Atrial Fibrillation
A PATIENT EDUCATION HANDBOOK

St. Vincent's Healthcare
Thank you for taking the time to read this patient education handbook about Atrial Fibrillation. After you have reviewed the information, you may have questions and want to learn more about St. Vincent’s Atrial Fibrillation Institute. The institute is a unique partnership of cardiologists, cardiac surgeons and St. Vincent’s HealthCare. Using a treatment protocol designed by our physicians, the Atrial Fibrillation Institute’s goal is to find a cure to AFib for as many patients as possible. To learn more, call the Atrial Fibrillation Institute or log onto our website. Information on the website includes video interviews with physicians about treatments that are available, as well as video segments of the procedures they perform for patients with Atrial Fibrillation. We are excited about the opportunity to help patients who have this heart rhythm condition and, for as many as possible, to end AFib once and for all.

904–308–AFIB
AFIBJAX.COM
WHAT IS ATRIAL FIBRILLATION?
Atrial fibrillation is the most common sustained heart rhythm disorder. Normally the heartbeat originates in the sinus node and spreads in an organized fashion throughout top chambers (atria) of the heart. Each of these regular impulses is conducted to the bottom chambers of the heart (ventricles). In atrial fibrillation, the top of the heart has rapid and chaotic activity, resulting in a loss of the squeezing function within the atria and this can result in the formation of blood clots that are an important cause of stroke. Furthermore, the bottom of the heart tends to beat rapidly and irregularly, leading to symptoms of fatigue, weakness, shortness of breath and palpitations.

WHAT ARE THE SYMPTOMS AND DANGERS OF ATRIAL FIBRILLATION?
At the same time the top of the heart has rapid and chaotic activity during Atrial Fibrillation, the bottom of the heart tends to beat rapidly and irregularly. All of this can result in symptoms that include fatigue, weakness, shortness of breath, palpitations, irregular heart beat, chest discomfort and dizziness. It should be noted that some people with AF do not experience any symptoms at all. Regardless, anyone with this condition – with or without symptoms – is at risk of one of its most dangerous side effects. Atrial Fibrillation is the most common cause of stroke.

WHAT CAUSES ATRIAL FIBRILLATION?
Often, the exact cause of AF is difficult to determine, but we know there are certain risk factors, including hypertension, diabetes, obesity and alcohol use. Additional risk factors are structural abnormalities of the heart, such as heart valve disease, coronary artery disease, previous heart attacks and congestive heart failure. There are also some reversible causes of AF. These include thyroid abnormality, pneumonia, pulmonary embolism and recent heart surgery. In these cases, Atrial Fibrillation may resolve with treatment of the underlying cause.

The incidence of AF rises sharply with age. Estimates are that as many as 2 percent of all Americans are currently experiencing Atrial Fibrillation and that up to 20 percent will experience it during their lifetime.
HOW IS ATRIAL FIBRILLATION DIAGNOSED?

The first step in diagnosing AF is a thorough medical history and physical exam. Your doctor will need to know about your symptoms and will ask you to share when your symptoms began, how long they last and how they make you feel. In addition, your doctor may choose to use tests to diagnose your condition, including one or more of the following:

**Electrocardiogram (ECG or EKG)**

An electrocardiogram is a simple test that records your heart’s electrical activity. Electrodes are placed on the arms and chest and connected to a machine that records electrical activity. The recording of that electrical activity is printed out on graph paper, and the report is interpreted by a physician.

**Electrophysiology (EP) Study**

An EP study is performed by an electrophysiologist – a cardiologist who specializes in heart rhythm disorders – and can help confirm the type of rhythm problem you have. It is a minimally invasive procedure that usually takes place under light sedation. Electrode catheters introduced through a blood vessel are used to stimulate the heart with electrical impulses. The electrical activity of your heart during the test is recorded, and that is used to determine the best treatment options.

**Holter Monitor**

A Holter Monitor is a small portable device that makes a recording of your heart’s electrical activity over an extended period of time – 24 to 48 hours. This information can be used to detect a rhythm problem that may occur intermittently.

**Tilt-table test**

Patients who experience symptoms such as fainting or light-headedness may be scheduled for a tilt-table test. The test is used to monitor your blood pressure, heart rate and heart rhythm as you are moved from a horizontal to an upright position.
Here’s how the heart’s rhythm is supposed to happen:

In a normal heart, blood flows into the right side of the heart and is then pumped out to the lungs to receive oxygen. Once that happens, the blood enters the left side of the heart, which pumps the blood out through the aorta and into the body. Once oxygen has been delivered to all organs in the body, the blood flows back to the right side of the heart. The normal healthy cycle begins again.

