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Beaumont’s Atrial Fibrillation Clinic

Beaumont’s Atrial Fibrillation Clinic offers the most advanced, innovative treatment approaches through a specially trained, multidisciplinary team. Each person’s atrial fibrillation affects them differently, and our physicians collaborate to create a customized treatment plan designed specifically to treat your symptoms and risk factors. As one of the highest volume centers in the state, you can be assured that the physicians at Beaumont’s a-fib program are leading experts in treating even the most complex cases.

Our atrial fibrillation program offers:

- the latest minimally invasive approaches to treat a-fib
- a multidisciplinary team to coordinate treatment and follow-up care, including a nurse clinician and electrophysiologist (a physician who specializes in treating heart arrhythmias)
- the most advanced surgical approaches for treating a-fib, including the minimally invasive robotic procedure (MAZE) that Beaumont pioneered in Michigan
- access to numerous clinical trials for the latest treatments and advances in a-fib
- educational information for both you and your family

To schedule an appointment, call 888-683-7678
Atrial fibrillation (a-fib) overview

A-fib is the most common type of arrhythmia and affects more than 2.5 million people in the United States. About 160,000 new cases are diagnosed every year. Eight out of every 100 people over the age of 65 are diagnosed with a-fib. Although it usually occurs in adults older than 60, younger adults can develop a-fib too.

The normal heart rate for an adult is between 60 and 100 beats every minute. When the heart is in a-fib, the atria (upper two chambers of the heart) can beat more than 300 times every minute.

While a-fib itself is not life threatening, the side effects can lead to significant symptoms as it makes it harder for the atria to pump blood to the ventricles (the lower chambers of the heart). 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, a-fib can also cause a fast pulse rate for long periods of time. This means that the ventricles are beating too fast. This can weaken the heart muscle and lead to heart failure over time.
What is a-fib?

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 then 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.

A-fib occurs when the electrical impulse does not follow this order. Instead of one impulse moving through the heart, many impulses begin in the atria and fight to get through the AV node. There are two main factors that allow this abnormal electrical rhythm to occur and continue. First, the structure of the heart chambers and the electrical pathway through the heart may change. This happens more often as we get older. Second, as the electrical pathway changes, one or more “triggers” may develop. “Triggers” are electrical circuits that send extra impulses at a faster than usual rate. These extra impulses are all trying to get through the AV node and the atria begin to fibrillate, or twitch, in a fast and disorganized way.

Three types of a-fib

Paroxysmal a-fib – Paroxysmal a-fib refers to a-fib that occurs sometimes and then stops. The a-fib stops by itself and the heart returns to normal rhythm. The a-fib may last for seconds, minutes, hours or days before the heart returns to its normal rhythm. People with this type of a-fib usually have more symptoms than others. As the heart goes in and out of a-fib, the pulse rate may change from slow to fast and back again in short periods of time.
Persistent a-fib – Persistent a-fib is when the a-fib does not stop by itself. Medications or a special type of electrical shock (called a cardioversion) is used to help the heart return to normal rhythm. If no treatment is given, the heart will stay out of rhythm.

Permanent a-fib – Permanent a-fib is when the a-fib cannot be fixed. Medications and controlled electrical shock cannot help return the heart to normal rhythm.

**Risk factors for a-fib**
The most common causes and risk factors for a-fib include:

- older than 60 years of age
- diabetes
- heart problems:
  - high blood pressure
  - coronary artery disease
  - prior heart attacks
  - congestive heart failure
  - structural heart disease (valve problems or congenital defects)
  - prior open heart surgery
  - untreated atrial flutter (another type of abnormal heart rhythm)
- thyroid disease
- chronic lung disease
- sleep apnea
- excessive alcohol or stimulant use
- serious illness or infection

*Be aware of the risk factors for a-fib*
Symptoms of a-fib

The symptoms of a-fib are different for each person. Many people feel no symptoms at all. They do not even know they have a-fib or that there is a problem, while others can tell as soon as it begins. This is because the symptoms depend on age, the cause of the a-fib (heart problems, other diseases, etc.) and on how much a-fib affects the pumping of the heart.

Common symptoms of a-fib include:

- feeling over-tired or a lack of energy (most common)
- pulse that is faster than normal or changing between fast and slow
- shortness of breath
- heart palpitations (feeling like your heart is racing, pounding or fluttering)
- trouble with everyday exercises or activities
- pain, pressure, tightness or discomfort in your chest
- dizziness, lightheadedness or fainting
- increased urination (using the bathroom more often)

Complications from a-fib

A-fib is not usually life threatening. However, a-fib makes the atria contract, or tighten, much faster than normal and in a disorganized way. This makes it harder for the atria to pump blood to the ventricles. 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. This is the cause of about 15 out of every 100 strokes.

