

Atrial fibrillation: the management of atrial fibrillation

NICE guideline

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If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

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Introduction

Atrial fibrillation is the most common sustained cardiac arrhythmia, and estimates suggest its prevalence is increasing. If left untreated atrial fibrillation is a significant risk factor for stroke and other morbidities. Men are more commonly affected than women and the prevalence increases with age.

The aim of treatment is to prevent complications, particularly stroke, and alleviate symptoms. Drug treatments include anticoagulants to reduce the risk of stroke and antiarrhythmics to restore or maintain the normal heart rhythm or to slow the heart rate in people who remain in atrial fibrillation. Non-pharmacological management includes electrical cardioversion, which may be used to 'shock' the heart back to its normal rhythm, and catheter or surgical ablation to create lesions to stop the abnormal electrical impulses that cause atrial fibrillation.

This updated guideline addresses several clinical areas in which new evidence has become available, including stroke and bleeding risk stratification, the role of new antithrombotic agents and ablation strategies

The recommendations apply to adults (18 years or older) with new-onset or acute atrial fibrillation or chronic atrial fibrillation, including paroxysmal (recurrent), persistent and permanent atrial fibrillation. They do not apply to people with congenital heart disease precipitating atrial fibrillation.

Drug recommendations

The guideline will assume that prescribers will use a drug's summary of product characteristics to inform decisions made with individual patients.

Patient-centred care

This guideline offers best practice advice on the care of adults (aged 18 and over) with suspected or diagnosed atrial fibrillation

Patients and healthcare professionals have rights and responsibilities as set out in the [NHS Constitution for England](#) – all NICE guidance is written to reflect these. Treatment and care should take into account individual needs and preferences. Patients should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If the patient is under 16, their family or carers should also be given information and support to help the child or young person to make decisions about their treatment. Healthcare professionals should follow the [Department of Health's advice on consent](#). If someone does not have capacity to make decisions, healthcare professionals should follow the [code of practice that accompanies the Mental Capacity Act](#) and the supplementary [code of practice on deprivation of liberty safeguards](#).

NICE has produced guidance on the components of good patient experience in adult NHS services. All healthcare professionals should follow the recommendations in [Patient experience in adult NHS services](#).

Strength of recommendations

Some recommendations can be made with more certainty than others. The Guideline Development Group makes a recommendation based on the trade-off between the benefits and harms of an intervention, taking into account the quality of the underpinning evidence. For some interventions, the Guideline Development Group is confident that, given the information it has looked at, most patients would choose the intervention. The wording used in the recommendations in this guideline denotes the certainty with which the recommendation is made (the strength of the recommendation).

For all recommendations, NICE expects that there is discussion with the patient about the risks and benefits of the interventions, and their values and preferences. This discussion aims to help them to reach a fully informed decision (see also 'Patient-centred care').

Interventions that must (or must not) be used

We usually use 'must' or 'must not' only if there is a legal duty to apply the recommendation. Occasionally we use 'must' (or 'must not') if the consequences of not following the recommendation could be extremely serious or potentially life threatening.

Interventions that should (or should not) be used – a 'strong' recommendation

We use 'offer' (and similar words such as 'refer' or 'advise') when we are confident that, for the vast majority of patients, an intervention will do more good than harm, and be cost effective. We use similar forms of words (for example, 'Do not offer...') when we are confident that an intervention will not be of benefit for most patients.

Interventions that could be used

We use 'consider' when we are confident that an intervention will do more good than harm for most patients, and be cost effective, but other options may be similarly cost effective. The choice of intervention, and whether or not to have the intervention at all, is more likely to depend on the patient's values

and preferences than for a strong recommendation, and so the healthcare professional should spend more time considering and discussing the options with the patient.

Recommendation wording in guideline updates

NICE began using this approach to denote the strength of recommendations in guidelines that started development after publication of the 2009 version of 'The guidelines manual' (January 2009). This does not apply to any recommendations shaded in grey and ending **[2006]** (see 'Update information' box below for details about how recommendations are labelled). In particular, for recommendations labelled **[2006]**, the word 'consider' may not necessarily be used to denote the strength of the recommendation.

Update information

This guidance is an update of NICE clinical guideline 36 (published June 2006) and will replace it.

New recommendations have been added for a personalised package of care and information, referral for specialised management, stroke prevention, rate and rhythm control and the management of acute atrial fibrillation.

You are invited to comment on the new and updated recommendations in this guideline. These are marked as **[new 2014]** if the evidence has been reviewed and the recommendation has been added or updated.

You are also invited to comment on recommendations that NICE proposes to delete from the 2006 guideline, because either the evidence has been reviewed and the recommendations have been updated, or NICE has updated other relevant guidance and has replaced the original recommendations. Appendix A sets out these recommendations and includes details of replacement recommendations. Where there is no replacement recommendation, an explanation for the proposed deletion is given.

Where recommendations are shaded in grey and end **[2006]**, **[2010]**, **[2012]** or **[2013]**, the evidence has not been reviewed since the original guideline. We will not be able to accept comments on these recommendations. Yellow shading in these recommendations indicates wording changes that have been made for the purposes of clarification only.

Where recommendations are shaded in grey and end **[2006, amended 2014]**, the evidence has not been reviewed but changes have been made to the recommendation wording that change the meaning (for example, because of equalities duties or a change in the availability of drugs, or incorporated guidance has been updated). These changes are marked with yellow shading, and explanations of the reasons for the changes are given in appendix A for

information. We will not be able to accept comments on these recommendations.

The original NICE guideline and supporting documents are available [here](#).

Key priorities for implementation

The following recommendations have been identified as priorities for implementation. The full list of recommendations is in [section 1](#).

Personalised package of care and information

- Offer people with atrial fibrillation a personalised package of care. Ensure that the package of care is documented and delivered, and that it includes:
 - measures to prevent stroke
 - rate control
 - assessment of symptoms for rhythm control
 - psychological support if needed
 - up-to-date and comprehensive education and information on:
 - ◇ cause, effects and possible complications of atrial fibrillation
 - ◇ management of rate and rhythm control
 - ◇ anticoagulation
 - ◇ practical advice on anticoagulation in line with [recommendation 1.3.1](#) in ‘Venous thromboembolic diseases’ (NICE clinical guideline 144)
 - ◇ support networks. **[new 2014]** [1.2.1]

Referral for specialised management

- Refer people promptly¹ at any stage if treatment fails to control the symptoms of atrial fibrillation and referral for more specialised management is needed. **[new 2014]** [1.3.1]

Assessment of stroke and bleeding risks

Stroke risk

- Use the [CHA₂DS₂-VASc](#) stroke risk score to assess stroke risk in people with any of the following:

¹The Guideline Development Group defined ‘promptly’ as no longer than 4 weeks after the final failed treatment or no longer than 4 weeks after recurrence of atrial fibrillation following cardioversion.

- symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation
- atrial flutter
- a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. **[new 2014]** [1.4.1]

Bleeding risk

- Use the [HAS-BLED](#) score to assess the risk of bleeding in people who are starting or have started anticoagulation and to highlight, correct and monitor the following modifiable risk factors:
 - uncontrolled hypertension
 - poor control of INR ('labile INRs')
 - concurrent medication, for example concomitant use of aspirin or an NSAID
 - harmful alcohol consumption. **[new 2014]** [1.4.2]

Interventions to prevent stroke

Anticoagulation

- Offer anticoagulation to people with a [CHA₂DS₂-VASc](#) score of 2 or above, taking bleeding risk into account. **[new 2014]** [1.5.1]

Assessing anticoagulation control with vitamin K antagonists

- Calculate the person's time in therapeutic range (TTR) at each visit. When calculating TTR:
 - use a validated method of measurement such as the Rosendaal method for computer-assisted dosing or proportion of tests in range for manual dosing
 - exclude measurements taken during the first 6 weeks of treatment
 - calculate TTR over a maintenance period of at least 6 months. **[new 2014]** [1.5.9]
- If poor anticoagulation control cannot be improved, evaluate the risks and benefits of alternative stroke prevention strategies and discuss these with the person. **[new 2014]** [1.5.12]

Antiplatelets

- Do not offer aspirin monotherapy solely for stroke prevention to people with atrial fibrillation. **[new 2014]** [1.5.13]

Rate and rhythm control

When to offer rate or rhythm control

- Assess and offer rate control as the first-line strategy to all people with atrial fibrillation. **[new 2014]** [1.6.1]

Left atrial ablation and a pace and ablate strategy

Left atrial ablation

- If drug treatment has failed to control symptoms of atrial fibrillation or is unsuitable:
 - offer left atrial catheter ablation to people with paroxysmal atrial fibrillation
 - consider left atrial surgical or catheter ablation for people with persistent atrial fibrillation
 - discuss the risks and benefits with the person². **[new 2014]** [1.6.21]

²For more information on left atrial catheter ablation see [Percutaneous balloon cryoablation for pulmonary vein isolation in atrial fibrillation](#) (NICE interventional procedure guidance 427), [Percutaneous endoscopic catheter laser balloon pulmonary vein isolation for atrial fibrillation](#) (NICE interventional procedure guidance 399) and [Percutaneous \(non-thoracoscopic\) epicardial catheter radiofrequency ablation for atrial fibrillation](#) (NICE interventional procedure guidance 294). For more information on left atrial surgical ablation without thoracotomy see [Thoracoscopic epicardial radiofrequency ablation for atrial fibrillation](#) (NICE interventional procedure guidance 286).

1 Recommendations

The following guidance is based on the best available evidence. The [full guideline](#) gives details of the methods and the evidence used to develop the guidance.

These recommendations apply to adults (aged 18 and over) with suspected or diagnosed atrial fibrillation.

1.1 *Diagnosis and identification*

1.1.1 Perform manual pulse palpation to assess for the presence of an irregular pulse that may indicate underlying atrial fibrillation in people presenting with any of the following:

- breathlessness/dyspnoea
- palpitations
- syncope/dizziness
- chest discomfort
- stroke/transient ischaemic attack. **[2006]**

1.1.2 Perform an electrocardiogram (ECG) in all people, whether symptomatic or not, in whom atrial fibrillation is suspected because an irregular pulse has been detected. **[2006]**

1.1.3 In people with suspected paroxysmal atrial fibrillation³ undetected by standard ECG recording:

- use a 24-hour ambulatory ECG monitor in those with suspected asymptomatic episodes or symptomatic episodes less than 24 hours apart
- use an event recorder ECG in those with symptomatic episodes more than 24 hours apart. **[2006]**

³ Paroxysmal atrial fibrillation spontaneously terminates within 7 days, usually within 48 hours.

