



## POST-CARDIAC SURGERY ATRIAL FIBRILLATION UK PRACTICE SURVEY

Ramy Abdallah<sup>1</sup>, Abdulrahman Showayhi<sup>2</sup>, Abdalmjeed Albreki<sup>2</sup>, Omar Altowell<sup>3</sup>,  
Faris Khan<sup>3</sup>, Robaa Alsobhi<sup>4</sup>, Ghadah Alshehri<sup>5</sup>

<sup>1</sup> A Internal Medicine Consultant, Saudi Arabia.

<sup>2</sup> University of Jeddah, Saudi Arabia.

<sup>3</sup> Ibn Sina National college for Medical Studies

<sup>4</sup> Batterjee Medical College

<sup>5</sup> Fakeeh College of Medical Sciences

### Abstract:

#### Introduction:

Recommendations for the prevention of postoperative atrial fibrillation (POAF) after cardiac surgery vary among international organizations. To establish "usual care" for a future platform trial aimed at preventing and managing POAF, a national survey of UK practice was conducted. In parallel, current international guidelines addressing the prevention and management of atrial fibrillation following cardiac surgery were reviewed to contextualize the survey findings.

**Objectives:** Postoperative atrial fibrillation affects approximately 30% of patients undergoing cardiac surgery and represents the most common postoperative complication. This study aimed to evaluate current UK practice in the prevention and management of POAF and to compare it with existing guideline recommendations.

**Design:** A mixed-methods study comprising a structured literature review and a national online survey.

**Participants:** All 35 National Health Service (NHS) cardiac surgery centers in the United Kingdom were invited to participate through a national research network. Measurements and Key Findings Five major international guidelines were identified. All recommended  $\beta$ -blockade for the prevention of POAF. Both rate and rhythm control strategies were advised for treatment, with cardioversion reserved for hemodynamically unstable patients. Anticoagulation was recommended for patients remaining in atrial fibrillation beyond 48 hours, with continued rhythm and anticoagulation therapy guided by extended monitoring. Responses were received from 31 of 35 centers (89%). Eleven centers (35.5%) followed local POAF prevention guidelines, four (13%) followed Society of Cardiovascular Anesthesiologists/European Association of Cardiothoracic Anaesthesiology guidelines, four followed National Institute for Health and Care Excellence (NICE) guidance, and four adhered to other protocols. Eight centers (26%) reported having no formal POAF prevention protocol, and 28 centers (90%) did not perform routine POAF risk stratification. Most centers (23/31, 74%) lacked a structured POAF care bundle, although 14 centers (45%) actively attempted prophylaxis in patients presenting in sinus rhythm. The most commonly used preventive strategies were postoperative  $\beta$ -blockers (23/31, 74%), magnesium supplementation (20/31, 64.5%), and maintenance of serum potassium around 4.5 mmol/L (26/31, 84%).

**Conclusions:**  $\beta$ -blockade remains the cornerstone of POAF prevention following cardiac surgery. In UK practice,  $\beta$ -blockers alongside optimization of serum potassium and magnesium levels constitute the principal preventive measures. Despite the high incidence of POAF, formal risk stratification and standardized prevention pathways are not widely implemented, highlighting a significant opportunity for systematized intervention and future clinical trials.

**Corresponding author:****Ramy Abdallah,***A Internal Medicine Consultant, Saudi Arabia.*

Please cite this article in press *Ramy Abdallah et al., Post-Cardiac Surgery Atrial Fibrillation Uk Practice Survey, Indo Am. J. P. Sci, 2026; 13(01).*

**INTRODUCTION:**

In the UK, about 32,000 adults undergo heart surgery in 35 centers annually.<sup>1</sup> About 30% of patients experience postoperative atrial fibrillation (POAF), the most frequent complication following heart surgery. An episode of POAF increases hospital stays by 12 to 24 hours, stays in the intensive care unit (ICU) for 2 to 5 days, and nearly triples the in-hospital and 1-year mortality rates following heart surgery from 0.5% to 3.3% and 3.7% to 9.9%, respectively. In the first year following surgery, 3-6 POAF raises the cost of healthcare for each affected patient by about £10,000.<sup>7</sup> For these reasons, the James Lind Alliance Cardiac Surgery Priority Setting Partnership, which was created in 2019 by patients, families, and medical professionals, selected prevention of POAF as one of the top 10 research goals.<sup>8</sup>

