

Time to Change the Beat

Atrial Fibrillation: A Major Public Health Issue
Requiring Immediate Attention and Action



hearts **4** heart

Contents

| | |
|--|----|
| Executive Summary | 3 |
| Part 1: Atrial Fibrillation Overview | 4 |
| Part 2: Working Group Recommendations: Improving the screening, detection and management of AF in Australia | 11 |
| References | 13 |

*hearts4heart would like to acknowledge the contribution of Dr Dominik Linz, Electrophysiologist, South Australian Health and Medical Research Institute, University of Adelaide; Dr Alex McLellan, Cardiologist and Electrophysiologist, Alfred Hospital and St Vincent's Hospital, Melbourne; Dr Peter Piazza, General Practitioner, Five Dock; Dr Joe Nicholas, General Practitioner, Fairfield; Pharmaceutical Society of Australia; Pharmacy Guild of Australia; National Stroke Foundation; National Heart Foundation; Medical Technology Association of Australia; Boehringer Ingelheim; Bristol Myers Squibb; Medtronic and Johnson and Johnson. The economic analysis provided was based on the estimation framework used in a report completed by Pricewaterhouse Coopers Australia for the National Stroke Foundation in 2010, titled *The Economic Costs of Atrial Fibrillation in Australia*.*

Executive Summary

Atrial fibrillation (AF) is a major public health issue that requires immediate attention and action.

As the most common form of heart arrhythmia (irregular heartbeat), AF affects around 460,000 Australians, with up to 30% remaining undiagnosed;¹ it is also associated with a 5 to 7-fold increase in the risk of stroke and a 3-fold increase in the risk of heart failure.^{2,3}

Today, AF is considered a major cause of stroke in Australia (6,000 strokes annually), heart failure and hospitalisation (more than 60,000 hospitalisations annually), with direct annual healthcare costs of approximately \$1.63 billion.⁴

In contrast to other cardiovascular conditions which have seen declines in mortality in past years, mortality rates related to AF have almost doubled over the last two decades.⁵

While treatment of AF has been improved by the advent of new oral anticoagulants that reduce stroke risk,³ many people with AF do not take these medicines over the long-term and remain at heightened risk of stroke.⁶

Developments in catheter ablation techniques – an invasive complementary or alternative procedure to antiarrhythmic medication in patients with AF that effectively corrects electric signals in the heart to stabilise normal heart rhythm – make it possible to reduce AF symptoms and disease progression.⁷⁻¹⁰ The efficacy of this procedure has been proven in several clinical studies and is recommended in symptomatic AF patients by international guidelines.³

However, affordable access to this established procedure is limited in Australia. Catheters are non-implantable devices and do not currently qualify for the Australian Government's Prosthesis List. This influences whether private health insurers cover the cost of the device (up to \$9,000) and whether public and private hospitals prioritise the procedure.

This white paper proposes tangible, achievable and meaningful strategies that should be introduced over the next five years to help reduce the burden of AF in Australia. Recommendations include:

1. Improved AF screening and detection in general practice and pharmacy through:

- Creation of a new MBS item number for GPs to screen high risk patients and those aged >65 years for AF.
- Inclusion of ECG as mandatory in age-specific health assessments in general practice.
- Roll-out of electronic blood pressure machines that also check pulse and/or rhythm.

2. Increased consumer understanding of AF symptoms and self-detection, as well as the relationship between AF and stroke, through:

- A community awareness campaign focused on AF risk factors, symptoms, detection, stroke and heart failure risk, and the importance of treatment.
- Practical instruction on performing a regular pulse check as a means of self-detection.

3. Improve the management of AF in primary care, through:

- Promotion and embedding into clinical practice of Australian treatment guidelines for AF (expected in mid-to-late 2018).
- Increased dialogue between healthcare professionals and patients to highlight the link between AF and stroke, and the role of stroke prevention therapy.
- Increased medicine checks to improve adherence to anticoagulants through pharmacy (MedsCheck) and general practice (Home Medicine Review).

4. Improve availability and accessibility of catheter ablation for patients with symptomatic AF. In the short-term, it is proposed that:

- The Federal Government include catheter ablation on Part C of the Prosthesis List – requiring private insurers to cover the cost of the device for eligible policy holders.
- Specific Diagnosis Related Group (DRG) for catheter ablation is established to help increase funding of the procedure in public hospitals.

In the longer-term, broader policy change is required to include non-implantable medical devices on the Prosthesis List, thereby reducing access barriers to these new technologies and improving the value of private health insurance.

hearts4heart looks forward to working with federal, state and territory governments, medical colleges and societies and other patient organisations to introduce the policy recommendations contained in this white paper.



