



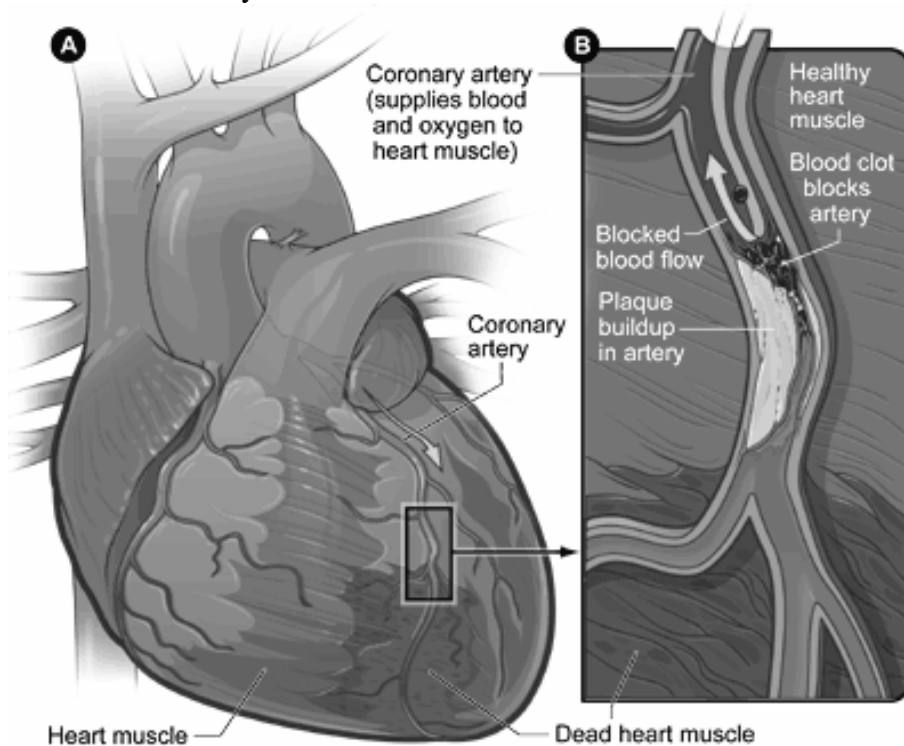
UNDERSTANDING YOUR HEART ATTACK

WHAT IS A HEART ATTACK?

A heart attack occurs when blood flow to a portion of your heart muscle becomes blocked. If the blood flow isn't restored quickly, that section of the heart muscle becomes damaged and begins to die. Other terms to describe a heart attack include: MI, Myocardial Infarction, and having a coronary.

Blood flow to the heart muscle is supplied by one of three major coronary arteries. Blockages to these arteries can occur by one of three ways:

1. **Fatty buildup** – Fatty deposits inside your coronary arteries grow larger and reduce the space for blood flow. These deposits harden and form plaque which make the artery walls less able to stretch, and prone to more damage. The inside of the artery wall becomes rough and cracked (like an old brittle garden hose) which encourages even more plaque buildup. This buildup of plaque and “hardening of the arteries” is called atherosclerosis – and when it occurs in the heart, it is called coronary artery disease. Other terms used to describe coronary heart disease include: CAD, CHD, heart disease, and ischemic heart disease.
2. **Blood clot (thrombus)** – The plaque can break open or break off and completely block the coronary artery causing a heart attack. Blood flowing past plaque can slow enough to cause blood clots which block the artery.



3. **Spasm** – A sudden spasm (abnormal contraction) in a coronary artery can cause chest pain or a heart attack depending how long the spasm lasts. Causes of coronary spasms include nicotine, drugs such as cocaine, emotional stress or pain, and exposure to extreme cold. Coronary spasms can also occur in otherwise healthy people for unknown reasons.

From www.nhlbi.nih.gov

HOW DO I KNOW IF I AM HAVING A HEART ATTACK?

