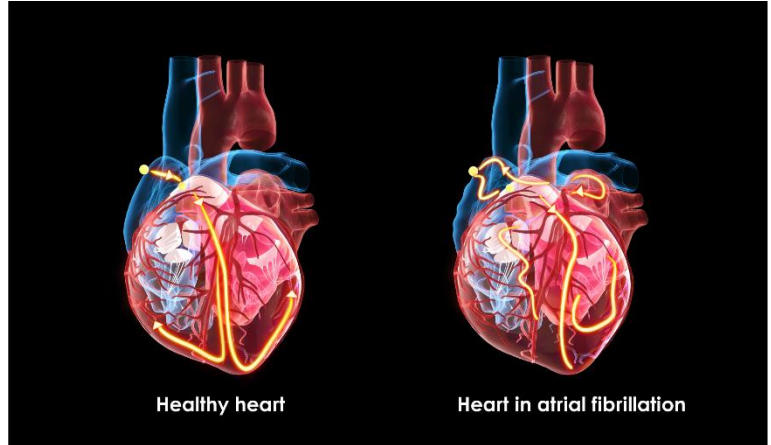


About atrial fibrillation

About atrial fibrillation (AF)

- Atrial fibrillation (AF) is the most common type of arrhythmia, characterised by an irregular and often rapid beating of the heart.¹⁻³
- AF is a chronic disease that progressively worsens over time, caused by poor/ inefficient atrial contraction/ heart pumping.⁴
- In AF, faulty electrical signals cause the atria (upper chambers of the heart) to contract irregularly, at a much faster rate than normal,^{5, 6} and out of rhythm with the heart's lower two chambers (ventricles).³
- Consequently, the upper and lower chambers of the heart are not working together as they should.⁶⁻⁸
- Lack of heart chamber synchrony can cause blood to pool in the upper chambers, potentially leading to clot formations, stroke, and other complications^{6, 7}. In fact, AF is the leading cardiac cause of stroke.⁹
- Rhythm irregularity in AF causes the blood flow through the heart to become turbulent. Abnormal blood flow through the heart's chambers decreases its effectiveness in pumping blood, while simultaneously increasing the likelihood of clot formation.⁹
- Similarly, the lower chambers do not fill completely or pump enough blood to the lungs and to the rest of the body, leaving those living with the condition/disease feeling tired, lightheaded, or dizzy.⁷
- AF that causes the lower chambers to beat too quickly can result in heart failure.⁶
- There are different types of AF, based on how long the episodes last – paroxysmal, persistent, or permanent;¹⁰
 - Paroxysmal AF stops spontaneously or following intervention within seven days of onset. Triggers include alcohol, stress and anxiety, caffeine, exercise, fatigue and lack of sleep, infection, certain medications, smoking and dehydration.^{3, 10}
 - Persistent AF occurs for more than seven days. The disease is often grouped as early persistent AF (continuous duration lasting seven days to three months) or longstanding persistent AF (more than 12 months of continuous AF).¹⁰
 - Permanent AF is when the heart rhythm will not return to normal. It is accepted by the patient (and physician) and no further attempts to restore or maintain normal rhythm of the heart are made. Treatments focus on symptom management.¹⁰



Prevalence

- There are more than 37,500 million estimated cases of AF worldwide – a figure which has climbed by 33 per cent over two decades.¹¹
- The global prevalence of AF will continue to rise if life expectancy continues to improve.⁴
- AF affects approximately 2.2 per cent of the general population, equating to more than half a million Australians.¹²
- The proportion of the Australian population affected increases with age, with an estimated 5.4 per cent (six per cent of men and five per cent of women) of those aged 55 years and over living with AF.^{12, 13}
- AF cases in those aged 55 years and over are projected to double over the next two decades¹ due to our ageing population which is increasingly becoming overweight and obese.¹⁰
- The prevalence of AF increases to nine per cent in those aged 80+ years.¹⁰
- The true prevalence of AF is thought to be under-estimated, given AF that is not 'easy to detect'. Concerningly, this presents a challenge for treating doctors, because the consequences of AF (e.g. stroke) can occur before AF is diagnosed.¹
- The estimated life-time risk of developing AF is approximately one in four.¹⁴

