



# Podiatric detection of Atrial Fibrillation



Podiatrists are ideally placed to carry out opportunistic checks for undiagnosed atrial fibrillation (AF) as part of a routine podiatry assessment and when encountering visual symptoms that suggest an underlying circulatory disorder. Opportunistic podiatric detection of AF does, and will continue to, prevent avoidable strokes.

- AF is a common heart condition that causes an irregular heart rate which is often abnormally fast
- The risk of having a stroke increases five-fold in people with AF, and 25% of patients who suffer an AF-related stroke are unaware they have the condition
- Average health & social care costs due to stroke per patient are nearly £22,500 at 1 year and over £46,000 at 5 years
- An irregular pulse, detected by a simple foot pulse check, can indicate AF
- Having AF doubles the risk of death, regardless of age

### What is AF?

Atrial fibrillation (AF) is a common heart condition that causes an irregular and often abnormally fast heart rate. It is known to affect around one million people in England, with a further 425,000 estimated to be undiagnosed.<sup>1</sup> Therefore the current estimated prevalence is around 2.5% of the population. Almost one in 10 people aged over 65 are affected by the condition, which commonly displays no symptoms.<sup>2</sup>

Without treatment, people living with AF are five times more likely to suffer a stroke.<sup>3</sup> In addition, the presence of AF increases the risk of remaining disabled after a stroke by almost 50%,<sup>4</sup> which can have a devastating impact on a person's life.

Risks factors for AF can include:

- High blood pressure
- Heart valve disease
- Diabetes
- Excess alcohol consumption

It is also associated with coronary heart disease. But in many patients no underlying cause can be found. Sometimes AF can be resolved once the underlying condition has been dealt with.<sup>7</sup>

AF occurs when abnormal electrical impulses begin firing in the atria – the heart's upper chambers. These impulses override the heart's natural pacemaker, which can no longer control the rhythm of the heart, and this causes an irregular pulse rate.<sup>5</sup> The atria contract randomly and sometimes the contractions are so fast that the heart muscle cannot relax properly between contractions, which reduces the heart's efficiency and performance. People with AF may have an increased risk of blood clots forming in the heart, which can lead to a clot travelling via an artery (arterial embolisation) to the brain and cause a stroke,<sup>6</sup> or travelling to elsewhere in the body.

AF tends to occur in certain groups of people such as those with other long-term conditions, e.g. hypertension, hyperlipidaemia or a heart valve problem, and may be triggered by certain situations, such as excessive alcohol intake.<sup>5</sup>

AF can be defined in various ways, depending on the degree to which it affects the patient:<sup>5</sup>

- Paroxysmal AF – episodes come and go, and usually stop within 48 hours without any treatment
- Persistent AF – each episode lasts for longer than seven days (or less when it is treated)
- Long-standing persistent AF – AF has been continuous for a year or longer
- Permanent AF – present constantly

### Detection of AF and the role of the podiatrist

An irregular pulse (arrhythmia) is present if a person has AF, but may not be apparent to them. People with AF may however have a variety of other symptoms, including chest pain, palpitations, shortness of breath, and fatigue. A health professional seeing a patient with an irregular pulse with or without any of the following symptoms should suspect AF:<sup>8</sup>

- Breathlessness
- Palpitations
- Chest discomfort
- Syncope (fainting) or dizziness
- Reduced exercise tolerance
- Malaise
- Polyuria (excessive/frequent urination)

Without suffering any of the listed symptoms, a person might be completely unaware that they may have a very dangerous cardiac condition. These patients may have asymptomatic or silent AF.<sup>9</sup> Cases of asymptomatic AF may only be detected by the presence of an irregular pulse.

Silent, asymptomatic AF is common. Patients can have a completely asymptomatic arrhythmia or may experience both symptomatic and asymptomatic AF episodes. It has been estimated that among those with diagnosed AF, one third will have no obvious symptoms. It remains largely underdiagnosed and 25% of patients who suffer an AF-associated embolic stroke will not have been previously diagnosed.<sup>10</sup> Opportunistic screening is therefore very important in the at-risk population. An irregular pulse can be detected in the lower limbs as well as the upper limbs, so a podiatrist examining the legs or feet is often the first to detect it.



Everyone over the age of 12 years who has diabetes should have their feet screened annually as part of their annual diabetes check.<sup>11</sup> Diabetes is one of the most common chronic diseases in the UK and its prevalence is increasing. By 2025, it is estimated that more than 5 million people in the UK will have diabetes.

### Podiatry AF initiatives

A podiatry initiative to detect undiagnosed AF by referring on people with irregular pulses detected as part of a diabetic foot assessment has been successfully implemented in County Durham & Darlington NHS Foundation Trust. As part of a diabetic foot or standard podiatry assessment, a podiatrist manually palpates – and often uses a handheld Doppler - to detect the presence or absence of foot pulses. This is primarily to determine the likely presence of vascular or cardiovascular problems.

If the foot pulses are irregular on palpation, or sound irregular on Doppler investigation, the podiatrist will discuss the patient's medical history to investigate the possibility of the presence of AF. If the patient has no known diagnosis of AF (or other heart arrhythmia) or has already been diagnosed but is neither on a treatment plan nor taking cardio-protective medicines, the podiatrist will refer them to their GP for further investigation and support (see Appendix 1).

