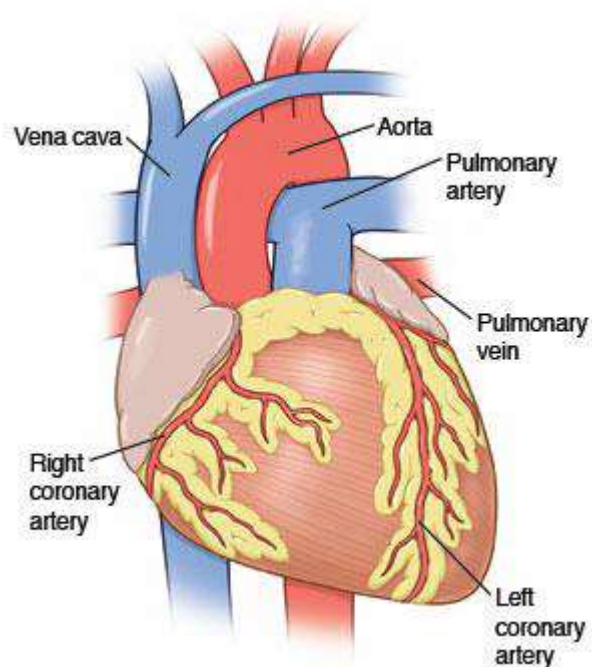


Patient Education Materials Follows:

## Heart Disease Education



The heart beats 60 to 100 times per minute, 24 hours a day. This equals almost 100,000 times a day. It pumps blood with oxygen and nutrients to the tissues and organs of the body. But the heart is a muscle and needs its own supply of blood. Blood flow to the heart is supplied by the coronary arteries. Coronary artery disease (atherosclerosis) is a result of cholesterol, saturated fat, and calcium deposits (plaques) that build up inside the walls. This causes inflammation within the coronary arteries. These plaques narrow the artery and reduce blood flow to the heart muscle. The reduction in blood flow to the heart muscle decreases oxygen supply to the heart. If the narrowing is significant enough, the oxygen supply to one or more regions of the heart can be temporarily or permanently shut down. Sometimes, the plaque can rupture exposing the materials within the plaque to the bloodstream. This can lead to the sudden development of a blood clot on top of the plaque which interrupts blood flow to the heart muscle. This can cause chest pain (angina), and possibly death of heart tissue (heart attack).

### Types of chest pain

Angina is the name for pain in the heart muscle. Angina is a warning sign of serious heart disease. When untreated it can lead to a heart attack, also known as acute myocardial infarction, or AMI. Angina occurs when there is not enough blood and oxygen flowing to the heart for the amount of work it is doing. This most often happens during physical exertion, when the heart is working hardest. It is usually relieved by rest or nitroglycerin. Angina may also occur after a large meal when extra blood is sent to the digestive organs and less goes to the heart. In the case of advanced or unstable heart disease, angina can occur at rest or awaken you from sleep. Angina usually lasts from a few minutes up to 20 minutes or more. When treated early, the effects of angina can be reversed without permanent damage to the heart. Angina is a serious condition and needs to be evaluated by

a medical professional immediately.

There are two types of angina—stable and unstable:

- **Stable angina** usually occurs with a predictable level of activity. Being stable, its character, severity, and occurrence don't change much over time. It usually starts with activity, and resolves with rest or taking your medicine as instructed by your doctor. The symptoms usually don't last long.
- **Unstable angina** changes or gets worse over time. It is different from whatever you are used to. It may feel different or worse, begin without cause, occur with exercise or exertion, wake you up from sleep, and last longer. It may not respond in the same way as it does when you take your usual medicines for an attack. This type of angina can be a warning sign of an impending heart attack.

A heart attack is usually the result of a blood clot that suddenly forms in a coronary artery that has been narrowed with plaque. When this occurs, blood flow may be cut off to a part of the heart muscle, causing the cells to die. This weakens the pumping action of the heart, which affects the delivery of blood to all the other organs in the body including the brain. If not treated immediately, this damage will become permanent. The earlier treatment is given, the better chance that the heart muscle can be saved.

The pain you feel with angina and a heart attack may have a similar quality. However, it is usually different in intensity and duration. Here are some typical descriptions of a heart attack:

- It is most often experienced as a squeezing, crushing, pressure-like sensation in the center of the chest.
- It is sometimes described as "something heavy sitting on my chest."
- It may feel more like a bad case of indigestion.
- The pain may spread from the chest to the arm, shoulder, throat or jaw.
- Sometimes the pain is not felt in the chest at all, but only in the arm, shoulder, throat or jaw.
- There may also be nausea, vomiting, dizziness or light-headedness, sweating, and trouble breathing.
- Palpitations, or your heart beating rapidly
- A new, irregular heart beat
- Unexplained weakness

You may not be able to tell the difference between "bad" angina and a heart attack at home. Seek help if your symptoms are different than usual. Don't be in denial or just try to "tough it out."

