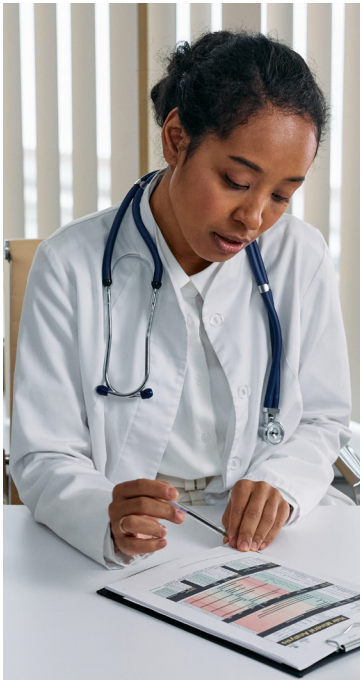
AFAssociation

Arrhythmia Alliance

www.heartrhythmalliance.org

Atrial fibrillation (AFib) patient information







Working to provide information, support and access to established, new or innovative treatments for Atrial Fibrillation (AFib)

www.afa-us.org

Glossary

Antiarrhythmic drugs Medications used to restore the normal heart rhythm and reduce the likelihood of arrhythmia onset.

Anticoagulants drugs Medications that slow down the clotting process of blood and reduce the likelihood of stroke in selected patient.

Arrhythmia An abnormality of the heart's rhythm. It may beat too slowly, too quickly, or irregularly. These abnormalities range from a minor inconvenience or discomfort to a potentially fatal problem.

Arrhythmia Nurse A nurse who is trained in the management of heart rhythm disorders.

Atrial Fibrillation (referred to as AFib or AF) A heart rhythm disorder that causes an irregular and often abnormally fast heart rate.

Cardiologist A doctor who has specialized in the diagnosis and treatment of patients with a heart condition.

Catheter ablation A minimally-invasive day-case treatment which targets the areas inside the heart which cause arrhythmias.

Echocardiogram (Echo) Uses sound waves to produce images of your heart. This test allows your doctor to assess your heart's size and strength. It can also detect valvular disease and some inherited heart conditions.

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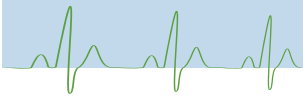
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Electrocardiogram (EKG) A simple test to check your heart's rhythm and electrical activity. Sensors attached to the skin are used to detect the electrical signals produced by your heart each time it beats. Basic versions can now be recorded using smartwatches too.

Electrophysiologist (EP) A cardiologist who has specialist training and accreditation in managing heart rhythm disorders.

Sinus rhythm The normal rhythm of the heart.

Stroke A stroke occurs when blood supply to part of your brain is interrupted or reduced, preventing brain tissue from getting oxygen and nutrients. A stroke is a medical emergency, and prompt treatment is crucial.

The heart during normal rhythm

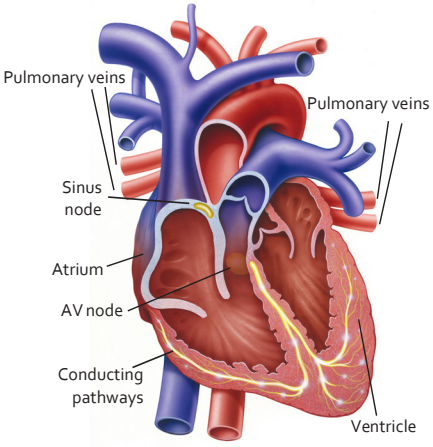
The heart is a muscular pump, which delivers blood containing oxygen to the body. It is divided into two upper chambers (atria) and two lower chambers (ventricles) which together co-ordinate the pumping of blood to the lungs and the rest of the body.

Normally, the heart beats in a regular, organized rhythm, at a rate of 60-100 beats per minute. This is because it is driven by the "sinus node", a specialized group of cells situated in the right atrium, which emits electrical impulses that then travel through the atria, causing the muscle cells to contract.

