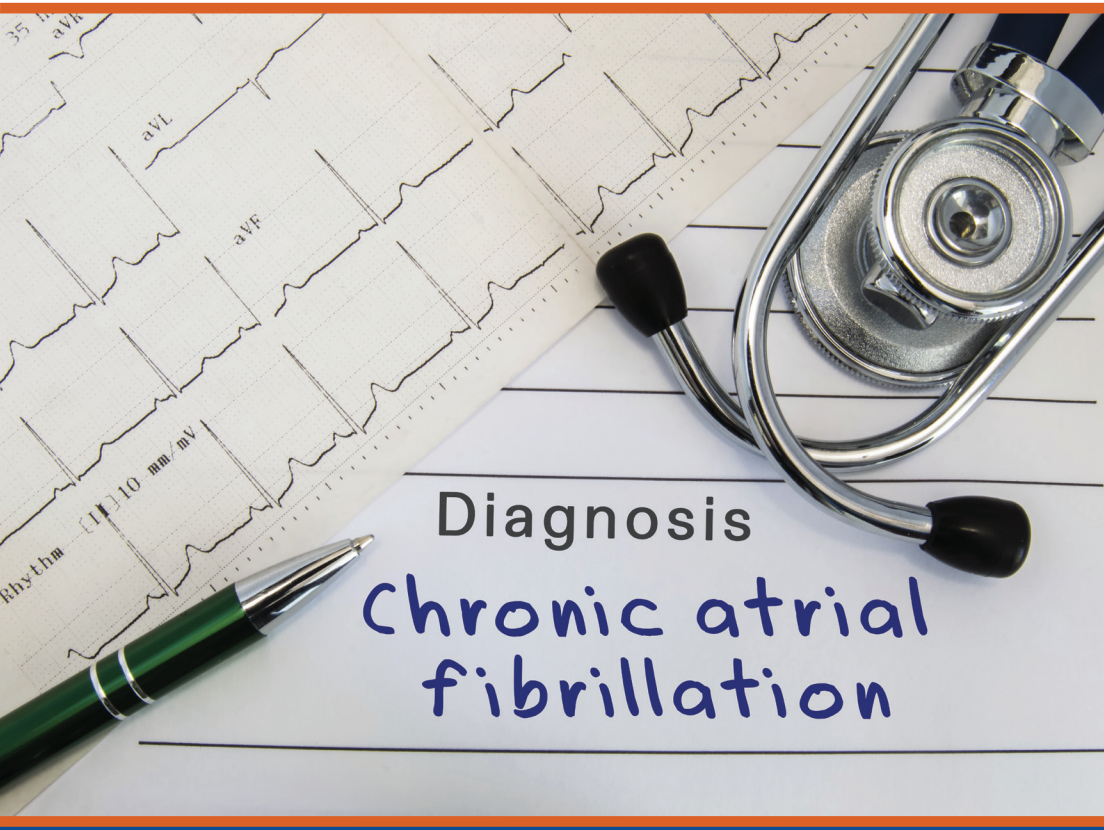
ATRIAL FIBRILLATION



Beaumont

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ATRIAL FIBRILLATION OVERVIEW

Atrial fibrillation is the most common type of arrhythmia and affects more than 5.9 million people in the United States. About 160,000 new cases are diagnosed every year. Nine out of every 100 people over the age of 65 are diagnosed with atrial fibrillation. Although it usually occurs in adults older than 60, younger adults can develop atrial fibrillation too.

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

While atrial fibrillation 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, atrial fibrillation 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 ATRIAL FIBRILLATION?

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.

Atrial fibrillation 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.

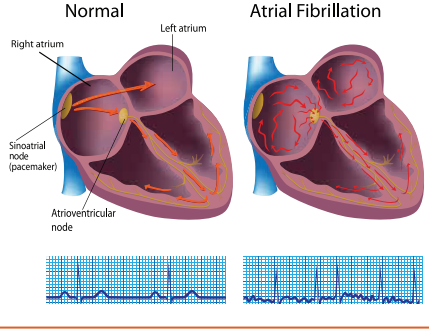
WHAT ARE THE DIFFERENT TYPES OF ATRIAL FIBRILLATION?

Paroxysmal (intermittent) atrial fibrillation refers to atrial fibrillation that occurs sometimes and then stops. The atrial fibrillation stops by itself and the heart returns to normal rhythm. People with this type of atrial fibrillation usually have more symptoms than others. As the heart goes in and out of atrial fibrillation, the pulse rate may change from slow to fast and back again in short periods of time.

Persistent (continuous) atrial fibrillation is when the atrial fibrillation 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.

Long standing persistent atrial fibrillation is when the atrial fibrillation is continuous and lasts longer than one year.

Permanent or chronic atrial fibrillation is when the patient or doctor is unable to or decides not to restore normal rhythm. Usually medications and controlled electrical shock cannot help return the heart to normal rhythm.



COMMON RISK FACTORS FOR ATRIAL FIBRILLATION:

What are common risk factors for atrial fibrillation?

