AF 360° provides a single, trusted resource for the most comprehensive and relevant information and education on atrial fibrillation. Led by the most respected professionals and drawing from top experts, publications and other leading sources, AF 360° helps cardiac arrhythmia professionals improve patient outcomes. AF 360° is an initiative of the Heart Rhythm Society, the world's leading professional society committed to improving the care of cardiac arrhythmia patients by promoting science, education and optimal health care policies and standards. To learn more about AF 360° or the Heart Rhythm Society, visit www.HRSonline.org
The Society also offers a variety of diagrams and medical animations related to atrial fibrillation on www.HRSonline.org/patientinfo.
ATRIAL FLUTTER OVERVIEW

An arrhythmia is an abnormal heart rhythm. Atrial flutter (AFL) is the second most common type. In AFL, the atria (the upper chambers of the heart) beat too fast. The four chambers of the heart usually beat in a steady, rhythmic pattern. With AFL, the atria are beating faster than the ventricles (the lower chambers).

AFL itself is not life-threatening. If left untreated, the side effects of AFL can be life-threatening. AFL makes it harder for the heart to pump blood effectively. With the blood moving more slowly, it is more likely to form clots. If the clot is pumped out of the heart, it could travel to the brain and lead to a stroke. Without treatment, AFL can also cause a fast pulse rate for long periods of time. This can weaken the heart muscle over time, and potentially lead to heart failure. Without treatment, AFL can also cause another type of arrhythmia called atrial fibrillation. Atrial fibrillation (AF) is the most common type of abnormal heart rhythm.
WHAT IS ATRIAL FLUTTER (AFL)?

The electrical system of the heart is the power source that makes the heart beat. Electrical impulses travel along a pathway in the heart and make the atria and the ventricles work together to pump blood through the heart.

A normal heartbeat begins as a single electrical impulse that comes from the SA node, a small bundle of tissue located in the right atrium. The impulse sends out an electrical pulse that causes both atria to contract (tighten) and move blood into the lower ventricles. The electrical current passes through a small bundle of tissue called the AV node (the electrical bridge between the upper and lower chambers of the heart), causing the ventricles to squeeze and release in a steady, rhythmic sequence. As the chambers squeeze and release, they draw blood into the heart and push it back out to the rest of the body. This is what causes the pulse we feel on our wrist or neck.

AFL occurs when the electrical impulse does not follow this order. With AFL, the electrical signal gets “trapped” in the right atrium. It travels in a circle inside the right atrium instead of continuing through the AV node to the ventricles. This causes your atria to beat faster than the ventricles of your heart.
AFL is a heart rhythm disorder that is similar to the more common AF. In AF, the heart beats fast and in no regular pattern or rhythm. With AFL, the heart beats fast, but in a regular pattern. The fast, but regular pattern of AFL is what makes it special. AFL makes a very distinct “sawtooth” pattern on an electrocardiogram (ECG), a test used to diagnose abnormal heart rhythms.
RISKS FACTORS FOR ATRIAL FLUTTER

AFL affects 88 out of 10,000 new patients each year, making it the second most commonly diagnosed arrhythmia after AF. Some medical conditions increase the risk of developing atrial flutter. These medical conditions include:

• Heart disease:
  - Congestive heart failure
  - Coronary artery disease (including a history of heart attack)
  - Structural heart disease (such as valve abnormalities or congenital defects)
  - High blood pressure (hypertension)
• Recent surgery (especially heart surgery)
• Thyroid dysfunction
• Alcoholism (especially binge drinking)
• Chronic lung disease
• Acute (serious) illness
• Diabetes

SYMPTOMS OF ATRIAL FLUTTER

The electrical signal that causes AFL circulates in an organized, predictable pattern. This means that people with AFL usually continue to have a steady heartbeat, even though it is faster than normal. It is possible that people with AFL may feel no symptoms at all. Others do have symptoms. These symptoms include:

• Heart palpitations (feeling like your heart is racing, pounding or fluttering)
• Fast, steady pulse
• Shortness of breath
• Trouble with everyday exercises or activities
• Pain, pressure, tightness or discomfort in your chest
• Dizziness, lightheadedness or fainting
**COMPLICATIONS FROM ATRIAL FLUTTER**

AFL is usually not life threatening. However, AFL makes the atria beat much faster than normal. This makes it harder for the heart to pump blood. With the blood moving more slowly, it is more likely to form clots. If the clot is pumped out of the heart, it could travel to the brain and lead to a stroke.

In addition, AFL can cause a fast pulse rate for long periods of time. When the heart beats too fast for long periods of time, the heart muscle can become weak. This condition is called cardiomyopathy. This can lead to heart failure and long-term disability.
HOW IS ATRIAL FLUTTER DIAGNOSED?

There are several tests that can be done to check for a fast or irregular heartbeat. Your doctor may order these tests if you are having signs or symptoms of a heart problem. The symptoms include heart palpitations (feeling like your heart is racing, pounding or fluttering), shortness of breath or dizziness.

Electrocardiogram (ECG) – An ECG is a snapshot of your heart’s electrical activity. Stickers (electrodes) are attached to your chest, arms and legs. These electrodes measure the rate and rhythm of your heart. AFL shows a very distinct “sawtooth” pattern on the ECG.
Holter monitor – A Holter monitor is a portable ECG. It can be worn for several days. Stickers are placed on your chest and are then connected to a small recording machine that is usually worn around the waist. It records the electrical activity of your heart for your doctor to review later.