1.1.4 Perform transthoracic echocardiography (TTE) in people with atrial fibrillation:

- for whom a baseline echocardiogram is important for long-term management
 - for whom a rhythm-control strategy that includes cardioversion (electrical or pharmacological) is being considered
 - in whom there is a high risk or a suspicion of underlying structural/functional heart disease (such as heart failure or heart murmur) that influences their subsequent management (for example, choice of antiarrhythmic drug)
 - in whom refinement of clinical risk stratification for antithrombotic therapy is needed (see [section 1.4 Assessment of stroke and bleeding risks](#) and [section 1.5 Interventions to prevent stroke](#)).
- [2006, amended 2014]**

1.1.5 Do not routinely perform TTE solely for the purpose of further stroke risk stratification in people with atrial fibrillation for whom the need to initiate anticoagulation therapy has already been agreed on appropriate clinical criteria (see [section 1.4 Assessment of stroke and bleeding risks](#) and [section 1.5 Interventions to prevent stroke](#)).

[2006, amended 2014]

1.1.6 Perform transoesophageal echocardiography (TOE) in people with atrial fibrillation:

- when TTE demonstrates an abnormality (such as valvular heart disease) that warrants further specific assessment
- in whom TTE is technically difficult and/or of questionable quality and where there is a need to exclude cardiac abnormalities
- for whom TOE-guided cardioversion is being considered. **[2006]**

1.2 *Personalised package of care and information*

1.2.1 Offer people with atrial fibrillation a personalised package of care. Ensure that the package of care is documented and delivered, and that it includes:

- measures to prevent stroke
- rate control
- assessment of symptoms for rhythm control
- psychological support if needed
- up-to-date and comprehensive education and information on:
 - cause, effects and possible complications of atrial fibrillation
 - management of rate and rhythm control
 - anticoagulation
 - practical advice on anticoagulation in line with [recommendation 1.3.1](#) in ‘Venous thromboembolic diseases’ (NICE clinical guideline 144)
 - support networks. **[new 2014]**

1.2.2 NICE has produced guidance on the components of good patient experience in adult NHS services. Follow the recommendations in [Patient experience in adult NHS services](#) (NICE clinical guidance 138). **[new 2014]**

1.3 *Referral for specialised management*

1.3.1 Refer people promptly⁴ at any stage if treatment fails to control the symptoms of atrial fibrillation and referral for more specialised management is needed. **[new 2014]**

⁴ The Guideline Development Group defined ‘promptly’ as no longer than 4 weeks after the final failed treatment or no longer than 4 weeks after recurrence of atrial fibrillation following cardioversion.

1.4 Assessment of stroke and bleeding risks

Stroke risk

1.4.1 Use the [CHA₂DS₂-VASc](#) stroke risk score to assess stroke risk in people with any of the following:

- symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation
- atrial flutter
- a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. **[new 2014]**

Bleeding risk

1.4.2 Use the [HAS-BLED](#) score to assess the risk of bleeding in people who are starting or have started anticoagulation and to highlight, correct and monitor the following modifiable risk factors:

- uncontrolled hypertension
- poor control of INR ('labile INRs')
- concurrent medication, for example concomitant use of aspirin or an NSAID
- harmful alcohol consumption. **[new 2014]**

1.4.3 When discussing the benefits and risks of anticoagulation, tell the person that:

- for most people the benefit of anticoagulation outweighs the bleeding risk
- for people with an increased risk of bleeding the benefit of anticoagulation may not always outweigh the bleeding risk, and careful monitoring of bleeding risk is important. **[new 2014]**

1.4.4 Do not withhold anticoagulation solely because the person is at risk of having a fall. **[new 2014]**

1.5 *Interventions to prevent stroke*

Anticoagulation

Anticoagulation may be with apixaban, dabigatran etexilate, rivaroxaban or a vitamin K antagonist.

1.5.1 Offer anticoagulation to people with a [CHA₂DS₂-VASc](#) score of 2 or above, taking bleeding risk into account. **[new 2014]**

1.5.2 Consider anticoagulation for men with a [CHA₂DS₂-VASc](#) score of 1, and take bleeding risk into account. **[new 2014]**

Apixaban

1.5.3 Apixaban is recommended as an option for preventing stroke and systemic embolism within its marketing authorisation, that is, in people with nonvalvular atrial fibrillation with 1 or more risk factors such as:

- prior stroke or transient ischaemic attack
- age 75 years or older
- hypertension
- diabetes mellitus
- symptomatic heart failure.

[This recommendation is from [Apixaban for preventing stroke and systemic embolism in people with nonvalvular atrial fibrillation](#) (NICE technology appraisal guidance 275).] **[2013]**

1.5.4 The decision about whether to start treatment with apixaban should be made after an informed discussion between the clinician and the person about the risks and benefits of apixaban compared with warfarin, dabigatran etexilate and rivaroxaban. For people who are taking warfarin, the potential risks and benefits of switching to apixaban should be considered in light of their level of international normalised ratio (INR) control. [This recommendation is from [Apixaban for preventing stroke and systemic embolism in people](#)

[with nonvalvular atrial fibrillation](#) (NICE technology appraisal guidance 275).] [2013]

Dabigatran etexilate

1.5.5 Dabigatran etexilate is recommended as an option for the prevention of stroke and systemic embolism within its licensed indication, that is, in people with nonvalvular atrial fibrillation with one or more of the following risk factors:

- previous stroke, transient ischaemic attack or systemic embolism
- left ventricular ejection fraction below 40%
- symptomatic heart failure of New York Heart Association (NYHA) class 2 or above
- age 75 years or older
- age 65 years or older with one of the following: diabetes mellitus, coronary artery disease or hypertension.

[This recommendation is from [Dabigatran etexilate for the prevention of stroke and systemic embolism in atrial fibrillation](#) (NICE technology appraisal guidance 249).] [2012]

1.5.6 The decision about whether to start treatment with dabigatran etexilate should be made after an informed discussion between the clinician and the person about the risks and benefits of dabigatran etexilate compared with warfarin. For people who are taking warfarin, the potential risks and benefits of switching to dabigatran etexilate should be considered in light of their level of international normalised ratio (INR) control. [This recommendation is from [Dabigatran etexilate for the prevention of stroke and systemic embolism in atrial fibrillation](#) (NICE technology appraisal guidance 249).] [2012]

Rivaroxaban

1.5.7 Rivaroxaban is recommended as an option for the prevention of stroke and systemic embolism within its licensed indication, that is, in people with nonvalvular atrial fibrillation with one or more risk factors such as:

- congestive heart failure
- hypertension
- age 75 years or older
- diabetes mellitus
- prior stroke or transient ischaemic attack.

[This recommendation is from [Rivaroxaban for the prevention of stroke and systemic embolism in people with atrial fibrillation](#) (NICE technology appraisal guidance 256).] **[2012]**

1.5.8 The decision about whether to start treatment with rivaroxaban should be made after an informed discussion between the clinician and the person about the risks and benefits of rivaroxaban compared with warfarin. For people who are taking warfarin, the potential risks and benefits of switching to rivaroxaban should be considered in light of their level of international normalised ratio (INR) control. [This recommendation is from [Rivaroxaban for the prevention of stroke and systemic embolism in people with atrial fibrillation](#) (NICE technology appraisal guidance 256).] **[2012]**

Assessing anticoagulation control with vitamin K antagonists

1.5.9 Calculate the person's time in therapeutic range (TTR) at each visit. When calculating TTR:

- use a validated method of measurement such as the Rosendaal method for computer-assisted dosing or proportion of tests in range for manual dosing
- exclude measurements taken during the first 6 weeks of treatment

- calculate TTR over a maintenance period of at least 6 months. **[new 2014]**

1.5.10 Reassess anticoagulation for a person with poor anticoagulation control shown by any of the following:

- 2 INR values higher than 5 or 1 INR value higher than 8 within the past 6 months
- 2 INR values less than 1.5 within the past 6 months
- TTR less than 65%. **[new 2014]**

1.5.11 When reassessing anticoagulation, take into account and if possible correct the following factors that may contribute to poor anticoagulation control:

- cognitive function
- adherence to prescribed therapy
- illness
- interacting drug therapy
- lifestyle factors including diet and alcohol consumption. **[new 2014]**

1.5.12 If poor anticoagulation control cannot be improved, evaluate the risks and benefits of alternative stroke prevention strategies and discuss these with the person. **[new 2014]**

Self-monitoring and self-management of vitamin K antagonists

NICE is developing diagnostics guidance on [Self-monitoring coagulometers \(CoaguChek XS system, INRatio2 PT/INR monitor and ProTime Microcoagulation system\) for self-testing or self-managing coagulation status in people with atrial fibrillation or heart valve disease for whom long-term vitamin K antagonist therapy is intended](#) (publication expected June 2014).

Antiplatelets

1.5.13 Do not offer aspirin monotherapy solely for stroke prevention to people with atrial fibrillation. **[new 2014]**

- 1.5.14 Only consider dual antiplatelet therapy with aspirin and clopidogrel for stroke prevention if anticoagulation is contraindicated or not tolerated and the person has a [CHA₂DS₂-VASc](#) score of 2 or above. **[new 2014]**

Review

- 1.5.15 For people with atrial fibrillation who are not taking an anticoagulant, review stroke risk when they reach age 65 **or** if they develop any of the following at any age:
- diabetes
 - heart failure
 - peripheral arterial disease
 - coronary heart disease
 - stroke, transient ischaemic attack or systemic thromboembolism.
- [new 2014]**
- 1.5.16 For people who are not taking an anticoagulant because of bleeding risk or other factors, review stroke and bleeding risks annually, and ensure that all reviews and decisions are documented. **[new 2014]**
- 1.5.17 For people who are taking an anticoagulant, review the need for anticoagulation and the quality of anticoagulation control at least annually, or more frequently if clinically relevant events occur. **[new 2014]**

Left atrial appendage occlusion

- 1.5.18 Do not offer left atrial appendage occlusion (LAAO) as an alternative to anticoagulation unless anticoagulation is contraindicated or not tolerated. **[new 2014]**
- 1.5.19 Consider LAAO if anticoagulation is contraindicated or not tolerated and discuss the benefits and risks of LAAO with the person. For more information see [Percutaneous occlusion of the left atrial appendage in non-valvular atrial fibrillation for the prevention of](#)

[thromboembolism](#) (NICE interventional procedure guidance 349).
[new 2014]