Part 1: Atrial Fibrillation Overview

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia (irregular heart rhythm). It is an evolving global epidemic, with increased prevalence, morbidity and mortality over the past two decades.¹¹ AF is considered one of the major causes of stroke and heart failure. In particular, AF is associated with a 5 to 7-fold increase in the risk of stroke, a 3-fold increase in the risk of heart failure and a 1.5 to 2-fold increase in the risk of death.^{2,3}

Undiagnosed AF is a serious issue

Many patients have undiagnosed or silent AF. An Australian study estimated that between 11% and 30% of Australians with AF are undiagnosed.¹ This equates to between 50,036 and 173,501 Australians.

Stroke is the first manifestation of AF in more than 25% of people with AF-related stroke.¹² It is estimated that each year, 6,000 Australians experience a stroke due to AF.⁴ These strokes are largely preventable with appropriate anticoagulation and management of AF.

AF-associated mortality rates and hospitalisations are increasing

In stark contrast to other chronic cardiovascular conditions which have seen declines in mortality in past years, recent data have demonstrated an almost doubling of mortality rates related to AF over the last two decades.⁵

A 15-year study of all hospitalisations in Australia found that there was a 7.9% annual increase in hospitalisations due to AF.¹³ This increase was significantly greater than that of other common cardiovascular conditions such as heart failure and heart attack.¹³ In 2015–2016, AF was responsible for 61,424 hospitalisations.⁴

AF is a progressive disease

AF may be classified as:

- Paroxysmal: recurrent episodes that terminate spontaneously, usually within 48 hours
- Persistent: recurrent episodes that last more than one week
- Permanent: ongoing AF.

AF is a progressive disease. Repeated episodes of AF lead to longer-lasting episodes, a greater vulnerability for further AF episodes and a reduced likelihood of spontaneously reverting back to normal heart rhythm (sinus rhythm).^{7,14} This means that AF typically progresses from short, infrequent episodes (paroxysmal AF) to longer attacks that occur more often. Many people eventually develop permanent AF. The progression of AF is associated with increased risks of hospitalisation and stroke,¹⁵ as well as less successful treatment outcomes.¹⁶

Progression also occurs over a short time scale. A recent large study involving over 6,000 patients found that, within 18 months, almost a quarter of the patients with paroxysmal or persistent AF progressed to a more sustained form of AF.¹⁷

It is therefore essential to take the opportunity to control AF and stabilise normal rhythm at an early stage to try to change the natural course of the disease and improve patient outcomes and symptoms.^{14,16}

Burden of AF in Australia

It is estimated that AF affects between 1% and 2% of the Australian population (approximately 460,000 people), but this may be an underestimation because it is often asymptomatic. In addition, the prevalence of AF increases with age. An Australian study found that in 2014, the estimated prevalence of AF in Australia was 5.35% in those aged over 55 years (more than 300,000 people).²

AF is also more common in people with other concomitant conditions such as high blood pressure, diabetes, heart failure, cardiovascular disease and obesity. The prevalence of AF is expected to double in the next decades, increasingly becoming a major medical challenge.¹⁸

What is the economic burden of AF in Australia?

AF is associated with a significant and growing economic burden. Hospitalisations are the main driver of costs, due to both the condition itself and related complications, including stroke and heart failure.^{5,13} In addition, strokes related to AF generally accumulate 7–20% more in direct costs than other strokes.¹⁹

A full assessment of the economic impacts of atrial fibrillation was undertaken in 2010 by PricewaterhouseCoopers Australia (PwC) for the National Stroke Foundation.²⁰ The analysis estimated that between July 2008 and June 2009, the costs of AF to the Australian economy were at least \$1.25 billion per annum through direct medical costs, the costs of long term care for those with a disability, and lost productive output.²⁰

These costs have substantially increased since then. Using the same approach applied in 2010 with updated data, the economic impact of AF in the financial year 2015–2016 was estimated to be \$1.63 billion.⁴

The three main areas of AF-associated health system costs are:⁴

- Costs associated directly with the diagnosis and treatment of AF and management of identified risk factors (includes hospital admissions, primary care management and pharmaceuticals): \$635.48M
- Costs of strokes attributable to AF: \$245.35M
- Costs of heart failure associated with AF: \$266.4M.

Strokes are very costly to manage and incur direct health care costs, community services and aged care costs. The average total direct cost of an AF-related ischaemic stroke is estimated to be at least \$38,000 per person in the first year alone.⁴

As the population ages, the prevalence of AF is predicted to rise, which will result in a considerable public health burden. The costs associated with AF will increase specifically due to the need to manage stroke risk, prevent cardiac dysfunction, cater for repeat hospitalisation in older patients and treat people who have had an event secondary to AF.



