A Patient’s Guide to AFib Treatment

summahealth.org/afib
Atrial Fibrillation

Atrial fibrillation (also known as AF or AFib) is the most common abnormal heart rhythm and increases the risk for heart disease and stroke. An estimated three million Americans have been diagnosed with atrial fibrillation.1

In a normal heart, the four chambers of the heart beat in a steady, rhythmic pattern. Atrial fibrillation causes the upper chambers of the heart (atria) to quiver or twitch rapidly (fibrillate) in an irregular, disorganized rhythm. The atria may beat as often as 500 times per minute – five times faster than normal.

When AFib occurs, instead of one electrical impulse moving through the heart, many impulses begin in the atria and have difficulty making their way through the AV node. This happens as a result of the structure of the heart and its electrical system changing over time as we age.

Healthy Heart

Atrial Fibrillation

<table>
<thead>
<tr>
<th>Healthy Heart</th>
<th>Atrial Fibrillation</th>
</tr>
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<tbody>
<tr>
<td>Normal impulse</td>
<td>Erratic impulses</td>
</tr>
<tr>
<td>Sinoatrial (SA) node</td>
<td>Erratic impulses</td>
</tr>
<tr>
<td>Right Atrium</td>
<td>left Atrium</td>
</tr>
<tr>
<td>Right Ventricle</td>
<td>Left Ventricle</td>
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Risk Factors

According to the Heart Rhythm Society, risk factors for atrial fibrillation can include:

- Age: older than 60 years of age
- Coronary artery disease
- Prior heart attacks
- Congestive heart failure
- Prior open-heart surgery
- Untreated atrial flutter (another type of abnormal heart rhythm)
- Chronic lung disease
- Excessive alcohol or drug use
- Serious illness or infection
- Structural heart disease (valve or birth defects)
- Obesity (a risk factor for heart disease, which increases your chances of developing heart rhythm problems)
- Smoking
- Thyroid disease
- Sleep apnea
- High blood pressure
- Diabetes

Patients with atrial fibrillation often have high rates of other serious health conditions2, including:

- High blood pressure (66%)
- High cholesterol (42%)
- Heart failure (26%)
- Coronary artery disease (66%)

Symptoms

Many people with AFib do not notice any symptoms at all. Other patients notice a difference as soon as it happens. Symptoms can be different for each person, depending on age, the cause of the AFib and how much it affects the pumping efficiency of the heart muscle. According to the Heart Rhythm Society, some of the symptoms patients with AFib may experience include:

- Fatigue
- Irregular or rapid pulse
- Shortness of breath
- Feeling your heart is racing, pounding, fluttering or flip-flopping in your chest
- Difficulty with performing everyday activities
- Pain, pressure or tightness in your chest
- Lightheadedness – dizziness or feeling like you could pass out

Possible Complications of AFib

While atrial fibrillation itself is usually not life threatening, if left untreated, the effects of AFib can be potentially life threatening. AFib makes it more difficult for the heart to pump blood efficiently. With the blood moving more slowly throughout the body, it increases the chances for a blood clot to form. If a clot is pumped out of the heart and travels to the brain, it could cause a stroke. This is the cause of about 15 out of every 100 strokes, according to the Heart Rhythm Society.

Without treatment, AFib can also make the heart beat too fast for long periods of time, causing the heart muscle to become weak. This condition is called cardiomyopathy and can lead to heart failure and result in long-term disability and/or death.

To prevent these complications, treatment for atrial fibrillation usually includes medication to reduce the chance of a blood clot forming (anticoagulant medications) and medication to regulate the heartbeat so it doesn’t beat too fast or erratically (antiarrhythmic medications).
Diagnosing Atrial Fibrillation

Several tests can be performed to help your doctor diagnose whether you have atrial fibrillation or not and what type of atrial fibrillation you have. Some of the tests your doctor may order for you include:

- **Electrocardiogram (ECG)** – A test where sticky tabs (electrodes) are attached to your chest, arms and legs. The electrodes measure the rate and rhythm of your heart and provide your doctor with a “snapshot” of your heart’s electrical activity.

- **Holter monitor** – A portable ECG which can be worn for several days. Electrodes are attached to your chest and connected to a small recording machine which is worn around your waist. It records the electrical activity of your heart for your doctor to review later.

- **Rhythm event monitor** – A mobile cardiac monitor is worn for longer periods up to 30 days. It records your heart’s activity when in normal and abnormal rhythm. The results are automatically sent to your doctor, who uses this information to evaluate your symptoms to determine the cause of the abnormal rhythm.