1.6 Rate and rhythm control

When to offer rate or rhythm control

- 1.6.1 Assess and offer rate control as the first-line strategy to all people with atrial fibrillation. [new 2014]
- 1.6.2 Offer rhythm control to people with or without continuing symptoms if they have any of the following:
- atrial fibrillation with a reversible cause
 - heart failure thought to be primarily caused by atrial fibrillation
 - new-onset atrial fibrillation. [new 2014]

Rate control

- 1.6.3 Offer a beta-blocker or a rate-limiting calcium-channel blocker as initial monotherapy to people with atrial fibrillation who need drug treatment as part of a rate control strategy. Take into account the person's symptoms, heart rate, comorbidities and preferences when considering drug treatment. [new 2014]
- 1.6.4 Consider digoxin monotherapy for people with non-paroxysmal atrial fibrillation only if they are sedentary (do no or very little physical exercise). [new 2014]
- 1.6.5 If monotherapy does not control symptoms, consider combination therapy with any 2 of the following:
- a beta-blocker
 - diltiazem
 - digoxin. [new 2014]
- 1.6.6 Do not offer amiodarone for long-term rate control. [new 2014]

Rhythm control

- 1.6.7 Consider pharmacological and/or electrical rhythm control for people with atrial fibrillation whose symptoms continue after heart rate has been controlled or a rate-control strategy has not been successful. **[new 2014]**

Cardioversion

- 1.6.8 For people having cardioversion for atrial fibrillation that has persisted for longer than 48 hours, offer electrical (rather than pharmacological) cardioversion. **[new 2014]**
- 1.6.9 Consider amiodarone therapy starting 4 weeks before and continuing for up to 12 months after electrical cardioversion to maintain sinus rhythm, and discuss the benefits and risks of amiodarone with the person. **[new 2014]**
- 1.6.10 For people with atrial fibrillation of greater than 48 hours' duration, in whom elective cardioversion is indicated:

- both transoesophageal echocardiography (TOE)-guided cardioversion and conventional cardioversion should be considered equally effective
- a TOE-guided cardioversion strategy should be considered:
 - where experienced staff and appropriate facilities are available **and**
 - where a minimal period of precardioversion anticoagulation is indicated due to the person's choice or bleeding risks. **[2006]**

Drug treatment for long-term rhythm control

- 1.6.11 Assess the need for drug treatment for long-term rhythm control, taking into account associated comorbidities, risks of treatment and likelihood of recurrence of atrial fibrillation. **[new 2014]**

1.6.12 If drug treatment for long-term rhythm control is needed, offer a beta-blocker as first-line treatment unless there are contraindications. **[new 2014]**

1.6.13 Take into account the potential risks of sotalol at doses that are therapeutic for a class III effect, especially for people with renal impairment or low body weight. **[new 2014]**

1.6.14 If beta-blockers are contraindicated or unsuccessful, assess the suitability of alternative drugs for rhythm control, taking comorbidities into account. **[new 2014]**

1.6.15 Dronedaronone is recommended as an option for the maintenance of sinus rhythm after successful cardioversion in people with paroxysmal or persistent atrial fibrillation:

- whose atrial fibrillation is not controlled by first-line therapy (usually including beta-blockers), that is, as a second-line treatment option and after alternative options have been considered **and**
- who have at least 1 of the following cardiovascular risk factors:
 - hypertension requiring drugs of at least 2 different classes
 - diabetes mellitus
 - previous transient ischaemic attack, stroke or systemic embolism
 - left atrial diameter of 50 mm or greater **or**
 - age 70 years or older **and**
- who do not have left ventricular systolic dysfunction **and**
- who do not have a history of, or current, heart failure.

[This recommendation is from [Dronedaronone for the treatment of non-permanent atrial fibrillation](#) (NICE technology appraisal guidance 197).] **[2010]**

1.6.16 People who do not meet the criteria in recommendation 1.6.15 who are currently receiving dronedaronone should have the option to

continue treatment until they and their clinicians consider it appropriate to stop. [This recommendation is from [Dronedarone for the treatment of non-permanent atrial fibrillation](#) (NICE technology appraisal guidance 197).] **[2010]**

1.6.17 Consider amiodarone for people with left ventricular impairment or heart failure. **[new 2014]**

1.6.18 Do not offer class 1 antiarrhythmic drugs such as flecainide or propafenone to people with ischaemic or structural heart disease. **[new 2014]**

1.6.19 Where people have infrequent paroxysms and few symptoms, or where symptoms are induced by known precipitants (such as alcohol, caffeine), a 'no drug treatment' strategy or a 'pill-in-the-pocket' strategy should be considered and discussed with the person. **[2006]**

1.6.20 In people with paroxysmal atrial fibrillation, a 'pill-in-the-pocket' strategy should be considered for those who:

- have no history of left ventricular dysfunction, or valvular or ischaemic heart disease **and**
- have a history of infrequent symptomatic episodes of paroxysmal atrial fibrillation; **and**
- have a systolic blood pressure greater than 100 mmHg and a resting heart rate above 70 bpm **and**
- are able to understand how to, and when to, take the medication. **[2006]**

Left atrial ablation and a pace and ablate strategy

Left atrial ablation

1.6.21 If drug treatment has failed to control symptoms of atrial fibrillation or is unsuitable:

- offer left atrial catheter ablation to people with paroxysmal atrial fibrillation
- consider left atrial surgical or catheter ablation for people with persistent atrial fibrillation
- discuss the risks and benefits with the person⁵. **[new 2014]**

1.6.22 Offer left atrial surgical ablation at the same time as other cardiothoracic surgery to people with symptomatic atrial fibrillation⁶. **[new 2014]**

Pace and ablate strategy

1.6.23 Consider a pace and atrioventricular node ablate strategy for people with permanent atrial fibrillation and symptoms or left ventricular dysfunction thought to be caused by high ventricular rates. **[new 2014]**

1.6.24 When considering a pace and atrioventricular node ablate strategy, reassess symptoms and the consequent need for ablation after pacing has been carried out and drug treatment further optimised. **[new 2014]**

1.6.25 Consider left atrial catheter ablation before pacing and atrioventricular node ablation for people with paroxysmal atrial fibrillation or heart failure caused by non-permanent (paroxysmal or persistent) atrial fibrillation. **[new 2014]**

⁵For more information on left atrial catheter ablation see [Percutaneous balloon cryoablation for pulmonary vein isolation in atrial fibrillation](#) (NICE interventional procedure guidance 427), [Percutaneous endoscopic catheter laser balloon pulmonary vein isolation for atrial fibrillation](#) (NICE interventional procedure guidance 399) and [Percutaneous \(non-thoracoscopic\) epicardial catheter radiofrequency ablation for atrial fibrillation](#) (NICE interventional procedure guidance 294). For more information on left atrial surgical ablation without thoracotomy see [Thoracoscopic epicardial radiofrequency ablation for atrial fibrillation](#) (NICE interventional procedure guidance 286).

⁶For more information on left atrial surgical ablation at the same time as other cardiothoracic surgery see [High-intensity focused ultrasound for atrial fibrillation in association with other cardiac surgery](#) (NICE interventional procedure guidance 184), [Cryoablation for atrial fibrillation in association with other cardiac surgery](#) (NICE interventional procedure guidance 123), [Microwave ablation for atrial fibrillation in association with other cardiac surgery](#) (NICE interventional procedure guidance 122) and [Radiofrequency ablation for atrial fibrillation in association with other cardiac surgery](#) (NICE interventional procedure guidance 121).

1.7 *Management for people presenting acutely with haemodynamic instability caused by atrial fibrillation*

Rate and rhythm control

- 1.7.1 Offer emergency electrical cardioversion, without delaying to achieve anticoagulation, to people with life-threatening haemodynamic instability caused by new-onset atrial fibrillation. **[new 2014]**
- 1.7.2 If a rate control strategy has been selected, offer pharmacological rate control to people with atrial fibrillation presenting acutely with haemodynamic instability likely to be caused mainly by a poorly controlled ventricular rate. **[new 2014]**
- 1.7.3 If pharmacological cardioversion has been selected for new-onset atrial fibrillation, offer:
- flecainide or amiodarone if there is no evidence of structural or ischaemic heart disease **or**
 - amiodarone if there is evidence of structural heart disease. **[new 2014]**
- 1.7.4 Do not offer magnesium or a calcium-channel blocker for pharmacological cardioversion. **[new 2014]**

Anticoagulation

1.7.5 In people with **new-onset** atrial fibrillation who are receiving no, or subtherapeutic, anticoagulation therapy:

- in the absence of contraindications, **offer** heparin at initial presentation
- continue heparin until a full assessment has been made and appropriate antithrombotic therapy has been started, based on risk stratification (see [section 1.4 Assessment of stroke and bleeding risks](#) and [section 1.5 Interventions to prevent stroke](#)). **[2006, amended 2014]**

1.7.6 In people with a confirmed diagnosis of atrial fibrillation of recent onset (less than 48 hours since onset), **offer** oral anticoagulation if:

- stable sinus rhythm is not successfully restored within the same 48-hour period following onset of acute atrial fibrillation **or**
- there are factors indicating a high risk of atrial fibrillation recurrence⁷ **or**
- it is recommended [in section 1.4 Assessment of stroke and bleeding risks](#) and [section 1.5 Interventions to prevent stroke](#).
[2006, amended 2014]

1.7.7 In people with **new-onset** atrial fibrillation where there is uncertainty over the precise time since onset, **offer** oral anticoagulation as for persistent atrial fibrillation (see [section 1.4 Assessment of stroke and bleeding risks](#) and [section 1.5 Interventions to prevent stroke](#)).
[2006, amended 2014]

1.8 Initial management of stroke and atrial fibrillation

1.8.1 For guidance on the initial management of stroke and atrial fibrillation see [recommendation 1.4.3.1](#) in 'Stroke' (NICE clinical guideline 68). **[new 2014]**

1.9 Prevention and management of postoperative atrial fibrillation

1.9.1 In people undergoing cardiothoracic surgery:

- reduce the risk of postoperative atrial fibrillation by **offering** 1 of the following:
 - amiodarone
 - a beta-blocker
- sotalol ([see recommendation 1.6.13](#))
 - a rate-limiting calcium antagonist.

⁷Factors indicating a high risk of atrial fibrillation recurrence include: a history of failed attempts at cardioversion; structural heart disease (mitral valve disease, left ventricular dysfunction or an enlarged left atrium); a prolonged history of atrial fibrillation (more than 12 months); previous recurrences of atrial fibrillation.