A heart attack is diagnosed based on your symptoms, medical history, family medical history, and results of diagnostic tests.

Symptoms of a heart attack vary from person to person, and may start slowly or happen suddenly. The most common signs of a heart attack include chest pain, chest tightness, or chest pressure. The pain may feel crushing, tight or heavy, and can range from mild to severe. It may spread to the neck, jaw, back, shoulders, or left arm. You may feel like you are having indigestion or burning under the breast bone in your upper chest. Other signs may include sweating, nausea (feeling sick to your stomach), vomiting (throwing up) or shortness of breath. Your skin may be pale, cool or clammy (cold sweat) and you may feel lightheaded, dizzy, or weak.

Some people may not have typical chest pain or pressure – especially women and people with diabetes. In these people, the discomfort may be in an unusual place such as the right arm or lower back, or there may be only shortness of breath, indigestion, or sweating. Some people have no obvious signs at all – this is called a “silent heart attack.”

Regardless of a person’s symptoms, it is common for a person to deny they are having a heart attack. Sometimes it is hard to tell the difference between a heart attack and other causes of chest pain. Whenever a person thinks they might be having heart attack, they should seek immediate medical attention, because delaying medical care can limit treatment choices, lead to more severe and permanent heart damage, and be life-threatening.

DIAGNOSTIC TESTS FOR A HEART ATTACK

EKG (Electrocardiogram or ECG) – a record of the electrical activity of your heart. Certain changes occur when the heart muscle is being damaged due to lack of blood flow.

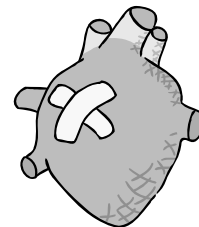
Blood tests – During a heart attack, the dying heart muscle cells release certain proteins called troponins into the blood. Elevated troponin levels are used to help diagnose a heart attack. The troponin blood test may need to be repeated several times.

Stress test – A stress test may be done to determine if areas of the heart muscle are receiving enough blood flow. You may either walk on a treadmill or receive medication during a stress test.

Echocardiogram – An echocardiogram is an ultrasound (sonogram) recording of the structures of the heart which gives helpful information regarding how well your heart muscle and valves are functioning. During a heart attack, damaged heart muscle does not contract normally on echocardiogram.

Cardiac catheterization (coronary angiography). A special x-ray of your heart is performed by passing a thin flexible tube (catheter) from an artery in your upper thigh or arm up to your heart. Dye is injected into the coronary arteries, and blockages can be seen on x-ray.

HOW IS A HEART ATTACK TREATED?



EARLY TREATMENT

Early treatment can prevent or limit damage to the heart muscle and give your health care team more treatment choices. Acting fast, at the first symptoms of heart attack, can save your life.

- **EKG and vital sign monitoring** (blood pressure, heart rate, temperature)
- **IV** for medications and fluids
- **Oxygen** – to increase the amount of oxygen in the blood flowing to the heart,
- **Aspirin** – thins your blood (trying to pass around a blockage) and prevents the blockage from growing larger
- **Nitroglycerin** – opens up or expands the coronary arteries to allow more blood flow to the heart
- **Pain killers** – to improve blood flow to the heart and reduce anxiety (butterflies in your stomach) and the body's use of oxygen
- **Rest** while in the hospital! You can reduce the amount of work on your heart by resting quietly in bed and remaining calm. Your family can help by avoiding stressful situations at this time.

THROMBOLYTIC MEDICINES (clot busters) may be given into your IV to dissolve blood clots blocking the coronary arteries.

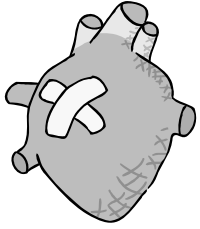
ANGIOPLASTY During the cardiac catheterization test, blockages in the coronary arteries can be opened using angioplasty (ballooning open the blocked area). In addition, sometimes stents (small mesh tubes) are placed in the artery to help keep it open.