- **Injectable loop recorder (ILR)** – A device slightly larger than a matchstick used to monitor for potential heart rhythm issues that occur too infrequently to be captured by a wearable device like a Holter monitor. An ILR device is injected under the skin next to the breastbone using a syringe-like device. The insertion procedure is performed using a local anesthetic and typically takes less than five to 10 minutes to complete. The device transmits information about the patient’s heart rhythm to a central monitoring center to provide your doctor with updates on the presence of any heart rhythm issue.

- **Transesophageal echocardiogram (TEE)** – This test is often performed when your doctor needs to see what is happening in the back of your heart. To get a clear picture, a probe is inserted into your mouth and down the tube that connects your mouth to your stomach (esophagus). The esophagus passes right behind your heart and provides your doctor with a good view of what is happening in the back of your heart. Once the probe is in place, it works the same way as does a TTE, with more precise imaging to determine if blood clots have formed within the heart.

- **Cardiac computerized tomography (CT) or magnetic resonance imaging (MRI)** – Cardiac CT uses an X-ray machine connected to a computer to take clear, detailed three-dimensional (3-D) pictures of your heart and chest. A cardiac MRI uses radio waves, magnets and a computer to create detailed pictures and video of your heart as it is beating. Cardiac CT and MRI are often used to delineate left atrial and pulmonary venous anatomy prior to ablation of atrial fibrillation.
PVI Procedure

Treatment Options

Treatment also may include an electrophysiology study and a type of heart catheter ablation known as a Pulmonary Vein Isolation (PVI) procedure or a hybrid epicardial/endocardial approach, depending on what type of AFib is being treated.

Electrophysiology studies help physicians pinpoint the location and type of heart rhythm disturbance present by showing how electrical impulses move through the heart. PVI is a cardiac ablation where catheters are inserted through the veins in the groin and are advanced to the heart in order to electrically isolate the pulmonary veins from the rest of the heart. Cardiac ablation is a procedure used to correct heart rhythm disorders where a specialized catheter (long, flexible plastic tubes) containing a wire and electrode is inserted into a vein in the groin and is carefully threaded through blood vessels and into the heart. Once in the heart, it emits heat energy to scar or destroy the tissue responsible for causing the abnormal heart rhythm. Ablation is used to treat many heart rhythm disturbances, including atrial fibrillation. About 95 percent of AFib is triggered by cells and muscle fibers found in the pulmonary veins. Isolating the pulmonary veins can greatly reduce the electrical “triggers” responsible for causing AFib and can eliminate or significantly reduce the symptoms associated with this condition.

Summa electrophysiologists perform the PVI procedure using advanced technologies, including:

• 3-D electroanatomic mapping systems to pinpoint the areas of the heart causing AFib
• Intracardiac echocardiography
• High-resolution fluoroscopy
• Circumferential ablation strategies using radiofrequency (heat) energy sources

Epicardial/endocardial hybrid ablation

In a hybrid approach, a heart rhythm specialist (electrophysiologist) ablates on endocardial tissue (inside the heart) while a surgeon ablates epicardial tissue (outside of the heart). This dual approach can offer better outcomes for patients with persistent and longstanding persistent atrial fibrillation.

Summa also offers the modified Maze procedure, an open heart surgical procedure, for patients with valvular or ischemic heart disease and/or longstanding persistent atrial fibrillation. Our specialists offer several specialized antiarrhythmic medications and rate control strategies, including AV node ablation and pacemaker insertion.

Watchman™ Left Atrial Appendage Closure (LAAC) Device

The left atrial appendage (LAA), a small pouch located on the top of the heart, has been identified as the source of the vast majority of stroke causing blood clots in patients with atrial fibrillation. Patients at risk for stroke are typically treated with anticoagulants, medications that thin the blood, such as warfarin.

However, there is a new option to reduce the risk of stroke in patients with AFib who wish to avoid taking warfarin or other anticoagulants: the implantation of a the Watchman™ device. The LAAC device is about the size of a quarter and cannot be seen outside of the body.

The Watchman™ is implanted in the left atrial appendage of the patient and left in place to permanently close off this small pouch. Once the appendage is fully closed, harmful blood clots which previously could have caused a stroke, are prevented from dislodging and entering the bloodstream.