- do not offer digoxin. [2006, amended 2014]

- 1.9.2 In people undergoing cardiothoracic surgery on pre-existing beta-blocker therapy, continue this treatment unless contraindications develop (such as postoperative bradycardia or hypotension). [2006, amended 2014]
- 1.9.3 Unless contraindicated, offer a rhythm-control strategy as the initial management option for the treatment of postoperative atrial fibrillation following cardiothoracic surgery. [2006, amended 2014]
- 1.9.4 Unless contraindicated, manage postoperative atrial fibrillation following non-cardiothoracic surgery as for new-onset atrial fibrillation with any other precipitant. [2006, amended 2014]
- 1.9.5 In the prophylaxis and management of postoperative atrial fibrillation, use appropriate antithrombotic therapy and correct identifiable precipitants (such as electrolyte imbalance or hypoxia). [2006, amended 2014]

2 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future.

2.1 *Cognitive behavioural therapy for people with atrial fibrillation*

What is the clinical and cost effectiveness of cognitive behavioural therapy (CBT) compared with usual care for people with newly diagnosed atrial fibrillation?

Why this is important

There is currently little evidence to support psychological care for people with atrial fibrillation. Assessing the effectiveness of CBT in lowering people's levels of anxiety, reducing episodes of planned or unplanned care and

improving their quality of life will help determine whether CBT should be an essential component of atrial fibrillation services. **[new 2014]**

2.2 *Drug treatment for people with atrial fibrillation aged 75 and over*

What is the comparative effectiveness of the 3 main drug classes used for rate control (beta-blockers, calcium-channel blockers and digoxin) in people with atrial fibrillation aged 75 and over in controlling symptoms, improving quality of life and reducing morbidity and mortality?

Why this is important

Atrial fibrillation is the most common arrhythmia in people aged 75 and over, with a prevalence of over 15%. This guideline recommends rate control of atrial fibrillation as the treatment of choice. However, there are no good-quality randomised controlled trials (RCTs) comparing the 3 main drug classes (beta-blockers, calcium-channel blockers and digoxin) used for rate control, and no studies specifically addressing adults aged 75 and over.

Drug treatment for rate control in people with atrial fibrillation aged over 75 is particularly challenging because of comorbidities. For example, heart failure is prevalent in this age group but RCTs comparing beta-blockers with digoxin in people aged over 70 are of low quality. Although these RCTs suggest no advantage of beta-blockers compared with digoxin for rate control, and an increased incidence of hospitalisations with heart failure, current guidelines propose beta-blockers as first-line therapy for rate control. Other conditions such as chronic kidney disease, ischaemic heart disease, valvular heart disease, concomitant heart conduction disorders, dementia, pulmonary disease, hypo- and hypertension and frailty might also affect the choice of drugs for this age group. Optimal treatments for people with these comorbidities are not known.

Optimising drug treatment for atrial fibrillation in this age group has the potential to reduce hospitalisations and the need for services such as GPs and specialist nurses to manage secondary symptoms, with consequent economic benefits. **[new 2014]**

2.3 *Case volume as an indicator of quality for people offered left atrial catheter ablation*

What is the effect of case volume on complications and outcomes after left atrial catheter ablation?

Why this is important

As interest in left atrial catheter ablation for atrial fibrillation increases, more clinicians are taking up this procedure. Many people offered left atrial catheter ablation want to know whether they will receive a safe and effective treatment. If increased experience and case volume are associated with improved outcomes, the case volume of a centre or a clinician is an easily measurable parameter that people with atrial fibrillation could use to help judge the quality of the procedure they are likely to receive. [new 2014]

2.4 *Novel oral anticoagulants*

Do people with atrial fibrillation whose anticoagulant control is poor, or is predicted to be poor, with warfarin benefit from changing to one of the novel oral anticoagulants (NOACs)?

Why this is important

Trials of the NOACs have shown that the degree of benefit of these agents compared with warfarin may depend on the time in therapeutic range (TTR) of the warfarin group. These trials assessed the degree of benefit in relation to the mean TTR for the warfarin group in that country.

However, the inference of benefit is based on a number of assumptions. It is unclear that the population TTR can be extrapolated to decision-making in an individual. If, for example, an individual's low TTR is a result of poor compliance, it is unlikely that compliance will improve with a NOAC and uncertain whether a NOAC will offer any benefit. Moreover, the threshold of TTR at which a NOAC might offer benefit is unclear. The same question can be extended to include people before they start warfarin treatment, using criteria that prospectively identify those likely to have poor control on warfarin.

A study with 2 arms should be carried out. One arm should randomise people with atrial fibrillation, whose control is poor with warfarin, to either continue warfarin treatment or change to a NOAC. The other arm should randomise people newly diagnosed with atrial fibrillation, who have not previously had anticoagulant therapy and in whom poor anticoagulant control is predicted (using the SAME-TT2R2 score), to have treatment with either warfarin or a NOAC. Outcomes should include stroke and other thromboembolic complications, major haemorrhage and death. **[new 2014]**

2.5 *Stroke risk assessment*

Can routine data from UK primary care databases clarify stroke risk in people with atrial fibrillation according to baseline risk factors and treatment?

Why this is important

There are several scores available to predict stroke risk in people with atrial fibrillation. Most have been derived from secondary care populations and validated in non-UK populations. The availability of routine primary care databases such as CPRD (The Clinical Practice Research Datalink) and THIN (The Health Improvement Network) provides the opportunity to assess these risk tools, and the impact of treatment on risk, in a non-selected UK population.

A prospective cohort study should be carried out to establish baseline risk in people with atrial fibrillation, using established risk scores, and to prospectively evaluate the outcomes of stroke and mortality, taking into account treatment and changes in risk over time.

The results would help determine the most effective means of providing stroke prevention in a non-selected general practice population and establish the discriminatory value of existing stroke risk scores. **[new 2014]**

3 Other information

3.1 *Scope and how this guideline was developed*

NICE guidelines are developed in accordance with a [scope](#) that defines what the guideline will and will not cover.

How this guideline was developed

NICE commissioned the National Clinical Guideline Centre to develop this guideline. The Centre established a Guideline Development Group (see section 4), which reviewed the evidence and developed the recommendations.

The methods and processes for developing NICE clinical guidelines are described in [The guidelines manual](#).

3.2 *Incorporated NICE guidance*

- [Apixaban for preventing stroke and systemic embolism in people with nonvalvular atrial fibrillation](#). NICE technology appraisal guidance 275 (2013).
- [Rivaroxaban for the prevention of stroke and systemic embolism in people with atrial fibrillation](#). NICE technology appraisal guidance 256 (2012).
- [Dabigatran etexilate for the prevention of stroke and systemic embolism in atrial fibrillation](#). NICE technology appraisal guidance 249 (2012).
- [Dronedrone for the treatment of non-permanent atrial fibrillation](#). NICE technology appraisal guidance 197 (2010).

3.3 *Related NICE guidance*

Details are correct at the time of consultation on the guideline (January 2014). Further information is available on [the NICE website](#).

Published

General

- [Patient experience in adult NHS services](#). NICE clinical guidance 138 (2012).
- [Medicines adherence](#). NICE clinical guidance 76 (2009).

Condition-specific

- [MI – secondary prevention](#). NICE clinical guideline 172 (2013).
- [Myocardial infarction with ST-segment elevation](#). NICE clinical guideline 167 (2013).
- [Stroke rehabilitation](#). NICE clinical guideline 162 (2013).
- [Physical activity](#). NICE public health guidance 44 (2013).
- [Insertion of a subcutaneous implantable cardioverter defibrillator for prevention of sudden cardiac death](#). NICE interventional procedure guidance 454 (2013).
- [WatchBP Home A for opportunistically detecting atrial fibrillation during diagnosis and monitoring of hypertension](#). NICE medical technology guidance 13 (2013).
- [Venous thromboembolic diseases](#). NICE clinical guideline 144 (2012).
- [Percutaneous balloon cryoablation for pulmonary vein isolation in atrial fibrillation](#). NICE interventional procedure guidance 427 (2012).
- [Hypertension](#). NICE clinical guideline 127 (2011).
- [Thoracoscopic exclusion of the left atrial appendage \(with or without surgical ablation\) for non-valvular atrial fibrillation for the prevention of thromboembolism](#). NICE interventional procedure guidance 400 (2011).
- [Percutaneous endoscopic catheter laser balloon pulmonary vein isolation for atrial fibrillation](#). NICE interventional procedure guidance 399 (2011).
- [Chronic heart failure](#). NICE clinical guideline 108 (2010).
- [Percutaneous occlusion of the left atrial appendage in non-valvular atrial fibrillation for the prevention of thromboembolism](#). NICE interventional procedure guidance 349 (2010).
- [Alcohol-use disorders](#). NICE clinical guideline 100 (2010).

- [Type 2 diabetes – newer agents](#). NICE clinical guideline 87 (2009).
- [Percutaneous \(non-thoracoscopic\) epicardial catheter radiofrequency ablation for atrial fibrillation](#). NICE interventional procedure guidance 294 (2009).
- [Thoracoscopic epicardial radiofrequency ablation for atrial fibrillation](#). NICE interventional procedure guidance 286 (2009).
- [Stroke](#). NICE clinical guideline 68 (2008).
- [Type 2 diabetes](#). NICE clinical guideline 66 (2008).
- [Cardiac resynchronisation therapy for the treatment of heart failure](#). NICE technology appraisal guidance 120 (2007).
- [High-intensity focused ultrasound ablation for atrial fibrillation in association with other cardiac surgery](#). NICE interventional procedure guidance 184 (2006).
- [Percutaneous radiofrequency ablation for atrial fibrillation](#). NICE interventional procedure guidance 168 (2006).
- [Implantable cardioverter defibrillators for arrhythmias](#). NICE technology appraisal guidance 95 (2006).
- [Cryoablation for atrial fibrillation in association with other cardiac surgery](#). NICE interventional procedure guidance 123 (2005).
- [Microwave ablation for atrial fibrillation in association with other cardiac surgery](#). NICE interventional procedure guidance 122 (2005).
- [Radiofrequency ablation for atrial fibrillation in association with other cardiac surgery](#). NICE interventional procedure guidance 121 (2005).
- [Non-surgical reduction of the myocardial septum](#). NICE interventional procedure guidance 40 (2004).

