1. What is CHF (Congestive Heart Failure)?

“Heart Failure” and “Congestive Heart Failure” are terms that are often misunderstood. They do not mean that the heart has stopped (as in cardiac arrest), or that the heart has suffered new damage (as in a heart attack or MI – myocardial infarction).

Rather, “heart failure” means that the heart’s pumping ability is reduced, usually because the heart muscle is weakened. In practical terms, a weakened heart cannot properly perform its job of pumping blood to the lungs and body. Blood contains oxygen and other nutrients that are essential to the function of the body’s organs and tissues. If the oxygen supply to the body is decreased, a person can feel less energetic and will tire easily.

Sometimes people with heart failure will also have congestion. Congestion refers to a buildup of fluid from blood vessels into the lungs and other body parts, which can result in shortness of breath or swelling of feet, abdomen, or other areas.

2. What are the Causes of Heart Failure (CHF)?

- Coronary Artery Disease

The coronary arteries are the blood vessels that supply blood to the heart itself. Many people develop cholesterol rich deposits inside their coronary arteries. These deposits (or plaques) can decrease the heart’s blood supply. If the flow is cut off completely, some of the heart muscle becomes damaged. This is called a heart attack or myocardial infarction (MI). Heart failure may result whether heart muscle is permanently damaged (as in a heart attack or MI), or just temporarily damaged (as in ischemia).

- Hypertension (High Blood Pressure)

Over time, high blood pressure damages the heart and blood vessels. The left ventricle of the heart (the main pumping chamber) has to work harder to eject blood out of the heart because it is pumping against a higher pressure or resistance. This causes the heart to get larger and thickened. Eventually, the heart muscle weakens and can’t pump effectively. Keeping blood pressure under control is an important part of treating heart failure.

- Infections

Some infections, especially those caused by viruses, can result in heart failure by affecting the heart muscle. Most of the time, this form of heart failure completely resolves.
• **Heart Valve Disease**

There are four valves that control blood flow in and out of the heart. If they are not opening and closing properly they can cause additional stress on the heart. Diseased valves, especially the two on the left side of the heart (mitral and aortic) can cause heart failure.

• **Alcohol Use**

Long-term alcohol abuse can cause permanent damage to the heart.

• **Medications**

Some medications used to treat other life-threatening conditions such as cancer may have side effects that cause heart failure.

• **Unknown Cause**

Sometimes no specific cause can be determined as to why the heart muscle is weakened and not pumping well. If other causes have all been ruled out, your doctor may diagnose you with idiopathic cardiomyopathy. (Idiopathic means “unknown cause”, and cardiomyopathy means “enlarged heart”.)

3. **What are the Symptoms of CHF?**

• **Weight Gain**

Weight gain of more than 2 pounds in a few days is a sign that fluid is building up in the body. You may also notice that you are urinating less than you used to. Weight gain can mean new or worsening heart failure, so it is important to call your doctor and report it promptly.

• **Fatigue**

Fatigue, or tiredness, is often one of the first things that the person with heart failure experiences. You may not be able to walk as far as you used to, or may tire more when walking up or down stairs. Some people feel that they just have no energy, even after a full night’s sleep.

• **Shortness of Breath**

Shortness of breath is caused by a buildup of fluid in the lungs. It can occur with activity or at rest. Sometimes people find that they have to sleep upright in a chair or use extra pillows to get in a position where breathing is more comfortable. Waking up at night with sudden breathing difficulty is another sign of congestion.
• Edema (Swelling)
When fluid builds up in places other than the lungs, edema will result. This can be seen most often in the foot and ankle area or in the abdomen. Edema can also be noted in the face and neck or in the lower back area. You may feel that your clothes or shoes are tighter fitting than they were before.