- Apart from age, the prevalence of AF is influenced by risk factors, and the presence of other health conditions, including high blood pressure, heart failure, heart disease, obesity, diabetes, and chronic kidney disease.¹
- Aboriginal and Torres Strait Islander Community (ATSIC) peoples have a higher incidence of AF and subsequent death rate, due to the greater burden of cardiovascular disease experienced by these communities.¹
- Young Indigenous Australians particularly, have a significantly higher prevalence of AF than their non-Indigenous counterparts.¹⁵

Signs and symptoms

- Those living with AF do not always show visible symptoms (known as asymptomatic).¹⁶ In fact, the incidence of asymptomatic AF is between 30 and 40 per cent.¹⁰
- More than 60 per cent of patients report experiencing moderate AF symptoms, while 17 per cent have disabling symptoms.¹⁰
Two-thirds of patients living with at least intermittent symptoms experience disabling symptoms that compromise their quality of life.¹⁷
- Common symptoms experienced by those living with AF include;^{4, 18}
 - Palpitations (rapid fluttering, pounding or racing sensation in the chest)
 - Chest tightness / discomfort
 - Fatigue
 - Shortness of breath
 - Dizziness or light-headedness
 - Fainting
 - Exercise intolerance
- All of these symptoms limit a person's ability to perform daily activities.
- AF is associated with anxiety in 67 per cent of those living with the disease, while depression is seen in 38 per cent of patients – noting depression is the greatest predictor of future quality of life.¹⁰



AF risk factors

- There are both non-modifiable and modifiable risk factors that can leave an individual more likely to develop AF.¹⁰
- Non-modifiable risk factors include age, gender, and genes and family history.^{10, 19}
- Modifiable risk factors of AF include;^{10, 20}
 - Beyond age, heart failure is the most important risk factor for incident AF, increasing the risk two-to-threefold.¹⁷ Heart failure and AF frequently co-exist.
 - Diabetes – in some studies those living with diabetes had a 39 per cent greater risk of developing AF than those without AF.¹⁷
 - Hypertension - even slightly elevated blood pressure is a risk factor for AF. Prevalence rates of hypertension in AF range from 49 to 90 per cent.¹⁷
 - Obesity – represents the second strongest risk factor for AF.¹⁷
 - Sleep apnoea - Among patients living with AF, 50 per cent (or more) will also have obstructive sleep apnoea.¹⁷
 - Heart disease (coronary and valvular) – AF and coronary heart disease often coexist.²¹ Similarly, the prevalence of both organic valvular heart disease (VHD) and cardiac arrhythmias is high in the general population, and commonly coexist.²²
 - Hyperthyroidism is a well-known cause of AF. There is a 16-60 per cent prevalence of AF in patients with known hyperthyroidism.
 - Alcohol consumption.
 - Smoking.
 - Physical inactivity.
 - Extreme exercise.

Impact on quality of life



- Atrial fibrillation (AF) significantly compromises quality of life (QoL) for many patients,²³ largely because common AF symptoms influence a person's ability to perform daily activities.²⁴
- Palpitations, exercise intolerance, dizziness, shortness of breath at rest, chest discomfort and/or tightness are common AF symptoms shown to affect patient QoL.²⁴
- In fact, people living with AF have significantly poorer QoL compared to healthy individuals, the general population, and those living with other forms of coronary heart disease patients.^{4, 25}
- With increased symptom severity, patient report reduced quality of life.¹⁸
- While AF is rarely life-threatening on its own, distress associated with symptom onset can be severe, and significantly reduce QoL.²⁶ Similarly, the consequences of treating AF, including treatment and intervention side-effects,

especially hospitalisation, can further compromise QoL.

- Importantly, the QoL of those living with AF can be significantly improved through appropriate use of rate, or rhythm control strategies.²⁵
- Patients with a better-controlled heart rate and a more predictable course of treatment, experience less impact to their quality of life.²⁵ Consequently, those living with permanent AF in comparison with patients with paroxysmal AF, have a better quality of life, because of the relatively predictable course of treatment for patients with the permanent type of AF and more "stable" heart rates.²⁵
- Active patient involvement and lifestyle changes will improve outcomes and quality of life in AF patients.²⁷

