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**Published on:** 01 Feb 2019 - European Journal of Cardiovascular Nursing (Eur J Cardiovasc Nurs)

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# The management of atrial fibrillation: An integrated team approach – insights of the 2016 European Society of Cardiology guidelines for the management of atrial fibrillation for nurses and allied health professionals

European Journal of Cardiovascular Nursing  
1–8

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DOI: 10.1177/1474515118804480

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## Abstract

The 2016 European Society of Cardiology guidelines for the management of atrial fibrillation recommends integrated care in the treatment of atrial fibrillation and follows a patient-centred, multidisciplinary team approach. Nurses and allied health professionals have a significant role to play in the management of chronic conditions such as atrial fibrillation, which is underlined by this guideline and the integrated care approach. In this article, members of the task force writing committee highlight significant evidence from this particular guideline as well as clinical implications for nurses and allied health professionals in their daily work with atrial fibrillation patients and their caregivers.

## Keywords

Atrial fibrillation, guidelines, shared decision-making, integrated care, nurses and allied health professionals

Date received: 5 June 2018; revised: 11 September 2018; accepted: 12 September 2018

## Introduction

Clinical practice and decision-making should be driven by evidence-based healthcare, articulated in clear practice recommendations, aiming to guide healthcare professionals in their clinical decision-making. The European Society of Cardiology (ESC) aims to provide up to date evidence for the management of cardiovascular conditions, hence guideline development is an imperative activity to disseminate such evidence in order to reduce the burden of cardiovascular disease. Atrial fibrillation (AF) is strongly associated with underlying cardiovascular conditions and evidence-based guidance in its management is required. It is therefore that, in collaboration with the European Association of Cardio-Thoracic Surgeons (EACTS) and supported by the European Heart Rhythm Association (EHRA) and the European Stroke Organisation, the ESC 2016 guidelines for the management of AF were developed.<sup>1</sup> The ESC guidelines provide important insights into the latest research evidence and

practice recommendations for the management of AF aiming to improve outcomes in this population. This article highlights some of its novel and most appealing topics for nurses and allied health professionals involved in the care of patients with AF.

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## Practice recommendations in the ESC AF guidelines

The ESC AF guidelines provide recommendations for clinical practice. Every recommendation is labelled with a 'class of recommendations' and a 'level of evidence'. In general, there are three classes of recommendations which can be best remembered by the colours of a traffic light: (a) class I (green) refers to evidence or general agreement that a given treatment or procedure is useful or effective. Suggested wording of such recommendation includes 'Is recommended'; (b) in class II (amber) there may be conflicting evidence about the usefulness or efficacy of a certain treatment or procedure. This class is divided into class IIa in which the weight of evidence is in favour of the usefulness/efficacy and the wording of the recommendation includes 'Should be considered', and class IIb in which the usefulness/efficacy is less well established and the wording for the recommendation includes 'May be considered'; and (c) the evidence in class III (red) recommendations has demonstrated that the treatment or procedure may not be effective and may be harmful. The wording of such recommendation includes 'Is not recommended'.

The level of evidence (LoE) refers to the strength of the recommendation and the available data to support the recommendation. LoE A is considered the strongest evidence and refers to data that are derived from multiple randomised clinical trials or meta-analyses. LoE B refers to data derived from single or large non-randomised studies, while LoE C (considered the weakest evidence available) refers to data from small or retrospective studies, registries, or consensus of opinion of experts.<sup>1</sup> Throughout this paper the class and LoE will be provided for all recommendations.