• Other Symptoms
  
  Decreased appetite
  
  Difficulty thinking or confusion (caused by decreased blood flow to the brain)
  
  Persistent dry cough (may be worsened when lying flat)

4. How is Heart failure diagnosed?
• At the Doctor’s Office
There are many factors involved when your doctor makes a diagnosis of heart failure. The symptoms you report are very important. During a physical exam, your health care provider will check your weight and will listen to your heart and lungs. He/she will also look for signs of fluid buildup, like swollen ankles or enlarged veins in the neck. Your health care provider may also ask about your eating habits, especially your intake of sodium (salt). Sodium causes the body to retain fluid and worsens heart failure.

• Echocardiogram
An echocardiogram is an ultrasound of the heart. This test shows how the heart valves are working, and how well the walls of the heart are contracting and relaxing, and how much blood the heart pumps with each contraction (ejection fraction or EF).

• Chest X-Ray
A chest x-ray can show fluid buildup in the lungs or an enlarged heart.

• EKG (Electrocardiogram)
People with heart failure may have characteristic changes in their EKG tracings. Evidence of a heart attack or ischemia (decreased blood supply to the heart) may also be noted. A Holter monitor may be used to check for irregular rhythms you may have at home.

• Blood Tests
Blood tests may reveal infections or mineral (electrolyte) imbalances that contribute to heart failure. They may also indicate anemia, which causes fatigue.

- Cardiac Catheterization (Angiogram)

Cardiac catheterization is a non-surgical procedure during which a long, flexible tube (catheter) is inserted into a blood vessel. It is then gently guided toward your heart. Once the catheter is in place, x-rays and other tests are done. This provides useful information about the blood flow that the heart muscle is receiving, the pressures inside the heart chambers, and how much blood your heart is pumping with each beat.

- Gated Blood Pool (MUGA)

The MUGA is a diagnostic test used to evaluate the motion of the heart walls and how well the heart is pumping. The test is done in the Nuclear Medicine Department and involves the injection of a small amount of radioactive material that is quickly cleared from the body.

5. How is Heart Failure Treated?

There are many treatments available for people with heart failure. Your physician may use one or several of the following treatments:

- Treat the Underlying Cause
  - Valve Problems may be treated with valve repair or replacement surgery
  - Coronary Artery Disease may be treated with medications, angioplasty, stenting, or bypass surgery
  - High Blood Pressure may be treated with various medications and lifestyle changes, like increasing physical activity, weight loss if indicated, and decreasing stress

- Medications

Many different categories of medications can be used to treat heart failure. Each type has a specific effect on the body that helps the heart muscle to work as a stronger and more efficient pump. You may be on one or a combination of some of these medicines to best treat your heart failure.

- ACE Inhibitors (Angiotensin Converting Enzyme Inhibitors)
ACE inhibitors are important medications that lower your blood pressure. They prevent the body from forming an enzyme that constricts the blood vessels. When the blood vessels are dilated (widened), more blood can flow through them. Some ACE inhibitors are captopril (Capoten), enalapril (Vasotec), lisinopril (Prinivil, Zestril), and ramipril (Altace).

- ARBs (Angiotensin Receptor Blockers)

These medications are similar to the ACE inhibitors, and are sometimes used if a person has had side effects with ACE inhibitors (usually coughing). Valsartan (Diovan) and candesartan (Atacand) are ARBs.

- Beta Blockers

Beta blockers help to lower blood pressure. They also slow down the heart and decrease the amount of work the heart must perform. The heart becomes more efficient. Some examples are carvedilol (Coreg), bisoprolol (Zebeta) and metoprolol (Toprol).

- Digitalis

Digitalis (Digoxin, Lanoxin, Digitek) also helps make your heart work more effectively by helping it to pump more strongly. This helps to deliver more oxygen rich blood to the entire body. Digitalis can also be used to treat irregular heart rhythms that can make heart failure worse.

