Atrial Fibrillation (AF) – Suspected

- Incidental finding of AF/flutter on ECG/hand held device
- Clinical finding - irregularly irregular pulse

Initial medical assessment for RED FLAGS

- If RED FLAGS, Emergency Referral to Specialist Service

History

Physical examination

Electrocardiogram (ECG)

- ECG confirms AF/Atrial flutter
- ECG shows sinus rhythm, Paroxysmal AF still suspected

Consider differential diagnoses

Assess symptom burden using EHRA score

Consider ambulatory monitoring

- Persistent AF likely
  - When an AF episode either lasts longer than 7 days or requires termination by cardioversion.
  - Long-standing persistent AF has lasted for 1 year or longer when it is decided to adopt a rhythm control strategy.

- Paroxysmal AF likely

Cardiological management of persistent AF

- Consider risks and benefits of anticoagulation

Cardiological management of paroxysmal AF

- Non-AF arrhythmia identified
  - atrial tachycardias
  - supraventricular tachycardias
  - atrial extrasystoles
  - ventricular ectopic beats

- Sinus rhythm on both ECG and ambulatory monitoring
  - If asymptomatic during ambulatory monitoring, consider repeat/referral

- Consider differential diagnosis and referral if still symptomatic
  - Where clinical suspicion of AF is low reassure and advise asymptomatic patients

- Paroxysmal AF still suspected - consider repeat ambulatory monitoring or referral

- If patient is symptomatic consider referral

See pathway Management of Suspected Stroke [http://www.enhertscog.nhs.uk/]

See pathway AF (Confirmed) Management in Primary Care [http://www.enhertscog.nhs.uk/]

Consider whether a cardiology referral is required or not
Clinical finding - irregularly irregular pulse

Asymptomatic atrial fibrillation (AF):
- relatively common
- many asymptomatic patients are picked up in general practice - may be discovered incidentally by cardiac auscultation, 12-lead ECG recording, or 24-hour Holter recording
- in some cases, asymptomatic AF may only be detected when the patient presents with serious complications, such as a stroke, thromboembolism, or heart failure - whether AF was the cause or effect of the acute problem may then be uncertain

Symptomatic presentation:
- a wide variety of cardiac and non-cardiac conditions
- common symptoms include:
  - breathlessness/dyspnoea
  - palpitations
  - chest pain/discomfort
  - syncope/dizziness
  - fatigue
- rarer symptoms include:
  - polyuria (release of atrial natriuretic peptide during episodes of AF)
  - loss of consciousness
Initial medical assessment for RED FLAGS

Refer for urgent hospital assessment if the person has any of the following:

- a rapid pulse (greater than 150bpm) and/or low BP (systolic BP less than 90mmHg)
- loss of consciousness, severe dizziness, ongoing chest pain, or increasing breathlessness
- a complication of AF, such as stroke, TIA, or acute heart failure
- ongoing chest pain

Although most patients with AF present without haemodynamic compromise, some are significantly compromised and require immediate hospitalisation and urgent intervention to:

- alleviate symptoms of breathlessness, chest pain, and loss of consciousness
- restore haemodynamic stability
History

Assess for the following:

- symptoms:
  - palpitations - establish;
  - onset and duration
  - frequency
  - pattern
  - speed
  - chest pain
  - breathlessness
  - presyncope/syncope
  - fatigue
  - confusion
  - flushes
  - nausea
  - sweating
  - reduced exercise capacity
- precipitation factors, such as:
  - stimulants, e.g. tobacco, caffeine, alcohol
  - medication
  - exercise
  - stress or anxiety
  - other symptoms of cardiac disease, including:
    - orthopnoea
    - paroxysmal nocturnal dyspnoea
    - nocturia
    - peripheral oedema
  - flu-like symptoms - consider myocarditis or pericarditis
- history of:
  - arrhythmia
  - cardiac disease or previous cardiac surgery
  - thyroid disease
  - peripheral vascular disease
  - cerebrovascular accident
  - presence of risk factors for cardiac disease, such as:
  - smoking
  - diabetes mellitus
  - hypertension
  - hyperlipidaemia
  - previous rheumatic fever
  - alcohol abuse
  - previous chemotherapy
  - family history, e.g. premature coronary disease, sudden cardiac death
- medications, including:
  - digoxin
  - pro-arrhythmogenic medication
  - levothyroxine
  - inhaled bronchodilators
  - antidepressants
Physical examination

- assess pulse both at rest and on exertion
- check BP
- look for signs of:
  - hypoxia
  - cardiac failure
  - thromboembolism
  - valvular heart disease
  - coronary artery disease
  - anaemia
  - cyanosis
  - peripheral oedema
  - stigmata of endocarditis
  - thyrotoxicosis
  - alcoholic liver disease
**Electrocardiogram**