What keeps this cycle going is the heart’s electrical system. In normal heart rhythm (called “sinus rhythm”), the sinoatrial (SA) node (green oval) is the heart’s pacemaker and it starts an electrical impulse that travels to the atrioventricular (AV) node (orange oval). The AV node keeps electrical watch for the ventricles, regulating which electrical impulses are allowed through. Once electrical impulses reach the ventricles, that causes the lower heart chambers to contract and pump blood out to the body.
ABNORMAL RHYTHM OF A HEART WITH ATRIAL FIBRILLATION

Here’s how the heart’s rhythm is interrupted by AF:

Abnormal electrical impulses originate in the left atrium around the SA node (red, upper left) and around the pulmonary veins (red arrows, upper right). These impulses are chaotic and travel throughout the atria. This forces the heart’s upper chambers to contract so quickly – they appear to quiver rather than to beat.

As it keeps electrical watch for the ventricles, the AV node (red, upper center) does its best to protect the lower chambers from this bizarre electrical activity, but some of the chaotic impulses make it past. This forces the heart to beat very rapidly, irregularly and ineffectively.
HOW CAN ATRIAL FIBRILLATION BE TREATED?

MEDICATIONS

The first goal in treatment of atrial fibrillation is stroke prevention. For many patients, this means use of the blood thinner warfarin (Coumadin). Use of warfarin requires careful blood test monitoring, but will prevent the majority of strokes from atrial fibrillation. Taking blood thinners has risks, but multiple research studies show that the benefits of stroke prevention far outweigh these risks. At the Atrial Fibrillation Institute, we also have investigational blood thinners available as part of research trials that have some practical advantages over warfarin and we can assess your candidacy for these trials if you would like. There are other patients whose age, medical history and infrequency of atrial fibrillation episodes suggest low stroke risk and aspirin may be used. Finally, some patients may not be good warfarin candidates because they are at very high risk of serious bleeding, cannot get follow-up blood tests or are at high risk for falls. It is important to understand that aspirin provides much less stroke protection than warfarin, but is the next best alternative. Recent data has shown that clopidogrel (Plavix) is another blood thinner that can be added to aspirin for an intermediate level stroke risk reduction if warfarin cannot be taken.

The second goal of treatment involves alleviating the symptoms of atrial fibrillation. This can be done by allowing atrial fibrillation to persist, but controlling the heart rate. This strategy involves the use of beta-blockers, calcium channel blockers, and digoxin – either alone or in combination. Rarely, implantation of a pacemaker with a relatively simple procedure called “AV junction ablation” is helpful, but results in the patient being “dependent” on a pacemaker for their basic heart rhythm.

ELECTRICAL CARDIOVERSION

The other key approach to controlling symptoms in atrial fibrillation is to maintain sinus rhythm. Some patients bounce in and out of atrial fibrillation on their own (called “paroxysmal” atrial fibrillation) while others will stay in “persistent” atrial fibrillation. In the case of persistent atrial fibrillation, a patient can be converted to sinus rhythm with a simple procedure called a cardioversion. This is usually done with a small shock that jolts the heart into normal rhythm while the patient is under anesthesia. Often this procedure may be combined with a trans-esophageal echo (TEE) when it is necessary to exclude the possibility of blood clots in the heart.
OUR PATIENTS

Lillian Butler-Humphries is a 60-year-old active woman who says Atrial Fibrillation caused her to be extremely tired much of the time. For a woman who loves to be constantly on the go, AFib was life altering. She was often short of breath and experienced what she describes as ‘the flutters.’

“It’s hard to describe exactly how my heart felt when I had AFIB,” says Butler-Humphries. “You just knew you weren’t supposed to feel this way. It’s like your heart races when you run and calms down when you stop running. When you have AFIB, your heart keeps racing even after you stop and sit down. It’s scary.”

Gerald Burns is a 61-year-old man whose passions are spending time with his wife and riding his bicycle. In a good year, Burns would ride 10,000 miles. Some of the medication he took for Atrial Fibrillation made that impossible.

“Some of the medicine would make me just sit on the couch and stare,” Burns remembers. “Later, my doctors did find a medicine that was not so bad, but I still never felt like myself – good enough to do all the things I love to do.”