The sinus node is sometimes referred to as the heart's natural pacemaker. These electrical impulses spread through the atria and then into the ventricles via the atrio-ventricular node (the "AV node"). The sinus node controls the timing of the heart, according to the needs of the body.

An example of this is during exercise, which stimulates the sinus node and causes the heart rate to speed up.

The heart and normal conduction



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What is Atrial Fibrillation (AFib)?

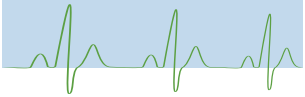
Atrial fibrillation (also referred to as AFib or AF) is the most common heart rhythm disturbance in the world. It affects approximately 6.1 million people in the US with a global prevalence of 2-4%. It becomes more common as people get older and affects about 10% of people over-75. Left untreated or poorly monitored, AFib can lead to serious complications such as heart failure and AFib-related stroke.

AFib is a chaotic electrical activity that develops in the atria, and completely takes over from the sinus node. This causes the atria to pump less efficiently and the heart to beat irregularly and usually more rapidly.

This may cause symptoms of palpitations, shortness of breath, chest discomfort, light-headedness, fatigue or heart failure. Although some patients may have no symptoms at all. The goal of treatment in AFib is to mitigate the risk of AFib-related stroke and when it is symptomatic, the goal is to either slow the heart rate or restore normal sinus rhythm.

Who gets AFib?

There is no "typical" AFib patient. AFib occurs in men and women, of all races, and can occur at any age. While it can "run in the family", most people diagnosed with AFib will not have a family history of the condition. Some events and diseases may make AFib more likely, but it can also occur without warning.



What causes AFib?

AFib is related to age; the older you get, the more likely you are to develop it. AFib can also be noted after "open heart" surgery as a result of handling the organ. Other conditions or diseases can also increase your risk of developing AFib. You are more likely to develop AFib if you have:

- High blood pressure
- Coronary heart disease
- Obesity
- Obstructive sleep apnoea
- Mitral valve disease (caused by rheumatic heart disease, valve problems at birth, or infection)
- Congenital heart disease (abnormality of the heart present since birth)
- Pneumonia or other causes of sepsis
- A history of cancer, especially lung cancer
- A previous pulmonary embolism
- Overactive thyroid (hyperthyroidism)

In addition, alcohol and drug abuse can increase your risk of developing AFib. While your risk of AFib goes up with the problems mentioned above, many people will develop AFib for no identifiable reason.

What are the symptoms of AFib?

Symptoms of AFib include:

- Palpitations
- Tiredness
- Shortness of breath
- Dizziness
- Chest pain

Some people with AFib do not have any symptoms, and it may only be discovered at a routine medical examination or following an admission to ER with another condition. The easiest way to detect AFib is to feel your pulse at your wrist!

Are there different types of AFib?

Yes, early in the disease, AFib is often intermittent, meaning that it can come and go without warning and you may go long periods of time between "episodes'" which are also called "paroxysms". AFib falls into one of three categories that describe the progression of the disease, ranging from occasional episodes to the complete absence of a normal heart rhythm:

1. **Paroxysmal AFib** – Multiple episodes that cease within seven days with or without treatment. Most paroxysmal episodes spontaneously terminate within 48 hours.

2. **Persistent AFib** – Episodes that do not self-terminate within seven days. Early persistent AFib is when a continuous episode has been ongoing for less than 12 months and is the time window during which rhythm control strategies are more effective.

3. **Long standing persistent AFib** – Continuous AFib that has been continuously ongoing for more than one year. It could still be reasonable to adopt a rhythm control strategy.

4. **Permanent AFib** – When the presence of long-term AFib is accepted by the patient and the physician and strategies to restore sinus rhythm are no longer being pursued.

AFib can also be labelled as "subclinical'" This term is used when it has not been formally diagnosed irrespective of the duration of the arrhythmia. Patients are usually asymptomatic or attribute their symptoms of tiredness or shortness of breath to other reasons such as "old age" or other co-existent medical conditions.

What are the risks of AFib?