More than 23 interventions (pharmacological and non-pharmacological) have been studied to prevent POAF.<sup>9</sup> The majority of studies focus on perioperative efficacy and do not include safety information.<sup>10</sup> The volume and quality of evidence for the effectiveness of many of these interventions to prevent prolonged hospital stays in the short term and stroke in the mid- and long-term are low. The high incidence and prevalence of POAF after heart surgery has led to the creation of several guidelines by specialist societies and organizations centered around the prevention of POAF and the management of POAF once it has occurred.<sup>11</sup> Surveys conducted in 2017 before the most recent Society of Cardiovascular Anesthesiologists (SCA)/European Association of Cardiothoracic Anesthesia (EACTA) guidelines revealed wide variation across the United States, Europe, and the UK in the implementation of intervention stop event POAF after cardiac surgery.

However, no studies have been conducted since the guidelines were published, so it is currently unknown how much practice has changed and whether variation in practice has decreased. As a result, the authors conducted a survey to describe

current UK practice regarding the prevention and management of POAF after cardiac surgery. To set the scene for the survey, guidelines for the prevention and management of POAF after cardiac surgery were reviewed and summarized.

**METHOD:****Review of Guidelines:**

The search was restricted to healthcare systems such as those in the UK (UK, Europe, United States, Canada, Australia, and New Zealand). Only guidelines that specifically pertain to the prevention and management of AF after cardiac surgery were included. Where a guideline had been updated, only the most recent version was taken into consideration. Specialist societies (cardiac surgery, cardioanesthesia, intensive care medicine, and cardiology) and other national health-care guideline providers were contacted for publications of guidelines relating to the prevention and management of POAF.

**Survey:**

This study did not require formal ethical approval, according to the UK Health Research Authority.<sup>12</sup> A brief online (Survey Monkey) survey with 14 questions (four about demographics, one about the definition of POAF, one about what percentage of patients develop POAF, one about the use of guidelines, two about risk stratification, three about care packages to prevent POAF and to whom this is applied, two about specific interventions used to prevent and treat POAF, and one about The UK Health Research Authority confirmed that this study did not require formal ethical approval.<sup>12</sup> A multidisciplinary research team created a brief online (SurveyMonkey) survey with 14 questions (four about demographics, one about the definition of POAF, one about what percentage of patients develop POAF, one about the use of guidelines, two about risk stratification, three about care packages to prevent POAF and to whom this is applied, two about specific interventions used to prevent and treat POAF, and one about further contact) (See Supplementary Material). Four clinicians with content expertise and three non-experts (from a patient and public involvement

group) piloted the survey and provided feedback on its readability, clarity, and ease of completion.

Data from the online survey were analyzed using the Survey Monkey analysis tool and Microsoft Excel (CA). The survey was distributed to all 35 centers performing cardiac surgery in the UK, contacted using established links for multiple previous surveys of UK cardiac surgical practice.<sup>13,14</sup> Sites were defined by geography rather than NHS Trust, and the most appropriate clinician (such as anesthetists or surgeons) was identified and asked to complete the survey based on their institutional, rather than personal, practice.

## RESULTS:

### Review:

It was determined that five guidelines were pertinent to include in the view. The Canadian

Heart Association (AHA)/American College of Cardiology (ACC) in 2023, the Canadian Cardiovascular Society (CCS)/Canadian Heart Rhythm Society (CHRS) in 2020, the European Society of Cardiology (ESC)/European Association of Cardiothoracic Surgery (EACTS) in 2020, the SCA/EACTA in 2018, the UK National Institute of Health and Care Excellence (NICE) in 2021, and the Canadian Cardiovascular Society (CCS)/CHRS in 2020 all produced these guidelines.<sup>10</sup> Although Australasia produced guidelines for the management of AF, the perioperative context was not specifically covered. The formulation of only two guidelines (ACC and NICE) specifically included systematic evidence reviews. Table 1 summarizes the recommendations from various guidelines.