## Call 911

This is the fastest and safest way to get to the emergency department. The paramedics can also start treatment on the way to the hospital, saving valuable time for your heart.

- If the angina gets worse, if it continues after taking a nitroglycerine table or using nitroglycerin spray, or if it stops and returns, call 911 right away. Don't delay. You may be having a heart attack.

- After you call 911, take a second nitroglycerine tablet or spray unless instructed otherwise. When repeating doses, sit down if possible, because it can make you feel lightheaded or dizzy. Wait another 5 minutes. If the angina still does not go away, take a third nitroglycerin tablet or spray. Don't take more than 3 tablets or sprays within 15 minutes. Stay on the phone with 911 for more instructions.
- Your healthcare provider may give you slightly different instructions than those above. If so, follow them carefully.

Don't wait until symptoms become severe to call 911. Other reasons to call 911 include:

- Trouble breathing
- Feeling lightheaded, faint, or dizzy
- Rapid heart beat
- Slower than usual heart rate compared to your normal
- Angina with weakness, dizziness, fainting, heavy sweating, nausea, or vomiting
- Extreme drowsiness, confusion
- Weakness of an arm or leg or one side of the face
- Difficulty with speech or vision

## **When to seek medical care**

Remember, the signs and symptoms of a heart attack are not always like they are on TV. Sometimes they are not so obvious. You may only feel weak, or just not right. If it is not clear or if you have any doubt, call for advice.

- Seek help if there is a change in the type of pain, if it feels different, or if your symptoms are mild.
- Don't drive yourself. Have someone else drive you. If no one can drive, call 911.
- Don't delay. Fast diagnosis and treatment can prevent or limit the amount of heart damage during a heart attack.
- Don't go to your doctor's office or a clinic as they may not be able to provide all the testing and treatment required for this condition.
- If your doctor has given you medicine to take when symptoms occur, take them but don't delay getting help trying to locate medicines.

## **What happens in the emergency room (ER)**

The emergency room is connected to your local emergency medical system (EMS) through 911. That's why during a cardiac emergency, calling 911 is the fastest way to get help. The goal of the emergency department is to rapidly screen, evaluate, and treat people.

Once you are there, an electrocardiogram (ECG) will be done. Often this will be done by paramedics who will transmit it to the hospital even before you arrive at the ER. Blood samples may be taken to look for the presence of heart enzymes that leak from damaged heart cells and show if a heart attack is occurring. You will often be evaluated by a heart specialist (cardiologist) who decides the best

course of action. In the case of severe angina or early heart attack, and depending on the circumstances, powerful "clot busting" medicines can be used to dissolve blood clots in the coronary artery. In most cases, you may be taken to a cardiac catheterization lab for emergency angiography and coronary intervention. During this procedure, a long, thin, plastic tube (catheter) is inserted in an artery in your groin or arm, and thread through the blood vessel to the blockage. Blood flow will be evaluated. If a significant blockage is seen, a balloon and metal mesh coil (stent) may be inserted to open the artery and restore blood flow.

## **Risk factors for heart disease**

Risk factors for heart disease are a combination of genetic and lifestyle. Many risk factors work by either directly or indirectly damaging the blood vessels of the heart, or by increasing the risk of forming blood or cholesterol clots, which then clog up and block the arteries.

Examples of physical lifestyle risk factors:

- Cigarette smoking
- High blood pressure
- High blood cholesterol
- Use of stimulant drugs such as cocaine, "crack," and amphetamines
- Eating high-fat, high-cholesterol foods
- Diabetes
- Obesity which increases risk for diabetes and high blood pressure
- Lack of regular physical activity

Examples of emotional lifestyle factors:

- Chronic high stress levels release stress hormones. These raise blood pressure and cholesterol level and makes blood clot more easily.
- Held-in anger, hostile or cynical attitude
- Social and emotional isolation, lack of intimacy
- Loss of relationship
- Depression

Other factors that increase the risk of heart attack that you cannot control:

- Age. The older you get beyond 40, the greater is your risk of significant coronary artery disease.
- Gender. More men than women get heart disease; but once past menopause, women who are not taking estrogen replacement have the same risk as men for a heart attack.
- Family history. If your mother, father, brother or sister has coronary artery disease, your risk of having it is higher than a person your age without this family history.

## **What can you do to decrease your risk**

To reduce your risk for heart disease:

- Get regular checkups with your doctor.
- Take your medicines for blood pressure, cholesterol or diabetes as directed.
- Watch your diet. Eat a heart healthy diet choosing fresh foods, less salt, cholesterol, and fat
- Stop smoking. Get help if needed.
- Get regular exercise.
- Manage stress.
- Carry a list of medicines and doses in your wallet.

This information is not intended as a substitute for professional medical care. Always follow your healthcare professional's instructions.