The most debilitating risk of AFib is an AFib-related stroke. This occurs because the atria are fibrillating and as a result, the blood in the atria becomes stagnant. This causes blood cells to stick together and form a clot which can travel (embolize) to the brain and result in an AFib-related stroke.

The most frequent complication of AFib is developing resultant heart failure. This can be due to the associated fast heart rate or can even occur when the heart rate is within normal limits.

This causes the heart to weaken, leading to blood accumulating in the lungs and not enough being pumped out to the body. This can lead to shortness of breath, tiredness and irreversible damage to other organs.

AFib is not considered immediately life threatening condition as long as it is treated appropriately. However, if it is not identified promptly and these complications addressed, it can lead to hospitalization and premature death.

How do I get to see the right doctor to treat my AFib?

Initially, this depends on the symptoms associated with AFib at onset. If symptoms are severe, you should seek urgent attention through an Emergency Department. If the symptoms are manageable or if it has been identified incidentally during a routine check-up (or by an alert from your smartwatch), you should see your primary care provider. They may arrange some investigations and review other aspects of your health. **On your first consultation with any healthcare professional, your risk of AFib-related stroke should be evaluated and treatment for this risk should be started if indicated.** After appropriate diagnosis, patients that have no symptoms and normal heart function may only require routine follow-up appointments to address risk factors such as weight management, blood pressure and lifestyle. However, depending on the results of further investigations and your AFib symptoms, you may be referred to a cardiologist specialising in the management of AFib (eletrophysiologist). Based on your symptoms, treatments to restore normal rhythm such as cardioversion or catheter ablation may presented to you. You should always discuss with your doctor all available treatment options to decide which might be best for you. Together you should make a shared decision between you and your healthcare professional.

If a specialist referral is not offered, you can request a specialist referral from your primary care provider to discuss these options. The outcomes from rhythm control treatments such as AFib ablation, are generally better if they are performed early and so prompt referral to a specialist is important if you wish to consider this. Before proceeding with ablation, you should ask the electrophysiologist about their intended strategy and personal level of experience and results.

AFib ablation outcomes are also better in high volume centres and so you should also ask about the number of cases performed in the hospital where you will have the procedure. An electrophysiologist who has a specialist interest in AFib ablation will usually perform over 50 procedures of this type per year. For further information on your local specialists contact AF Association.

Tests and investigations



First, it is important to check that you do actually have AFib. This is confirmed by a heart tracing called an electrocardiogram (EKG). If you have persistent AFib, this is straightforward and can be done there and then in clinic. If your AFib is paroxysmal, a continuous EKG monitor, worn for 1-14 days may be needed to record the AFib. Increasingly, patients are recording their AFib episodes using their own devices. If you have done this using your at-home recording device or smartwatch, take this to your doctor for review. If the recording is clear, further monitoring may not be needing, expediting the next steps of your treatment.

You will also need to have an echocardiogram (an ultrasound scan of the heart). This is to assess the structure and overall function of the heart and you may also need to have blood tests. This will also help to identify whether you have underlying heart failure associated with your AFib - seen in a quarter of all AFib cases.

You should also have blood tests to check your thyroid function as abnormalities in the levels of this hormone can be a reversible cause of AFib.

Treatment of AFib

Drug treatments



Drugs are commonly used to treat AFib. The primary group of drugs are those that thin the blood to reduce the likelihood of AFib-related stroke. These are discussed below.

There are two main groups of drugs that directly treat AFib. The first group are designed to slow the heart rate during AFib as this is a major cause of symptoms and heart failure.

Beta-blockers (tablets ending in -olol e.g. bisoprolol or metoprolol) or digoxin are commonly used to slow the heart rate during AFib and are effective in alleviating symptoms. Calcium-channel blocker tablets such as verapamil or diltiazem can also be effective.

Anti-arrhythmic drugs may be prescribed to reduce the likelihood of paroxysmal AFib episodes or to reduce the likelihood of AFib recurrence after a cardioversion or catheter ablation. Commonly prescribed medicines include flecainide, sotalol, amiodarone or dronedarone. The specific drug recommended for you should be tailored based on your other medical conditions and prescribed by your electrophysiologist.