## AF: prevalence and the role of screening

AF is the most common cardiac arrhythmia. It may lead to symptoms (ranging from palpitations to shortness of breath, chest pain, or even syncope) but can also be asymptomatic. Irrespective of symptoms, AF is associated with increased morbidity, such as stroke, heart failure and other cardiovascular conditions. In fact, individuals with AF have a 5-fold higher risk of stroke compared to those without AF.<sup>2</sup> Also, AF is independently associated with increased mortality rates: a 2-fold increased risk of all-cause mortality in women and a 1.5-fold increase in men.<sup>1</sup> AF is a major health problem, with approximately 33.5 million individuals affected worldwide,<sup>3</sup> and figures predict a further significant rise in the near future to epidemic levels.<sup>4</sup> This is also reflected in the number of AF-related hospitalisations,<sup>5</sup> which forms the main cost driver in AF care.

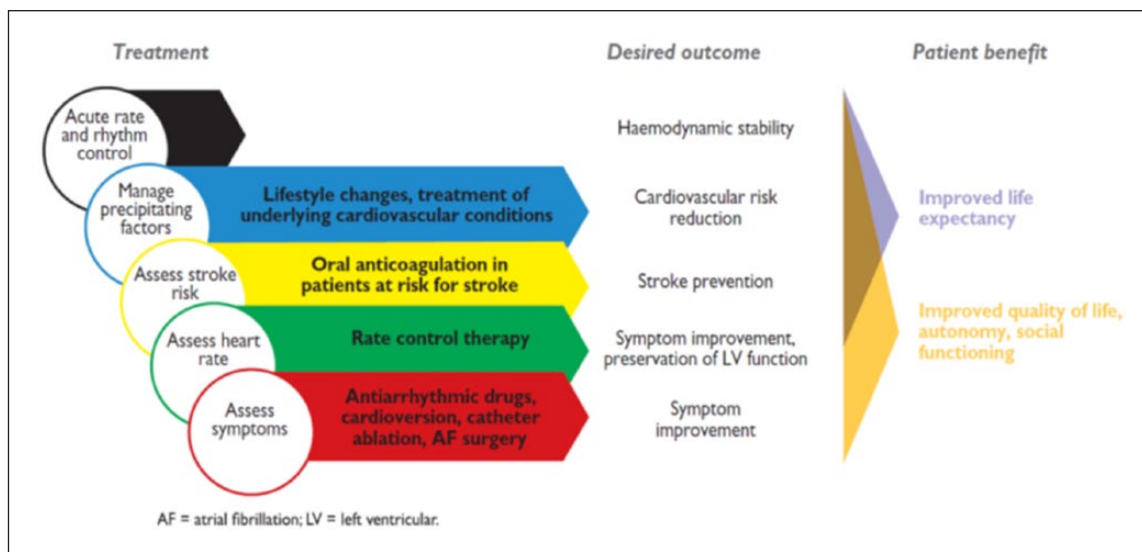
In symptomatic patients with suspected AF, the arrhythmia needs to be documented by means of a 12-lead ECG,

which is considered the gold standard to confirm AF diagnosis (class I; LoE B). However, silent or undetected AF is common, especially in the older population.<sup>6</sup> As these patients carry the same morbidity and mortality risk, this opens the question of opportunistic or even systematic screening for AF. While the yield of detecting AF may be significant in those with persistent forms of the arrhythmia, it may pose a great challenge in those with paroxysmal AF. The ESC AF guidelines recommend opportunistic screening for AF in all patients over 65 years of age by pulse palpation or ECG recording (class I; LoE B). This implies that pulse palpation should be applied in all patients within the suggested age category visiting a healthcare professional for any healthcare condition (thus not only due to AF-related symptoms), and also in those at high risk of AF and stroke.

## Domains of AF management

Initial assessment and management of patients with newly diagnosed AF is proposed to focus on five domains. Figure 1 demonstrates these domains including the related outcome.