- Diuretics (Water Pills)

One of the results of heart failure is a buildup of excess fluid in the body. This can often be seen as swelling (edema) of the feet, ankles, legs, hands, and face. Weight can increase several pounds in just a few days, and clothes may feel tighter. Fluid buildup in the lungs can cause shortness of breath and can be heard with a stethoscope or seen on an X-ray. Diuretics are medications that help the kidneys to produce more urine so the extra fluid can be excreted in the urine. Examples of diuretics are furosemide (Lasix), torsemide (Demadex), metolazone (Zaroxolyn) and hydrochlorothiazide.

- Aldosterone Blockers

These medications block a chemical called aldosterone, which is an important part of the mechanism that makes you retain fluid. It is also a mild diuretic. Spironolactone (Aldactone) and eplerenone (Inspra) and examples of aldosterone blockers.
• **Blood Thinners**

Warfarin (Coumadin) is a blood thinner. When your heart is not pumping as strongly and effectively as it used to, some of the blood inside the heart can get sluggish and may tend to clot. Clots can travel in the bloodstream and cause strokes or decreases in blood supply to the lungs or other parts of the body. Coumadin is an important medicine to keep the blood thinner so it does not have as much chance to clot. The amount of Coumadin that your doctor orders is based on the results of a blood test that checks your clotting time. Sometimes these levels need to be checked every week to make sure that you are not getting too much or too little blood thinning. If you take Coumadin, it is important to notify anyone who will be performing a procedure that might involve bleeding (dental work, for instance). Vitamin K in your diet may interfere with Coumadin. Cauliflower, spinach, broccoli, green tea, turnip greens, brussels sprouts, kale, and beet greens contain high amounts of Vitamin K. These are healthy foods and you CAN eat them, but it is important to keep your intake at a steady amount each week. This will keep the blood levels of Coumadin consistent.

• **Calcium Channel Blockers**

This class of medications is not usually indicated for Heart Failure. For certain patients with normal heart function and hypertension they can be used at the discretion of your Health Care team. These medicines dilate (enlarge the size of) blood vessels. This decreases the pressure in these vessels. It also decreases the work that the heart has to do to pump blood throughout the body. Calcium channel blockers can also be used to stabilize irregular heart rhythms that may make heart failure worse. Calcium channel blockers work by a different mechanism than beta blockers, but they can work together to make each heartbeat stronger and more effective. Some examples of calcium channel blockers are amlodipine (Norvasc), diltiazem, (Cardizem), and verapamil (Calan, Isoptin).

• **Diet**

All patients with heart failure should limit their sodium (salt) intake to 2 grams (2000 milligrams or mg) per day or less. People with heart failure retain sodium and water differently than people without heart failure, so a little extra sodium can really cause you to gain water weight quickly. This means that you should not add salt to
your food when cooking or eating. You also need to check the labels of food you buy and avoid those that are high in sodium (lunch meats, canned soups and vegetables, ham, bacon, hot dogs, prepared snack foods, frozen foods, and soy sauce, for example).

Sometimes a fluid restriction is also prescribed in addition to a sodium restriction. Otherwise, the advice is to ‘drink to your thirst but not beyond’. Two liters per day is a good goal (2 liters = 67 ounces = slightly more than 2 quarts). This includes all fluids (water, coffee, soft drinks, soups, ice cream, juices, and milk).

- Activity

In most cases, you can safely participate in activities that you feel strong enough to do. Because your heart is not as strong as it used to be, you may get fatigued or short of breath easily. It is important to balance your activity and rest periods. Plan your activities so that you have adequate time to rest and relax. Stop activities if you feel tired or short of breath. Check with your health care provider about how active you can be. You may also need to elevate your feet when resting in order to decrease ankle swelling.

6. What can I do to take care of myself?

- Check Your Weight Every Day

One of the most important things you can do is to weigh yourself every morning when you first get up. A weight gain of over 1 pound from the day before can be the first sign that you are retaining fluid. Keep track of your weight and call your health care provider if you start to gain – sometimes a medication adjustment is all that is needed. Waiting until fluid buildup is more serious may mean an admission to the hospital.

