Congestive Heart Failure
Educational Handbook
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1. The Basics of Congestive Heart Failure

The heart has four chambers – the two upper chambers are the left and right atria, and the two lower chambers are the left and right ventricles.

The right side of the heart pumps blood from the body to the lungs for oxygen; whereas, the left side pumps blood from the lungs to the body.

Damage to the heart can decrease its ability to pump as well as it should. This is called Congestive Heart Failure (CHF).

In CHF, the right side of the heart, the left side, or both, may not pump all the blood out of the heart. This can lead to fluid backing up in the lungs or in the body - usually the legs.

Usually your body can adjust for this fluid, and medications will help. But sometimes the fluid gets to be too much, leading to increased leg swelling, and/or shortness of breath or CHF exacerbation.

2. CHF and Medications

Many medications are used to treat CHF. They have different names, but they are all important. You may be prescribed several medications. It is important to take them as directed. If not, they may not work, or cause harm.

Talk with your doctor if you experience difficulty taking your medications. Your doctor may suggest how to overcome your difficulties. Never stop taking your medications without talking with your doctor! And, do not change how you take them without talking with your doctor.

**Beta Blockers**
These slow the heart down, decrease the work of the heart and also lower blood pressure:

- Metoprolol (Toprol)
- Carvedilol (Coreg)

**Angiotensin Converting Enzyme (ACE) inhibitors**
These help make it easier for the heart to pump and also lower blood pressure:

- Lisinopril (Zestril) Prinivil
- Enalapril (Vasotec) Ramipril
- Altace (Quinapril) Accupril
- Captopril (Benazepril) Lotensin
- Fosinopril (Monopril)

**Angiotensin Receptor Blockers (ARB)**
These are similar to ACE inhibitors and make it easier for the heart to pump. They also lower blood pressure:

- Candesartan (Atacand) Irbesartan
- Avapro (Losartan) Cozaar
- Olmesartan (Benicar) Valsartan
- Diovan
**Isosorbide Dinitrate and Hydralazine**
These are used together, decreasing the work of the heart:

<table>
<thead>
<tr>
<th>Isosorbide Dinitrate</th>
<th>Isordil</th>
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<tr>
<td>Hydralazine</td>
<td>BiDil</td>
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**Diuretics**
Also known as “fluid pills.” These make you urinate more often reducing the fluid in your body which decreases the work your heart needs to do:

<table>
<thead>
<tr>
<th>Furosemide</th>
<th>Lasix</th>
<th>Bumetanide</th>
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<tr>
<td>Bumex</td>
<td>Torsemide</td>
<td>Demadex</td>
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**Aldosterone Antagonists**
These are used for people with severe CHF. They are diuretics. They make it easier for the heart to pump:

<table>
<thead>
<tr>
<th>Spironolactone</th>
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<td>Eplerenone</td>
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**Digoxin**
Used to help the heart beat stronger. It is used when other medications are not controlling symptoms:

<table>
<thead>
<tr>
<th>Digoxin</th>
<th>Digitek</th>
<th>Lanoxin</th>
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### 3. Nutrition and CHF

**Why do I need to restrict sodium?**
It is important to decrease the amount of sodium in your diet because it causes extra fluid to build up in your body. Limiting the amount of sodium you get from food and drinks helps to prevent fluid build-up.

**What is sodium?**
You call it “salt,” we call it “sodium.” Either way it will have an effect on your CHF.

**How much sodium should I use?**
A low sodium diet consists of no more than 2,000 mg of sodium per day or about 600 mg per meal.

**How do I follow a low sodium diet?**
1. Do not add table salt, seasoned salt, sea salt, or garlic salt to your food when cooking or eating.
2. Avoid high sodium foods.
3. Learn to read the food label.
**What are high sodium foods that I should avoid?**

| Luncheon Meats | Canned Soups | Mustard |
| Deli Meats     | Canned Vegetables | Catsup |
| Ham            | Canned Tomatoes  | Relish |
| Hotdogs        | Tomato Juice    | Pickles |
| Bacon          | Pasta Sauces    | Olives |
| Sausage        | Boxed Rice Dishes | Soy Sauce |
| Canned Meats   | Boxed Pasta Dishes | Steak Sauce |
| Cheeses        | Stuffing Mixes  | Bouillon Cubes |
| Frozen Dinners | Chips           | BBQ Sauce |
| Fast Food      | Salty Snacks    | Gravy |

**How do I read the food label?**

Review the serving size and sodium information. Remember that if you eat more than a serving size, the amount of sodium will be more, too.

**What are some alternatives to salt?**

Salt-free seasoning (like Mrs. Dash)

- Black Pepper
- Lemon Pepper
- Onion Powder
- Garlic Powder
- Lime Juice
- Vinegar

- Fresh Garlic
- Fresh Onions
- Red or Green Peppers
- Lemon Juice
- Ginger
- Cinnamon

- Basil
- Dill
- Thyme
- Rosemary

Note: Ask your doctor before using a sodium substitute.