Under development

NICE is developing the following guidance (details available from [the NICE website](#)):

- [Self-monitoring coagulometers \(CoaguChek XS system, INRatio2 PT/INR monitor and ProTime Microcoagulation system\) for self-testing or self-managing coagulation status in people with atrial fibrillation or heart valve](#)

[disease for whom long-term vitamin K antagonist therapy is intended](#). NICE diagnostics guidance. Publication expected June 2014.

- [Acute heart failure](#). NICE clinical guideline. Publication expected September 2014.
- [Type 1 diabetes](#). NICE clinical guideline. Publication expected August 2015.
- [Type 2 diabetes](#). NICE clinical guideline. Publication expected August 2015.

4 The Guideline Development Group, National Clinical Guideline Centre and NICE project team

4.1 *Guideline Development Group*

The Guideline Development Group members listed are those for the 2014 update. For the composition of the previous Guideline Development Group, see the [full guideline](#).

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Appendix A: Recommendations from NICE clinical guideline 36 (2006) that have been deleted or changed

Recommendations to be deleted

The table shows recommendations from 2006 that NICE proposes deleting in the 2014 update. The right-hand column gives the replacement recommendation, or explains the reason for the deletion if there is no replacement recommendation.

Recommendation in 2006 guideline	Comment
<p>1.2.1.1 In patients with AF without haemodynamic instability for whom cardioversion is indicated:</p> <ul style="list-style-type: none"> • the advantages and disadvantages of both pharmacological and electrical cardioversion should be discussed with patients before initiating treatment • where AF onset was within 48 hours previously, either pharmacological or electrical cardioversion should be performed • for those with more prolonged AF (onset more than 48 hours previously) electrical cardioversion should be the preferred initial treatment option. 	<p>Replaced by:</p> <p>1.6.8 For people having cardioversion for atrial fibrillation that has persisted for longer than 48 hours, offer electrical (rather than pharmacological) cardioversion. [new 2014]</p>
<p>1.2.2.1 In patients with persistent AF², where the decision to perform pharmacological cardioversion using an intravenous antiarrhythmic agent has been made:</p> <ul style="list-style-type: none"> • in the absence of structural heart disease³, a Class 1c drug (such as flecainide or propafenone) should be the drug of choice • in the presence of structural heart disease³, amiodarone should be the drug of choice. <p>²Persistent AF does not self-terminate, or lasts longer than 7 days (without cardioversion). ³Coronary artery disease or left ventricular dysfunction.</p>	<p>Replaced by:</p> <p>1.6.9 Consider amiodarone therapy starting 4 weeks before and continuing for up to 12 months after electrical cardioversion to maintain sinus rhythm, and discuss the benefits and risks of amiodarone with the person. [new 2014]</p>

<p>1.2.3.1 When patients with AF are to undergo elective electrical cardioversion and there is cause for heightened concern about successfully restoring sinus rhythm (such as previous failure to cardiovert or early recurrence of AF), concomitant amiodarone or sotalol⁴ should be given for at least 4 weeks before the cardioversion.</p> <p>⁴Sotalol to be progressively titrated from 80 mg twice daily up to 240 mg twice daily.</p>	<p>Replaced by:</p> <p>1.6.9 Consider amiodarone therapy starting 4 weeks before and continuing for up to 12 months after electrical cardioversion to maintain sinus rhythm, and discuss the benefits and risks of amiodarone with the person. [new 2014]</p>
<p>1.3.1.1 As some patients with persistent AF will satisfy criteria for either an initial rate-control or rhythm-control strategy (for example, age over 65 but also symptomatic):</p> <ul style="list-style-type: none"> • the indications for each option should not be regarded as mutually exclusive and the potential advantages and disadvantages of each strategy should be explained to patients before agreeing which to adopt • any comorbidities that might indicate one approach rather than the other should be taken into account • irrespective of whether a rate-control or a rhythm-control strategy is adopted in patients with persistent AF, appropriate antithrombotic therapy should be used. 	<p>Replaced by:</p> <p>1.6.1 Assess and offer rate control as the first-line strategy to all people with atrial fibrillation. [new 2014]</p>
<p>1.3.1.2 A rate-control strategy should be the preferred initial option in the following patients with persistent AF:</p> <ul style="list-style-type: none"> • over 65 • with coronary artery disease • with contraindications to antiarrhythmic drugs • unsuitable for cardioversion⁵ • without congestive heart failure. <p>⁵Patients unsuitable for cardioversion include those with: contraindications to anticoagulation; structural heart disease (e.g. large left atrium more than 5.5 cm, mitral stenosis) that precludes long-term maintenance of sinus rhythm; a long duration of AF (usually more than 12 months); a history of multiple failed attempts at cardioversion and/or relapses, even with concomitant use of antiarrhythmic drugs or non-pharmacological approaches; an ongoing but reversible cause of atrial fibrillation (e.g. thyrotoxicosis).</p>	<p>Replaced by:</p> <p>1.6.1 Assess and offer rate control as the first-line strategy to all people with atrial fibrillation. [new 2014]</p>

<p>1.3.1.3 A rhythm-control strategy should be the preferred initial option in the following patients with persistent AF:</p> <ul style="list-style-type: none"> • those who are symptomatic • younger patients • those presenting for the first time with lone AF • those with AF secondary to a treated/corrected precipitant • those with congestive heart failure. 	<p>Replaced by:</p> <p>1.6.2 Offer rhythm control to people with or without continuing symptoms if they have any of the following:</p> <ul style="list-style-type: none"> • atrial fibrillation with a reversible cause • heart failure thought to be primarily caused by atrial fibrillation • new-onset atrial fibrillation. [new 2014]
<p>1.3.2.1 An antiarrhythmic drug is not required to maintain sinus rhythm in patients with persistent AF in whom a precipitant (such as chest infection or fever) has been corrected and cardioversion has been performed successfully, providing there are no risk factors for recurrence.</p>	<p>Replaced by:</p> <p>1.6.11 Assess the need for drug treatment for long-term rhythm control, taking into account associated comorbidities, risks of treatment and likelihood of recurrence of atrial fibrillation. [new 2014]</p>
<p>1.3.2.2 In patients with persistent AF who require antiarrhythmic drugs to maintain sinus rhythm and who have structural heart disease³:</p> <ul style="list-style-type: none"> • a standard beta-blocker should be the initial treatment option • where a standard beta-blocker is ineffective, contraindicated or not tolerated amiodarone should be used. <p>³Coronary artery disease or left ventricular dysfunction.</p>	<p>Replaced by:</p> <p>1.6.14 If beta-blockers are contraindicated or unsuccessful, assess the suitability of alternative drugs for rhythm control, taking comorbidities into account. [new 2014]</p> <p>1.6.17 Consider amiodarone for people with left ventricular impairment or heart failure. [new 2014]</p> <p>1.6.18 Do not offer class 1 antiarrhythmic drugs such as flecainide or propafenone to people with ischaemic or structural heart disease. [new 2014]</p>
<p>1.3.2.3 In patients with persistent AF who require antiarrhythmic drugs to maintain sinus rhythm and who do not have structural heart disease³</p> <ul style="list-style-type: none"> • a standard beta-blocker should be the initial treatment option • where a standard beta-blocker is ineffective, contraindicated or not tolerated <ul style="list-style-type: none"> – a Class 1c agent or – sotalol⁶ <p>should be given.</p> <ul style="list-style-type: none"> • where other drug classes are ineffective, contraindicated or not tolerated amiodarone should be administered. <p>³Coronary artery disease or left ventricular dysfunction.</p> <p>⁶Progressively titrated from 80 mg twice daily up to 240 mg twice daily.</p>	<p>Replaced by:</p> <p>1.6.11 Assess the need for drug treatment for long-term rhythm control, taking into account associated comorbidities, risks of treatment and likelihood of recurrence of atrial fibrillation. [new 2014]</p> <p>1.6.12 If drug treatment for long-term rhythm control is needed, offer a beta-blocker as first-line treatment unless there are contraindications. [new 2014]</p> <p>1.6.13 Take into account the potential risks of sotalol at doses that are therapeutic for a class III effect, especially for people with renal impairment or low body weight. [new 2014]</p> <p>1.6.14 If beta-blockers are contraindicated or unsuccessful, assess the suitability of alternative drugs for rhythm control, taking comorbidities into</p>

	account. [new 2014]
1.3.3.1 Before cardioversion, patients should be maintained on therapeutic anticoagulation with warfarin (INR 2.5, range 2.0 to 3.0) for a minimum of 3 weeks.	This recommendation has been deleted because the draft 2014 guideline adopts a different care pathway. The Guideline Development Group did not review this question and are not confident that the evidence remains the same.
1.3.3.2 Following successful cardioversion, patients should remain on therapeutic anticoagulation with warfarin (INR 2.5, range 2.0 to 3.0) for a minimum of 4 weeks.	This recommendation has been deleted because the draft 2014 guideline adopts a different care pathway. The Guideline Development Group did not review this question and are not confident that the evidence remains the same.
1.3.3.3 In patients with persistent AF where cardioversion cannot be postponed for 3 weeks: <ul style="list-style-type: none"> • heparin should be given and the cardioversion performed, and • warfarin should then be given for a minimum of 4 weeks post cardioversion. 	This recommendation has been deleted because the draft 2014 guideline adopts a different care pathway. The Guideline Development Group did not review this question and are not confident that the evidence remains the same.
1.3.3.4 Anticoagulation should be continued for the long term in patients with AF who have undergone cardioversion where there is a high risk of AF recurrence ⁷ or where it is recommended by the stroke risk stratification algorithm (see full guideline appendix E, page 47). ⁷ Factors indicating a high risk of AF recurrence include: a history of failed attempts at cardioversion; structural heart disease (mitral valve disease, left ventricular dysfunction or an enlarged left atrium); a prolonged history of AF (>12 months); previous recurrences of AF.	Replaced by: 1.4.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following: <ul style="list-style-type: none"> • symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation • atrial flutter • a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. [new 2014] 1.5.1 Offer anticoagulation to people with a CHA₂DS₂-VASc score of 2 or above, taking bleeding risk into account. [new 2014]