Table 1. Costs to Australian society of atrial fibrillation, 2016 (\$MIL).⁴

| DIRECT HEALTH SYSTEM COSTS | 2015–16 (\$MILLION) |
|---|----------------------------|
| Atrial fibrillation | |
| Admitted hospital services | \$233.53 |
| Non-admitted hospital services | \$59.13 |
| General practitioner medical | \$52.95 |
| Specialist medical | \$152.65 |
| Other professional services | \$34.44 |
| Pharmaceutical | \$102.78 |
| Subtotal: identifiable AF health costs | \$635.48 |
| Stroke (associated with AF) | |
| Stroke health costs excluding pharmaceutical | \$245.35 |
| Heart failure (associated with AF) | |
| Hospital services | \$196.64 |
| Other services | \$69.76 |
| Subtotal: heart failure health costs | \$266.40 |
| Total direct health system costs | \$1,147.22 |
| OTHER DIRECT EXPENDITURE | |
| Disability costs | \$66.90 |
| Residential aged care costs | \$140.70 |
| Total other direct costs | \$207.60 |
| NON-FINANCIAL COSTS (HUMAN CAPITAL APPROACH) | |
| <i>Atrial fibrillation productivity costs</i> | |
| Absenteeism | \$28.09 |
| Premature death, paid work | \$29.97 |
| Premature death, unpaid work | \$54.98 |
| Premature death, search and hiring costs | \$5.14 |
| Subtotal: AF productivity costs | \$118.17 |
| Unpaid carer costs | \$153.65 |
| Total non-financial costs | \$271.82 |
| TOTAL | \$1,626.65 |

*The economic analysis provided was based on the estimation framework used in a report completed by Pricewaterhouse Coopers Australia for the National Stroke Foundation in 2010, titled *The Economic Costs of Atrial Fibrillation in Australia*.*

Medical management of AF

Once diagnosed, AF requires ongoing, multifactorial management. Treatment is tailored to each patient, aiming to restore and maintain normal sinus rhythm, control symptoms and prevent serious complications such as a stroke or heart failure. Management will also involve treatment of any other cardiovascular conditions.³ An integrated care approach that promotes patient involvement and engagement, education and shared decision making are key features of a successful AF management program.³

The first-line treatment for AF involves medical treatment with anticoagulants in those at risk of stroke, and medical treatment with rate control or anti-arrhythmic agents. Multiple clinical trials have shown that anticoagulation with vitamin K antagonists (VKAs) or non-VKA oral anticoagulants (NOACs, also known as DOACs) markedly reduces stroke risk and mortality in AF patients.^{3,21} These agents can prevent the majority of ischaemic strokes in people with AF.³

All anticoagulants and antiplatelet agents increase the risk of bleeding, but in most patients with AF the benefit of stroke risk reduction with systemic anticoagulation outweighs the risk of bleeding.²² However, clinical practice data suggest that oral anticoagulant use in patients with AF is frequently underused or prematurely stopped, and adherence to appropriate guidelines is inadequate, even with the advent of NOACs.^{3,12,23} A recent Australian study found that persistence with NOACs in people with AF is still a concern; persistence was only 57% over 2.5 years.⁶

Controlling rate and restoring and maintaining sinus rhythm are also integral parts of AF management. Rate and rhythm control agents are often used in people with AF to improve AF-related symptoms and control disease progression.³

While antiarrhythmic medication can help to reduce symptoms in AF patients, they do not often provide a permanent solution, due to serious adverse effects that can occur with long-term treatment. In addition, many drugs often show limited efficacy and do not stop or reverse the structural changes in the heart that develop as AF progresses. Studies have shown that paroxysmal AF substantially progresses even when patients are taking appropriate medication.⁷ These structural

changes happen quickly, over a 12-month period, and make further treatment more difficult and less likely to succeed.^{7,15}

Catheter ablation for AF

Catheter ablation has been shown to be more effective than antiarrhythmic medication for improving the symptoms of AF. Importantly, early catheter ablation often reduces or even reverses the structural changes associated with AF.⁷

Catheter ablation has emerged as an adjunction or alternative to antiarrhythmic pharmacological management for selected patients, or when pharmacological management is ineffective or not tolerated.¹⁸ Multiple randomised controlled trials have demonstrated superior results with catheter ablation for restoration of normal sinus rhythm compared with antiarrhythmic drug therapy.^{18,24-28} The complication rate is similar to that of antiarrhythmic therapy.³

Globally, catheter ablation has become a mainstay in the treatment for AF. The earlier the procedure is done, the better the outcomes. Studies involving patients who are waiting for ablation have shown that progression from intermittent to persistent AF has a major impact on the outcome of AF: for example, a prolonged ablation procedure time and higher rates of recurrence after ablation.¹⁶

Catheter ablation substantially reduces the recurrence of AF compared with antiarrhythmic drug therapy and is more effective for maintaining sinus rhythm;^{3,29} recent research has found that AF progression is reduced after ablation.³⁰

Catheter ablation can also be used in conjunction with antiarrhythmic agents: this approach has been shown to be superior to antiarrhythmic therapy alone for achieving normal sinus rhythm.¹⁸ Studies have shown that most patients who are arrhythmia-free at 12 months after ablation remain arrhythmia-free at 5 years after ablation.³¹

New generation catheter ablation technology using cryoablation has demonstrated strong clinical outcomes,³² and further reductions in the rate of re-hospitalisation, re-ablations and the need for electrical cardioversion during follow-up compared to radiofrequency ablation devices.^{33,34}



Observational research suggests that catheter ablation may confer a positive benefit in terms of stroke risk.^{35,36}

Large-scale clinical trials are required to quantify the impact of catheter ablation on stroke.