- 1) In the acute phase the application of a rate and rhythm control strategy may be needed to restore haemodynamic stability and reduce severe symptoms. Different acute interventions for rate and/or rhythm control strategies may be chosen.
- 2) Assessment and management of precipitating factors and underlying cardiovascular conditions in order to reduce the cardiovascular risk profile. Short-term precipitating factors include thyrotoxicosis or sepsis, while longer-term modifiable cardiovascular risk factors such as hypertension, diabetes, hyperlipidaemia, obstructive sleep apnoea, obesity as well as lifestyle factors such as lack of fitness, smoking and alcohol abuse.
- 3) Given that patients with AF have a 5-fold increased risk of stroke, it is of significant importance to assess the stroke risk and identify the need for acute anticoagulation and long-term oral anticoagulation.
- 4) Assessment of heart rate and the need for a rate control strategy by means of heart rate controlling medication to improve AF-related symptoms and preserve left ventricular function. Rate controlling medication is often provided alongside a rhythm control strategy.
- 5) Assessment of residual symptoms (despite rate control) and the need for a rhythm control strategy. Rhythm control may include anti-arrhythmic drugs, cardioversion, invasive catheter ablation or AF surgery, aiming to restore sinus rhythm and improve symptoms.



**Figure 1.** The five domains of atrial fibrillation management, the desired outcomes and patient benefits.<sup>1</sup> AF: atrial fibrillation; LV: left ventricular.

CHA <sub>2</sub> DS <sub>2</sub> -VASc risk factor	Points
<b>Congestive heart failure</b> Signs/symptoms of heart failure or objective evidence of reduced left ventricular ejection fraction	+1
<b>Hypertension</b> Resting blood pressure >140/90 mmHg on at least two occasions or current antihypertensive treatment	+1
<b>Age 75 years or older</b>	+2
<b>Diabetes mellitus</b> Fasting glucose >125 mg/dL (7 mmol/L) or treatment with oral hypoglycaemic agent and/or insulin	+1
<b>Previous stroke, transient ischaemic attack, or thromboembolism</b>	+2
<b>Vascular disease</b> Previous myocardial infarction, peripheral artery disease, or aortic plaque	+1
<b>Age 65–74 years</b>	+1
<b>Sex category (female)</b>	+1

**Figure 2.** The CHA<sub>2</sub>DS<sub>2</sub>-VASc score, clinical risk factors and their scores.<sup>7</sup>

Management of AF according to these domains will contribute to improved symptoms and consequently quality of life, but may also improve the life expectancy of AF patients by reducing morbidity and mortality risks. Intriguingly, neither for rate nor for rhythm control therapy, strong prospective evidence is available to prove mortality benefit. Moreover, trials comparing rhythm control management with rate control did not show additional benefit. Although comprehensive application of these domains is vital, mainly the stroke prevention domain has

significant prognostic impact with confirmed reduced mortality. Therefore, straightforward stroke risk assessment should be carried out in every AF patient. Nurses and allied health professionals will encounter this in their daily practice.

### Assessment of risk factor for stroke and stroke prevention

The assessment of stroke risk is internationally recommended to be guided by using the CHA<sub>2</sub>DS<sub>2</sub>-VASc stroke risk score<sup>7</sup> (class I; LoE A), which in fact is a simple point system. Higher points relate to a higher yearly risk of stroke (Figure 2). The score assesses the presence of a number of conditions that increase the risk of stroke in patients with AF, such as: congestive heart failure; hypertension; age above 65 years (1 point) or above 75 years (2 points); diabetes mellitus; previous stroke, transient ischaemic attack or thromboembolism (also 2 points); vascular disease; and female gender. Patients without stroke risk factors (CHA<sub>2</sub>DS<sub>2</sub>-VASc score 0), do not need anticoagulant therapy (class III; LoE B). Men and women with two or more additional points need to be anticoagulated (class I; LoE A). In those with only one additional risk factor, oral anticoagulation is strongly to be considered (class IIa; LoE B), unless there are strong contraindications (such as high bleeding risk) or patient preference. Female gender as a single clinical factor and in the absence of any other clinical risk factors does not qualify for anticoagulation, although strictly speaking this yields a CHA<sub>2</sub>DS<sub>2</sub>-VASc score of 1.