Table 1  
Comparison of Guidelines for the Prevention of Atrial Fibrillation After Cardiac Surgery

Prevention of AF	CCS	AHA/ACC	SCA/EACTA	ESC/EACTS	NICE
Continuation of b-blockade	1st Line	"High-risk" only	1st Line	1st Line	1st Line
New b-blockade	1st Line		1st Line		1st Line
Amiodarone	2nd Line	"High-risk" only	1st Line ("high-risk" only)	1st Line	1st Line
Rate-limiting calcium channel blocker					1st Line
Intravenous magnesium	3rd Line				
Sotalol			X		
Biatrial pacing	3rd Line		X		
Colchicine	3rd Line		X		
Corticosteroids			X		
Posterior pericardiectomy	3rd Line	X			
Management of AF	CCS	AHA/ACC	SCA/EACTA	ESC/EACTS	NICE
Rate or rhythm control	1st Line	1st Line	X	Based on symptoms	1st Line
DCCV	2nd Line	2nd Line (instability)	2nd Line (instability)	2nd Line (instability)	
Anticoagulation	X	X	X	X	X
Follow up	6-12 wk	30-60 d			

Abbreviations: ACC, American College of Cardiology; AF, atrial fibrillation; AHA, American Heart Association; CCS, Canadian Cardiovascular Society; DCCV, DC Cardioversion; EACTA, European Association of Cardiothoracic Anaesthetists; EACTS, European Association of Cardiothoracic Surgeons; NICE, UK National Institute of Health and Care Excellence; SCA, Society of Cardiovascular Anesthesiologists.

The CCS and ESC/EACTS guidelines were developed through a "comprehensive appraisal of the evidence," but no information regarding the methodology was provided. The SCA/EACTA guidelines reviewed other guidelines and condensed the information into a practice advisory. A panel of experts developed all of the guidance; patients were not directly involved in the development of the NICE guidelines (two lay members are members of NICE working groups and committees). All of the guidance, with the exception of NICE, was produced with a graded class of recommendations and appraisal of the evidence. A separate document of the evidence appraisal was published alongside the NICE guidelines.

### Survey

31 (89%) out of 35 centers finished the survey. Tables 2 and 3 contain the complete results. As a whole, 26 out of 31 (84%) centers thought that the rate of new POAF was between 26% and 50% of their patients; 8 out of 31 (26%), centers followed no guidelines to avoid AF; 11 out of 31 (35.5%) centers followed local guidelines for POAF prevention, while only 4 centers (13%), followed the SCA/EACTA standards, and another 4 centers (13%), followed NICE guidelines. Four centers claimed to have used "other guidance," although they did not define it.

### Definitions of AF

Table 2

Survey Responses From 31 of 35 UK Cardiac Surgery Centers

Survey Question	N (%)
What definition of AF after cardiac surgery does your centre use?	
Any AF/SVT reported by clinical staff	8 (26%)
Any AF/SVT with ECG/rhythm strip evidence	9 (29%)
AF/SVT lasting more than 30 s	1 (3%)
AF/SVT lasting more than 30 s with ECG/rhythm strip evidence	6 (19%)
AF/SVT requiring intervention	4 (13%)
Other	3 (10%)
What percentage of patients in your centre (who are in sinus rhythm before their operation) do you think experience AF after cardiac surgery?	
<25%	5 (16%)
26-50%	26 (84%)
51-75%	0
>75%	0
Does your centre follow any guidelines for the prevention of AF?	
SCA/EACTA	4 (13%)
NICE	4 (13%)
Canadian Cardiovascular Society	0
Local (hospital) guidelines	11 (35.5)
Our centre does not follow any guidelines	8 (26%)
Other	4 (13%)

The idea of AF is only partially defined in three of the guidelines (ACC, ESC, and CCS). According to ESC recommendations, an ECG trace demonstrating a cardiac rhythm with consistent R-R intervals (when atrioventricular conduction is unimpaired) lasting roughly 30 seconds and no detectable p-waves is considered to be indicative of AF. The AHA/ACC guidelines define AF in the same way as the ESC recommendations, however they specifically do not include a duration. Although AF must remain for at least 30 seconds, the CCS guidelines don't specify any ECG criteria for what exactly qualifies as AF. The idea of AF is not defined in the SCA/EACTA and NICE recommendations. Instead of using the ESC guidance of about 30 seconds after their definition of POAF, 17 out of 31 (55%) centers in the current survey used the definition of any A for supraventricular tachycardia (with or without electrocardiogram rhythm strip evidence).

### Risk Stratification

The majority of centers (23/31,74%) did not have a care package in place to prevent POAF, while 28 (90%) did not risk-stratify their patients for the risk of POAF. Of the three centers that risk-stratified, two used operative intervention alone, one used the SCA/EACTA guidelines, one used the POAF score, and one used the EUROSCORE2 (respondent could choose more than one option).