Cost effectiveness of catheter ablation

Catheter ablation may improve the cost effectiveness of AF management by reducing AF-associated hospitalisations, GP and specialist visits, medication use and other AF-associated costs such as carer requirements.^{9,10}

A Canadian study showed that treating AF with catheter ablation resulted in a reversal of the growing costs associated with long-term medical management of AF. In the 24 months prior to ablation there was a significant increase in resource utilisation (due to hospitalisations, ER visits, cardioversions, echocardiograms) which were reversed in the 24 months after the ablation was performed (including a 50% reduction in cardioversions).⁸ A Canadian cost comparison analysis of catheter ablation vs medical management of paroxysmal AF found that catheter ablation was a cost-comparable alternative to medical management.²⁵

An analysis by the National Health Committee in New Zealand found that patients who undergo catheter ablation have 2.7% fewer hospital admissions than those who do not undergo the procedure, resulting in cost savings to the system from year zero.³⁷

The need for better access to catheter ablation

Progression of AF has a major impact on the outcome of AF ablation and limits a patient's chance of successful treatment. Delays in treatment with catheter ablation impact not only the success rate of the procedure, but increase the risk of serious outcomes such as heart failure and death.³⁸ Studies have shown significant differences between the success of ablation carried out in the first 6 months compared to ablation carried out later in the disease process.³⁸ Therefore, there is an important therapeutic window to effectively treat patients using ablation, and this occurs early in the disease process.

However, there is substantial inequity when it comes to accessing catheter ablation for AF in Australia. At present, the procedure is covered inconsistently across health funds because the associated devices are not implantable and are therefore not currently included on the Prostheses List. In contrast, there is mandatory reimbursement for many implantable devices such as stents for percutaneous coronary intervention, pacemakers and defibrillators.³⁹

When patients are admitted for catheter ablation, private health insurance covers the patient's hospital stay, theatre time and professional fees, but not the ablation catheter itself – leading to inconsistent funding required to perform these procedures. If private patients are denied access to catheter ablation, they may be forced to seek treatment in the public health system, adding to the existing burden on public hospital waiting lists. Currently, there is an estimated 1-2 year wait for catheter ablation across most Australian states and territories.

Currently, this inequity and lack of reimbursement makes ablation procedures economically less attractive for both public and private hospitals. It is important that Australian patients have fair and appropriate access to catheter ablation. Better access to catheter ablation could significantly reduce the costs of managing AF and AF-associated complications, thereby reducing the large cost burden of AF on the Australian health system.

Additionally, improving access to ablation would convey a positive message to the community that the government is working to reduce the burden of AF. This would also help to bring the Prostheses List in line with global 21st century medical practice.

There is a unique opportunity to improve AF management in Australia by giving patients access to catheter ablation in the early stages of AF, which would not only optimise treatment outcomes, but could prevent the progression of AF and associated complications and costs.

Australian AF treatment guidelines

Australian AF guidelines are lacking at present but are currently under development by the National Heart Foundation.

An Australian review of the key issues in AF management,²² in combination with current European Society of Cardiology AF guidelines,³ recommends the following approach:

- Anticoagulation should be considered and used on the basis of stroke risk. A CHADS2*/CHADS-VASc** score of 2 or above for men and 3 or above for women indicates anticoagulation should definitely be used, while a score of 1 in males and 2 in females suggests that anticoagulation should be considered.³
- All anticoagulants and antiplatelet agents increase the risk of bleeding, however, in most patients with AF the benefit of stroke risk reduction with anticoagulation will outweigh the risk of bleeding.²²
- Bleeding risks during anticoagulation therapy can be minimised by identifying and treating modifiable bleeding risk factors: e.g. high blood pressure should be well-controlled, concomitant antiplatelet or NSAID therapy should be for as short a time as possible, alcohol use should be moderated, and anaemia should be managed appropriately.³
- Newer oral anticoagulants (NOACS) tend to have an improved safety profile, particularly in regard to intracranial bleeding, and are at least as effective as warfarin for stroke prevention.²²
- In stroke patients determined to have 'embolic stroke of undetermined source' and who may be candidates for anticoagulation therapy, additional monitoring to determine AF status is recommended, with the technology deployed to be determined by patient preference, availability and cost-effectiveness. The detection of AF allows for more effective prevention of secondary stroke.^{40,41}

NB. The Government's Medical Services Advisory Committee has recommended the inclusion of implantable loop recorders on the Prostheses List. This advice has as yet not been acted upon.