These drugs can used in two different ways based on your AFib episode frequency and severity. In some patients with infrequent episodes of AFib, you may be advised to adopt a "pill in the pocket" strategy. You would not take the tablet every day and instead, take a single dose at the beginning of an episode. Alternatively, if you have frequent, sustained or debilitating AFib episodes, you may be advised to take your tablet regularly, with a dose every day.

A booklet titled Atrial Fibrillation (AFib) drug information is available from AF Association. This gives much more information on different medication available in greater detail.

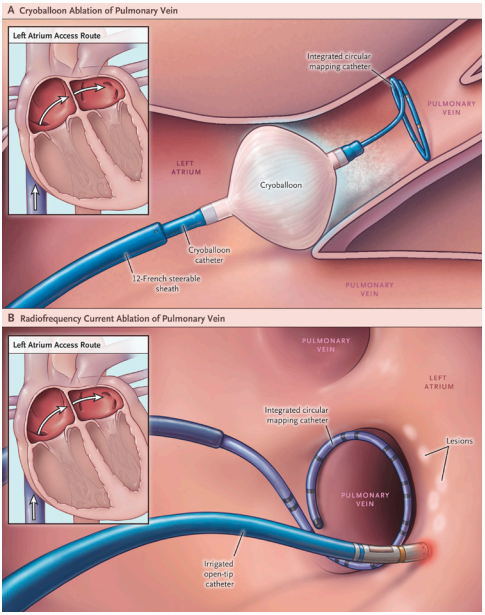
The National Institutes of Health (NIH) AFib Guidance published in June 2014, recommends that drug therapies for symptom control are reviewed for effectiveness and any side effects within four weeks of being prescribed.

Non-drug treatments

In some individuals the episodes of AFib are both severe and frequent, affecting their quality of life. If drug treatments do not work or cause unpleasant side effects, it could be reasonable to try a different solution.

Physicians may elect to perform a cardioversion, a procedure in which an electric current is delivered through special gel pads positioned on the chest wall. This is done with the patient under either sedation or general anesthetic. Cardioversion aims to "shock" the heart back into its regular rhythm. This is often done for patients with persistent AFib who are very unwell and require immediate restoration of normal sinus rhythm. It is a quick and very safe method to restore normal rhythm. However it does not treat the heart and underlying reasons why you went into AFib and so the duration of benefit is unpredictable. This may be hours, days, weeks or months. It is therefore an effective bridging strategy - to restore normal rhythm till other rhythm control treatments are administered. It may also be used to administer a "trial" of normal sinus rhythm to see if your symptoms improve when the AFib is temporarily reversed, to help justify further rhythm control treatments.

The most effective strategy to restore normal sinus rhythm in the long term in patients with paroxysmal or early persistent AFib is through a procedure called catheter ablation. This is a minimally invasive procedure performed by electrophysiologists across the US as well as globally to restore normal sinus rhythm in patients with symptomatic AFib or AFib associated with heart failure. It is performed as a day-case procedure (although some patients may stay in hospital for one-night based on the finishing time or if they have other risk factors that require monitoring). Catheter ablation is performed by passing long electrical wires into the heart via thin tubes via the vein at the top of the leg.

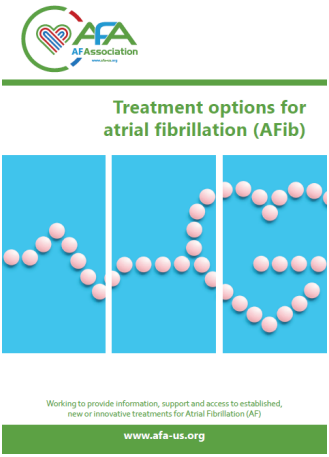


These wires can be used to "ablate" (electrically treat) specific areas in the heart that drive AFib onset and maintainance. Ablation eliminates the electrical signals of the tissue thus preventing them from triggering AFib. Ablation is performed in some centres under local anaesthetic and sedation, whereas other centres use general anesthesia. Waiting times can also vary between centres and so it is important to discuss this with your electrophysiologist to manage expectations. Different ablation technologies exist that vary in the energy type used to ablate the heart tissue. These include radio-frequency ablation (cauterization), cryoablation (freezing) and pulsed field ablation (electroporation). Each technology has different pros and cons but importantly, all have shown similar safety and efficacy outcomes in their trials to date.