**What do I eat when I go out?**

- Choose restaurants that offer fresh food choices.
- Select foods without breading, sauces, or gravies.
- Choose grilled or baked foods.
- Avoid mixed dishes such as casseroles.
- Ask for foods to be prepared without added salt.

**How much fluid is allowed?**

Ask your doctor if you need to limit your fluid intake. Remember that anything that melts counts as a fluid (like jello, popsicles, ice, soups, and ice cream).

**Weigh yourself every day to monitor fluid build up.**
4. Worrying Symptoms of CHF

Sudden Weight Gain
- Report gain of three or more pounds in one day, five or more pounds in one week.
- Know your “dry weight” - your weight when you feel good and have no swelling.

Edema
- Report increased swelling in your legs, feet, or ankles.

Shortness of Breath - Report any of the following:
- Shortness of breath that is getting worse.
- Shortness of breath that makes sleeping difficult.
- Waking up at night with shortness of breath.
- Better sleep sitting up than lying flat.
- Mild exertion makes your shortness of breath worse than usual.

Dizziness - Report any of the following:
- Dizziness
- Lightheadedness
- Balance problems.

These may be signs of low blood pressure.

Decreased Urine Output
- Report any decrease in the amount or frequency of urination.

5. Living with CHF:
How to Stay Healthy and Avoid a Hospital Stay

- Activity – a little every day is good for you, but don’t push yourself. Stop and rest if you feel tired or short of breath. Your doctor can make an activity plan for you.

- Rest and relax during the day and get plenty of sleep at night. This allows your heart muscle to rest. Keep your legs raised to reduce swelling.

- Weigh yourself every day at the same time and wear the same thing!

- Write it down. Call your doctor right away if you gain three or more pounds in a day or five or more pounds in a week.

- Limit salt (sodium) in your diet. Your doctor can recommend the amount of salt (sodium) you should eat each day. Don’t add salt to foods you are cooking and eating!

- When you grocery shop remember to READ LABELS to see how much sodium is in the food. It is a good idea to take along your diet guide.

Stop Smoking!
**Daily Weight Chart**

Instructions
1) Weigh yourself at the same time every day.
2) Write down your weight on the chart.
3) Call your doctor if you gain more than three pounds in one day or five pounds in one week.

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6. Heart Failure Nutrition Therapy

Why Was Nutrition Therapy Prescribed?
This low-sodium nutrition therapy can help you feel better and prevent future heart problems. Limiting the amount of sodium that you eat and drink helps prevent and control the build-up of fluids around the heart or in your legs. Too much fluid makes your heart work harder. This may make your blood pressure too high. Your doctor may also limit how much fluid you eat and drink to create a more normal level of sodium in your blood.

Sodium Limits
The nutrition plan for heart failure usually limits the sodium that you get from food and drink to 2,000 milligrams (mg) per day. Salt is the main source of sodium in food.

The Nutrition Facts on a food label lists the amount of sodium in one serving of the food in the package:

- It is good to select foods with no more than 140 mg per serving.
- Foods with more than 300 mg sodium per serving may not fit into a reduced sodium meal plan.
- Remember to check serving sizes on the label. If you eat more than one serving, you will get more sodium than the amount listed.

Use caution when you eat outside of your home. Restaurant foods can be high in sodium and you cannot always get information about this.

Weight Monitoring
Your doctor may tell you to weigh daily. This will help you learn how well your diet and medications are working to keep you from retaining extra fluid.
- If you are overweight, be careful not to overeat. Sticking to your calorie goals is especially important after heart failure because your physical activity may be limited more than usual. If you eat more calories than your body burns, you will gain weight.
- If you are thin, take care to eat enough calories to maintain your weight.
7. What Happens During Normal Heart Function

The normal heart is a strong muscle that beats about 120,000 times a day to pump blood through the body. The blood carries oxygen and nutrients to tissues and organs and waste products to the kidneys and liver. The blood travels through a large network of blood vessels known as the circulatory system. The system includes the arteries, veins, and lungs. The heart responds to the body’s needs and adjusts its rate of pumping to meet the body’s requirements.

The heart consists of four chambers that work together:

- **Right and left atria** – small upper chambers.
- **Right and left ventricles** – larger chambers that pump blood out of the heart to the lungs (right ventricle) and to the rest of the body (left ventricle). The left ventricle is the heart’s main pumping chamber.

**Blood Flow**

During each heart beat, the right side of the heart receives blood from your body and then sends it to the lungs to pick up oxygen (see the blue arrows).

The left side of the heart receives the blood from the lungs and then sends it to the rest of the body where the oxygen is delivered to your body (see the red arrows).

**How the Heart’s Electrical System Works**

The heart has an electrical system that causes it to beat and pump blood in a smooth and regular way (like a clock or engine). Special cells in the heart start electrical signals that then travel along pathways through the heart and cause it to beat.

During a normal heartbeat, an electrical signal is first made in a group of cells called the sinus node (SA node).

The signal then spreads like a wave through both of the upper chambers of the heart (atria) and travels to another group of cells called the AV node. The AV node serves as an electrical filter between the upper and lower chambers (ventricles) of the heart. After a pause, the electrical signal spreads through the ventricles.