In terms of catheter ablation, guidelines from the Cardiac Society of Australia and New Zealand state that the primary indication for catheter ablation of AF "is the presence of symptomatic AF that is refractory or intolerant to at least one Class 1 or Class 3 antiarrhythmic medication ... the best results are obtained in patients with paroxysmal AF, no structural heart disease and smaller atria."⁴² In other words, the earlier the procedure is done, the better the outcome. The 2016 European Society of Cardiology AF guidelines³ include comprehensive recommendations for catheter ablation of atrial fibrillation and atrial fibrillation surgery; these will inform the new Australian AF guidelines.

*CHADS2 score = presence of congestive heart failure, hypertension, age 75 years or above or diabetes: all 1 point each; previous stroke or transient ischaemic attack: 2 points each.

**CHADS-VASc additionally includes vascular disease (coronary artery disease, peripheral artery disease, aortic atherosclerosis), age 65-74 years, and female sex.

Role of AF screening

Screening for AF in asymptomatic patients may be a way of reducing the burden of the disease by enabling earlier detection of the condition.⁴³

A 2016 Cochrane systematic review found that systematic screening (whereby everyone over 65 years of age was offered an ECG) and opportunistic screening (whereby those over 65 years of age had their pulse taken when they visited their GP for any reason and were offered an ECG because an irregular pulse was found) for AF both increase the rate of detection of new cases compared with routine practice.⁴³ The cost of systematic screening was higher than opportunistic screening.

The AF-SCREEN International Collaboration reports that screen-detected AF found at a single time point, or by intermittent ECG recordings over 2 weeks, is not a benign condition.⁴⁴ When combined with additional stroke factors, it carries sufficient risk of stroke to justify consideration of anticoagulation.⁴⁴ When it comes to mass AF screening, hand-held ECG devices have



the advantage of providing a verifiable ECG trace that guidelines require for an AF diagnosis and would therefore be preferred as screening tools.⁴⁴

The current European Society of Cardiology AF guideline states:³

- Opportunistic screening for AF is recommended by pulse taking or ECG rhythm strip in patients >65 years of age
- In patients with TIA or ischaemic stroke, screening for AF is recommended by short-term ECG recording followed by continuous ECG monitoring for at least 72 hours
- Pacemakers and ICDs should be examined on a regular basis for atrial high rate episodes (AHRE). Patients with AHRE should undergo further ECG monitoring to document AF before initiating AF therapy
- In stroke patients, additional ECG monitoring by long-term non-invasive ECG monitors or implanted loop recorders should be considered to document silent atrial fibrillation
- Systematic ECG screening may be considered to detect AF in patients aged >75 years, or those at high stroke risk.

Several monitors that measure both blood pressure and AF are available in Australia. Such devices may be used in the home or as part of general practice and pharmacy screening programs. They have been shown to diagnose a significant number of patients with AF who were previously undiagnosed.

Is there a role for consumer self-detection?

People in the community, especially those at high risk for AF, may be able to play a role in identifying AF through self-detection. A multicentre trial provided 178 people from the community with standardised education from a healthcare professional about the importance of AF, and the link between AF and an irregular pulse.⁴⁵ Participants were taught a technique for palpating and characterising the rhythm of the radial pulse. Without further instruction, participants were asked to find their own pulse, and then to find and classify the pulse of two models randomly presented who may or may not have had AF.

The trial found that 92% of participants were able to find their own pulse; 17 (9.6%) were unable to find the pulse of one or both patient models and were therefore excluded from the rest of the study.⁴⁵ Of the remaining 161 subjects, 76% correctly identified the pulse in an AF model, and 86% correctly identified the pulse in a normal sinus rhythm model. The study showed that people from the general community can reliably and consistently find their own pulse, as well as the pulse of another, and are able to differentiate a regular pulse from a very irregular pulse.⁴⁵

A follow-up study involving community group education sessions with 4,322 people who were over 50 years of age found that group education was an effective way to educate people to find and characterise their pulse.⁴⁶ The study also provided education about the link between an irregular pulse and stroke and what to do if an irregular pulse was present; this information was retained when participants were followed up 30–60 days later. At follow-up, 89.1% of participants remembered that an irregular pulse is potentially a risk factor for stroke, and 70.3% had taken their pulse since the program. Of those who discovered a new irregular pulse, 38% sought medical advice.⁴⁶

More recently, the advent of medical grade ECG technology for use with smart phones has made the prospect of community ECG screening more feasible.

Part 2: Working Group Recommendations: Improving the screening, detection and management of AF in Australia

There is a need for comprehensive implementation of effective AF screening, detection and management strategies. Both hospitalisation and complications related to AF may be preventable with appropriate management. Undiagnosed or silent AF is a major problem, but this could be improved if healthcare professionals were able to identify more cases of AF.

Education for healthcare professionals is essential so that at-risk patients are screened and regularly assessed for AF. Community education is also required to increase awareness about AF, including self-monitoring and adherence to treatment. Better detection in primary care and more timely management of AF would not only improve health outcomes but would significantly reduce the economic burden of AF.