<p>1.3.3.5 In patients with AF of confirmed duration of less than 48 hours undergoing cardioversion, anticoagulation following successful restoration of sinus rhythm is not required.</p>	<p>Replaced by:</p> <p>1.4.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following:</p> <ul style="list-style-type: none"> • symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation • atrial flutter • a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. [new 2014] <p>1.5.1 Offer anticoagulation to people with a CHA₂DS₂-VASc score of 2 or above, taking bleeding risk into account. [new 2014]</p>
<p>1.3.3.6 Patients with atrial flutter should be given antithrombotic therapy in the same manner as those with AF.</p>	<p>Replaced by:</p> <p>1.4.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following:</p> <ul style="list-style-type: none"> • symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation • atrial flutter • a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. [new 2014] <p>1.5.1 Offer anticoagulation to people with a CHA₂DS₂-VASc score of 2 or above, taking bleeding risk into account. [new 2014]</p>
<p>1.4.1.1 In patients with permanent AF, who need treatment for rate-control:</p> <ul style="list-style-type: none"> • beta-blockers or rate-limiting calcium antagonists should be the preferred initial monotherapy in all patients • digoxin should only be considered as monotherapy in predominantly sedentary patients. 	<p>Replaced by:</p> <p>1.6.3 Offer a beta-blocker or a rate-limiting calcium-channel blocker as initial monotherapy to people with atrial fibrillation who need drug treatment as part of a rate control strategy. Take into account the person's symptoms, heart rate, comorbidities and preferences when considering drug treatment. [new 2014]</p> <p>1.6.4 Consider digoxin monotherapy for people with non-paroxysmal atrial fibrillation only if they are sedentary (do not or very little physical exercise). [new 2014]</p>
<p>1.4.1.2 In patients with permanent AF, where monotherapy is inadequate:</p> <ul style="list-style-type: none"> • to control the heart rate only during 	<p>Replaced by:</p> <p>1.6.5 If monotherapy does not control symptoms, consider combination therapy</p>

<p>normal activities, beta-blockers or rate-limiting calcium antagonists should be given with digoxin</p> <ul style="list-style-type: none"> to control the heart rate during both normal activities and exercise, rate-limiting calcium antagonists should be given with digoxin. 	<p>with any 2 of the following:</p> <ul style="list-style-type: none"> a beta-blocker diltiazem digoxin. [new 2014]
<p>1.4.2.1 In patients with permanent AF a risk–benefit assessment should be performed and discussed with the patient to inform the decision whether or not to give antithrombotic therapy.</p>	<p>Replaced by:</p> <p>1.4.3 When discussing the benefits and risks of anticoagulation, tell the person that:</p> <ul style="list-style-type: none"> for most people the benefit of anticoagulation outweighs the bleeding risk for people with an increased risk of bleeding the benefit of anticoagulation may not always outweigh the bleeding risk, and careful monitoring of bleeding risk is important. [new 2014]
<p>1.4.2.2 In patients with permanent AF where antithrombotic therapy is given to prevent strokes and/or thromboembolism (see section 1.8.6):</p> <ul style="list-style-type: none"> adjusted-dose warfarin should be given as the most effective treatment adjusted-dose warfarin should reach a target INR of 2.5 (range 2.0 to 3.0) where warfarin is not appropriate, aspirin should be given at 75 to 300 mg/day where warfarin is appropriate, aspirin should not be coadministered with warfarin purely as thromboprophylaxis, as it provides no additional benefit. 	<p>Replaced by:</p> <p>1.4.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following:</p> <ul style="list-style-type: none"> symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation atrial flutter a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. [new 2014] <p>1.5.1 Offer anticoagulation to people with a CHA₂DS₂-VASc score of 2 or above, taking bleeding risk into account. [new 2014]</p>
<p>1.5.1.2 In patients with symptomatic paroxysms (with or without structural heart disease³, including coronary artery disease) a standard beta-blocker should be the initial treatment option.</p> <p>³Coronary artery disease or left ventricular dysfunction.</p>	<p>Replaced by:</p> <p>1.6.12 If drug treatment for long-term rhythm control is needed, offer a beta-blocker as first-line treatment unless there are contraindications. [new 2014]</p>
<p>1.5.1.3 In patients with paroxysmal AF and no structural heart disease³:</p> <ul style="list-style-type: none"> where symptomatic suppression is not achieved with standard beta-blockers, either <ul style="list-style-type: none"> a Class 1c agent (such as flecainide or propafenone) or sotalol⁶ <p>should be given</p>	<p>Replaced by:</p> <p>1.6.14 If beta-blockers are contraindicated or unsuccessful, assess the suitability of alternative drugs for rhythm control, taking comorbidities into account. [new 2014]</p>

<ul style="list-style-type: none"> • where symptomatic suppression is not achieved with standard beta-blockers, Class 1c agents or sotalol, either <ul style="list-style-type: none"> – amiodarone or – referral for non-pharmacological intervention (see section 1.9.3) <p>should be considered.</p> <p>³Coronary artery disease or left ventricular dysfunction.</p> <p>⁶Progressively titrated from 80 mg twice daily up to 240 mg twice daily.</p>	
<p>1.5.1.4 In patients with paroxysmal AF and coronary artery disease:</p> <ul style="list-style-type: none"> • where standard beta-blockers do not achieve symptomatic suppression, sotalol should be given⁶ • where neither standard beta-blockers nor sotalol achieve symptomatic suppression, either <ul style="list-style-type: none"> – amiodarone or – referral for non-pharmacological intervention (see section 1.9.3) <p>should be considered.</p> <p>⁶Progressively titrated from 80 mg twice daily up to 240 mg twice daily.</p>	<p>Replaced by:</p> <p>1.6.17 Consider amiodarone for people with left ventricular impairment or heart failure. [new 2014]</p>
<p>1.5.1.5 In patients with paroxysmal AF with poor left ventricular function:</p> <ul style="list-style-type: none"> • where standard beta-blockers are given as part of the routine management strategy and adequately suppress paroxysms, no further treatment for paroxysms is needed • where standard beta-blockers do not adequately suppress paroxysms, either <ul style="list-style-type: none"> – amiodarone or – referral for non-pharmacological intervention (see section 1.9.3) <p>should be considered.</p>	<p>Replaced by:</p> <p>1.6.17 Consider amiodarone for people with left ventricular impairment or heart failure. [new 2014]</p>
<p>1.5.1.6 Patients on long-term medication for paroxysmal AF should be kept under review to assess the need for continued treatment and the development of any adverse effects.</p>	<p>This recommendation has been deleted because, although the Guideline Development Group reviewed the evidence, they agreed that a recommendation about a specific review for this patient group is not necessary. They agreed that people having long-term drug treatment for atrial fibrillation should already be having regular reviews.</p>

<p>1.5.3.1 Decisions on the need for antithrombotic therapy in patients with paroxysmal AF should not be based on the frequency or duration of paroxysms (symptomatic or asymptomatic) but on appropriate risk stratification, as for permanent AF (see section 1.8.6).</p>	<p>Replaced by:</p> <p>1.4.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following:</p> <ul style="list-style-type: none"> • symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation • atrial flutter • a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. [new 2014] <p>1.5.1 Offer anticoagulation to people with a CHA₂DS₂-VASc score of 2 or above, taking bleeding risk into account. [new 2014]</p>
<p>1.6.1.1 In patients with a life-threatening deterioration in haemodynamic stability following the onset of AF, emergency electrical cardioversion should be performed, irrespective of the duration of the AF.</p>	<p>Replaced by:</p> <p>1.6.1 Offer emergency electrical cardioversion, without delaying to achieve anticoagulation, to people with life-threatening haemodynamic instability caused by new-onset atrial fibrillation. [new 2014]</p>
<p>1.6.1.2 In patients with non-life-threatening haemodynamic instability following the onset of AF:</p> <ul style="list-style-type: none"> • electrical cardioversion should be performed • where there is a delay in organising electrical cardioversion, intravenous amiodarone should be used • for those with known Wolff–Parkinson–White syndrome: <ul style="list-style-type: none"> – flecainide may be used as an alternative for attempting pharmacological cardioversion – atrioventricular node-blocking agents (such as diltiazem, verapamil or digoxin) should not be used. 	<p>Replaced by:</p> <p>1.7.3 If pharmacological cardioversion has been selected for new-onset atrial fibrillation, offer:</p> <ul style="list-style-type: none"> • flecainide or amiodarone if there is no evidence of structural or ischaemic heart disease or • amiodarone if there is evidence of structural heart disease. [new 2014]
<p>1.6.1.3 In patients with known permanent AF where haemodynamic instability is caused mainly by a poorly controlled ventricular rate, a pharmacological rate-control strategy should be used.</p>	<p>Replaced by:</p> <p>1.7.2 If a rate control strategy has been selected, offer pharmacological rate control to people with atrial fibrillation presenting acutely with haemodynamic instability likely to be caused mainly by a poorly controlled ventricular rate. [new 2014]</p>

<p>1.6.1.4 Where urgent pharmacological rate-control is indicated, intravenous treatment should be with one of the following:</p> <ul style="list-style-type: none"> • beta-blockers or rate-limiting calcium antagonists • amiodarone, where beta-blockers or calcium antagonists are contraindicated or ineffective. 	<p>Replaced by:</p> <p>1.7.2 If a rate control strategy has been selected, offer pharmacological rate control to people with atrial fibrillation presenting acutely with haemodynamic instability likely to be caused mainly by a poorly controlled ventricular rate. [new 2014]</p>
<p>1.6.2.4 In cases of acute AF where the patient is haemodynamically unstable, any emergency intervention should be performed as soon as possible and the initiation of anticoagulation should not delay any emergency intervention.</p>	<p>Replaced by:</p> <p>1.6.1 Offer emergency electrical cardioversion, without delaying to achieve anticoagulation, to people with life-threatening haemodynamic instability caused by new-onset atrial fibrillation. [new 2014]</p>
<p>1.8.1.1 In patients with newly diagnosed AF for whom antithrombotic therapy is indicated (see section 1.8.6), such treatment should be initiated with minimal delay after the appropriate management of comorbidities.</p>	<p>Replaced by:</p> <p>1.4.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following:</p> <ul style="list-style-type: none"> • symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation • atrial flutter • a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. [new 2014] <p>1.5.1 Offer anticoagulation to people with a CHA₂DS₂-VASc score of 2 or above, taking bleeding risk into account. [new 2014]</p>
<p>1.8.2.1 In all patients with AF who have had an acute stroke, any uncontrolled hypertension should be appropriately managed before antithrombotic therapy is started.</p>	<p>Replaced by:</p> <p>1.8.1 For guidance on the initial management of stroke and atrial fibrillation see recommendation 1.4.3.1 in 'Stroke' (NICE clinical guideline 68). [new 2014]</p>