In a healthy heart, the heart beats once and pumps blood for each electrical signal that starts in the sinus node. A normal heart rate is generally between 60 and 100 beats per minute.
8. What Is Heart Failure?

Heart failure is a serious condition that occurs when the heart’s ability to pump or fill with blood is decreased. It does not mean that your heart has stopped beating or is going to stop beating, but rather that your heart is not pumping blood (systolic heart failure) or filling (diastolic heart failure) as well as it should. This module will focus on systolic heart failure.

Heart failure can develop after injury to the heart.

Some of the things that can cause heart failure include:

- Coronary artery disease
- Heart attack
- Uncontrolled high blood pressure
- Heart valve problems
- Infection of the heart
- Heart problems you are born with
- Long-term alcohol abuse

If you have heart failure, your heart cannot pump enough blood to supply the body’s need for oxygen. Your heart must work harder to keep up and might pump faster for a short time. But the heart eventually gets tired, and its pumping action weakens. That is why you may feel tired much of the time. Additionally, blood backs up into blood vessels around the heart and fluid seeps into the lungs. That is why you may have shortness of breath or trouble breathing at night. You may also get swollen legs and feet and have weight gain.

As heart failure gets worse, the heart attempts to make up for lost pumping power. This may cause changes in the shape of the heart and result in an uncoordinated heartbeat, which is called an arrhythmia (a rhythm that is not normal).

Although heart failure cannot be cured, there are many things that can be done to slow its progress, reduce symptoms, and help you live an active life. New medicines and treatments combined with self-care activities each day can help people with heart failure live better lives. There is more hope for people with heart failure than ever before.
9. Diagnosing Heart Failure

Heart failure has been called America’s silent epidemic because it may not be diagnosed until many years after a person’s heart function begins to decline.

Sometimes people think symptoms of heart failure are caused by another disease or condition. They may think they feel tired and short of breath simply because they are getting older. Other people in the early stages of heart failure may feel fine and do not experience many symptoms. They may not believe their doctor when they are told they have heart failure. This is a mistake. All people with heart failure should see a doctor regularly and get treatment to prevent heart failure from getting worse.

Symptoms of heart failure include:

- Difficulty breathing
- Fatigue (tired all of the time)
- Difficulty exercising
- Fluid build-up

Heart failure is diagnosed through:

- Medical history
- Physical exam
- Tests

Your doctor will want to find out if you have:

- History of high blood pressure
- Blockages in your coronary arteries (which may be noticed as chest pain with or without a heart attack)
- Damaged heart valves
- Diabetes
- Family history of any of these conditions

A thorough physical exam can help with the diagnosis of heart failure. During a physical exam, your doctor may check your blood pressure and heart rate, listen for abnormal heart sounds, check your lungs for fluid build-up, look for swelling in your legs, ankles, neck veins, or around your stomach, and do some tests.

These tests can provide important information about the cause of heart failure and can also guide treatment.

One of the most important tests used to diagnose heart failure is called an echocardiogram, or “echo” for short. The test, which is painless and can often be performed in your doctor’s office, involves using sound waves to make a picture of the heart. An echocardiogram allows your doctor to study your heart valves and the chambers of your heart to find out whether your heart is pumping normally.
How Common Is Heart Failure?

Heart failure is a common problem among older adults in the United States. This year, approximately 550,000 Americans will learn from their doctors that they have heart failure. That is in addition to the nearly 5 million people who already have the condition. Many people with heart failure do not know they have it until they experience symptoms. That can be many years after their heart function begins to decline.

10. Symptoms of Heart Failure

Heart failure is sometimes referred to as congestive heart failure. The term “congestive” refers to the fluid that seeps into the lungs. This fluid congestion may also involve other body parts including the feet, legs, and stomach. Fluid build-up is the cause of many symptoms of heart failure. These signs and symptoms help your doctor classify the severity of heart failure and monitor the effects of therapies.

Signs and symptoms of heart failure include:

- Trouble breathing (shortness of breath)
- Swelling in the feet and legs
- This may result in weight gain from the water (swelling)
- Lack of energy
- Difficulty sleeping at night due to breathing problems (you may need more pillows in order to sleep comfortably)
- Swollen or tender stomach with loss of appetite
- Cough with frothy sputum (spit may be pink due to small amounts of blood)
- Increased urination at night
- Confusion and/or memory problems
11. Classifying Heart Failure

Doctors classify heart failure on a level of I-IV by reviewing your symptoms and your ability to exercise and do activities. The New York Heart Association has developed a system that is commonly used to talk about levels (classes) of heart failure. This system is shown below.

Your heart failure class can get better or worse over time depending on how bad your symptoms are and how you respond to therapies.