- Take Medications as Ordered

All of the medications your doctor prescribes are important parts of the plan to treat your heart failure. The different types of medicines do different things, so it is important to follow the medication regimen as your doctor has prescribed. Some people find this easier to manage by having a written schedule to refer to or a pill organizer to put each day’s medications into. In case of emergency, carry a copy of your medication and allergy list with you at all times. Know what the purposes of all your medications are. Learning to check your pulse rate is a good idea so that you know what your baseline heart rate is.
• Limit Your Intake of Sodium
Restricting your overall sodium (salt) intake to 2 grams (2000 milligrams or mg) per day is necessary to prevent excess fluid retention. Please refer to DIET in the Treatment of Heart Failure section. For more information on foods to choose and foods to avoid, ask your registered dietician, doctor or nurse.

• Eat Nutritious Foods / Lose Weight
Eating foods that are low in fat and cholesterol will help you to keep off extra weight. Extra body weight just makes it harder for your heart to circulate all of your blood. Many good cookbooks are available that have recipes for tasty heart healthy meals.

• Watch Your Fluid Intake
Since you know that heart failure can cause problems from buildup of fluid in the body, you may need to control your fluid intake to prevent complications of weight gain and shortness of breath. 2 liters per day is a good goal. (2 liters = 67 ounces= slightly more than 2 quarts). This includes all fluids (water, coffee, soft drinks, soups, ice cream, juices, and milk).

• See Your Health Care Provider Regularly
Regular visits to your health care provider will help to keep your heart failure under control. Always bring a list of your current medications and doses (or bring the medication bottles themselves) so you can review it with the doctor and note any changes.

• Get Physical!
Physical activity is important for your heart, your lungs, your blood pressure, your weight and your general well being. Activity does not have to be strenuous to be beneficial. Walking is a great activity that can be done year round, indoors and out. Ask your doctor for guidelines about activities that are reasonable for you.

• If You Smoke, Quit
Smoking is one of the worst things you can do for your heart and the rest of your body. Quit now to prevent further damage. If you have quit smoking in the last year; please keep up this important commitment. Tobacco is very addictive and many people return to smoking again in the first year after quitting. If you have quit in the past year, your healthcare providers will review challenges with quitting and provide resources to help you stay a “non-smoker” . If you need further assistance to quit, you may refer to one of resources on our Additional Resources page (page 11) to help you quit for good.

• Take Action Early
It pays off to know yourself, track your symptoms and stay in contact with your health care team. Watching for signs of worsening heart failure can prevent a hospitalization IF you contact them as soon as you can. Most often symptoms will get worse if you do nothing, and it may be as easy as a phone call to get advice on what to do next. Early recognition is the key. If it is the weekend or after hours and you have very bad symptoms, call 911 or have someone take you to the hospital.

Keep Yourself Informed

Knowledge is power! Join a support group; get more information from the American Heart Association, or write down questions to take to your doctor’s appointments. The more you know about your disease, the more tools you have to help you to cope with it. Please see Additional Resources on page 11 for a list to give you an idea of where to start.

7. Additional Resources for CHF

- American Heart Association
  1-800-242-8721
- Women’s heart health: 1-888-MY HEART (1-888-694-3278)
  www.heart.org
- National Institute of Health – National Heart, Lung and Blood Institute
  301-592-8573
  www.nhi.gov
- Books
  Success with Heart Failure, by Marc Silver, MD
  You Can Live With Heart Failure: What You Can To Live a Better, More Comfortable Life, by Robert DiBianco, MD
  Love, Medicine and Miracles, by Bernie Siegel, MD
  How To Live Between Office Visits, by Bernie Siegel, MD
- National Quit Line
  1-800-QUIT-NOW (1-800-784-8669)
- American Lung Association
1-800-LUNG-USA (1-800-586-4872)

www.lungusa.org/tobacco

• SmokEnders
  1-800-828-4357