CORONARY ARTERY BYPASS GRAFT (CABG, coronary bypass) is a surgery in which arteries or veins are taken from other areas of your body and sewn in place to bypass (or go around) blocked coronary arteries.

MEDICINES

Medicines will be prescribed to treat your coronary artery disease and lessen chances of a future heart attack. You will continue your treatment at home on these types of medicines.

- **Blood thinner** – to prevent clots in your arteries or stents
- **Beta Blocker** – to decrease workload on your heart, lower blood pressure, prevent further heart attacks, and prevent irregular heart rhythms
- **ACE Inhibitor or ARB** – to lower blood pressure and reduce strain on your heart, and to prevent scarring and weakening of your heart muscle as it heals
- **Statin** – to lower cholesterol and reduce inflammation that is involved in the development of plaques inside the coronary arteries
- **Nitroglycerin** – to improve blood flow in the heart and reduce the work on the heart
- **Others** – other medications may also be given to lower blood pressure, improve the heart's pumping action, control heart rhythm, manage cholesterol, assist with smoking cessation, and to control diabetes if needed.



LIFESTYLE TREATMENT AFTER YOUR HEART ATTACK

Lowering your risk factors for coronary artery disease can help you prevent another heart attack. Check the risk factors that apply to you and follow the recommended therapies and lifestyle choices to treat your coronary artery disease and prevent further heart attacks.

Risk Factors for Coronary Artery Disease

___ **Smoking**

___ **High Blood Pressure**

___ **High cholesterol**

___ **Lack of Exercise**

___ **Diabetes**

___ **Family History**

___ **Obesity**

___ **Stress**

Therapeutic Lifestyle Changes

Stop smoking.
Use medication if needed to assist.

Take blood pressure medication if necessary to achieve goal of less than 130/80

Eat a diet low in saturated fat (including trans fats), and high in fiber.
Include sources of omega 3 fatty acids.
Take cholesterol-lowering medications. Statins are cholesterol medications recommended for most everyone after a heart attack.

Work toward a goal of 30-40 minutes of continuous aerobic exercise most days of the week and include strength training 2-3 times per week

Control your blood sugar to normal levels.

Screen for and control your other risk factors. Teach your children heart healthy living and lifestyle now.

Lose weight and keep it off.

Seek helpful coping strategies. Try a stress management class or self help book. Try Yoga or meditation exercises

HELPFUL RESOURCES:

- ♥ American Heart Association. www.americanheart.org. Phone 800-AHA-USA1.
- ♥ National Heart Lung and Blood Institute of the National Institutes of Health, US Dept of Health and Human Services. www.nhlbi.nih.gov/health/dci/Diseases/HeartAttack. Phone 301-592-8573.
- ♥ National Library of Medicine /NIH. www.nlm.nih.gov/medlineplus/heartattack.
- ♥ UVA Heart Center patient info at www.healthsystem.virginia.edu/uvahealth/news_HeartCare.

RECOVERING FROM YOUR HEART ATTACK – GOING HOME



Recovery Time. Most people spend several days in the hospital after a heart attack. Your recovery depends on the size and complications of your heart attack. In general, it takes 4-8 weeks to fully recover from a heart attack.

Physical Activity. You will gradually increase your activities while in the hospital. By the time of discharge you will be bathing yourself, walking around the room and hallways, and able to do arm and leg exercises. Be sure to discuss returning to work and driving with your doctor before you go home. As you increase your activities, pace yourself and rest between activities. Pay attention your energy level, and rest when you need to. Report chest pain or other concerning symptoms to your healthcare provider.