Anticoagulation therapy can be performed by means of a vitamin K antagonist (VKA) or a non-vitamin K antagonist oral anticoagulant (NOAC), with a clear preference in the

Integrated AF management			
Patient involvement	Multidisciplinary teams	Technology tools	Access to all treatment options for AF
<ul style="list-style-type: none"> <li>• Central role in care process</li> <li>• Patient education</li> <li>• Encouragement and empowerment for self-management</li> <li>• Advice and education on lifestyle and risk factor management</li> <li>• Shared decision making</li> </ul> <p><b>• Informed, involved, empowered patient</b></p>	<ul style="list-style-type: none"> <li>• Physicians (general physicians, cardiology and stroke AF specialists, surgeons) and allied health professionals work in a collaborative practice model</li> <li>• Efficient mix of communication skills, education, and experience</li> </ul> <p><b>• Working together in a multidisciplinary chronic AF care team</b></p>	<ul style="list-style-type: none"> <li>• Information on AF</li> <li>• Clinical decision support</li> <li>• Checklist and communication tools</li> <li>• Used by healthcare professionals and patients</li> <li>• Monitoring of therapy adherence and effectiveness</li> </ul> <p><b>• Navigation system to support decision making in treatment team</b></p>	<ul style="list-style-type: none"> <li>• Structured support for lifestyle changes</li> <li>• Anticoagulation</li> <li>• Rate control</li> <li>• Antiarrhythmic drugs</li> <li>• Catheter and surgical interventions (ablation, LAA occluder, AF surgery, etc.)</li> </ul> <p><b>• Complex management decisions underpinned by an AF Heart Team</b></p>

AF = atrial fibrillation; LAA = left atrial appendage.

**Figure 3.** The integrated atrial fibrillation management (AF) approach and its four fundamental components.<sup>1</sup>

ESC AF guidelines for NOAC therapy given their net clinical benefit (i.e. a weighted total benefit of stroke prevention and bleeding risk) compared to VKA (class I; LoE A). The practical implementation of anticoagulant therapy is complex, with many specific new procedures in case the patient is treated with NOACs compared to VKA. For those reasons, EHRA developed the EHRA practical guide on the use of NOACs in patients with AF. A first version was published in 2013, with updates in 2015 and 2018.<sup>8,9</sup> The guide covers many aspects of NOAC care that pertain to allied professionals, such as patient instructions on what to do in case a NOAC dose is missed or doubled, instructions on how to handle peri-procedural NOAC management (ranging from dental procedures to neurosurgery), ways to monitor and improve adherence to NOAC therapy, and many others.

### Risk factor management

Underlying comorbidities such as hypertension, diabetes mellitus, hyperlipidaemia, but also cardiovascular risk factors such as obesity, obstructive sleep apnoea, smoking and excessive alcohol consumption, form the unseen burden of AF. Obesity has been identified as an important risk factor in cardiac disease, as well as for ischaemic stroke, thrombo-embolism and death in AF patients,<sup>10</sup> and requires management in terms of lifestyle modification. Exposure to these risk factors contributes to the development and/or worsening of AF. As part of the comprehensive treatment approach it is therefore crucial to detect and manage these risk factors. In obese patients, weight loss together with the management of other risk factors should therefore be considered to reduce the AF burden and symptoms in patients with AF (class IIa; LoE B). A Cochrane systematic review identified that exercise-based cardiac rehabilitation has a positive effect on physical exercise capacity.<sup>11</sup> AF