AF burden and hospitalisation

- The AF epidemic is increasingly recognised as a growing health problem worldwide,²⁸ with profound social and economic implications.²⁹
- AF is associated with an increase in risk of heart failure, stroke, and a doubling in death from any cause.¹⁰
- AF is also associated with a three-fold increased risk of heart failure, a nearly five-times higher likelihood of having a stroke (compared to someone who does not have AF) and doubling of risk of dementia.^{10, 16}
- An estimated 9.7 per cent (AUD 1.4 billion) of the total AUD 14.3 billion cardiovascular disease expenditure in Australia is attributed to AF alone.¹²
- Societal and healthcare costs of AF will continue to escalate unless AF and its risk factors and complications are prevented, and treated effectively.¹
- AF poses a significant, and increasing burden on healthcare resources. Hospitalisations are considered the major driver of cost,¹ with 10 to 30 per cent of AF patients being admitted to hospital each year.¹
- In fact, AF is the leading cause for Australian emergency department presentations and hospital admissions.¹⁰
- Concerningly, the total number of AF hospitalisations in Australia increased by six per cent per year over a 15-year period (greater than any other cardiovascular condition).¹
- In Australia, AF contributed to nearly one tenth (9.5 per cent) of all deaths in 2021, and more than 200,000 hospitalisations.¹²
- AF hospitalisations are higher among older age groups — the rate for those aged 85 years and over is almost four-times higher than those in the 55–64 year age group.¹²
- Socio-economic status also influences AF hospitalisation rates, which are 21 per cent higher for those living in the lowest socio-economic areas, compared with the highest socioeconomic areas.¹²
- AF hospitalisation rates are 36 per cent higher among those living in remote and very remote areas, compared with those in major cities.¹²

Diagnosis of AF

- A diagnosis path for a person living with AF typically starts with a visit to GP or regular healthcare provider.³⁰
- AF is diagnosed by:^{3, 30}
 - Screening for symptoms and risk factors
 - Physical examinations (pulse rate, listening to the heart and lungs, blood pressure, signs of swelling)
 - Relevant medical history
 - Family history
 - Blood tests
 - Electrocardiogram (ECG) – record the heart’s electrical activity and detect irregularities.
 - Holter and event monitors (portable ECG monitors) – record the heart’s electrical activity over long periods of time while a person performs normal, day-to-day activities, to help assess the cause of symptoms, like palpitations or dizziness, that occur throughout their daily lives.
 - Echocardiography (ultrasound) – assesses heart valves, chamber sizes and heart pumping function.
- Further testing can include chest X-rays, electrophysiology studies, sleep studies, stress, and walking tests.³⁰



Treatment & management

- Those living with AF need patient-centred care, aimed at managing risk factors, which should include lifestyle modifications, tailored treatment options and addressing underlying medical conditions.¹⁷
- Intervention that aims to reduce AF risk factors can prevent AF occurring again and reduce burden, in addition to addressing underlying medical conditions.¹⁷
- Good patient understanding and adequate knowledge about the disease/ condition, the risk factors, the consequences, the various treatment options and a self-management attitude is key in the optimal management of AF patients.³¹
- Unfortunately, studies demonstrate significant knowledge gaps in AF patients, about arrhythmia and blood thinning therapies.³¹
- Treatment for AF may include medications to control and normalise the heart’s rate, blood thinning (anticoagulant) medication to prevent the formation of blood clots and reduce risk of stroke, and medication and lifestyle changes to manage risk factors.¹³
- Other treatment options for AF include;³²
 - Catheter ablation — a surgical procedure that destroys (ablates) the area inside the heart that is causing the abnormal rhythm. During an ablation procedure, a thin wire (catheter) is inserted into a blood vessel in the groin and threads it up to the heart.³³
 - Conventional thermal ablation - an inserted catheter is used to burn or freeze a small area of the heart where the abnormal signal starts. In the burning process, radiofrequency energy is used to heat and scar the tissue. The freezing process uses a method called cryoablation. Given scar tissue does not conduct electrical signals inside the heart, creating a scar with the ablation helps to prevent the heart from conducting the abnormal electrical signals that cause AF.³³
 - Pulsed field ablation (PFA) uses electrical pulses to cause nonthermal death of abnormal heart tissue.³⁴ Unlike traditional thermal ablation technologies, PFA does not rely on heating or cooling to damage and destroy the abnormal heart tissue. Instead, in PFA, exposure to a burst of high-voltage electrical fields lead to cell death.^{35, 36}
 - Pacemaker — implant of a small device that stimulates the heart to beat regularly.
 - Cardioversion — an electrical shock given to the heart to reset normal rhythm, performed under general anaesthetic. For people living with serious, or prolonged episodes of AF, cardioversion may be used to return the heart to a normal rhythm.¹³

ends#

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