics Anonymous <https://ncregion-na.org/meetings-in-north-carolina/>

Advanced Directives

Introduction

At any age, a medical condition like heart failure can cause you to become too ill to make your own healthcare choices. Everyone should have advance directives, which are legal documents that allow you to tell your loved ones what kind of medical care you want if you become too ill to tell them yourself. This can avoid confusion and help your family and friends to take care of you and do what you want.

Advance directives include:

- A living will
- Durable power of attorney for health care
- Other documents discussing DNR (do not resuscitate) orders, Medical Orders for Scope of Treatment (MOST), organ and tissue donation, dialysis, and blood transfusions.

A **living will** says which things you want if you are dying or unconscious and cannot make your choices known. You can decide what kind of care you want or if there are treatments that you do not want. You might want to decide:

- If you want to be shocked if your heart stops
- If you want to be put on a breathing machine if you stop breathing
- If you want dialysis if your kidneys fail
- If you want to be fed through a tube if you cannot eat on your own. Tube feeding has not been shown to help people live longer.
- If you wish to donate your organs or tissues
- If you want your implantable cardioverter defibrillator (ICD) turned off, if you have one


You may decide that you want your health care providers to focus on treating your diseases if there is hope for a meaningful recovery. However, if after a time, there is no hope for a meaningful recovery, then your advanced directives can tell your loved ones that you want to change the focus of your health care to your comfort.

Palliative care can be a part of your treatment plan from the very beginning. The goal of palliative care is to help you feel better, even when you are still being treated for heart failure. You may change to comfort care when aggressive medications and devices are not giving you good quality of life and the end of life is near. Comfort care is anything that improves your quality of life and relieves your suffering, and provides support for your family. Home health and/or hospice can help to provide comfort care.

Hospice care is a choice for a patient whose heart failure may cause death in the next several months. Hospice care provides comfort and peace and helps the patient and family with medical, emotional and spiritual support during the process of dying.

A **durable power of attorney** for health care is a legal document that names your health care proxy. Your proxy is someone you trust to make health decisions for you if you are unable to do so.

Additional documents may include a Medical Orders for Scope of Treatment (**MOST**) form, which is jointly signed by you and your health care provider regarding your preferences for artificial feeding and fluids, antibiotics, as well as DNR.

HIPAA PERMITS DISCLOSURE OF MOST TO OTHER HEALTH CARE PROFESSIONALS AS NECESSARY		
 Medical Orders for Scope of Treatment (MOST) This is a Physician Order Sheet based on the person's medical condition and wishes. Any section not completed indicates full treatment for that section. When the need occurs, <u>first</u> follow these orders, then contact physician.	Patient's Last Name:	Effective Date of Form: <i>Form must be reviewed at least annually.</i>
	Patient's First Name, Middle Initial:	Patient's Date of Birth:

After You Set Up Your Advance Directive

- Be sure that you tell your family and health care proxy what you want and do not want.
- Give copies of your wishes to your health care proxy and to your health care provider for your medical records.
- Tell important family members and friends where you keep a copy.
- Go over your advance directive from time to time since you may want to change your wishes for end-of-life care.

Always remember, an advance directive is only used if you are in danger of dying and you are unable to make choices on your own.

Chapter 7

Advanced Heart Failure Therapies

Introduction

Over time, heart failure often gets worse and becomes advanced or end-stage. When oral medications or pills are not working as well as they used to, “advanced heart failure” treatments may be considered, especially for those with weak hearts with severe symptoms.

Heart Transplantation

- A heart transplant may be offered to patients with very weak hearts who may live less than one year.
- Doctors, surgeons, nurse practitioners, nurses, pharmacists, social workers, psychologists, and other health care providers work closely with each patient to see if a heart transplant is a good choice for them.
- There are many important steps that must be taken and you will learn more about heart transplant from your health care provider.

Mechanical Heart Pump, also called a Left Ventricular Assist Device or LVAD

- A mechanical heart pump may be offered to patients with very weak hearts who may live less than one year.
- This surgery may be done as the next step before a heart transplant, in which case the goal is to help you be as healthy as possible before transplant.
- This surgery may also be done in patients who cannot receive a heart transplant, in which case the goal is to help you have a better quality of life and live longer.
- Doctors, surgeons, nurse practitioners, nurses, pharmacists, social workers, psychologists, and other health care providers work closely with each patient to see if a heart pump is a good choice for them.
- There are many important steps that must be taken and you will learn more about heart pumps from your health care provider.



Intravenous (IV) Inotrope Medications

- Medications given through a vein (IV) may be offered to patients with weak hearts to help the heart pump stronger.
- These medications should make you feel better but may not help you live longer.

- The two medications typically used for this purpose are dobutamine and milrinone. These medications are given through a permanent catheter (small tube) placed in your arm or chest so that you can receive the medication nonstop (24 hours per day).
- These medications may be given as a step before heart transplant or heart pump.
- These medications may also be given to improve quality of life in patients who cannot receive a heart transplant or heart pump.



A team of health care providers will determine if an advanced therapy option is right for you.

Chapter 8

Additional Information

Below are some websites that you may find helpful. Please remember that the medical information on these websites does not take the place of recommendations by your health care provider.

American Heart Association

<http://www.heart.org/>

Click on “Conditions”, then “Heart Failure”

Heart Failure Society of America

<http://www.abouthf.org/>

American College of Cardiology

<http://www.cardiosmart.org/>

Click on understand heart failure

Palliative Care in Heart Failure

<https://getpalliativecare.org/whatis/disease-types/congestive-heart-failure-palliative-care/>

Smokefree.gov

<http://www.smokefree.gov/>

QuitlineNC

<http://www.quitlinenc.com/>

Appendix 1

More about Medications and Doses

The goal dose is important if your heart is weak (heart failure with reduced or low EF or HFrEF). Getting to the goal dose has been shown to help patients live longer, stay out of the hospital, and/or feel better depending on the medication. There are not goal doses if your heart is stiff (heart failure with preserved EF or HFpEF).