By closing off the left atrial appendage and thereby reducing the risk of stroke, patients may be able to safely stop taking anticoagulant medications.

The Watchman™ device implantation procedure is performed under general anesthesia. Your doctor guides the implant into the heart through a flexible tube (catheter) inserted through a vein in the upper leg (groin) and into the left side of the heart. Once the position of the implant is confirmed, your doctor deploys the implant to leave it permanently in the heart.

This procedure is similar to stenting and does not require open heart surgery. You will stay in the hospital overnight and recovery typically takes about 24 hours. Six weeks after implantation, an ultrasound (echo) of your heart will be scheduled to evaluate the device and at that time over 95% of patients will be able to discontinue warfarin.

In addition to rate and rhythm control of atrial fibrillation, all patients should be screened for relative risk of thromboembolic events or strokes. Patients with more than one risk factor should be considered for stroke prevention treatment including anticoagulation medicines and/or left atrial appendage occlusion devices.

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<thead>
<tr>
<th>Type of Afib</th>
<th>Description</th>
<th>Treatment</th>
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<tr>
<td>Paroxysmal Afib</td>
<td>Episodes of atrial fibrillation are periodic and self-limited. Paroxysms may last for a few minutes, hours or days before the heart returns to a normal rhythm. As the heart goes in and out of Afib, the pulse may change from slow to fast and back again in short periods of time.</td>
<td>Specialized anti-arrhythmic medications and/or ablation procedures.</td>
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<tr>
<td>Persistent Afib</td>
<td>Afib which persists for longer than seven days. Medications or an electrical shock procedure (cardioversion) is often required to restore a normal rhythm. Without treatment, the heart rhythm will most often remain irregular indefinitely.</td>
<td>Specialized anti-arrhythmic medications, ablation and/or cardioversion procedures.</td>
</tr>
<tr>
<td>Permanent Afib</td>
<td>Afib that cannot be corrected with medications, cardioversion or ablation.</td>
<td>Longstanding, persistent Afib may be more effectively treated with a hybrid epicardial/endocardial ablation approach. By definition, rhythm control is not possible. Focus of management is on controlling the heart rate in atrial fibrillation to reduce symptoms and/or development of heart failure.</td>
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Watchman™

Summa offers AFib patients an alternative to blood thinners with Watchman™, the most studied left atrial appendage closure (LAAC) device and the only LAAC device proven long-term data from randomized trials.

95% Implant success in the hands of both new and experienced physicians. 4

92% of patients at 45 Days Post-Op and greater than 99% of patients at 1 Year Post-Op, who were successfully implanted with Watchman™, were able to discontinue blood thinners. 5

The Watchman™ LAAC device demonstrated comparable stroke risk reduction, including: 6

- 32% reduction of all stroke
- 56% reduction of cardiovascular deaths
- 85% reduction of hemorrhagic stroke
- 63% reduction of disabling stroke

Atrial Fibrillation Program

Benefits and Services

Summa Health Heart and Vascular Institute offers an Atrial Fibrillation Program designed to improve patient outcomes by partnering with patients’ physicians to offer additional treatment options and support to patients with atrial fibrillation. Summa’s Atrial Fibrillation Program is designed to:

- Improve patients’ quality of life
- Improve patient adherence to treatment regimens, including medications, diet, exercise and smoking cessation recommendations
- Reduce ER visits, hospitalizations and/or readmissions
- Reduce risk of adverse events and complications associated with complex medication regimens
- Encourage patients to become active partners with physicians in their treatment

Summa’s Atrial Fibrillation Program team meets the program’s treatment goals by providing:

- Advanced technology to accurately diagnose and treat atrial fibrillation, including:
  - Two electrophysiology labs and a hybrid operating room suite equipped with an advanced 3D anatomical mapping system
  - Intracardiac echocardiography which provides high resolution imaging of the heart
- Providers with the training and experience to effectively treat AFib using a team-based, multidisciplinary approach, including:
  - Board-certified radiology technicians
  - Fellowship-trained heart rhythm specialists (electrophysiologists/cardiologists with board certification in cardiac electrophysiology)
  - A Device Clinic managed by nurse practitioners with specialized training in heart rhythm conditions
  - Heart rhythm specialists for device therapy options (pacemakers and defibrillators)
  - Support from a dietitian and pharmacist in making changes to diet and managing medications
  - Screening for other conditions which often accompany atrial fibrillation, including:
    - Thyroid disease


5. Source: Holmes, DR et al. JACC 2014; Vol. 64, No. 1

Atrial Fibrillation Program
Benefits and Services
Many patients have risk factors for atrial fibrillation (obesity, respiratory sleep disorders (sleep apnea), high blood pressure, smoking, diabetes) which should be addressed along with the atrial fibrillation by consultations with other care providers, including bariatrics, neurology, respiratory, cardiology, behavioral health (smoking cessation/diet), endocrinology, nutrition and cardiac rehabilitation. These consultation recommendations will be shared with your doctor as part of your treatment plan.