- should be performed in all patients, whether symptomatic or not, in whom atrial fibrillation (AF) is suspected because an irregular pulse has been detected
- a typical ECG trace for AF would include:
  - no distinct p-waves visible
  - variable and completely irregular baseline - best seen in V1
  - irregularly-spaced narrow QRS complexes - unless patient has a bundle branch block
  - rate usually over 100bpm but may be slower, particularly in the elderly - less commonly, the rate may be normal. A small minority may present with a rate over 160bpm
  - in patients with permanent ventricular pacing, diagnosis may require temporary pacemaker inhibition in order to visualise AF activity
  - a rapid, irregular, sustained, wide QRS complex tachycardia could suggest AF with conduction via an accessory pathway

The ventricular response in AF depends on many things, including:
- atrioventricular (AV) nodal properties
- the level of vagal and sympathetic tone
- drugs that affect AV nodal conduction such as:
  - beta-blockers
  - non-dihydropyridine calcium-channel blockers
  - digoxin

The 12-lead ECG should be inspected for signs of structural heart disease, including:
- acute or old myocardial infarction
- left ventricular (LV) hypertrophy
- bundle branch block
- ventricular pre-excitation
Assess symptom burden using EHRA score

Clinical evaluation should include determination of the European Heart Rhythm Association (EHRA) score:

- EHRA class I - no symptoms
- EHRA class II - mild symptoms, normal daily activity not affected
- EHRA class III - severe symptoms, normal daily activity affected
- EHRA class IV - disabling symptoms, normal daily activity discontinued

NB: The EHRA score only considers symptoms that are attributable to AF and reverse or reduce upon restoration of sinus rhythm or with effective rate control.
Paroxysmal AF likely

- is self-terminating, usually within 48 hours
- referral to a cardiologist for this patient group is recommended, to exclude underlying ischaemic heart disease or other structural heart disease and to consider interventional treatment options
- requires antiarrhythmic drugs that are not usually started in primary care (e.g. amiodarone or sotalol) - advice given in the BNF is that class I and III drugs (e.g. flecainide) should usually only be started by a specialist
- the chances of cardiological interventions leading to maintenance of sinus rhythm or substantially reducing the paroxysms of AF are considerably higher than in persistent atrial AF owing to better preservation of atrial function
Cardiological management of paroxysmal AF

NICE advises that all patients with paroxysmal AF should be referred to a cardiology specialist, but patients preferences should be taken into account.

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**Consider differential diagnoses**

The following may present with a rapid irregular pulse and mimic AF:
- atrial tachycardias
- atrial flutter:
  - all cardioembolic stroke risk information for AF is true of atrial flutter, and prompt assessment and intervention as appropriate is still important
- supraventricular tachycardias

**Differential diagnoses of palpitations also include:**
- atrial extrasystoles
- ventricular ectopic beats
- sinus tachycardia

An ECG recording during the arrhythmia will usually differentiate the common diagnosis of AF from other rare supraventricular rhythms, or the common occurrence of ventricular extrasystoles.
Consider ambulatory monitoring

When benign causes for AF not identified on ECG (e.g. multiple ectopics) or clinical suspicion of paroxysmal AF.

In patients with suspected paroxysmal AF undetected by standard ECG recording obtain by direct access request, where available:
  • a 24-hour ambulatory ECG monitor should be used in those with suspected asymptomatic episodes or symptomatic episodes less than 24-hours apart.

If direct access not available or if episodes are more than 24 hours apart, refer patient to general cardiology for appropriate investigation.
Where clinical suspicion of AF is low reassure and advise asymptomatic patients

Reassure and advise patient that:
- palpitations alone with no history suggestive of heart disease and a normal ECG are unlikely to represent a serious problem
- treatment to reduce risk is rarely needed and is usually given predominantly for symptomatic benefit

Provide written information on AF and explain when to seek further medical advice (such as worsening symptoms)
Different types of AF

There are five types of AF based on the presentation and duration of the arrhythmia:

- every patient who presents with AF for the first time is considered a patient with first diagnosed AF
- paroxysmal AF is self-terminating, usually within 48 hours
- persistent AF is present when an AF episode either lasts longer than 7 days or requires termination by cardioversion
- long-standing persistent AF has lasted for 1 year or longer when it is decided to adopt a rhythm control strategy
- permanent AF is said to exist when the presence of the arrhythmia is accepted by the patient (and physician) - rhythm control interventions are, by definition, not pursued in patients with permanent AF

Different types of AF are not mutually exclusive and the patient may have episodes of paroxysmal AF and occasional persistent AF.