Rest and Exercise. Both rest and gradual exercise are important to your recovery. As you increase your activity, you may feel more tired on some days. Pay attention to your body and pace yourself by alternating periods of activity and rest. Don't rush – allow for plenty of time for activities. Alternate hard tasks with easy ones, and rest in between. Get at least 7-8 hours of sleep each night. Take a 30 minute rest period at least twice a day

Treatment Continues at Home! Once you leave the hospital, treatment doesn't stop! At home your treatment will include daily medications and lifestyle changes including quitting smoking, losing weight, making heart healthy diet adjustments, and increasing your physical activity to lower your chances of having another heart attack.

Cardiac Rehab Helps a Lot. Plan to participate in a cardiac rehabilitation program in your community once you get home. Cardiac rehab will help you to regain your strength and stamina safely as your heart is healing and help to prevent another heart attack. You will be monitored in rehab and gain confidence as you increase your physical activity. Cardiac rehab is more than exercise - it includes education, counseling, learning how to change your risk factors to prevent another heart attack, and perhaps most importantly –you will experience emotional support as you resume your life after a heart attack. Cardiac rehab will help you understand your emotions after a heart attack. You will find out you are not alone and receive valuable support from other people who are in various stages of recovery. The education will empower you to make lifestyle changes that will put you in charge of your successful recovery.

RECOVERING FROM YOUR HEART ATTACK – GOING HOME



Feelings and Adjustments. You may have mixed feelings about leaving the hospital. Talking about this with your family members and health care team can build your confidence. Many people survive heart attacks and live active and full lives.

There will be an adjustment period for you. You may feel anxious, angry, or depressed. These are normal adjustment feelings after a major illness. Try to take your recovery one day at a time. Think about “today” – not about next month. Each day, you will begin feeling more like yourself and will be able to do more and regain confidence. If you have prolonged depression lasting longer than 4 weeks, you should discuss this with your doctor because other treatment may be needed.

At first, it may seem that your family is being overly protective. You may resent their attempts to help you with your diet, medications, and activities. If so, talk about it. They are trying to do what they can to help. Each of you is trying to rebuild roles, confidence, and independence.

Meals. Did you know that large meals make the heart pump harder? Digestion makes extra work for the heart by supplying additional blood flow to the stomach and intestines. Eat 3 or 4 smaller meals a day instead of one or two heavy meals. Eat slowly, and limit physical activity for an hour after each meal. Limit caffeine to one or two cups of coffee (or other equivalent sources of caffeine) a day. Caffeine makes the heart work harder and can cause irregular heart beats.

Heat and Cold. Avoid being outside in very hot or very cold weather. If you have to be outside in the heat or cold, limit your activities. Check with your doctors before using saunas, steam rooms, whirlpools, or hot tubs.

Sex. Most people can resume sexual activity 3-6 weeks after a heart attack. The energy expended during sex is about the same as climbing 2 flights of stairs, so if you can climb two flights of stairs without pain or discomfort, you can assume that it is OK to have sex. Be rested and don't rush. If sex brings on chest pain or shortness of breath, stop and rest or wait until another time. You might change to a less strenuous position – when the arms are supporting the body's weight, more stress is put on the heart. Check with your doctor before using any drugs to enhance sexual performance since some of these can cause heart irregularities. The combination of (sildenafil)Viagra, vardenafil (Levitra), or tadalafil (Cialis) with the use of nitroglycerin is especially dangerous and should be avoided.

Travel. Your doctor will tell you when it is OK to travel. When you do travel, keep your medications with you. Pack light, manageable suitcases or get assistance. Allow plenty of time so that you are not rushed. Walk around at least every two hours during long travel. Check with your doctor before going to places at high altitude (greater than 6000 feet above sea level) and rest first when you get there to allow your body to adjust to the higher elevation.



LIVING WITH HEART DISEASE – BEING PREPARED

What is the difference between angina and a heart attack?

Angina is chest pain or other discomfort that occurs when the heart muscle temporarily does not get enough blood flow (oxygen) due to either narrowed coronary arteries or increased need for oxygen. It occurs after exertion and goes away when you rest or take a nitroglycerin tablet. During a heart attack, the complete lack of blood flow to an area of the heart muscle is causing heart muscle cell damage.