- family history
- high blood pressure
- diabetes
- heart problems
- coronary artery disease
- prior heart attacks
- congestive heart failure
- structural heart disease (valve problems or congenital defects)
- prior open-heart surgery
- untreated atrial flutter
- thyroid disease (overactive thyroid)
- chronic lung disease
- sleep apnea
- excessive alcohol or stimulant use

WHAT ARE THE SYMPTOMS OF ATRIAL FIBRILLATION?

The symptoms of atrial fibrillation are different for each person. Many people feel no symptoms at all. They do not even know they have atrial fibrillation or that there is a problem, while others can tell as soon as it begins.

Common symptoms of atrial fibrillation 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)

SYMPTOMS OF ATRIAL FIBRILLATION

If you are experiencing any of these symptoms and have not been diagnosed with atrial fibrillation, contact your primary care physician.

For a referral to a Beaumont doctor, call 800-633-7377.

WHAT COMPLICATIONS CAN BE CAUSED BY ATRIAL FIBRILLATION?

Atrial fibrillation is not usually life threatening, but can result in the heart beating in a less efficient manner. There is an increased likelihood of clot formation in atrial fibrillation patients. If the clot is pumped out of the heart, it could travel to the brain and lead to a stroke.

In addition, atrial fibrillation 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.

HOW IS ATRIAL FIBRILLATION DIAGNOSED?

There are several tests that can be done to diagnose atrial fibrillation. Your doctor may order one or more of these tests if you are having signs or symptoms of a heart problem.

Electrocardiogram or 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 that attaches to your chest. It can be worn for a day or up to two weeks at a time. It is a small recording device that records the electrical activity of your heart for your doctor to review later.

Mobile cardiac monitoring. A mobile cardiac monitor is worn up to 30 days to record your heart 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 rhythm monitor that is used for patients who have an irregular heart rhythm less frequently. You may wear the monitor always and activate it when you feel symptoms, or you may connect to the monitor only during symptoms. These are popular event recorders that patients can purchase that connect wirelessly to their smart phones. These devices let your doctor check your heart rhythm at the time of your symptoms.

Implantable loop recorder. An implantable loop recorder is a small device that is injected under the skin and can automatically record abnormal rhythm patterns for a period of three years. The device will transmit the recorded signals to your doctor's office.

WHAT ADDITIONAL TESTS MAY BE ORDERED AFTER ATRIAL FIBRILLATION IS DIAGNOSED?

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 (TTE). This is a standard noninvasive (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 (TEE).
A transesophageal echocardiogram 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 a numbing agent to make the area numb. Once the probe is in place, it works the same way as described above.

Cardiac computerized tomography (CT). 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 (3-D) picture of your heart and chest.

Cardiac magnetic resonance imaging (MRI). 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.

WHAT TREATMENT OPTIONS ARE AVAILABLE FOR ATRIAL FIBRILLATION?

In most cases, atrial fibrillation 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, or if not possible, control the heart rate
- prevent blood clots from forming and causing a stroke
- eliminate the cause(s) of the abnormal rhythm and any atrial fibrillation complications

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 atrial fibrillation:

- amiodarone (Cordarone, Pacerone)
- disopyramide (Norpace)
- dofetilide (Tikosyn)
- flecainide (Tambocor)
- dronedarone (Multaq)
- propafenone (Rythmol)
- sotalol (Betapace)

Rate control drugs

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

- 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.

KNOW YOUR PULSE

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 atrial fibrillation 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 atrial fibrillation include a history of stroke or transient ischemic attack, age 65 or older, high blood pressure, heart failure and diabetes.

If you have atrial fibrillation, 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 are commonly used medications for preventing blood clots.