Both Lillian and Gerald found answers to their heart rhythm disorder at St. Vincent’s, where they had catheter ablation procedures. Nearly six months after those procedures, neither had experienced Atrial Fibrillation and hoped they would soon be able to stop taking medication altogether.

“I am back on my bike, back to work, and I feel great,” Burns says. While he won’t be able to complete 10,000 miles this year on his bicycle, Burns plans to go as far as he can.

Butler-Humphries says she was once an avid walker before Atrial Fibrillation took away her energy. Now, she says she is ready to take distance walking up again. She is also considering joining a gym and is enjoying thinking about all of the things she can do now. “I love my life,” Butler-Humphries says. “And I am going to live it.”

Lillian Butler-Humphries and Gerald Burns both experienced the frustration of living with Atrial Fibrillation. They have also both experienced successful treatment for their heart rhythm disorder at St. Vincent’s.
When at least one medication fails to control symptoms of atrial fibrillation, catheter ablation is advocated by the American Heart Association, American College of Cardiology and the Heart Rhythm Society for suitable patients. Because atrial fibrillation is a complex heart rhythm that can involve multiple regions of the heart, catheter ablation of atrial fibrillation is somewhat more complex than many other catheter ablation procedures.
CATHETER ABLATION
Experience and collaboration among doctors from all over the world led to rapid advances in atrial fibrillation ablation. The most common procedure now involves encircling all 4 pulmonary veins to prevent the impulses that could initiate and perpetuate atrial fibrillation from ever getting to the rest of the heart. In some patients, additional ablation may be required if triggers or mechanisms for atrial fibrillation involve regions outside of the pulmonary veins. If atrial fibrillation continues uninterrupted for a long period of time, it may promote multiple areas of the heart to perpetuate atrial fibrillation and it may become more difficult to ablate all of these areas.

SINGLE PROCEDURE SUCCESS RATES IN PAROXYSMAL ATRIAL FIBRILLATION
Approximately 70% of patients have no atrial fibrillation seen and are off antiarrhythmic drugs at 6-12 months after a single procedure. Many additional patients have a clinical benefit even though episodes of atrial fibrillation may occasionally occur. Such patients typically have a reduced frequency of atrial fibrillation episodes or are now easily controlled by medications that didn’t work prior to ablation. Some patients (long-standing atrial fibrillation and/or more significant associated heart disease) have more difficulty to treat variants of atrial fibrillation and we may have somewhat lower success rates.

REPEAT PROCEDURES
Can be considered if results of first procedure do not meet our treatment goals and will improve the overall success rates.

STOPPING WARFARIN
Stopping Warfarin is considered on a case-by-case basis depending on the patient’s risk of stroke.
For some patients with paroxysmal Atrial Fibrillation, surgical ablation may be an option. In this procedure, a physician applies energy to the outside of the heart, creating a lesion or scar that blocks abnormal electrical signals that cause AF. Patients who undergo cardiac surgery such as a valve replacement or coronary artery bypass graft (CABG), may be advised to receive surgical ablation for Atrial Fibrillation at the same time. Surgical ablation is performed by cardiothoracic surgeons Raymond Lee, MD, and Mark Mostovych, MD in the operating rooms of St. Vincent’s Medical Center.
SURGICAL ABLATION

During surgical ablation for Atrial Fibrillation, a small incision is made between the ribs on the right side of the chest. Doctors use a cinch-like device that encircles the atrium to deliver high intensity ultrasound. If necessary to reach tissue outside the pulmonary vein area, they use radiofrequency clamps. Both produce ablation lines through the targeted tissue.

For ideal candidates who have structurally normal hearts, 85 to 90 percent no longer experience AF after the surgical ablation procedure. For patients who have chronic AF with hearts that are enlarged, the cure rate drops down to about 60 percent.
IMPORTANT INFORMATION

St. Vincent’s Medical Center
Main Line
904-308-7300

St. Vincent’s
Gary and Nancy Chartrand Heart & Vascular Center
903-308-8141
800-825-8485

St. Vincent’s HealthLINK
Physician referral and nurse help line
904-308-LINK or 800-226-LINK

St. Luke’s Hospital
Main Line
904-296-3700

St. Vincent’s Cardiopulmonary Rehabilitation
904-308-7560

Waycross Cardiology Clinic
912-285-3086

Charlton Specialty Clinic
912-496-4827