<table>
<thead>
<tr>
<th>Class I - Mild</th>
<th>Class II - Mild</th>
<th>Class III - Moderate</th>
<th>Class IV - Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>No symptoms</td>
<td>Mild symptoms</td>
<td>Noticeable limitations in ability to exercise or do strenuous activities</td>
<td>Unable to do any physical activity</td>
</tr>
<tr>
<td>Can perform ordinary activities without any limitations</td>
<td>Occasional swelling</td>
<td>Comfortable only at rest</td>
<td>Symptoms at rest</td>
</tr>
</tbody>
</table>

When thinking about your heart failure class, it is important to know that heart failure is a condition that gets worse over time. It is important to find and treat heart failure early. So even though you may be in Class I or Class II and have few symptoms, you still need to see your doctor to be treated for heart failure and follow your doctor’s care plan.

The good news is that these days doctors and nurses understand more about heart failure and have better ways to manage the condition. New medicines and treatments are some of the reasons that people with heart failure are able to get back to many of the things they once did and live better lives.

12. What Can I Do to Manage Heart Failure?

Although heart failure cannot be cured, it can be managed effectively. Your treatment plan may include medicines, surgery, implantable medical devices, or a combination of these approaches. There are also a lot of things you can do to help improve your condition. Together with proper medical care and careful monitoring, good self-care can help you feel better, stay out of the hospital, and live a longer life.

To manage heart failure, it’s best if you:

**Take your medicines regularly as prescribed by your doctor.**
When the medicines that your doctor has prescribed are taken regularly and at the correct dose, they can make you feel better, reduce hospitalizations, and help you live longer. Experts in heart failure call many of these medicines “life-saving.”
Weigh yourself every day and write it down.
Daily changes in weight are usually the result of water weight. By weighing yourself every day at the same time, you can help monitor whether your body is retaining fluid due to heart failure. Even though you may feel the same, a gain of just three to four pounds over just a few days is a sign of worsening congestion that must be treated. If left untreated, it may become more serious and require hospitalization.

Follow a low-sodium (low-salt) diet.
Heart failure can cause your body to retain sodium and result in fluid build-up. The extra fluid makes your heart work harder and your symptoms get worse.

A low-sodium diet generally means that you eat no more than about 2,000 mg of sodium per day. That is less than one teaspoon of salt from all sources, including the salt that is already in your food. To reduce the sodium in your diet, stop adding additional salt to your food. Avoid processed foods, especially canned foods, and eat more fresh vegetables and fruit. Also be sure to review the nutritional information label on all packaged foods to decrease the amount of “hidden” salt you consume.

Get regular physical activity.
Heart failure can make you feel tired. One of the ways to feel better is to keep physically active through a regular exercise program. In general, start slowly and increase gradually. Ask your doctor about an exercise program that is best for you.

Quit smoking.
Smoking damages the blood vessels, increases your blood pressure, and causes lung disease in addition to other problems. Quitting smoking is strongly recommended for all people with heart disease, including heart failure.

Stay connected socially.
Your family and friends can help. Don’t keep your condition a secret. Let your family and friends support you and help you stay with your treatment plan. Having an active social life can also help keep your mind off of problems and give you a more positive outlook on life.

Monitor your symptoms daily and learn when to call your doctor.
You know your heart failure symptoms best. Write down when you notice your symptoms are getting better or worse or when you develop new symptoms. This information can help alert you as to when you should call your doctor and can also help your doctor make changes to your treatment.

Feel free to ask your doctor and nurse about any questions you might have about your treatment plan.
13. Ejection Fraction - What is it? Why is it Important?

What Is Ejection Fraction?

Ejection fraction ("EF" for short) is the percentage of blood that is pumped out of the heart during each beat. For individuals with normal hearts, this is 50-75% of the blood. Many people with heart failure have an EF that is 40% or less. A below-normal EF means your heart is not pumping as well as it should.

Why Is EF Important?

Measuring EF is one of the ways doctors classify the type and severity of heart failure.

If you have a below-normal EF and your heart isn’t pumping well, you have a type of heart failure called systolic heart failure. This type of heart failure involves the large, lower chambers of your heart, the ones that push blood throughout your body.

If you have a normal EF and your heart is not filling with blood normally, you have a type of heart failure called diastolic heart failure. This type of heart failure often occurs when the ventricles (the larger, lower chambers of the heart) are unable to relax properly to fill with blood.

The therapy your doctor uses to treat your heart failure will, in part, be guided by your EF and the type of heart failure you have. If you have the type of heart failure where your heart isn’t pumping well (systolic heart failure), your EF can be used to judge how well your therapies are working or whether your heart failure is getting worse. In recent years, much has been learned about systolic heart failure and how to treat it.

A low EF is also an indicator of increased risk for Sudden Cardiac Arrest ("SCA" for short). SCA means that your heart has stopped pumping blood. If this happens, your heart must be started again within minutes to prevent death. An implantable defibrillator, a pacemaker-like device, has proven very effective in treating SCA and saving people’s lives.

Sometimes people confuse SCA with a heart attack. SCA is not the same as a heart attack. A heart attack is caused by a blockage in one or more of the arteries supplying blood to the heart. It can be thought of as a problem with the heart’s plumbing system.

SCA is caused by a very fast and irregular heart rhythm that starts in the ventricles (the heart’s lower chambers). It can be thought of as a problem with the heart’s electrical system.