In addition, a-fib can also cause a fast pulse rate for long periods of time. This means that the ventricles are beating too fast. When the ventricles beat too fast for long periods of time, the heart muscle can become weak. This condition is called cardiomyopathy and can lead to heart failure and long-term disability.

To help prevent these complications, treatment for a-fib usually includes one medication to reduce the chance of blood clots and stroke, and another to keep the pulse from going too fast.
How is a-fib 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.

Holter monitor – A Holter monitor is a portable ECG. It can be worn for several days. Stickers (electrodes) 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 (TEE) – 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 and valves (echoes) 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 – 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 will be given a small amount of sedation through an intravenous (IV) line and your throat will be sprayed with anesthesia to make the area numb. Once the probe is in place, it works the same way as described above.

Cardiac computerized tomography (CT) or magnetic resonance imaging (MRI) – Cardiac computed tomography, or cardiac CT, uses an X-ray machine and a computer to take clear, detailed pictures of the heart. During a cardiac CT scan you will lie on a table. An X-ray machine will move around your body. The machine will take pictures of your heart and chest. A computer will put the pictures together to make a three-dimensional (3D) picture of your heart and chest.
A cardiac MRI uses radio waves, magnets and a computer to create pictures of your heart. During a cardiac MRI you will lie on a table inside a long tube-like machine. Cardiac MRI creates detailed pictures of your heart as it is beating. The MRI will create snapshots as well as videos.

**Treatment options**

In most cases, a-fib can be treated and controlled. Your doctor can explain the various treatment options and help you decide the best way to manage the condition.

The goals of treatment for atrial fibrillation 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 a-fib complications
- reduce the risk factors that may lead to the a-fib getting worse

**Medication**

If you have atrial fibrillation, you may need to take one or more medicines for the rest of your life.

*Rhythm control drugs*

These are a few of the antiarrhythmic drugs prescribed for restoring and/or maintaining a normal rhythm in patients with a-fib:

- amiodarone (Cordarone, Pacerone)
- disopyramide (Norpace)
- dofetilide (Tikosyn)
- flecainide (Tambocor)
- propafenone (Rythmol)
- sotalol (Betapace, Sorine)
**Rate control drugs**

These are a few of the drugs prescribed for controlling the heart rate in patients with a-fib:

- beta blockers such as metoprolol (Lopressor, Toprol) or propranolol (Inderal)
- calcium channel blockers such as diltiazem (Cardizem) or verapamil (Calan, Isoptin, Veralan)
- digoxin (Lanoxin)

**Taking antiarrhythmic drugs**

- Know when and how often you should take each medication. Try to take your medications at the same time or times each day.
- If you miss a dose or two, do not take all the pills you have missed at one time. Just get back on your regular schedule.
- If you think you are having a side effect, call your doctor. Never just stop treatment.
- Even if you start to feel better, do not stop taking your medications or change the dosage unless your doctor tells you to.

Taking your pulse can help you know how fast your heart is beating, and whether the beat is regular or not. To take your pulse, place two fingers on the palm side of your wrist, just below the base of the thumb. Count the beats for 15 seconds, then multiply by four. This will give you the heart rate per minute.

**Preventing blood clots and stroke**

People with a-fib have an increased risk of having a stroke. A stroke can occur if a blood clot forms in the heart and a piece of the clot breaks loose and travels to the brain.

Your risk of having a stroke is affected by the presence of certain health conditions, called risk factors. The more risk factors you have, the greater your chances of having a stroke.

Important risk factors for stroke in people with a-fib include a history of stroke or transient ischemic attack (mild stroke), age 75 or older, high blood pressure, heart failure and diabetes.
If you have a-fib, your doctor is likely to prescribe a medication for preventing blood clots. The type of medication is based on your stroke risk and how safe it is for you to take the drug.

Anticoagulants and antiplatelet drugs are commonly used medications for preventing blood clots.

**Anticoagulants**

If your doctor feels that your stroke risk is average or high, he or she will likely prescribe blood-thinning medications, called anticoagulants.

Anticoagulants help prevent stroke, but they increase the risk of bleeding. If you take an anticoagulant, be sure to tell your doctor if you notice any unusual bleeding, such as blood in your stools, blood in the urine, or easy bruising.

Commonly used anticoagulants in people with a-fib include:

- **Warfarin (Coumadin)** is an anticoagulant that has been used for many years. It is a potent drug that can cause serious side effects, especially bleeding. While taking warfarin, you will need to have regular blood tests to make sure that the dosage you take is correct. The test (called a protime) shows how long it takes for the blood to clot. The result of the test is your INR number.

- **Dabigatran (Pradaxa), Xarelto and Apixiban** are new anticoagulants that work as well as warfarin at preventing blood clots, but do not require blood tests or dietary changes.