Does your centre <i>routinely</i> risk-stratify patients for the risk of getting AF after cardiac surgery?	
Yes	3 (10%)
No	28 (90%)
Which risk calculator does your centre use to stratify the risk of AF after cardiac surgery?	
Use age alone as a predictor	0
Use operative intervention alone as a predictor (eg, valve surgery)	2 (6.5%)
COM-AF score	0
POAF score	1 (3%)
HATCH score	0
Our unit does not risk-stratify patients	26 (84%)
Other	1 (3%)
Do you have a care package to prevent AF in your centre?	
We don't have a care package	23 (74%)
We have a care package and apply it to all patients	7 (23%)
We have a care package and we apply it to high-risk patients only	1 (3%)
In what proportion of cardiac surgical patients who are in sinus rhythm does your centre routinely try to prevent AF?	
None	10 (32%)
<25%	4 (13%)
26-50%	3 (10%)
51-75%	0
>75%	14 (45%)

“Local” guidelines refer to center-specific guidance.

Abbreviations: AF, atrial fibrillation; COM-AF, Combined Risk Score to Predict Atrial Fibrillation after Cardiac Surgery; EACTA, European Association of Cardiothoracic Anesthesiologists; ECG, electrocardiograph; HATCH, hypertension, age, transient ischemic attack, chronic obstructive pulmonary disease, and heart failure; POAF, postoperative atrial fibrillation; SCA, Society of Cardiovascular Anesthesiologists; SVT, supraventricular tachycardia.

### Prevention

For patients who are currently on b-blockade, three guidelines (SCA/EACTA, NICE, and CCS) expressly advise continuing it during the perioperative phase.<sup>10, 11, 15</sup> All patients having heart surgery should be offered short-term b-blockade, according to four guidelines (SCA/EACTA, CCS, ESC/EACTS, and NICE). B-blockers are only advised for "high-risk" patients, according to AHA/ACC guidelines. Offering amiodarone as a substitute for b-blockers to all patients in order to prevent AF following heart surgery is equally important according to NICE and ESC/EACTS. During the postoperative phase, 23 out of 31 (74%) UK facilities used b-blockers, most frequently bisoprolol.

NICE also recommends an alternative of a rate-limiting calcium channel blocker (e.g., diltiazem) for prevention, although they acknowledge that this is outside its UK license of use. This is confirmed by the current survey, which shows that only three (10%) centers use rate-limiting calcium channel blockers. The SCA/EACTA and AHA/ACC guidelines only recommend amiodarone for "high-risk" patients, and the CCS only recommends it for patients for whom b-blockade is contraindicated.

In order to prevent POAF, 26 (84%) of the 31 centers maintained a serum  $K^{+} \sim 4.5$  mmol/L (mEq/L), which is not advised by any of the guidelines. While 20 out of 31 (65%) centers in the current survey reported utilizing magnesium, only the CCS advises using intravenous magnesium to prevent POAF. Magnesium use was split between intravenous administration of 8 to 20 mmol (mEq=2.5g) and serum level maintenance of approximately 0.8 mmol/L (mEq/L). The ESC/EACTS recommends balancing electrolytes, including magnesium, but it makes no mention of what "normal" could be or how to fix it.

Only one facility reported taking colchicine preoperatively, despite the fact that both the CCS and the SCA/EACTA advise using it as an anti-inflammatory drug to prevent POAF. Once more, only one center reported taking corticosteroids, despite the SCA/EACTA's recommendation to use them as an anti-inflammatory therapy. Regarding nonpharmacological measures, the AHA/ACC and CCS both suggest post-pericardiectomy as a surgical approach, while the CCS suggests biatrial pacing as a possibility (as reported by 12 of 31 centers). Only one clinic, nevertheless, reported preventing POAF with a posterior pericardiectomy.

The MAZE technique (3/31%), digoxin (2/2,6.5%), statins (6/31,19%), and sotalol (2/31,6.5%) were

among the other therapies employed by UK hospitals to prevent AF.