The symptoms of a heart attack are similar to angina, but more severe and widespread, and often don't go away with rest or nitroglycerin. The symptoms of a second heart attack may not be the same as those symptoms of a first heart attack.

Denial and delay are typical. Regardless of symptoms, it is common for a person to deny they are having a heart attack. Many people do not understand the symptoms of a heart attack and think that what they are feeling is due to something else. They are often afraid or unwilling to admit that their symptoms could be serious. They may be embarrassed about “causing a scene” or going to the hospital and find out it is a false alarm. Consequently, many people take a “wait and see” approach and delay needed care. Clot-busting drugs and other artery-opening treatments work best when given within the first couple of hours after a heart attack starts. The first hour also is the most risky time during a heart attack – it's when your heart might stop suddenly. Most heart attack victims wait 2 hours or more after their symptoms begin before they seek medical help. This delay can result in more severe and permanent heart damage or even death. Responding quickly to your symptoms greatly increases your chance of survival.

Signs and Symptoms of a Heart Attack

- Chest discomfort or chest pain – uncomfortable pressure, squeezing, fullness, tightness, or heaviness in the center of the chest. Burning sensation under the breastbone which feels similar to indigestion. Choking sensation.
- Pain that starts or radiates elsewhere - neck, jaw, one or both arms, upper back or shoulder blades.
- Profuse cold sweating , ashen color
- Nausea and/or vomiting
- Shortness of Breath
- Lightheadedness, fainting, dizziness, severe weakness

Some people may not have typical chest pain or pressure – especially women and people with diabetes. In these people the discomfort may be in an unusual place such as the right arm or lower back, or there may be only shortness of breath and sweating. Some persons have no obvious signs at all – this is called a “silent MI.”

DON'T DELAY – ACT RIGHT AWAY

If you are having angina or a possible heart attack, sit down and rest immediately. If your symptoms are not gone in 5 minutes, call 9-1-1 right away. If you have a prescription for nitroglycerin, put one under your tongue. If the pain does not go away in 5 minutes, call 9-1-1 right away. If you have nitroglycerin prescribed for chronic angina and the pain does not go away after the third nitroglycerin in 15 minutes, call 9-1-1 right away.



Calling 9-1-1 for an ambulance is the best way to get to the hospital because:

- ♥ Emergency medical personnel (also called EMS, for emergency medical services) begin treatment immediately—even before arrival at the hospital.
- ♥ Your heart may stop beating during a heart attack. This is called sudden cardiac arrest. Emergency personnel have the equipment needed to start your heart beating again. If your family or friends are driving you to the hospital, they cannot treat this life-threatening emergency, so do not rely on them, and don't ever drive yourself – unless there is absolutely no other choice, then drive to the nearest phone to call 9-1-1.
- ♥ Heart attack patients who arrive by ambulance receive faster treatment on their arrival at the hospital because they notify the emergency room to alert the cardiac team.

Plan ahead. Make a plan now for what you would do if you thought you were having a heart attack. Planning ahead will save time and could help save your life.

- ♥ You and your family members need to know the heart attack warning signs and the importance of acting fast by calling 9-1-1 if those signs persist after 5 minutes of rest.
- ♥ Think through what you would do if you had heart attack symptoms. Decide what you would do if it happened while you were at home, in the middle of the night, at work, or at any other place or in any other situation that might need advance planning.
- ♥ Decide who would care for any dependents or pets in an emergency.
- ♥ Talk to your doctor about what you should do if you experience any heart attack symptoms.
- ♥ Gather important information to take along with you to the hospital. Make a written list of all your medicines, allergies, doctor/phone numbers, and emergency contacts/phone numbers, and keep copies in handy places, such as your wallet or purse.

Follow any discharge instructions given to you by your nurse or doctor.