Your EF Can Change

EF can go up or down depending on the nature of each person’s disease and on the type and effectiveness of therapies that are prescribed. Small daily changes in your EF are nothing to worry about, but if your EF drops steadily over months, your doctor will change your therapy. Drugs, devices, and surgeries have the potential to cause a person’s EF to increase over time. Therefore, your EF on a particular day is less important than the overall trend. Your doctor will let you know how often your EF should be checked.

Measuring EF

One of the most important tests used to diagnose heart failure and measure EF is called an echocardiogram, or “echo” for short. The test, which is painless and can often be performed in your doctor’s office, involves using sound waves to make a picture of your heart. An echocardiogram allows your doctor to study your heart valves and the chambers of your heart to find out whether the heart is pumping normally.
14. Abnormal Heart Beats - Arrhythmias

Normally, the heart beats in a regular way like a clock. However, many people with heart failure have heart rates that are too fast, too slow, or are irregular. These abnormal heart rhythms are referred to as arrhythmias. Many arrhythmias are harmless. However, some arrhythmias can be serious and even lead to Sudden Cardiac Arrest and death. Sometimes arrhythmias can cause symptoms such as heart palpitations (a pounding feeling in the chest) or light-headedness. But you may not have any symptoms at all.

There are several ways to control or eliminate many arrhythmias. These treatments include surgery and the use of devices such as pacemakers and implantable defibrillators. With proper medical care, people with arrhythmias can live safe and active lives.

Understanding why Arrhythmias Occur

An arrhythmia can occur when any part of your heart’s electrical system is damaged. You can think of an arrhythmia as an electrical problem in your heart. In contrast, a heart attack occurs when one or more arteries supplying your heart with blood gets clogged or blocked. You can think of it as a plumbing problem in your heart. So even if you have had a “plumbing” problem fixed with angioplasty or bypass surgery, you can still develop an “electrical” problem or arrhythmia. If you have heart failure, your heart muscle has been damaged. Your heart’s electrical system may also be affected. This puts you at a higher risk of developing an arrhythmia. Atrial fibrillation and ventricular tachycardia are two of the arrhythmias people with heart failure commonly have.

Atrial Fibrillation

Atrial fibrillation (AF) is the most common type of arrhythmia, especially in the elderly. Atrial fibrillation is a very fast and irregular heart beat in the upper chambers of your heart (the atria). When it occurs, many electrical signals are sent (up to 400 a minute). The signals spread through the atria in a disorganized way, so instead of a single signal creating a normal beat, the atria quiver or “fibrillate”. Normally, the AV node limits the number of electrical signals or beats that pass to the ventricles (lower chambers of your heart). However, sometimes too many signals get through the AV node, and your heart may beat too quickly. Atrial fibrillation can decrease the heart’s ability to pump blood by as much as 20 to 30 percent.
Causes of Atrial Fibrillation

The causes of atrial fibrillation include:

- High blood pressure
- Coronary artery disease
- Heart valve problems
- Heart failure
- Congenital heart disease (heart disease you are born with)
- Cardiomyopathies (enlarged, damaged heart muscle)
- Pulmonary embolism (a blood clot in the blood vessels of the lungs)
- Chronic lung disease
- Hyperthyroidism (too much thyroid hormone)
- Pericarditis (inflammation of the thin membrane that surrounds the heart)
- Idiopathic (no apparent cause, possibly related to too much caffeine or alcohol or to electrolyte imbalances)

Treatment Options

Many people live with atrial fibrillation without any symptoms. Other people experience annoying fluttering or pounding in the chest, or they feel dizzy, lightheaded, short of breath, or fatigued. Since the atria (upper chambers of the heart) do not work normally, blood can pool. This may lead to the formation of blood clots that can travel to the brain and cause a stroke.

Treatment options for atrial fibrillation include:

**Anticoagulant medicines (blood thinners)** – anticoagulants are often prescribed for people with atrial fibrillation to help reduce the chance of clots forming and reduce the chance of stroke.

**Antiarrhythmic medicines** – these are referred to as rhythm control medicines. They attempt to maintain or restore normal rhythm. These medicines are generally not prescribed for people with heart failure because of a variety of potential side effects.

**Rate control medicines** – medicines such as digoxin, beta-blockers, and/or calcium channel blockers work to control your heart rate and prevent it from beating too fast.

**Cardioversion** – a normal heart rhythm can also be restored electrically through a procedure called cardioversion. An electrical shock is delivered to your heart to stop atrial fibrillation and restore a normal rhythm. This procedure is performed using short-term anesthesia.

**Ablation** – a procedure called “radiofrequency ablation” is recommended to treat atrial fibrillation that cannot be controlled with medicines alone. During this procedure, small thin wires are threaded into your heart and electrical energy is used to remove (“ablate”) the tissues causing problems with your heart rhythm. In many cases, the procedure successfully controls atrial fibrillation. People undergoing this treatment must also have a pacemaker implanted to maintain a normal heart rate after the procedure.

**Implantable devices** – A number of devices such as pacemakers and implantable cardioverter defibrillators (ICDs) can be used to restore a normal heart rhythm in people with atrial fibrillation.