Mobile cardiac monitoring – A mobile cardiac monitor is worn for up to 30 days. It records your heart’s beat when it is in normal and abnormal rhythm. The results are automatically sent to your physician. Your physician uses this information to evaluate your symptoms and determine what is causing the arrhythmia.

Event monitor – An event monitor is a portable ECG that is used for patients who have an irregular heart rhythm every once in a while. You will carry the monitor with you at all times and attach it to your chest when you feel symptoms. This lets your doctor check your heart rhythm at the time of your symptoms.

Echocardiogram – An echocardiogram uses sound waves to produce images of your heart. This test allows your doctor to see how your heart muscle is moving and pumping blood. You may have one of several types of echocardiograms.
• **Transthoracic echocardiogram** – This is a standard non-invasive (no incisions or cuts) echocardiogram that gives your doctor a picture of your beating heart. A technician spreads a special gel on your chest and then uses an imaging device, called a transducer, that gives off and reads sound waves. The imaging device records the sound waves bouncing off the walls in your heart. A computer then creates a video of your heart. This video can show the size of your heart, how well your heart is working, if the heart valves are working and if there are blood clots in your heart.

• **Transesophageal echocardiogram (TEE)** – A transesophageal echocardiogram or a TEE is often done when the doctor needs to get a good picture of the back of your heart. To get a clear picture, a probe, called a transducer, is placed down your esophagus (the tube that connects your mouth to your stomach). The esophagus passes right behind the heart. This procedure can be uncomfortable. You may be given a small amount of sedation through an intravenous (IV) line and your throat may be sprayed with anesthesia to make the area numb. Once the probe is in place, it works the same way as described above.
TREATMENT OPTIONS

There are several treatment options for atrial flutter. Your doctor will decide on a treatment based on several factors including your age, your symptoms and the cause of your AFL. The goals of treatment for atrial flutter include:

- Return the heartbeat to a normal rhythm, if possible
- Control the heart rate
- Prevent blood clots from forming
- Treat the cause(s) of the abnormal rhythm and any AFL complications
- Reduce the risk factors that may lead to the AFL

MEDICATION

If you have atrial flutter, you may need to take one or more medicines for the rest of your life, such as:

- **Rhythm control medications** (anti-arrhythmic drugs) – medications that help keep a normal heart rhythm by controlling the electrical signals that pass to the lower chambers of the heart.
- **Rate control medications** – medications that slow down a fast heart rate and prevent weakening of the heart muscle by controlling the electrical signals that occur in the upper chambers of the heart.
- **Blood thinners** – medications that help prevent blood clots and reduce the risk of stroke

Everyone reacts differently to medication. You may need to try more than one medicine before you find what works best for you and has the fewest side effects.
CATHETER ABLATION

Catheter ablation is done in an electrophysiology lab in the hospital by a team of highly skilled nurses and technicians who work alongside the electrophysiologist, a doctor who specializes in treating heart rhythm conditions.

In this procedure thin, flexible wires called catheters are inserted into a vein in your neck and/or groin. These wires are threaded up through the vein and into the heart using X-rays to guide the way. There are electrodes at the tip of the wires. The electrodes are able to detect electrical signals from different parts of the heart. A special catheter called an ablation catheter sends out radio waves that create heat. This heat destroys the tissue in the heart that causes the AF and blocks the abnormal electrical signals. Special equipment creates a three-dimensional (3D) picture of your heart. This helps the doctor see exactly where to apply the heat. In the case of atrial flutter, the ablation catheter is positioned at a particular ridge of tissue called the cavotricuspid isthmus. This ridge is located on the right side of the heart between the top chamber and the bottom chamber.

You will be given sedation through an intravenous (IV) line to keep you comfortable during the procedure. You may have general anesthesia, which will put you to sleep, or what is known as conscious sedation. Conscious sedation means that you are still awake. You will have enough medication that you will not be aware of what is happening or feel any pain. The type of sedation will depend upon your doctor, the hospital, and your overall health. During the ablation, you may be given a blood thinner to prevent clots from forming in your heart during the procedure.
Abnormal electrical current trapped in right atrium.

Catheter emitting energy to “burn” the irregular pathway caused by AFL.
Catheter ablation usually takes between two and six hours. Your medical team will closely monitor your heart beat, blood pressure and breathing during this time. After the procedure, pressure will be placed on the area where the catheters were inserted to prevent bleeding. You may need to stay in the hospital for one or two days, so that these areas heal. The amount of time you will need to lay still and the amount of time you will stay in the hospital will depend upon your doctor and the medical center. Your doctor will tell you how to take care of yourself when you leave the hospital.

In general, atrial flutter ablation is a very successful procedure with a low complication rate. Of course, you should watch for bleeding or oozing from the catheter sites, discomfort at the catheter sites, aches or discomfort in your chest, fatigue or lightheadedness. Contact your doctor if you have any questions or concerns about any symptoms.

**WHAT TO ASK YOUR DOCTOR**

If you have been diagnosed with atrial flutter, or suspect that you may have the condition, here are some questions that you may want to ask your physician.

- What is the cause of my AFL?
- How can I be sure I have AFL and not a more serious heart rhythm problem?
- Will my condition go away on its own?
- What are the risks that it will become worse (more symptomatic)?
- Am I at increased risk of having a stroke?
- What are my treatment options?
- What are the risks and side effects of medications to control my condition, or to reduce the risk of stroke?
- What are the risks and benefits of other treatment options?
- Should I see an electrophysiologist (a specialist in heart rhythm disorders)?