Anticoagulants

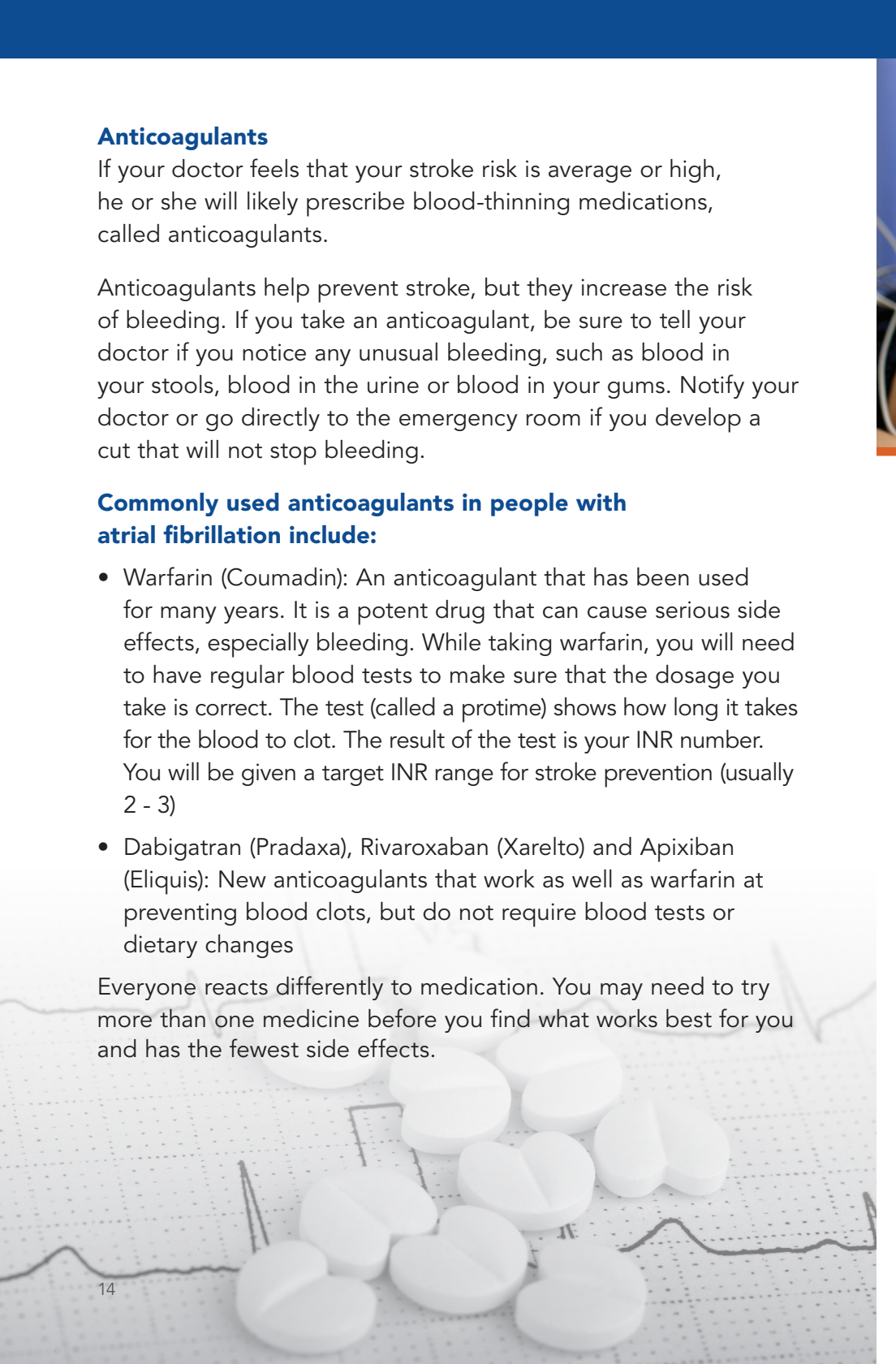
If your doctor feels that your stroke risk is average or high, he or she will likely prescribe blood-thinning medications, called anticoagulants.

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 blood in your gums. Notify your doctor or go directly to the emergency room if you develop a cut that will not stop bleeding.

Commonly used anticoagulants in people with atrial fibrillation include:

- Warfarin (Coumadin): 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. You will be given a target INR range for stroke prevention (usually 2 - 3)
- Dabigatran (Pradaxa), Rivaroxaban (Xarelto) and Apixiban (Eliquis): New anticoagulants that work as well as warfarin at preventing blood clots, but do not require blood tests or dietary changes

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 if you are taking medication, you may still go into atrial fibrillation 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.

Catheter ablation (radiofrequency ablation or cryoablation)

Catheter ablation is a nonsurgical procedure that can be used when medication is not working to control the heart rhythm. The electrophysiologist (doctor who specializes in treating heart rhythm conditions) will use radiofrequency energy (heat) or cyroablation (freeze) to destroy a small area of the heart tissue causing irregular heartbeats and restore a normal heart rhythm.

Pulmonary vein isolation

Patients who have paroxysmal atrial fibrillation are most commonly treated with catheter based ablation including pulmonary vein isolation. The electrophysiologist isolates areas in the pulmonary veins that most commonly trigger atrial fibrillation to stop the extra signals that are located around the pulmonary veins on the left side of the heart.

Figure 1

Continued catheter ablation:

AV Node ablation with pacer implant

When the above treatment options are ineffective in eliminating atrial fibrillation, and controlling the heart rate, the AV node ablation may be appropriate. Your electrophysiologist will implant a pacemaker device and apply radiofrequency energy to the electrical pathway connecting the upper and lower chambers of your heart. After ablation occurs, the pacemaker will control your heart at a normal rate.

Left atrial appendage closure

Left atrial appendage closure (*see figure 1*) is a proven alternative for stroke prevention in patients with non-valvular atrial fibrillation to long-term blood thinning medication. Patients who undergo this procedure are required to take a blood thinner for a short period of time. This procedure will not eliminate atrial fibrillation.

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 atrial fibrillation?
- How can I be sure I have atrial fibrillation 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 ATRIAL FIBRILLATION

In addition to the treatment options discussed on the previous pages, there are things you can do to help control your symptoms and stay 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 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 atrial fibrillation worse, such as high blood pressure, diabetes, lung disease, overactive thyroid, sleep apnea or obesity

Know the symptoms of stroke

Call 911 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

NOTES

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Atrial Fibrillation Treatment at Beaumont

For a referral to Beaumont doctor who treats
atrial fibrillation, or to find additional information
call **800-633-7377**
or visit **beaumont.org/afib**

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