**Antiplatelet drugs**

If your doctor feels that your stroke risk is low or that your risk of bleeding from anticoagulants is high, he or she may prescribe antiplatelet drugs instead of anticoagulants. Antiplatelet drugs make the platelets (tiny blood cells) less “sticky” and help prevent blood clots from forming.

Antiplatelet drugs are safer than anticoagulants since they are less likely to cause significant bleeding. However, they are not as effective as anticoagulants for preventing strokes. Aspirin is the most frequently used antiplatelet drug. 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.
Cardioversion
Even though you are taking medication, you may still go into a-fib from time to time. Your doctor may offer cardioversion as one treatment option. Cardioversion is a procedure in which an electrical current, or shock, is given to the heart muscle to restore the normal rhythm. It sounds scary, but it is a simple, same-day procedure. You will be given a small amount of sedation through an IV line. Large pads (electrodes) will be placed on your chest. The electrical current will pass through these electrodes to return your heart rhythm to normal.

Catheter ablation
Catheter ablation is a non-surgical procedure that can be used when medication is not working to control the heart rhythm. 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 (doctor who specializes in treating heart rhythm conditions). The goal of the procedure is to cure the a-fib or to lessen the episodes of a-fib by controlling your symptoms.

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. The doctor will be able to tell where the bad electrical signals are coming from. 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 a-fib and blocks the abnormal electrical signals. Special equipment creates a 3D picture of your heart. This helps the doctor know exactly where to apply the heat.

You will be given sedation through an 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 will be given a blood thinner to prevent clots from forming in your heart during the procedure.
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.

Atrial fibrillation ablation is a safe procedure, but there are some risks. Less than five out of every 100 people who have the procedure develop one of these related problems. Some of these risks include stroke, pericardial tamponade (collection of blood around the heart), damage to the blood vessels in your groin area, pulmonary vein stenosis (narrowing of the veins coming from the left atrium to the lungs) and a serious but extremely rare risk of atrioesophageal fistula (an opening that forms between the atra and the esophagus).

After the procedure 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.

**Surgical ablation**

Surgical ablation is an approach that some physicians use to destroy the cells causing abnormal heart rhythms. Usually this treatment is used for a-fib patients who are not helped by medication or catheter ablation. Surgical ablation may also be used if there is another heart condition that requires surgery, at which time physicians will try to treat both issues at once.

Surgical ablation is a treatment that requires a more invasive approach then a catheter ablation procedure. During the surgical ablation, a surgeon burns the surface of the heart directly by making cuts that allow them to see the surface of the heart, rather than relying on catheters and X-rays to reach the heart. New techniques have allowed surgeons to use smaller cuts to perform surgical ablations and other open heart surgeries.

There are many risks associated with surgical ablation. Some of these risks include atrioesophageal fistula (an opening that forms between the atria and the esophagus), injuries to the coronary
artery (possible heart attack) and phrenic nerve paralysis (severe damage to your diaphragm). As with any surgery, complications and risks vary for each patient, so you should discuss all risks with your surgeon.

What to ask your doctor
If you have been diagnosed with atrial fibrillation, 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 a-fib?
- How can I be sure I have a-fib 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)?

Living with a-fib
In addition to the treatment options discussed on the previous pages, there are things you can do to help control your symptoms and keep healthy.

Avoid the triggers
Certain things can trigger (bring on) an episode of atrial fibrillation in some people. Examples include caffeine, alcohol, smoking, cold and herbal remedies, emotional stress, and some health problems.

- Avoid too much caffeine or alcohol. Do not smoke. Do not use stimulant drugs (such as amphetamines).
- Talk to your doctor or pharmacist before taking any new over-the-counter medicines, especially cold and herbal remedies.
- Try to control stress through yoga, meditation and biofeedback.
• Make the needed changes to your lifestyle if you have a health problem that can make a-fib worse, such as high blood pressure, diabetes, lung disease, overactive thyroid, sleep apnea or obesity.

**Know the symptoms of stroke**
Call 9-1-1 or emergency services if you have a sudden onset of any of these symptoms:
• weakness or numbness in the face, arm or leg
• trouble speaking or understanding others
• trouble seeing, double vision
• trouble walking, loss of balance or coordination
• severe headache with no apparent cause

**Take care of yourself**
There are several other things you can do to help keep yourself as healthy as possible.
• keep regular appointments with your doctor
• take your medications as directed and tell your doctor if you are having side effects
• learn how to take your pulse
• get a flu shot every year
• enjoy a heart-healthy diet, exercise regularly and avoid smoking
Beaumont Atrial Fibrillation Clinics are located at both Royal Oak and Troy campuses.

To schedule an appointment, call 888-683-7678.

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