<p>1.8.2.2 In patients with AF and an acute stroke:</p> <ul style="list-style-type: none"> • imaging (CT scan or MRI) should be performed to exclude cerebral haemorrhage • in the absence of haemorrhage, anticoagulation therapy should begin after 2 weeks • in the presence of haemorrhage, anticoagulation therapy should not be given • in the presence of a large cerebral infarction, the initiation of anticoagulation therapy should be delayed. 	<p>Replaced by:</p> <p>1.8.1 For guidance on the initial management of stroke and atrial fibrillation see recommendation 1.4.3.1 in 'Stroke' (NICE clinical guideline 68). [new 2014]</p>
<p>1.8.2.3 In patients with AF and an acute TIA:</p> <ul style="list-style-type: none"> • imaging (CT scan or MRI) should be performed to exclude recent cerebral infarction or haemorrhage • in the absence of cerebral infarction or haemorrhage, anticoagulation therapy should begin as soon as possible. 	<p>Replaced by:</p> <p>1.8.1 For guidance on the initial management of stroke and atrial fibrillation see recommendation 1.4.3.1 in 'Stroke' (NICE clinical guideline 68). [new 2014]</p>
<p>1.8.3.1 In patients with AF who are either post-stroke, or have had a TIA:</p> <ul style="list-style-type: none"> • warfarin should be administered as the most effective thromboprophylactic agent • aspirin or dipyridamole should not be administered as thromboprophylactic agents unless indicated for the treatment of comorbidities or vascular disease. 	<p>Replaced by:</p> <p>1.8.1 For guidance on the initial management of stroke and atrial fibrillation see recommendation 1.4.3.1 in 'Stroke' (NICE clinical guideline 68). [new 2014]</p>
<p>1.8.3.2 Treatment of post-stroke or post-TIA patients with warfarin should only begin after treatment of relevant comorbidities (such as hypertension) and assessment of the risk–benefit ratio.</p>	<p>Replaced by:</p> <p>1.8.1 For guidance on the initial management of stroke and atrial fibrillation see recommendation 1.4.3.1 in 'Stroke' (NICE clinical guideline 68). [new 2014]</p>

<p>1.8.4.1 Patients with asymptomatic AF should receive thromboprophylaxis as for symptomatic AF (refer to section 1.3.3 for persistent AF, section 1.4.2 for permanent AF and section 1.5.3 for paroxysmal AF).</p>	<p>Replaced by:</p> <p>1.4.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following:</p> <ul style="list-style-type: none"> • symptomatic or asymptomatic paroxysmal, persistent or permanent atrial fibrillation • atrial flutter • a continuing risk of arrhythmia recurrence after cardioversion back to sinus rhythm. [new 2014] <p>1.5.1 Offer anticoagulation to people with a CHA₂DS₂-VASc score of 2 or above, taking bleeding risk into account. [new 2014]</p>
<p>1.8.5.1 Both the antithrombotic benefits and the potential bleeding risks of long-term anticoagulation should be explained to and discussed with the patient.</p>	<p>Replaced by:</p> <p>1.4.3 When discussing the benefits and risks of anticoagulation, tell the person that:</p> <ul style="list-style-type: none"> • for most people the benefit of anticoagulation outweighs the bleeding risk • for people with an increased risk of bleeding the benefit of anticoagulation may not always outweigh the bleeding risk, and careful monitoring of bleeding risk is important. [new 2014]
<p>1.8.5.2 The assessment of bleeding risk should be part of the clinical assessment of patients before starting anticoagulation therapy. Particular attention should be paid to patients who:</p> <ul style="list-style-type: none"> • are over 75 years of age • are taking antiplatelet drugs (such as aspirin or clopidogrel) or non-steroidal anti-inflammatory drugs • are on multiple other drug treatments (polypharmacy) • have uncontrolled hypertension • have a history of bleeding (for example, peptic ulcer or cerebral haemorrhage) • have a history of poorly controlled anticoagulation therapy. 	<p>Replaced by:</p> <p>1.4.2 Use the HAS-BLED score to assess the risk of bleeding in people who are starting or have started anticoagulation and to highlight, correct and monitor the following modifiable risk factors:</p> <ul style="list-style-type: none"> • uncontrolled hypertension • poor control of INR ('labile INRs') • concurrent medication, for example concomitant use of aspirin or an NSAID • harmful alcohol consumption. [new 2014]
<p>1.8.6.1 The stroke risk stratification algorithm (full guideline appendix E) should be used in patients with AF to assess their risk of stroke and thromboembolism, and appropriate thromboprophylaxis given.</p>	<p>Replaced by:</p> <p>1.3.1 Use the CHA₂DS₂-VASc stroke risk score to assess stroke risk in people with any of the following:</p> <p>1.5.2 Consider anticoagulation for men with a CHA₂DS₂-VASc score of 1, and</p>

	take bleeding risk into account. [new 2014]
1.8.6.2 Risk stratification should be reconsidered whenever individual risk factors are reviewed.)	Replaced by: 1.5.16 For people who are not taking an anticoagulant because of bleeding risk or other factors, review stroke and bleeding risks annually, and ensure that all reviews and decisions are documented. [new 2014]
1.9.1.1 In patients with AF who require long-term anticoagulation, self-monitoring should be considered if preferred by the patient and the following criteria are met: <ul style="list-style-type: none"> the patient is both physically and cognitively able to perform the self-monitoring test, or in those cases where the patient is not physically or cognitively able to perform self-monitoring, a designated carer is able to do so an adequate supportive educational programme is in place to train patients and/or carers the patient's ability to self-manage is regularly reviewed the equipment for self-monitoring is regularly checked via a quality control programme. 	This recommendation has been deleted and the following cross reference added: NICE is developing diagnostics guidance on Self-monitoring coagulometers (CoaguChek XS system, INRatio2 PT/INR monitor and ProTime Microcoagulation system) for self-testing or self-managing coagulation status in people with atrial fibrillation or heart valve disease for whom long-term vitamin K antagonist therapy is intended (publication expected June 2014).
1.9.2.1 Following successful cardioversion of AF routine follow-up to assess the maintenance of sinus rhythm should take place at 1 month and 6 months.	This recommendation has been deleted because the Guideline Development Group reviewed a question on monitoring and made new recommendations on review.
1.9.2.2 At the 1-month follow-up the frequency of subsequent reviews should be tailored to the individual patient taking into account comorbidities and concomitant drug therapies.	This recommendation has been deleted because the Guideline Development Group reviewed a question on monitoring and made new recommendations on review.
1.9.2.3 At each review the clinician should take the opportunity to re-assess the need for, and the risks and benefits of, continued anticoagulation.	This recommendation has been deleted because the Guideline Development Group reviewed a question on monitoring and made new recommendations on review.
1.9.2.4 At 6 months, if patients remain in sinus rhythm and have no other need for hospital follow-up, they should be discharged from secondary care with an appropriate management plan agreed with their GP.	This recommendation has been deleted because the Guideline Development Group reviewed a question on monitoring and made new recommendations on review.
1.9.2.5 Patients should be advised to seek medical attention if symptoms recur.	This recommendation has been deleted because the Guideline Development

	Group reviewed a question on monitoring and made new recommendations on review.
1.9.2.6 Any patient found at follow-up to have relapsed into AF should be fully re-evaluated for a rate-control or rhythm-control strategy (see section 1.3.1).	This recommendation has been deleted because the Guideline Development Group reviewed a question on monitoring and made new recommendations on review.
<p>1.9.3.1 Referral for further specialist intervention (for example, pulmonary vein isolation, pacemaker therapy, arrhythmia surgery, atrioventricular junction catheter ablation or use of atrial defibrillators) should be considered in the following patients:</p> <ul style="list-style-type: none"> • those in whom pharmacological therapy has failed • those with lone AF • those with ECG evidence of an underlying electrophysiological disorder (such as Wolff–Parkinson–White syndrome). 	<p>Replaced by:</p> <p>1.2.1 Offer people with atrial fibrillation a personalised package of care. Ensure that the package of care is documented and delivered, and that it includes:</p> <ul style="list-style-type: none"> • measures to prevent stroke • rate control • assessment of symptoms for rhythm control • psychological support if needed • up-to-date and comprehensive education and information on: <ul style="list-style-type: none"> – cause, effects and possible complications of atrial fibrillation – management of rate and rhythm control – anticoagulation – practical advice on anticoagulation in line with recommendation 1.3.1 in ‘Venous thromboembolic diseases’ (NICE clinical guideline 144) – support networks. [new 2014] <p>1.2.2 NICE has produced guidance on the components of good patient experience-in adult NHS services. Follow the recommendations in Patient experience in adult NHS services (NICE clinical guidance 138). [new 2014]</p> <p>1.3.1 Refer people promptly² at any stage if treatment fails to control the symptoms of atrial fibrillation and referral for more specialised management is needed. [new 2014]</p> <p>²The Guideline Development Group defined ‘promptly’ as no longer than 4 weeks after the final failed treatment or no longer than 4 weeks after recurrence of atrial fibrillation following cardioversion.</p>
1.9.3.2 The reasons for referral for specialist intervention should be explained and discussed with the patient.	<p>Replaced by:</p> <p>1.2.1 Offer people with atrial fibrillation a personalised package of care. Ensure that the package of care is documented and delivered, and that it includes:</p>

	<ul style="list-style-type: none">• measures to prevent stroke• rate control• assessment of symptoms for rhythm control• psychological support if needed• up-to-date and comprehensive education and information on:<ul style="list-style-type: none">– cause, effects and possible complications of atrial fibrillation– management of rate and rhythm control– anticoagulation– practical advice on anticoagulation in line with recommendation 1.3.1 in 'Venous thromboembolic diseases' (NICE clinical guideline 144)– support networks. [new 2014] <p>1.2.2 NICE has produced guidance on the components of good patient experience-in adult NHS services. Follow the recommendations in Patient experience in adult NHS services (NICE clinical guidance 138). [new 2014]</p> <p>1.3.1 Refer people promptly² at any stage if treatment fails to control the symptoms of atrial fibrillation and referral for more specialised management is needed. [new 2014]</p> <p>²The Guideline Development Group defined 'promptly' as no longer than 4 weeks after the final failed treatment or no longer than 4 weeks after recurrence of atrial fibrillation following cardioversion.</p>
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Amended recommendation wording (change to meaning)

Recommendations are labelled **[2006, amended 2014]** if the evidence has not been reviewed but changes have been made to the recommendation wording (indicated by highlighted text) that change the meaning.