Specialist input may be needed to categorize the patient on their most frequent presentation.
Lone AF and Stroke Risk in Lone AF

Lone atrial fibrillation:
- refers to AF without overt structural heart disease
- only considered as a diagnosis of exclusion if there is:
  - no history of cardiovascular disease or hypertension
  - no abnormal cardiac signs on physical examination
  - a normal chest X-ray and, apart from the presence of AF, a normal ECG - i.e. no indication of prior myocardial infarction or left ventricular hypertrophy

Stroke risk in lone AF patients:
- there are implications of labelling patients with a diagnosis of lone atrial AF, as this group is often considered to be at 'low risk', despite the fact that recent data have been inconclusive
- lone AF patients who are over age 65 years carry a very low cumulative stroke risk, estimated to be 1.3% over 15 years
- the probability of stroke in young patients with lone AF appears to increase with advancing age or development of hypertension, emphasizing the importance or re-assessment of risk factors for stroke over time
Scope:
- the assessment, diagnosis, and management of adults presenting with AF, including:
  - the management of AF with cardiovascular compromise
  - specific management recommendations for paroxysmal, persistent, and permanent AF
  - electrical cardioversion and pharmacological cardioversion
  - rate control versus rhythm control
  - consideration of stroke risk stratification and antithrombotic therapy
  - referral criteria for cardiology

Out of scope:
- the assessment and management of AF in children
- management of valvular AF
- postoperative AF
- AF following an ischaemic event

Definition:
- AF is an arrhythmia that results from irregular, disorganised electrical activity in the atria, leading to an irregular ventricular rhythm:
  - ventricular rate of untreated AF often averages between 160-180 beats per minute (typically slower in elderly people)

Incidence and prevalence:
- estimates suggest a substantial increase in the prevalence of AF
- the true prevalence of AF for the population of England is estimated at 2.0%
- AF is the most common sustained cardiac arrhythmia
- prevalence is estimated to at least double in the next 50 years as the population ages

Aetiology:
- often caused by co-existing medical conditions - both cardiac and non-cardiac:
  - can develop transiently as a result of severe illness
  - is frequently seen in elderly patients when they are septic and unwell and reverts spontaneously when they improve
  - is a frequent common complication of post-cardiac surgery
  - the most common causes of AF are ischaemic heart disease, hypertension, valvular heart disease, and hyperthyroidism

Causes and risk factors include:
- ageing:
  - increases risk of developing AF
- hypertension:
  - is a risk factor for first diagnosed AF and AF-related complications
  - symptomatic heart failure:
  - is found in 30% of AF patients and AF is found in 30-40% of heart failure patients
  - heart failure can be a consequence and a cause of arrhythmia
- tachycardiomyopathy:
  - should be suspected when left ventricular dysfunction is found in patients with fast ventricular rate but no signs of structural heart disease
  - valvular heart disease:
  - is found in approximately 30% of AF patients
- cardiomyopathies:
  - carry an increased risk for AF, especially in younger patients
  - a small proportion of patients with 'lone' AF carry known mutations for 'electrical' cardiomyopathies
- atrial septal defect:
  - is associated with AF in 10-15% of patients
  - association has important clinical implications for antithrombotic management of patients with previous stroke or TIA
  - other congenital heart defects
  - coronary artery disease
- thyroid dysfunction:
  - can be the sole cause of AF
  - may predispose to AF-related complications
- obesity:
  - is found in 25% of AF patients
  - diabetes mellitus requiring medical treatment:
  - is found in 20% of AF patients
  - may contribute to atrial damage
- COPD:
  - is found in 10-15% of AF patients
  - may possibly a marker for cardiovascular risk rather than a specific predisposing factor
- sleep apnoea:
  - especially in association with hypertension, diabetes mellitus, and structural heart disease
  - may be a pathophysiological factor for AF
- chronic renal disease:
  - present in 10-15% of AF patients
  - may increase risk of AF-related cardiovascular complications
  - excessive alcohol consumption

Prognosis:
- AF is commonly associated with, and complicated by, congestive heart failure and stroke:
  - confers a 5-fold increased risk of stroke
  - AF-associated ischaemic strokes are often fatal, and patients who survive are left more disabled and more likely to suffer a recurrence than patients with other causes of stroke
  - the risk of death from AF-related stroke is doubled and the cost of care is increased 1.5-fold
- AF progresses from short, rare episodes, to longer and more frequent attacks:
  - over time (years), many patients will develop sustained forms of AF
  - only a small proportion of patients (2-3%) without AF-promoting conditions will remain in paroxysmal AF over several decades