The NIH guidance for AFib clearly outlines the potential benefit of catheter ablation for those who have symptomatic AFib where the symptoms are not adequately controlled on medication. Catheter ablation is intended to reduce that amount of AFib a person will experience, compared to if they did not have an ablation. It some patients it can successfully cure AFib, although more than one procedure may be required to achieve this. It is important to speak to your electrophysiologist about the expected success rates based on your AFib characteristics and other conditions. Our Ablation for Atrial Fibrillation Discussion Guide is available.

If open heart surgery is required for a structural problem, such as an abnormal heart valve in someone who also has AFib, then it is possible to perform ablation for AFib at the time of surgery.

For more information on ablation and other treatment options, please contact AF Association for 'Treatment options for atrial fibrillation'.



AFib-related stroke prevention

In AFib, the chaotic electrical activity means that the atria (top chambers of the heart) no longer contract together, but instead the muscle quivers like a bag of worms. A lack of efficient contraction means the blood within the atria can become stagnant and form clots. These clots can travel anywhere in the body, but most worryingly, they can travel to the brain and cause a AFib-related stroke. Indeed the risk of stroke in AFib is five times greater than in the normal sinus rhythm.

The NIH state that anticoagulation therapy is one of the most effective treatments for preventing AFib-related strokes. The CHA_2DS_2-VA score allows you to understand your risk of AFib-related stroke. If you have a score of zero (or one due to gender alone) then national and international guidelines suggest you do not require any intervention. If you have a score of one due to anything other than gender, then we should consider an oral anticoagulant to reduce the risk of AFib-related stroke. If you have a score of two or greater then oral anticoagulation is recommended to reduce the AFib-related stroke risk.

CHA_2DS_2-VA scoring criteria to determine need for blood thinning based on AFib-related stroke risk

Congestive heart disease	1 point
Hypertension	1 point
Age (75 years +)	2 point
Diabetes	1 point
Stroke or previous TIA	2 point
Vascular heart disease	1 point
Age (65-74 years)	1 point
SCORE	

score	risk level	necessity for anticoagulant
0	low risk	anticoagulant not suggested
1	at risk	anticoagulant suggested dependent on personal preferences
2+	at risk	

Antiplatelets

For many years it was thought that aspirin, or other medication that affect the sticky clot-forming cells called platelets, could reduce the risk of clots forming in the atria and hence reduce the risk of AFib-related stroke. It was thought that aspirin may cause less bleeding than an anticoagulant. However, antiplatelets are less effective than anticoagulants at preventing AFib-related stroke, only reducing the AFib-related stroke risk by 20%.

It is now clear that if aspirin reduces AFib-related stroke, it does this at very low levels. Furthermore, the bleeding risks of aspirin are very similar to the bleeding risk of an anticoagulant.

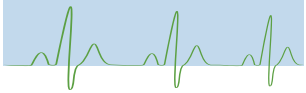
The NIH no longer recommend aspirin alone to reduce the risk of AFib-related stroke. The new guideline clearly states: "Do not offer aspirin monotherapy solely for stroke prevention to people with atrial fibrillation". If a person is unable to tolerate an anticoagulant safely, their clinician may consider either a procedure known as "left atrial appendage occlusion" (see AF Association factsheet Transcatheter closure of the left atrial appendage) or "dual antiplatelet therapy", which involves taking aspirin and clopidogrel (another anti-platelet medication) together. Dual antiplatelet therapy only reduces the risk of AFib-related stroke by up to 22% and it also has a higher bleeding risk than if a person were to take aspirin as a monotherapy. It is important for you to discuss the most appropriate therapy with your clinician. Aspirin may still be prescribed for another, non-AFib-related condition, such as a past heart attack or other problem with the circulation.