Recommendation in 2006 guideline	Recommendation in current guideline	Reason for change
<p>1.1.4.1 Transthoracic echocardiography (TTE) should be performed in patients with AF:</p> <ul style="list-style-type: none"> • for whom a baseline echocardiogram is important for long-term management, such as younger patients • for whom a rhythm-control strategy that includes cardioversion (electrical or pharmacological) is being considered • in whom there is a high risk or a suspicion of underlying structural/functional heart disease (such as heart failure or heart murmur) that influences their subsequent management (for example, choice of antiarrhythmic drug) <ul style="list-style-type: none"> • in whom refinement of clinical risk stratification for antithrombotic therapy is needed (see section 1.8.6). 	<p>1.1.4 Transthoracic echocardiography (TTE) should be performed in patients with AF:</p> <ul style="list-style-type: none"> • for whom a baseline echocardiogram is important for long-term management • for whom a rhythm-control strategy that includes cardioversion (electrical or pharmacological) is being considered • in whom there is a high risk or a suspicion of underlying structural/functional heart disease (such as heart failure or heart murmur) that influences their subsequent management (for example, choice of antiarrhythmic drug) • in whom refinement of clinical risk stratification for antithrombotic therapy is needed (see section 1.4 Assessment of stroke and bleeding risks and section 1.5 Interventions to prevent stroke). [2006, amended 2014] 	<p>'Such as younger patients' has been removed to ensure that all people with atrial fibrillation are included, and not just younger patients, for equality purposes.</p> <p>The cross-reference to section 1.8.6 has been amended to cross-refer to the recommendations on assessment of stroke and bleeding risks and interventions to prevent stroke in the draft 2014 guideline.</p>

<p>1.1.4.2 Do not routinely perform TTE solely for the purpose of further stroke risk stratification in people with atrial fibrillation for whom the need to initiate anticoagulation therapy has already been agreed on appropriate clinical criteria (see stroke risk stratification algorithm in the full guideline).</p>	<p>1.1.5 Do not routinely perform TTE solely for the purpose of further stroke risk stratification in people with atrial fibrillation for whom the need to initiate anticoagulation therapy has already been agreed on appropriate clinical criteria (see section 1.4 Assessment of stroke and bleeding risks and section 1.5 Interventions to prevent stroke). [2006, amended 2014]</p>	<p>The cross-reference to the stroke risk stratification algorithm has been amended to cross-refer to the recommendations on assessment of stroke and bleeding risk and interventions to prevent stroke in the draft 2014 guideline.</p>
<ul style="list-style-type: none"> • 1.2.6.1 In people with acute atrial fibrillation who are receiving no, or subtherapeutic, anticoagulation therapy: • in the absence of contraindications, heparin should be started at initial presentation • continue heparin until a full assessment has been made and appropriate antithrombotic therapy has been started, based on risk stratification (see section 1.8.6). 	<p>1.7.5 In people with new-onset atrial fibrillation who are receiving no, or subtherapeutic, anticoagulation therapy:</p> <ul style="list-style-type: none"> • in the absence of contraindications, offer heparin at initial presentation • continue heparin until a full assessment has been made and appropriate antithrombotic therapy has been started, based on risk stratification (see section 1.4 Assessment of stroke and bleeding risks and section 1.5 Interventions to prevent stroke). [2006, amended 2014] 	<p>‘Acute’ has been amended to ‘new-onset’ for clarification and consistency. In the 2006 guideline ‘acute’ denotes new-onset atrial fibrillation. In the 2014 draft guideline ‘acute’ refers to the nature of the presentation of atrial fibrillation.</p> <p>The cross-reference to section 1.8.6 has been amended to cross-refer to the recommendations on assessment of stroke and bleeding risks and interventions to prevent stroke in the draft 2014 guideline.</p>

<ul style="list-style-type: none"> 1.6.2.2 In patients with a confirmed diagnosis of acute AF of recent onset (less than 48 hours since onset), oral anticoagulation should be used if: <ul style="list-style-type: none"> stable sinus rhythm is not successfully restored within the same 48-hour period following onset of acute AF; or there are factors indicating a high risk of AF recurrence; or it is recommended by the stroke risk stratification algorithm (see appendix E, page 47). 	<p>1.7.6 In people with a confirmed diagnosis of atrial fibrillation of recent onset (less than 48 hours since onset), offer oral anticoagulation if:</p> <ul style="list-style-type: none"> stable sinus rhythm is not successfully restored within the same 48-hour period following onset of acute atrial fibrillation or there are factors indicating a high risk of atrial fibrillation recurrence or it is recommended in section 1.4 Assessment of stroke and bleeding risks and section 1.5 Interventions to prevent stroke[2006, amended 2014] 	<p>'Acute' has been deleted for clarification and consistency. In the 2006 guideline 'acute' denotes new-onset atrial fibrillation. In the 2014 draft guideline 'acute' refers to the nature of the presentation of atrial fibrillation.</p> <p>The cross-reference to the stroke risk stratification algorithm has been amended to cross-refer to the recommendations on assessment of stroke and bleeding risks and interventions to prevent stroke in the draft 2014 guideline.</p>
<p>1.6.2.3 In patients with acute AF where there is uncertainty over the precise time since onset, oral anticoagulation should be used, as for persistent AF (see section 1.3.3).</p>	<p>1.7.7 In people with new-onset atrial fibrillation where there is uncertainty over the precise time since onset, offer oral anticoagulation as for persistent atrial fibrillation (see section 1.4 Assessment of stroke and bleeding risks and section 1.5 Interventions to prevent stroke). [2006, amended 2014]</p>	<p>'Acute' has been amended to 'new-onset' for clarification and consistency. In the 2006 guideline 'acute' denotes new-onset atrial fibrillation. In the 2014 draft guideline 'acute' refers to the nature of the presentation of atrial fibrillation.</p> <p>The cross-reference to the stroke risk stratification algorithm has been amended to cross-refer to the recommendations on assessment of stroke and bleeding risks and interventions to prevent stroke in the draft 2014 guideline</p>

<p>1.7.1.1 In patients undergoing cardiothoracic surgery:</p> <ul style="list-style-type: none"> • the risk of postoperative AF should be reduced by the administration of one of the following: <ul style="list-style-type: none"> – amiodarone – a beta-blocker – sotalol – a rate-limiting calcium antagonist • digoxin should not be used. 	<p>1.9.1 In people undergoing cardiothoracic surgery:</p> <ul style="list-style-type: none"> • reduce the risk of postoperative atrial fibrillation by offering 1 of the following: <ul style="list-style-type: none"> – amiodarone – a beta-blocker – sotalol (see recommendation 1.6.13) – a rate-limiting calcium antagonist. • do not offer digoxin. [2006, amended 2014] 	<p>A cross-reference to a new recommendation (1.6.13) in the draft 2014 guideline about the use of sotalol in doses that are therapeutic for a class III effect has been added.</p>
<p>1.7.1.2 In patients undergoing cardiac surgery on pre-existing beta-blocker therapy, this treatment should be continued unless contraindications develop (such as post-operative bradycardia or hypotension).</p>	<p>1.9.2 In people undergoing cardiothoracic surgery on pre-existing beta-blocker therapy, continue this treatment unless contraindications develop (such as postoperative bradycardia or hypotension). [2006, amended 2014]</p>	<p>‘Cardiac’ has been amended to ‘cardiothoracic’ for clarification and consistency. The Guideline Development Group assumes that no distinction between the 2 terms was intended in the 2006 guideline.</p>
<p>1.7.2.2 Unless contraindicated, post-operative AF following non-cardiothoracic surgery should be managed as for acute-onset AF with any other precipitant.</p>	<p>1.9.4 Unless contraindicated, manage postoperative atrial fibrillation following non-cardiothoracic surgery as for new-onset atrial fibrillation with any other precipitant. [2006, amended 2014]</p>	<p>‘Acute’ has been deleted for clarification and consistency. In the 2006 guideline ‘acute’ denotes new-onset atrial fibrillation. In the 2014 draft guideline ‘acute’ refers to the nature of the presentation of atrial fibrillation.</p>

Changes to recommendation wording for clarification only (no change to meaning)

Recommendation numbers in current guideline	Comment
All recommendations except those labelled [new 2014]	Recommendations have been edited into the direct style (in line with current NICE style for recommendations in clinical guidelines) where possible. Yellow highlighting has not been applied to these changes.
1.7.5	<p>'in the absence of contraindications, start heparin at initial presentation'</p> <p><i>has been amended to:</i></p> <p>'in the absence of contraindications, offer heparin at initial presentation'</p> <p>in line with current NICE style for recommendations in clinical guidelines.</p>
1.7.6	<p>'In patients with a confirmed diagnosis of acute AF of recent onset (less than 48 hours since onset), oral anticoagulation should be used if:'</p> <p><i>has been amended to:</i></p> <p>'In people with a confirmed diagnosis of atrial fibrillation of recent onset (less than 48 hours since onset), offer oral anticoagulation if:'</p> <p>in line with current NICE style for recommendations in clinical guidelines.</p>
1.7.7	<p>'In patients with acute AF where there is uncertainty over the precise time since onset, oral anticoagulation should be used as for persistent AF (see section 1.3.3).'</p> <p><i>has been amended to:</i></p> <p>'In people with new-onset atrial fibrillation where there is uncertainty over the precise time since onset, offer oral anticoagulation as for persistent atrial fibrillation (see section 1.3.3).'</p> <p>in line with current NICE style for recommendations in clinical guidelines.</p>
1.9.1	'the risk of post-operative AF should be

	<p>reduced by the administration of one of the following’</p> <p><i>has been amended to:</i></p> <p>‘reduce the risk of postoperative atrial fibrillation by offering 1 of the following’</p> <p>in line with current NICE style for recommendations in clinical guidelines.</p>
1.9.1	<p>‘digoxin should not be used’</p> <p><i>has been amended to:</i></p> <p>‘do not offer digoxin’</p> <p>in line with current NICE style for recommendations in clinical guidelines.</p>
1.9.3	<p>‘a rhythm-control strategy should be the initial management option’</p> <p><i>has been amended to:</i></p> <p>‘offer a rhythm-control strategy as the initial management option’</p> <p>in line with current NICE style for recommendations in clinical guidelines.</p>
1.9.5	<p>‘the appropriate use of antithrombotic therapy and correction of identifiable precipitants (such as electrolyte imbalance or hypoxia) is recommended’</p> <p><i>has been amended to:</i></p> <p>‘use appropriate antithrombotic therapy and correct identifiable precipitants (such as electrolyte imbalance or hypoxia)’</p> <p>in line with current NICE style for recommendations in clinical guidelines.</p>