Table 3

Interventions Used to Prevent and Manage Postoperative Atrial Fibrillation

	Used to Prevent AF N (%)		Used to Treat AF		
	Preoperatively	Intraoperatively	Postoperatively	Do Not Use N (%)	
Nondihydropyridine calcium channel blockers (verapamil, diltiazem)	2 (6.5%)	1 (3%)	1 (3%)	3 (10%)	18 (58%)
Amiodarone (bolus)	1 (3%)	4 (13%)	2 (6.5%)	27 (87%)	0
Amiodarone (infusion)	1 (3%)	4 (13%)	4 (13%)	28 (90%)	0
Amiodarone (bolus and infusion)	0	3 (10%)	4 (13%)	26 (84%)	0
$\beta$ -blockers	11 (37%)	3 (10%)	23 (74%)	23 (74%)	0
Colchicine	0	0	1 (3%)	1 (3%)	18 (58%)
Steroids	0	1 (3%)	0	0	19 (61%)
Digoxin	2 (6.5%)	2 (6.5%)	3 (10%)	19 (6%)	5 (16%)
Sotalol	2 (6.5%)	0	1 (3%)	6 (19%)	13 (42%)
Propafenone	0	0	0	0	20 (64.5%)
Procainamide	0	0	0	1 (3%)	19 (61%)
Magnesium	3 (10%)	14 (45%)	20 (64.5%)	20 (64.5%)	1 (3%)
Statins	3 (10%)	0	6 (19%)	0	10 (32%)
Maintaining K <sup>+</sup> >4.5 mmol/l (mEq/L)	3 (10%)	15 (48%)	26 (84%)	22 (71%)	1 (3%)
Prophylactic MAZE procedure	1 (3%)	10 (3%)	3 (10%)	2 (6.5%)	9 (29%)
Atrial pacing	0	4 (13%)	8 (26%)	5 (16%)	12 (39%)

Abbreviation: AF, atrial fibrillation.

### Management

The guidelines for the management of AF after cardiac surgery are much more cohesive. All four guidelines recommend electrical cardiac reversal only for patients who are hemodynamically unstable (NICE makes a statement on this). NICE and the CCS also make a statement on which medications to use for rate and rhythm control. The other guidelines all recommend either a  $\beta$ -block or a calcium channel blocker that limits heart rate.

The CCS, AHA/ACC, and ESC/EACTS guidelines all expressly ask for follow-up to reevaluate the necessity for oral anticoagulation and antiarrhythmics. According to this study, the most popular methods for treating an elderly AF after it has already happened were magnesium (20/31,65%), amiodarone (28/31,90%), cardioversion (25/31,81%), and maintaining K<sup>+</sup> >4.5mmol/L(mEq/L) (22/31,71%). The Supplementary Material contains comprehensive dosage guidelines for interventions (prevention and management).

### DISCUSSION:

This study has demonstrated that, despite the fact that many of the guidelines pertain to "high-risk" patients, patients in the UK do not appear to be risk-assessed for POAF, and there is variation amongst centers regarding the definition of POAF and the guidelines that are adhered to for prevention and management. According to all guidelines,  $\beta$ -blockers should be started in most patients for the short-term prevention of POAF if they are not already taking them, and they should be continued throughout the perioperative cardiac surgery period. This is what three-quarters of UK centers do. Most UK centers do not use amiodarone for prevention, but the AHA/ACC and SCA/EACTA guidelines advise it to be "considered" for AF prevention, especially in "high-risk" individuals or those who are contraindicated to  $\beta$ -blockers. Although none of the UK's standards encourage maintaining serum K<sup>+</sup> and Mg<sup>2+</sup> levels, 85% and 65% of centers do so, respectively.

Guidelines generally agree that either a b-blocker, a rate-limiting calcium channel blocker, or amiodarone can be administered to control rate or rhythm if AF occurs. Thermodynamically unstable patients should not undergo electrical cardioversion. Amiodarone and/or b-blockers are used to treat AF in more than three-quarters of UK clinics. Calcium channel blockers are only used in three centers. It is advised that patients take oral anticoagulants if their AF lasts more than 48 hours and there is a sufficient recovery period after surgery to make the risk of bleeding tolerable.

The joint SCA/EACTA Practice Advisory<sup>11</sup> for the prevention of AF following heart surgery should have standardized practices in the US, UK, and Europe. In terms of risk stratification, this is undoubtedly not the case for the UK. Risk assessment for POAF would enable interventions to be targeted at the most effective patients, and even the most basic stratification by age and surgical type (valve and/or coronary artery bypass graft)<sup>19</sup> may offer good predictive accuracy.