### Human and financial cost of AF

The lifetime risk of developing AF among those aged 40 years and over is 1 in 4. The incidence of AF increases dramatically with age and is higher in men than women. Although incidence and prevalence rates vary from country to country, virtually every reported study has demonstrated an increased incidence and prevalence, which is projected to rise substantially in the coming decades.<sup>12</sup> In symptomatic patients AF is frequently associated with a highly significant reduction in quality of life, and its presence doubles the risk of death, regardless of age.<sup>13</sup>

Stroke risk increases five-fold for people with AF<sup>14</sup> and it is a contributing factor in up to 1 in 5 strokes in the UK.<sup>12, 13</sup> In addition, strokes caused by AF tend to be more frequently fatal, disabling and recurring when compared to other causes of stroke.<sup>17</sup>

There are some 12,500 AF-related strokes in England every year, and the total costs for treating them is £150 million in the first year. The cost of a stroke in terms of healthcare alone in the first year is estimated to be around £12,000 per patient. This does not take into account additional economic costs of a stroke, which from a societal perspective amount to £9 billion a year when the weekly costs of a stay in a residential care home of £523, informal care costs, productivity losses and benefit payments are taken into account.<sup>18</sup> The total mean health and social care costs due to stroke per patient are £22,429 by one year and £46,039 at five years.<sup>19</sup>

### Conclusion

Detected early and properly managed AF would result in fewer AF-related strokes, reducing the overall cost burden

to health and social care services and the loss and ruin of fewer lives.

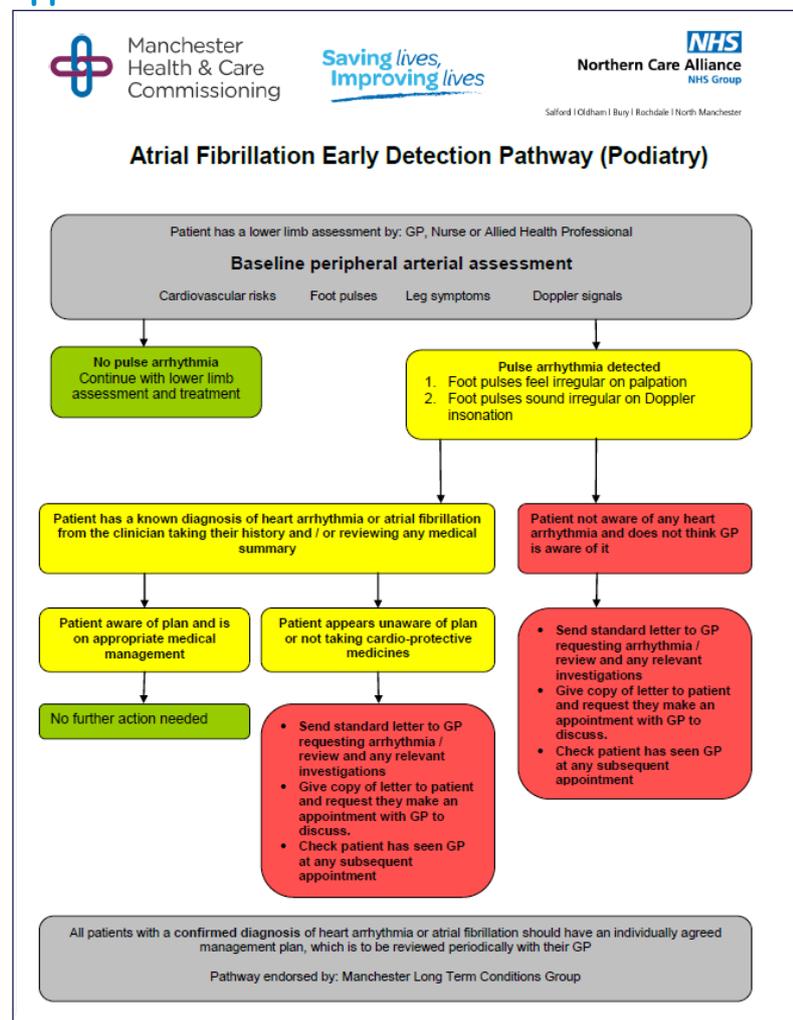
Projections suggest that between 1.3 and 1.8 million people in the UK will have AF by 2060, constituting a considerable public health burden.<sup>17</sup>

This projected increase in AF prevalence, along with expected increases in related conditions (particularly high blood pressure and diabetes) highlights the need for comprehensive implementation of AF prevention and management strategies.<sup>17</sup> Opportunistic detection is an essential element of this.

As the population ages and the prevalence of diabetes and other age-related conditions increase, the importance of podiatrists in the opportunistic detection of silent, asymptomatic AF that has already been demonstrated will become even more vital.

As allied healthcare professionals, podiatrists can detect irregular pulses and refer patients onwards for appropriate investigation and treatment, which will mean fewer AF-related strokes, reduced cost burdens on health and social care services and fewer lives ruined by the condition.

## Appendix 1



## Further information

The College of Podiatry, Quartz House, 207 Providence Square, Mill Street, London SE1 2EW

Tel: 020 7234 8620 Email: contact@cop.org.uk Web: www.cop.org.uk

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