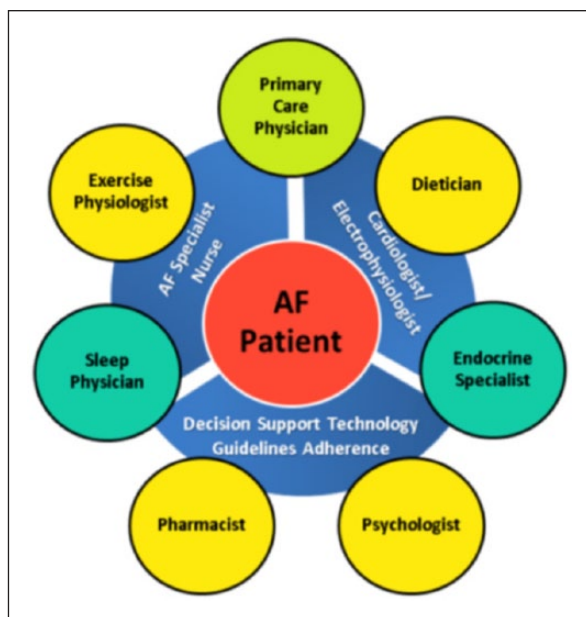
has also been associated with obstructive sleep apnoea, and positive airway pressure can reduce AF recurrences.<sup>12</sup> Interrogation for clinical signs of obstructive sleep apnoea should be considered in all AF patients (class IIa; LoE B). If obstructive sleep apnoea is diagnosed it should be optimally treated to reduce AF recurrences and improve AF treatment results (class IIa; LoE B).

### Integrated care approach

The management of AF has become complex and requires a comprehensive focus on the defined management domains as mentioned above. The question arises as to whether a single healthcare professional is able to address each of these domains adequately. An integrated care approach has been recognised as the optimal approach to manage chronic conditions. Integrated care is defined as ‘the provision of multidisciplinary care at different stages of the care process in different institutional areas’.<sup>13</sup> It is therefore that the ESC AF guidelines state that an integrated care approach for AF management should be considered (class IIa; LoE B). The integrated care approach consists of four fundamental components and is shown in Figure 3.

- 1) Patient-centred care: This can be defined as ‘care that is respectful of and responsive to individual patient preferences, needs and values’ and that ensures ‘that patient’s values guide all clinical decisions’.<sup>14</sup> Based on this definition, patients should have a central role in their care process and should be actively involved in decision-making (class IIa; LoE C). Active involvement refers to the fact that patients and their caregivers actively participate in treatment decisions as well as in executing the therapeutic intervention by means of





**Figure 4.** Suggested schematic diagram for the implementation of the integrated care approach in atrial fibrillation (AF).<sup>23</sup>

self-management activities.<sup>15</sup> Caregivers are an important source of support in this perspective. However, before patients can take on such roles it is of utmost importance that they have an understanding about, for example, AF as a condition, symptom recognition, potential complications and treatment options. It is the responsibility of the healthcare professional to provide continuous tailored patient education and engage with the patient to assess their individual needs, values and preferences, to improve AF management (class I; LoE C). This may empower patients to undertake self-management and lifestyle activities which may result in improved adherence and willingness to be involved in shared/informed decision-making. Although patient education is crucial in this perspective, a Cochrane review investigating the evidence on the effectiveness of educational and behavioural interventions in patients with AF treated with oral anticoagulation demonstrated the necessity to investigate further the impact of such interventions in clinical practice.<sup>16</sup>

- 2) **Multidisciplinary team approach:** It is recommended to provide AF care through a multidisciplinary AF team approach (e.g. specialised AF clinic) rather than by one single healthcare professional alone. Such an approach encourages integration and collaboration between primary healthcare services and hospital care, and would allow important roles for nurses and allied health professionals in educating patients and coordinating the care, while closely collaborating with a medical specialist.