The Working Group proposes the following recommendations:

1. Improve AF screening and detection in general practice and pharmacy through the introduction of new AF screening programs

- Encourage regular GP screening by creating a new MBS item number for GPs to screen high risk patients and those aged 65 years and over for AF.
- Advise GPs to include ECG as a mandatory part of age-specific health assessments in general practice (e.g. health checks for older patients).
- Encourage GPs and practice nurses to measure pulse in older patients and those at risk of AF (e.g. those with cardiovascular risk factors).
- Look at ways to remind healthcare professionals to conduct regular AF screening e.g. prompts to screen for AF in GP software, if available.
- Increase the use of electronic blood pressure machines that also measure pulse and rhythm and/or include an algorithm for detecting AF; raise awareness about the use of portable ECG recorders in screening for AF (e.g. some current options include portable ECG machines and iPhone ECGs); encourage general

practices and pharmacies to consider purchasing suitable equipment and/or explore the possibility of alternative funding.

- Provide education for GPs, pharmacists and other healthcare professionals to raise awareness about AF, the importance of early diagnosis and the benefits of screening; highlight that AF is a major problem, separate from other CV conditions; highlight the consequences of undetected/untreated AF including stroke, heart failure and higher mortality.
- Include education about AF management approaches, including medications and ablation.

2. Increase consumer awareness and knowledge about AF symptoms and self-detection, as well as the relationship between AF and stroke

- Develop AF community education materials that address the following issues:
 - › What is AF, common symptoms, AF can also be silent, methods of detection, importance of treating AF, clinical consequences of AF.
 - › Highlight the link between AF and serious clinical outcomes (in particular stroke).
 - › Provide practical instruction about self-detection via regular pulse checks (how, why, where, how often); highlight that an irregular pulse may indicate AF; provide information about what to do if they detect an irregular pulse.
 - › Provide education about treatment options, including stroke prevention therapy, rhythm and rate control, ablation, benefits and risks of treatment and consequences of not treating AF; include education about aspirin (i.e. that it does not have a role in the management of AF).
 - › Provide information about cardiovascular risk factors and management to reduce risk of AF (in the same way that consumers are aware that stopping smoking reduces the risk of lung and cardiovascular conditions).



- › Include information about benefits of lifestyle modification for people with AF: e.g. a large study found that for people with AF, exercising at any level of intensity was associated with lower risk of all-cause death compared with AF patients who did no physical activity; this association was significant regardless of gender, older age (≥ 75 years), presence of paroxysmal AF or high thromboembolic risk (CHADS₂-VASc score ≥ 2).⁴⁷
 - › Consider rolling out some components of consumer education via pharmacies, e.g. by having signs in pharmacy saying “Have you checked your pulse today?” or similar; use visual images to highlight the links between AF and adverse clinical outcomes.
 - › For people with existing AF, highlight the importance of self-management (like diabetes) in monitoring AF and following treatment recommendations.
 - › Consider AF education for family members of people who have had a stroke.
 - › Consider the most appropriate ways to disseminate information to consumers: a variety of approaches will be required, including written, face-to-face and online education; explore other options such as apps (via mobile phones, Fitbit, Apple Watch, etc).
- Increase dialogue between healthcare professionals and patients so that the link between AF and stroke, and the role of stroke prevention therapy, are well understood.
 - Encourage greater medicine checks to improve adherence to anticoagulants through pharmacy (MedsCheck) and general practice (Home Medicine Review). Use these checks as an opportunity to discuss/reinforce/raise awareness about AF, the AF-stroke link and the importance of taking medications as prescribed.
 - Identify and address the barriers and enablers to adherence to anticoagulation therapy.

4. Improve availability and accessibility of catheter ablation for symptomatic AF patients

Short-term goals:

- It is recommended that the Federal Government include catheter ablation on Part C of the Prostheses List. In doing so, highlight that timely access to ablation is important, and that the progression of AF has a major impact on the outcome of AF ablation and limits a patient’s chance of successful treatment. Emphasise that there is an important therapeutic window to effectively treat patients using ablation.
- Establish specific DRG coding for catheter ablation to help increase availability of the procedure in the public hospital system.
- Look at ways of promoting greater public awareness and advocacy regarding patient access to AF therapies.

Longer-term goals:

- Broader policy change is required to enable the inclusion of non-implantable medical devices on the Prostheses List, thereby reducing access issues.
- Look at ways of developing an Australia-wide AF registry.

Important note about screening:

Highlight to consumers and healthcare professionals that just because AF is not detected during one screen/visit, this doesn’t mean that they don’t have AF or that they can’t develop it. Highlight the nature of paroxysmal AF (i.e. it is ‘on and off’ so can be difficult to detect) and why regular screening is important.

3. Improve the management of AF in primary care

- Develop, promote and embed into daily clinical practice, the new Australian treatment guidelines for AF (expected to be ready in mid-to-late 2018).
- Provide healthcare professional education via seminars, online education, conferences; education could be disseminated through PHNs and/or the RACGP.