**Surgery** – Surgical procedures that involve making a series of cuts in the atria have been successful in treating atrial fibrillation. This procedure may require open heart surgery.
15. Heart Failure Therapies: Medicines

Medicines play an important role in the treatment of heart failure. In most cases, people with heart failure require several types of medicines. Research has shown that medicines can help improve your heart function, reduce hospitalizations, and help you live a longer life. Some medicines used to treat heart failure are also used to treat other conditions such as high blood pressure. When these medicines are used to treat heart failure, they often are used in higher doses. Your doctor may adjust your medicines and the doses from time to time, so that you are taking the medicines and amounts that work best to treat your heart failure.

Some of your heart failure medicines can cause side effects that may bother you or make you feel worse. If this occurs, tell your doctor or nurse. He or she will work with you to manage the side effects or change your medicine. In order to realize the benefits of these medicines, it is important that you take all of your medicines exactly as prescribed by your doctor – even if you think your medicines are making you feel worse. Gradually, the medicines should make you feel better – all the more reason to keep taking the medicines as prescribed at the same dose and at the same time every day.

Some people with heart failure also have other medical conditions such as high blood pressure, diabetes, asthma, or arthritis that require treatment with medicines. You may also be taking over-the-counter medicines or use supplements, or herbal therapies that do not require a prescription. Sometimes, these medicines, supplements, and herbs may interact with heart failure medicines. This interaction may make your heart failure worse or cause risky side effects. To achieve the best possible results from your heart failure medicines, tell your heart failure doctor about all of your medical conditions and all of the medicines you are taking. He or she will then be able to develop the best treatment plan for you. Not everyone responds to the treatment in the same way and your results may vary.

Medicine Names

It is helpful to understand a little about how medicines are named, so you can better understand the types of medicines your doctor has prescribed and talk with health care providers about your treatment plan.

Most medicines have two names:

- **Brand name** – the name a company uses to market the medicine.
- **Generic name** – the name that describes the active chemical in a medicine.

Examples:

**Type of medicine:** pain reliever  
**Brand name:** Tylenol®  
**Generic name:** acetaminophen

**Type of medicine:** ACE inhibitor  
**Brand name:** Vasotec®  
**Generic name:** enalapril
Your doctor, nurse, pharmacist, or other health care provider may interchangeably use both the generic and brand names, but both names refer to the same medicine. In some cases a medicine (generic name) is sold by more than one company, but each company assigns its own “brand” name.

If the pharmacy happens to change brand names (perhaps to save you money), you can do two things to make sure you are getting the right medicine:

• Check the generic name and dosage to make sure it is what you are supposed to receive.
• Ask your pharmacist for an explanation.

The major types of medicines used to treat heart failure are described below. There is also space for the generic and brand names, dose, and other prescribing information for each type of medicine. You may wish to fill in this information for the medicines your doctor has prescribed.

**ACE Inhibitors**
- The full medical name for this type of medicine is angiotensin-converting enzyme inhibitor.
- This type of medicine may be among the first treatment options your doctor will prescribe.
- ACE inhibitors help reduce the heart’s workload.
- They block certain harmful hormones your body produces as a result of heart failure.
- Over time (weeks to months) ACE inhibitors may eliminate your symptoms and prevent worsening heart failure.
- They have been shown to prolong life in people with heart failure.
- Side effects may include: dizziness, low blood pressure, and cough. Be sure to report any side effects to your doctor immediately.
- Examples include lisinopril, captopril, enalapril.

**ARBs**
- The full medical name for this type of medicine is angiotensin receptor blocker.
- This type of medicine works in a similar fashion to an ACE inhibitor.
- An ARB is often prescribed when a heart failure patient cannot tolerate an ACE inhibitor due to side effects that can not be managed.
- Side effects include: dizziness and low blood pressure.
- Examples include valsartan and candesartan.

**Beta-blockers**
- The full medical name for this type of medicine is beta-adrenergic blocker.
- This type of medicine allows your heart to relax and beat at a slower rate.
- Beta-blockers help your heart pump more efficiently.
- They are usually used in combination with ACE inhibitors or ARBs.
- Beta-blockers are used with caution in people with certain lung diseases such as asthma.
- Symptoms should improve over a period of months as your dose is increased slowly.
- Beta-blockers prevent worsening heart failure and improve survival.
- Side effects can include: a slow heart rate, low blood pressure, and feeling tired. When you begin taking a beta-blocker, you may feel tired or bloated. Call your doctor or nurse and report how you feel, so they can adjust the dose of your beta-blocker and your other medicines as your body gets used to the beta-blocker.
- It can be dangerous to stop taking beta blockers suddenly. If for any reason you are thinking of not taking your beta-blocker, call your doctor first.
- Examples include metoprolol and Carvedilol.
Diuretics (Water Pills)
- This type of medicine is sometimes called a water pill.
- This type of medicine can help your body get rid of excess fluid.
- Too much fluid in your chest will cause congestion, but fluid may also accumulate in other parts of your body such as your legs, feet, and around your stomach.
- By keeping a daily record of your weight, you are actually watching how much fluid your body is retaining.
- Know your “dry weight.” That is, the ideal weight for you based on the fluid in your body. Report an increase in weight (3 pounds or more) above your dry weight.
- Your doctor may change your diuretic dose based on weight changes.
- Side effects may include: low potassium levels, dehydration, and fatigue.
- Examples include furosemide, HCTZ, Bumex.