- 3) **Technology tools:** Smart technology, such as decision support software, refers to computerised tools and digital resources which may have the potential to support the implementation of evidence-based healthcare. Such tools can be used by patients as well as healthcare professionals to provide education to patients and to support self-management and therapy adherence. Self-management refers to behavioural interventions primarily focussing on tasks to manage the condition, such as adherence to the treatment regimen, and requires the patient's understanding of the treatment modality and goals.<sup>17</sup> Application may extend to the use of such tools for daily telemonitoring of medication intake, and corrective actions by allied professionals in case of documented non-adherence.<sup>18</sup> They can also support clinical decision-making within the management team. Alongside the development of the ESC AF guidelines, two apps were developed for use in smartphones and tablets: one for patients and one for healthcare professionals.<sup>19</sup> The patient app provides patient education in understandable language, and aims to improve active involvement of patients in the management of their condition as well as to improve communication between patients and their healthcare provider. The healthcare professional app incorporates the ESC AF guidelines and is designed as an interactive management tool aiming to provide best evidence care that fits the needs and preferences of patients, and thus aims to provide best practice AF management approaches. These apps are now freely available through Google Play, Amazon and Apple stores.
- 4) **Comprehensive management and access to all treatment options:** Based on the domains defined in Figure 1, a comprehensive management approach is required in which all facets of AF management will be covered and a diversity of specialists should be involved. Complex cases, such as patients requiring complex invasive procedures, or those patients with recurrent bleeding, can be underpinned by a dedicated AF heart team.<sup>20</sup>

Cultural differences as well as the organisation of healthcare systems and the type of healthcare service will determine the interpretation of the fundamental components of the integrated care approach as well as the composition of the management teams. An example of an integrated care approach in AF is shown in Figure 4.

### Evidence of integrated care

Integrated care in AF is a relatively novel concept, and evidence supporting the effectiveness of this approach is scarce. However, two observational studies on structured AF care demonstrated a reduction of hospitalisations,<sup>21,22</sup>

as well as fewer strokes.<sup>21</sup> Also, a recent systematic review and meta-analysis identified three trials examining the effectiveness of integrated care in AF.<sup>23</sup> This demonstrated a significant reduction in all-cause mortality (odds ratio (OR) 0.51, 95% confidence interval (CI) 0.32 to 0.80,  $P=0.003$ ), as well as cardiovascular hospitalisations (OR 0.58, 95% CI 0.44 to 0.77,  $P=0.0002$ ). The included trials investigated integrated care pathways within specialised AF clinics following a patient-centred, multidisciplinary approach with specialised nurses and cardiologists closely collaborating,<sup>24,25</sup> as well as within a home-based intervention in which a cardiac nurse visited the patients at home, while being in close collaboration with a multidisciplinary team in the hospital.<sup>26</sup> Besides a mortality and healthcare utilisation benefit, these approaches have the potential to improve communication within the treatment team, which may improve guideline-adherent management.<sup>27</sup> Furthermore, this may result in cost-effective treatment strategies<sup>28</sup> to reduce the burden on healthcare systems.

Other examples of structured, integrated care pathways have been proposed in the initiation and structured follow-up of patients on NOACs<sup>9</sup> as well as in screening for obstructive sleep apnoea in patients with AF.<sup>29</sup> The nurse is prominent in these pathways and fulfills an important role in patient education, the initiation and follow-up of treatment, documentation of clinical events and side effects, adherence to medication, as well as in the coordination of such structured care.

### **Nurses and allied health professionals and their role in guideline development and utilisation**

The task force writing committee of the 2016 ESC/EACTS guidelines included cardiologists, cardiac surgeons, stroke specialists and cardiovascular nurses, which reflects the integrated and multidisciplinary character of the ESC AF guidelines. Nurses and allied health professionals play a pivotal role in the care of cardiac patients. As such they have a responsibility to ensure their knowledge is up to date and consequently provide care that is based on the best available evidence. However, a survey undertaken by the ESC's Association on Cardiovascular Nursing and Allied Health Professions (ACNAP) demonstrated significant barriers for nurses and allied health professionals throughout Europe in this respect.<sup>30</sup>

The survey identified important barriers underlying significant gaps in the implementation of guidelines by nurses. In response to this the ACNAP developed the Be Guidelines Smart Toolkit, aiming to ensure that nurses and allied health professionals across Europe are aware of the variety of ESC guidelines available and provide access to the latest evidence based resources in the management of cardiac conditions. Further information on this initiative and the toolkit is available on ACNAP's web page