References

1. Deloitte Access Economics. Atrial fibrillation and the cost of preventable strokes. September 2011.
2. Ball J, Thompson DR, Ski CF et al. Estimating the current and future prevalence of atrial fibrillation in the Australian adult population. *Med J Aust* 2015; 202:32–35.
3. Kirchhof P, Benussi S, Kotecha D, et al. 2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS. *Eur Heart J* 2016; 37: 2893–62.
4. PricewaterhouseCoopers. Update: The economic cost of atrial fibrillation in Australia. 2017.
5. Gallagher C, Elliott AD, Wong CX, et al. Integrated care in atrial fibrillation: a systematic review and meta-analysis. *Heart* 2017 May 10. pii: heartjnl-2016-310952. doi: 10.1136/heartjnl-2016-310952. [Epub ahead of print]
6. Simons LA, Ortiz M, Freedman B, et al. Medium- to long-term persistence with non-vitamin-K oral anticoagulants in patients with atrial fibrillation: Australian experience. *Current Medical Research and Opinion* 2017: DOI: 10.1080/03007995.2017.1321535.
7. Walters TE, Nisbet A, Morris GM, et al. Progression of atrial remodelling in patients with high burden atrial fibrillation: implications for early ablative intervention. *Heart Rhythm* 2016; 13: 331–39.
8. Samuel M, Avgil Tsadok M, Joza J, et al. Catheter ablation for the treatment of atrial fibrillation is associated with a reduction in health care resource utilization. *J Cardiovasc Electrophysiol* 2017: Apr 17. doi: 10.1111/jce.13225. [Epub ahead of print]
9. Dewland TA, Glidden DV, Marcus GM. Healthcare utilization and clinical outcomes after catheter ablation of atrial flutter. *PLoS One* 2014; 9: e100509.
10. Kautzner J, Bulkova V, Hindricks G, et al. Atrial fibrillation ablation: a cost or an investment? *Eurospace* 2011; 13(Suppl 2): ii39–43.
11. Chugh SS, Havmoeller, R, Narayanan K, et al. Worldwide Epidemiology of Atrial Fibrillation: A Global Burden of Disease 2010 Study. *Circulation* 2014; 129: 837–47.
12. Freedman B, Potpara TS, Lip GY. Stroke prevention in atrial fibrillation. *Lancet* 2016; 388: 806–17.
13. Wong CX, Brooks AG, Leong DP, et al. The increasing burden of atrial fibrillation compared with heart failure and myocardial infarction: a 15-year study of all hospitalizations in Australia. *Arch Intern Med* 2012; 172: 739–41.
14. Anter E. Paroxysmal atrial fibrillation: A window of opportunity to modify disease progression. *Heart Rhythm* 2016; 13: 340–1.
15. de Vos CB, Pisters R, Nieuwlaat R, et al. Progression from paroxysmal to persistent atrial fibrillation clinical correlates and prognosis. *J Am Coll Cardiol* 2010; 55: 725–31.
16. Kochhäuser S, Dechering DG, Troughton K, et al. Predictors for progression of atrial fibrillation in patients awaiting atrial fibrillation ablation. *Can J Cardiol* 2016; 32: 1348–54.
17. Holmqvist F, Kim S, Steinberg BA, et al for the ORBIT-AF Investigators. Heart rate is associated with progression of atrial fibrillation, independent of rhythm. *Heart* 2015; 101: 894–99.
18. Xu J, Luc JG, Phan K3. Atrial fibrillation: review of current treatment strategies. *J Thorac Dis* 2016; 8: E886–900.
19. Andrew NE, Thrift AG, Cadilhac DA. The prevalence, impact and economic implications of atrial fibrillation in stroke: what progress has been made? *Neuroepidemiology* 2013; 40: 227–39.
20. PricewaterhouseCoopers. The economic cost of atrial fibrillation in Australia. 2010.
21. Lip GY, Al-Khatib SM, Cosio FG, et al. Contemporary management of atrial fibrillation: what can clinical registries tell us about stroke prevention and current therapeutic approaches? *J Am Heart Assoc* 2014; 3: e001179.
22. Amerena J, Walters TE, Mirzaee S, et al. Update on the management of atrial fibrillation. *MJA* 2013; 199: 592–97.
23. Alamneh EA, Chalmers L, Bereznicki LR. Suboptimal use of oral anticoagulants in atrial fibrillation: has the introduction of direct oral anticoagulants improved prescribing practices? *Am J Cardiovasc Drugs* 2016; 16:183–200.
24. Wilber DJ, Pappone C, Neuzil P, et al. Comparison of antiarrhythmic drug therapy and radiofrequency catheter ablation in patients with paroxysmal atrial fibrillation: a randomized controlled trial. *JAMA*, 2010; 303: 333–40.