Anticoagulants are far better than antiplatelets in reducing the risk of AFib-related stroke, and are as safe. Anticoagulants can reduce the risk of AFib-related stroke by at least 65%.

Which drug is best for me?

The choice of which drug is best for you depends on: (i) your personal risk of AFib-related stroke and (ii) if any intervention like cardioversion or ablation are planned.

A more detailed booklet Preventing AFib-related stroke: anticoagulation, is available from AF Association.



Anticoagulants

For a long time, warfarin was the main anticoagulant available. It is an effective anticoagulant that acts on the liver to prevent the formation of the proteins that are needed to consolidate blood clots. As our bodies have stores of these proteins, warfarin will only start to thin the blood efficiently after a few days. When you first start taking warfarin you will attend an anticoagulant clinic frequently so that your dose can be adjusted to your own

Since 2012, newer anticoagulants have been approved by NIH for AFib-related stroke prevention and are now widely used. This new group of anticoagulants include dabigatran, rivaroxaban, apixaban and edoxaban. They have the significant advantage over warfarin in that they do not require monitoring with regular blood tests, and there are far fewer interactions with food and other medications than with warfarin. Their blood thinning effect is more stable than warfarin and they has also been shown to have greater effectiveness than warfarin in patients without co-existent valvular disease.

At present, not all of these drugs have a method to reverse their effects. Having said this, the time that they are effective in the bloodstream is much shorter than for warfarin, and so a bleed would not last indefinitely.

If you have an upcoming procedure such as a dental extraction, medical procedure or surgery, ask your prescribing clinician for advice about whether you should discontinue your anticoagulant beforehand. Remember that bleeding is normal and anticoagulation slows down but does not stop your blood from clotting.

For patients who are unable to tolerate anticoagulation for medical reasons, there is a procedure called transcatheter closure of the left atrial appendage. For more information please see the AF Association Transcatheter closure of the left atrial appendage information sheet.

If you have any questions or concerns please contact our Patient Services Team by emailing info@afa-us.org.

Key questions to ask your clinicians

Causes of AFib

- What is the cause of my AFib? Do I need treatment for the causes and will it stop the AFib?
- Is there anything I can do to stop it or reduce the episodes?

Lifestyle

- Can I exercise safely? What exercises will be most beneficial to me?
- Do I need to change my diet? Are there certain foods or drinks I should avoid?
- What do I need to tell the DVLA & insurance companies?
- How will taking an anticoagulant affect my lifestyle, work or other commitments?

Medication

- Do I need to take an anticoagulant? Which anticoagulant would be best for me – why is this?
- How will my AFib drugs interact with my other existing medications?
- Are there any alternatives to the medications you are prescribing, and if so what are they? How can I be assessed for these?

Outlook

- What happens if I still feel unwell? When should I see or talk to my primary care provider?
- If I feel very unwell I normally go to ER. Is this the appropriate thing to do?
- Is there an operation to repair my heart and stop the AFib?
- Should I consider cardioversion or a procedure such as ablation? What are the risks and benefits to the procedure?
- What should I expect during the recovery period?

Notes

This booklet has been written to support those diagnosed with AFib and their carers, who struggle to find information on this condition.
Without donations and fundraising, we would not be able to provide support through our award-winning resources and helpline.

Please donate to support our vital work at
www.heartrhythmalliance.org/afa/us/get-involved/donate

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AF Association

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Affiliated to Arrhythmia Alliance

"Every phone call and booklet is making a huge difference in someone's life and that is special"

Zena

To view our patient resources, scan the QR code below:

Please remember that this publication provides general guidelines only. Individuals should always discuss their condition with a healthcare professional. If you would like further information or would like to provide feedback, please contact AF Association.

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