[https://www.escardio.org/Councils/Council-on-Cardiovascular-Nursing-and-Allied-Professions-\(CCNAP\)/Education/be-guidelines-smart](https://www.escardio.org/Councils/Council-on-Cardiovascular-Nursing-and-Allied-Professions-(CCNAP)/Education/be-guidelines-smart). It is obvious that clinical practice guidelines should also be embedded in nursing education. Given the large variability of nursing education throughout Europe, ACNAP developed a core curriculum for the continuing professional development of nurses, which can be used as a framework to guide education and professional development of post-qualified nurses working in cardiovascular care. One of the aims of the core curriculum is that nurses should be able to identify and implement guidelines to their clinical practice in order to deliver safe, effective and evidence-based care in collaboration with the medical team.<sup>31</sup>

### **Discussion**

This paper outlines some of the key practice recommendations from the ESC AF guidelines that may be important and helpful in the daily practice of nurses and allied health professionals. To improve implementation of the ESC AF guidelines, condensed pocket versions, summary slides and cards for non-specialists and a digital application (e.g. for smartphones) are available. Also, the full text version is freely available through the ESC website ([www.escardio.org](http://www.escardio.org)). The recommendations in the ESC AF guidelines have been developed with the aim of supporting healthcare professionals in their clinical judgement and decision-making in preventive, diagnostic and therapeutic procedures. However, it is the responsibility of every healthcare professional to make deliberate decisions in consideration of the individual patient situation and in consultation with the patient and the patient's caregivers.

Internationally, the ACC/AHA/ESC guidelines for the management of AF have been available for decades,<sup>32</sup> and recently the first Australian clinical guidelines for the diagnosis and management of AF 2018 were published,<sup>33</sup> demonstrating the global growing awareness of the importance of managing this prevalent heart rhythm disorder in an orderly manner.

### **Conclusion**

Nurses and allied health professionals play a prominent role in the management of patients with AF within an integrated team, in close collaboration with cardiologists, arrhythmologists, general practitioners and other specialists. Execution of the nursing profession is subject to cultural and regional differences, which may impact on the implementation of guidelines in daily practice. Nevertheless, nurses and allied health professionals are at the forefront of managing patients with AF and it is expected that they deliver care that is based on the best available evidence and fits the needs, values and preferences of the individual patients. This article aims to contribute to the application

of evidence-based AF management by nurses and allied health professionals, when appropriate, based on the 2016 ESC/EACTS guidelines for the management of AF.

### Implications for practice

- Nurses and allied health professionals should apply the 2016 ESC/EACTS guidelines for the management of atrial fibrillation in clinical practice, as these provide the latest evidence and practice recommendations for effective and safe atrial fibrillation care delivery. The ACNAP Be Guidelines Smart Toolkit provides information and examples in this perspective.
- In all individuals older than 65 years of age and those with an increased risk of atrial fibrillation and cardiovascular complications, in whom atrial fibrillation is not detected or diagnosed yet, opportunistic screening for atrial fibrillation is recommended by pulse taking or ECG recording at the occasion of other healthcare contacts.
- In all patients with atrial fibrillation, the CHA<sub>2</sub>DS<sub>2</sub>-VASc score should be systematically assessed to identify the risk of stroke and to decide on the initiation of appropriate oral anticoagulation therapy accordingly. Technology tools may assist in this undertaking.
- Structured atrial fibrillation management within an integrated care approach should be considered and applied when appropriate, and should include the following core components: (a) patient-centeredness; (b) multidisciplinary team; (c) use of smart technology; (d) application of a comprehensive approach to care with access to all treatment options.
- Patient education and engagement is crucial in encouraging patients to undertake self-management and involve them in shared decision-making. Moreover, providing care that fits the individual needs, values and preferences may improve adherence to long-term treatment regimens and improve clinical outcomes.

### Declaration of conflicting interests

The authors declare that there is no conflict of interest.

### Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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