Currently Available Angiotensin Receptor/Neprilysin Inhibitor (ARNI)

Generic (Brand) Name	Starting Dose	Goal Dose (for weak heart)	Maximum Dose
Sacubitril plus Valsartan (Entresto®)	Sacubitril / Valsartan 24mg/26mg twice daily	Sacubitril / Valsartan 97/103 mg twice daily	Sacubitril / Valsartan 97/103 mg twice daily

Currently Available ACE Inhibitors

Generic (Brand) Name	Starting Dose	Goal Dose (for weak heart)	Maximum Dose
Benazepril (Lotensin®)	5 mg daily	20–40 mg daily	40 mg twice daily
Captopril (Capoten®)	6.25 mg three times/day	50 mg three times daily	150 mg three times daily
Enalapril (Vasotec®)	2.5 mg twice daily	10 mg twice daily	20 mg twice daily
Fosinopril (Monopril®)	5-10 mg daily	80 mg daily	80 mg daily
Lisinopril (Zestril®, Prinivil®)	2.5–5 mg daily	20 mg daily	80 mg daily
Moexipril (Univasc®)	3.75 mg daily	30 mg daily	60 mg daily
Perindopril (Aceon®)	2 mg daily	8–16 mg daily	16 mg daily
Quinapril (Accupril®)	5 mg twice daily	80 mg daily	80 mg daily
Ramipril (Altace®)	1.25–2.5 mg daily	10 mg daily	20 mg daily
Trandolapril (Mavik®)	1 mg daily	4 mg daily	8 mg daily

Currently Available Angiotensin Receptor Blockers (ARBs)

Generic (Brand) Name	Starting Dose	Goal Dose (for weak heart)	Maximum Dose
Candesartan (Atacand [®])	4–8 mg daily	32 mg daily	32 mg daily
Valsartan (Diovan [®])	40 mg twice daily	160 mg twice daily	160 mg twice daily
Losartan (Cozaar [®])	12.5–25 mg daily	50–100 mg daily	150 mg daily
Irbesartan (Avapro [®])	75 mg daily	300 mg daily	300 mg daily
Telmisartan (Micardis [®])	40 mg daily	80 mg daily	80 mg daily
Olmесartan (Benicar [®])	20 mg daily	40 mg daily	40 mg daily

Currently Available Beta Blockers

Generic (Brand) Name	Starting Dose	Goal Dose (for weak heart)	Maximum Dose
Bisoprolol (Zebeta [®])†	1.25 mg daily	10 mg daily	20 mg daily
Carvedilol (Coreg [®])†	3.125 mg twice daily	25 mg twice daily*	50 mg twice daily
Carvedilol CR (Coreg CR [®])†	10 mg daily	40 mg daily	80 mg daily
Metoprolol tartrate IR	12.5 mg twice daily	100 mg twice daily	200 mg twice daily
Metoprolol succinate XL (Toprol-XL [®])†	12.5–25 mg daily	200 mg daily	400 mg daily

†Preferred if heart failure with reduced ejection fraction. *If greater than 85 kg, goal dose is 50 mg twice daily

Currently Available SGLT2 Inhibitors

Generic (Brand) Name	Starting Dose	Goal Dose (for weak heart)	Maximum Dose
Empagliflozin (Jardiance [®])	10 mg daily	10 mg daily	25 mg daily
Dapagliflozin (Farxiga [®])	5 mg daily	10 mg daily	10 mg daily
Sotagliflozin (Inpefa [®])	200 mg daily	400 mg daily	400 mg daily

Currently Available Diuretics

Generic (Brand) Name	Starting Dose	Total Maximum Daily Dose (may be given in several doses)
Furosemide (Lasix®)	20–40 mg daily	600 mg daily
Bumetanide (Bumex®)	1 mg daily	10 mg daily
Torsemide (Demadex®)	10 mg daily	200 mg daily
Hydrochlorothiazide (Hydrodiuril®)	12.5–25 mg daily	50 mg daily
Chlorthalidone (Hydroton®)	12.5–25 mg daily	100 mg daily
Metolazone (Zaroxolyn®, Mykrox®)	2.5–5 mg daily	20 mg daily
Furosemide injection (Furoscix®)	80 mg daily	80 mg daily

Currently Available Aldosterone Blockers

Generic (Brand) Name	Starting Dose	Goal Dose (for weak heart)	Maximum Dose
Spirolactone (Aldactone®)	12.5–25 mg daily	25 mg daily	200 mg daily
Eplerenone (Inspra®)	25 mg daily	50 mg daily	50 mg twice daily

Hydralazine and Isosorbide Dinitrate

Generic (Brand) Name	Starting Dose	Goal Dose (for weak heart)
Hydralazine (Apresoline®)	10–25 mg three times daily	75–100 mg three times daily
Isosorbide dinitrate (Isordil®)	10–20 mg three times daily	40 mg three times daily

Ivabradine

Generic (Brand) Name	Starting Dose	Goal Dose	Maximum Dose
Ivabradine (Corlanor®)	5 mg twice daily	Dose adjusted based on heart rate	7.5 mg twice daily

Vericiguat

Generic (Brand) Name	Starting Dose	Goal Dose	Maximum Dose
Vericiguat (Verquvo®)	2.5 mg daily	Dose adjusted based on blood pressure	10 mg daily