Aldosterone Antagonists
- This type of medicine blocks the effects of the hormone aldosterone. Aldosterone can change the shape of the heart muscle and make it stiffer. Both of these changes may decrease how well your heart can pump. Aldosterone also causes your body to retain sodium (salt) and water and that may make you feel swollen or bloated and congested.
- This type of medicine helps relieve congestion.
- Side effects include: breast enlargement or tenderness, especially in men, and increased potassium levels.
- Examples include spironolactone and eplerenone (inspra).

Anticoagulants and Antiplatelet Medications
- This type of medicine is sometimes called a blood thinner.
- Anticoagulants are sometimes prescribed to prevent blood clots when a person has an abnormal heart rhythm that can cause blood to pool in the heart.
- A variety of products can be used as an anticoagulant, including simple aspirin.
- Anticoagulants should not be confused with other pain relievers that do not act in the same way.
- Side effects include bruising or bleeding in any organ or tissue.
- Examples include warfarin, aspirin, plavix.

Digoxin
- This type of medicine can help your heart pump more forcefully and slow your heart rate.
- Digoxin helps patients with heart failure breath more easily, decrease fatigue, and increase the ability to exercise.
- Side effects include: nausea or vomiting, blurred vision, and abnormal heart rhythms.
16. What are the Dangers of Heart Failure and How to Protect Yourself.

Cardiac Arrest

Sudden Cardiac Arrest (SCA) occurs when an abnormal heart rhythm (ventricular tachycardia or ventricular fibrillation) develops and causes your heart to start beating very quickly, quiver, and stop pumping blood effectively. Defibrillation within minutes is critical to survive SCA. Defibrillation involves giving your heart a strong electrical shock to restore a normal heartbeat.

SCA is a leading cause of death and can strike without warning. Some people may feel that their heart is racing or feel dizzy when a potentially dangerous heart rhythm starts. But in the majority of cases, there are no specific symptoms.

Risk Factors for SCA

Research shows that certain people are at increased risk of SCA. You are at higher risk of SCA if you have:
- Heart failure.
- Had a heart attack and have a heart that pumps poorly - an ejection fraction (EF) less than or equal to 35%. EF is the percentage of blood that your heart pumps out with each beat and is a measure of how well your heart is pumping.

As life-threatening as SCA is, there are ways to help prevent SCA and to treat it effectively.

Preventing Cardiac Arrest

You can do a number of things to help reduce your risk of experiencing SCA, including:
- Follow your treatment plan, including taking your medicines as prescribed by your doctor.
- Treat and monitor other diseases that can worsen your heart function such as high blood pressure, clogged arteries, and diabetes.
- Follow good self-care such as eating a heart-healthy diet, managing your weight, exercising, and not smoking.

Treating Cardiac Arrest

The most effective way to treat SCA is defibrillation. Emergency Medical Technicians carry and use external defibrillators. Defibrillation must occur within six minutes to ensure survival. Unfortunately, the average response time to an emergency call is 6 to 12 minutes, and only 5% of people who experience SCA survive.

However, there is a way to help people at risk for SCA.

A small pacemaker-like device called an implantable cardioverter defibrillator (ICD) may save your life.
What is an ICD?

An ICD is a small device about the size of a pocket watch that is implanted under the skin in the upper chest area. The battery and computer needed to correct arrhythmias are contained in the device. Thin insulated wires connect the ICD to the heart. If the ICD detects a heart rhythm experiences a problem, it will use electrical signals to correct it.

How Does an ICD Work?

Depending on how it is programmed, an ICD can first use small painless electrical impulses to correct an arrhythmia. If these don’t work, a stronger shock is delivered. Rarely are patients unaware of a shock. Most patients who have had a shock say it feels like a sudden jolt that is moderately painful. They say it is surprising and uncomfortable, but that it passes quickly.

How is an ICD Implanted?

Typically, the implant procedure is quick, low-risk, and usually done under local anesthesia. It does not require open heart surgery, and most people go home within 24 hours. The following describes what happens during an implant procedure. It is intended as a general overview. Your experience may differ. Please talk with your doctor for specifics regarding your implant.

A small incision is made in the upper chest, and the wires are guided through a vein and into the heart. The wires and the ICD are then connected, and the device is programmed (adjusted to detect abnormal heart rhythms). After the system has been tested, the ICD is inserted under the skin, and the incision is closed.

Am I a Candidate for an ICD?