If another condition requiring treatment is discovered, your doctor will be notified. Follow-up care may be provided by Summa, your doctor or another provider, depending on the condition and the preferences expressed by you and your family doctor.

What To Expect During Your Visits

<table>
<thead>
<tr>
<th>Treatment Milestone</th>
<th>Visit Details</th>
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<tr>
<td>First visit before AFib Ablation is performed</td>
<td>A nurse practitioner or physician will take your vital signs; review your medical history and medication list, discuss your heart rhythm disturbance history and note any therapies you have already tried. A physician will then meet with you to explain all of your treatment options, including medication, cardiac ablation and/or surgery. He/she will also answer any questions you or your family may have about the proposed procedure and/or treatment plan.</td>
</tr>
<tr>
<td>10-14 days following AFib Ablation</td>
<td>A follow-up visit with a nurse practitioner is scheduled to review medications and discuss any telephone monitoring questions or issues.</td>
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<tr>
<td>3 months following AFib Ablation</td>
<td>A follow-up visit with a nurse practitioner and/or a physician to determine whether you may discontinue your heart rhythm medications and/or anticoagulants. You will review with your physician weekly transtelephonic monitoring (TTM).</td>
</tr>
<tr>
<td>6 months following AFib Ablation</td>
<td>A follow-up appointment with a physician to review your medical status. The visit also includes review of seven-day home telemonitoring (as needed).</td>
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<tr>
<td>12 months following AFib Ablation</td>
<td>Follow-up appointment with physician and review of second seven-day home telemetry data (as needed). Follow up with your physician to schedule annual follow up visits as needed.</td>
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How Information Will Be Shared With Your Doctor

Our team of healthcare professionals understands that a key element of teamwork is effective communication. That’s why they are committed to providing timely updates to your doctor at scheduled intervals throughout your course of treatment.

Updates can include information about:
- Your current medical status
- The need for any medication or treatment plan adjustments
- Labs/diagnostic test/screening results
- Treatment recommendations
- Hospital admissions and discharges

After you are enrolled in Summa’s Atrial Fibrillation Program, information about your treatment and medical status will be shared periodically with your doctor. If another condition requiring treatment is discovered while you are enrolled in the program, your doctor will be notified. Follow-up care may be provided by Summa Health, your doctor or another care provider, depending on the condition and the preferences expressed by you and your doctor.
AFib Program Care Team

We treat heart rhythm conditions with a collaborative, multidisciplinary approach to your care. Self-referrals are accepted. Contact the AFib Program Coordinator to get started.

Summa’s heart rhythm services team performs more than 100 ablations each year (includes both hybrid epicardial/endocardial and pulmonary vein isolations). Summa’s multidisciplinary team of heart rhythm specialists is one of the most experienced in northeast Ohio.

Electrophysiologists

- Otto Costantini, M.D.
- Michael A. Pelini, M.D.
- Jason K. Smith, M.D.
- Eric A. Espinal, M.D.
- Melanie T. Gura, RN, MSN, CNS, CCDS, FHRS, FAHA, AACC
- Tyler L. Taigen, M.D.

Cardiothoracic Surgeons

Director, Pacemaker and Arrhythmia Services

- Lori O’Shell, MSN, APRN, ANP-C

Program Coordinator

If you have any questions, please contact your cardiologist or call our appointment line at 330.376.7000.

AFib Program Hours and Services by Location

Hours of Operation:
- 8 a.m. – 5 p.m., Monday thru Friday

Akron
1. Summa Health Richard M. and Yvonne Hamlin Pavilion
   95 Arch Street, Suite 350
   • Physician consultations
   • Follow-up visits
   • Testing

2. Summa Health System – Akron Campus
   525 E Market Street
   • Surgery/Procedures
   • Testing

Medina
3. Summa Health Medina Medical Center
   3780 Medina Road, Suite 200
   • Physician consultations
   • Physician follow-up visits
   • Testing and monitoring

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