25. Khaykin Y, Morillo CA, Skanes AC, et al. Cost comparison of catheter ablation and medical therapy in atrial fibrillation. *J Cardiovasc Electrophysiol* 2007; 18: 907–13.
26. Pappone C, Augello G, Sala S, et al. A randomized trial of circumferential pulmonary vein ablation versus antiarrhythmic drug therapy in paroxysmal atrial fibrillation: the APAF Study. *J Am Coll Cardiol* 2006; 48: 2340–17.
27. Jaïs P, Cauchemez B, Macle L, et al. Catheter ablation versus antiarrhythmic drugs for atrial fibrillation: The A4 study. *Circulation* 2008; 118: 2498–505.
28. Parkash R, Tang AS, Sapp JL, et al. Approach to the catheter ablation technique of paroxysmal and persistent atrial fibrillation: a meta-analysis of the randomized controlled trials. *J Cardiovasc Electrophysiol* 2011; 22: 729–38.
29. Chen HS, Wen JM, Wu SN, et al. Catheter ablation for paroxysmal and persistent atrial fibrillation. *Cochrane Database Syst Rev* 2012;(4):CD007101.
30. Liao YC, Liao JN, Lo LW, et al. Left atrial size and left ventricular end-systolic dimension predict the progression of paroxysmal atrial fibrillation after catheter ablation. *J Cardiovasc Electrophysiol* 2017;28: 23-30.
31. Medi C, Sparks PB, Morton JB, et al. Pulmonary vein antral isolation for paroxysmal atrial fibrillation: results from long-term follow-up. *J Cardiovasc Electrophysiol* 2011; 22: 137–41.
32. Packer D, Kowal R, Wheelan K, et al. Cryoballoon Ablation of Pulmonary Veins for Paroxysmal Atrial Fibrillation. *J Am Coll Cardiol* 2013, Volume 61, Issue 16, 1713-1723.
33. Kuck K, Brugada J, Fürnkranz A, et al. for the FIRE AND ICE Investigators. Cryoballoon or radiofrequency ablation for paroxysmal atrial fibrillation. *N Engl J Med* 2016; 374: 2235–45.
34. Kuck K, Fürnkranz A, Julian Chun KR, et al., on behalf of the FIRE AND ICE Investigators. *European Heart Journal* 2016; 37, 2858–2865 doi:10.1093.
35. Hunter RJ, McCreedy J, Diab I, et al. Maintenance of sinus rhythm with an ablation strategy in patients with atrial fibrillation is associated with a lower risk of stroke and death. *Heart* 2012; 98: 48–53.
36. Bunch TJ, Crandall BG, Weiss JP, et al. Patients treated with catheter ablation for atrial fibrillation have long-term rates of death, stroke, and dementia similar to patients without atrial fibrillation. *J Cardiovasc Electrophysiol* 2011; 22: 839–45.
37. New Zealand National Health Committee. Technology Note: Catheter Ablation for the Treatment of Atrial Fibrillation. 2012.
38. Bunch TJ, May HT, Bair TL, et al. Increasing time between first diagnosis of atrial fibrillation and catheter ablation adversely affects long-term outcomes. *Heart Rhythm* 2013; 10: 1257–62.
39. Thomas SP. Defining the role of catheter ablation for atrial fibrillation in Australia. *Heart Lung Circ* 2013; 22: 697–98.
40. Australian Department of Health. MSAC 1443 - Implantable loop recorders for diagnosis of atrial fibrillation in cryptogenic stroke. 2016.
41. National Stroke Foundation. Clinical Guidelines for Stroke Management 2017. Melbourne, Australia.
42. Kalman JM, Sanders P, Brieger DB, et al. National Heart Foundation of Australia consensus statement on catheter ablation as a therapy for atrial fibrillation. *Med J Aust* 2013;198: 27–28.
43. Moran PS, Teljeur C, Ryan M, Smith SM. Systematic screening for the detection of atrial fibrillation. *Cochrane Database of Systematic Reviews* 2016, Issue 6. Art. No.: CD009586. DOI: 10.1002/14651858.CD009586.pub3.
44. Freedman B. Screening for Atrial Fibrillation. A Report of the AF-SCREEN International Collaboration. *Circulation* 2017; 135: 1851–67.
45. Munschauer FE, Hens M, Priore RL, et al. Screening for atrial fibrillation in the community: A multicenter validation trial. *J Stroke Cerebrovasc Dis* 1999; 8 (Suppl): 99–103.
46. Munschauer FE 3rd, Sohocki D, Smith Carrow S, Priore RL. A community education program on atrial fibrillation: implications of pulse self-examination on awareness and behavior. *J Stroke Cerebrovasc Dis* 2004; 13: 208–13.
47. Proietti M, Boriani G, Laroche C, et al on behalf of the EORP-AF General Pilot Registry Investigators. Self-reported physical activity and major adverse events in patients with atrial fibrillation: a report from the EUObservational Research Programme Pilot Survey on Atrial Fibrillation (EORP-AF) General Registry. *Europace* 2017; 19: 535–43.



hearts4heart

Address: 403-15/17 Gordon Street, Elsternwick VIC 3186

Tel: 1300 3 HEART (1300 343 278)

Web: hearts4heart.org.au

Email: info@hearts4heart.org.au