In general, people who are candidates for an ICD have one or more of the following risk factors:
- Heart failure
- A previous heart attack
- A previous SCA event
- Recurrent fast heart rhythms (tachyarrhythmias)
- A low EF (35% or less)

Benefits of an ICD

There are many benefits of having an ICD:
- It’s the most effective way to treat SCA.
- It’s always there monitoring your heart, protecting you, and administering therapy if you need it. You do not have to do anything.
- It’s programmable to deliver just the right amount of therapy for your particular heart problem.
As with any active implantable device, there are potential risks associated with ICD systems. Although many patients benefit from the use of these products, results may vary. Your physician should discuss risks and benefits with you. If you receive an ICD, you will still need to take your medication as prescribed and have your implantable defibrillator checked from time to time. Ask your doctor or nurse about your follow-up schedule.

Your doctor may also give you medicine to decrease the number of times your heart goes into an abnormally fast ventricular rhythm (ventricular tachyarrhythmia), especially if your ICD delivers many shocks. It is important to keep appointments with your doctors and to follow their recommended daily care to ensure the best possible results.

**Heart Failure Pacemaker - CRT or Resynchronization Therapy**

Heart failure can cause the heart to beat in an uncoordinated way. The lower chambers (ventricles) do not always contract at the same time. As a result, the heart does not beat as well as it should.

Sometimes people with moderate to severe heart failure still have symptoms even with medicines and good self-care. Such patients may benefit from a heart failure pacemaker. The heart failure pacemaker sends out small painless electrical signals to help both sides of your heart pump at the same time. This special kind of pacemaker can help your heart pump more efficiently so your body gets more oxygen and the nutrients it needs. This type of device therapy is called bi-ventricular pacing or cardiac resynchronization therapy (CRT).

**17. Living with an Implantable Device for Heart Rhythm Management**

If you doctor recommends that you receive an implantable device to manage your heart rhythm, you may have many questions.

There are potential risks associated with any implantable device systems. Although many patients benefit from the use of these products, results may vary. Your physician should discuss risks and benefits with you.

Although there are differences in the purpose and function of devices such as pacemakers, heart failure pacemakers, or implantable cardioverter defibrillators (ICDs), there are similar things about what it is like to live with any one of them. The following sections provide general information on how to live with an implantable device. The details of your case may differ, and your experience may differ. Please talk to your doctor for details regarding your device, and follow those instructions.

**After the Implant Procedure**

While you are healing from the implant procedure, you may have some discomfort. Take care not to move the arm on the side of your implant, so you do not move the wires that connect your device to your heart. The recovery period is usually six weeks, but your doctor will provide more information.

If you have questions about what you can and cannot do during the recovery period, do not hesitate to ask your doctor.
Follow-up Care

After the implant, you will still have to take medicines as prescribed by your doctor, follow good self-care, and have your device monitored by your heart rhythm specialist (electrophysiologist). Depending on the type of device you have, some of these follow-up visits may be able to be done without a visit to the clinic by using a monitoring service that allows you to transfer information from your device to your clinic over a telephone line.

The doctor who implanted your device will work with your heart failure doctor to manage your care. It is important to keep appointments with both specialists and to follow their recommended daily care to ensure the best possible results.

Adjusting to Life with an Implantable Device

Each person adjusts to life with an implantable device a little differently, and it may take some time. But the goal is for you to lead a more normal life as soon as possible. For some people, this may include work, travel, and hobbies. Work with your doctor or nurse to develop a plan that is best for you. Listen to what your body is telling you and be patient with yourself.

You may have questions about driving, using cell a phone, going through airport security, using power tools or appliances, or the impact of other activities on your device. Your doctor can help answer these questions. He or she can also refer you to other good information sources, such as the patient services department of the company that manufactured your device.

What Happens After a Shock: Making a Plan

If you have an ICD or a combination heart failure pacemaker/defibrillator, you might receive an electrical shock if your device detects a problem with your heart rhythm. Most patients who have had a shock say it feels like a sudden jolt that is moderately painful. They say it is surprising and uncomfortable, and sometimes painful, but that it passes quickly.

Your doctor or nurse will give you specific directions on what to do immediately after receiving a shock. Work with them to develop a plan for dealing with a shock and then getting back to the activities you enjoy. The plan can include immediate steps you will need to take, as well as a list of favorite activities you can continue to do after the shock. Put the plan in a convenient place so that you can refer to it. Also, make sure to share it with your family and any other friends or caregivers you see frequently, so they can help you if necessary.

It is helpful to know that what you were doing at the time of the shock did not cause your implantable defibrillator to go off. Your implantable defibrillator was just doing its job, and it probably saved your life. Although getting a shock can cause you to feel anxious, it is important to return to your everyday activities and focus on enjoying life.

Living Successfully with an Implantable Device

Your implantable device will manage your heart rhythm, so you can live a safer, longer, and fuller life. To build your confidence, make plans with friends and family. Believing in yourself and doing things that you enjoy are big parts of the healing process. Also remember that if you have questions or are having problems adjusting, there are many people and resources to help you. Ask your doctor if there is a patient support group near you.

The information presented in this module is intended as a general overview and may not represent your experience. If you have any questions about activities such as driving or returning to work or have other concerns about living with your device, ask your doctor or nurse.