According to the evidence evaluations in the NICE guidance, studies "reported adverse effects inconsistently, and there was no assessment of cost-effectiveness for any intervention." Amiodarone was the subject of these investigations. Many centers probably do not employ amiodarone to treat POAF because practitioners will be reluctant to use preventative measures if adverse events cannot be quantified. Because AF's elevated heart rate counteracts the perceived risk of bradycardia, centers feel much more at ease using amiodarone after AF has occurred. cardioversion is also widely used, though it's unclear from the survey if this is limited to individuals who are thermodynamically unstable as recommended by the guidelines.

The survey's high center response rate and ability to give a thorough picture of UK practice are its main advantages. Though it could be made sure that they did not speak solely for themselves, it is constrained by the fact that only one person was requested to represent their institution and reflect institutional practice. In order to increase survey completion efficiency, cardiac surgery was also handled as a whole rather than by operation, which could conceal variations in treatment for various procedures. When there is no long-term therapy for them, such as in the case of isolated aortic valve replacement with severe stenosis, clinicians may be less inclined to administer drugs such b-blockers following surgery.

Prior to the publication of the current guidance, surveys were conducted.<sup>11</sup> These earlier surveys looked at individual rather than institutional

practices, which would have produced more accurate responses but generally less responsive and possibly less generalizable results because there might have been a difference between those who answered the survey and those who didn't. The main drawback of individual approaches is that the denominator for the sampling is frequently unclear; in large institutions, it can be challenging to determine which persons are relevant because the ward and/or floor care team, critical care team, and operating room team are frequently managed by different individuals. The goal of one individual giving an overview of institutional practice is to document care in each of these contexts. Prior polls were also carried out in the UK, Europe, and the United States. Once more, variations in other aspects of the standard care approach may result in heterogeneity in the application of interventions.<sup>21</sup>

However, when it comes to using interventions to prevent AF after heart surgery, 74% of centers have consistently focused on using b-blockers, which was not the case in a survey conducted prior to the most recent guidelines<sup>11</sup>, which had two groups of practitioners: those who rarely used b-blockade for AF prevention and those who always did. The latter group cited fear of bradycardia and a systole as reasons for their non-use. While the adverse events associated with b-blockers during the perioperative period are well-studied and characterized, those of nearly all other interventions are not—something supported by the evidence-based guidelines.<sup>20</sup>

Respondents were familiar with the idea of answering on behalf of their institution and understood the purpose of the survey, which was to map the care pathway regarding prevention of POAF after cardiac surgery and define "usualcare" for a pragmatic trial. An established link network used for multiple previous surveys of UK cardiac surgical practice was used,<sup>13,14</sup>.

Over twenty-three interventions have been investigated to prevent POAF.<sup>9</sup> There is little evidence supporting any of the strategies used by clinicians to prevent AF. According to NICE, "many of the reviewed studies were old and included small numbers of participants." The committee agreed that they could not recommend a specific class of drugs based on such scant evidence because there were few studies comparing drug classes.<sup>10</sup> The ESC/EACTS guidelines classify this as class I evidence, while the AHA/ACC guidelines classify b-blockade for prevention as class 2a. The CCS considers the initiation of new b-blockers to be low-quality evidence and the continuation of existing b-blockers to be high-quality evidence. There is little information about these electrolytes in any

evidence-based guidance because the evidence base for K<sup>+</sup> and Mg<sup>2+</sup> controversy is much lower.

The Tight-K research (NCT04053816),<sup>22</sup> a large, randomized trial of K<sup>+</sup> control method after coronary artery bypass graft, has completed recruiting and is currently being analyzed to answer the data addressing the place of K<sup>+</sup>. Since there is now little evidence to support magnesium's ability to prevent POAF, a randomized controlled experiment with sufficient power is still necessary. The efficacy and safety of nearly every other intervention must be assessed.

Cardiovascular surgery centers should adhere to the available evidence-based guidelines, even though there is little evidence to support the effectiveness of any particular intervention to prevent atrial fibrillation. One problem is that there are numerous guidelines in this area, each with slightly different recommendations. The variations in interpretation described above further complicate matters for those who are putting the guidelines into practice. Guidelines like the ESC/EACTS also include algorithms of care that include numerous interventions that are not stated or advised in the evidence review (e.g., optimization of electrolytes). This confusion is exacerbated by the fact that multiple guidelines cover the same geographic area (for example, the UK is subject to SCA/EACTA, ESC/EACTS, and NICE guidance).

All clinics and centers should adhere to these guidelines in order to reduce unnecessary care variation and gather momentum. Reducing unnecessary variation in care enhances care quality, lowers complications, and improves outcomes.<sup>23</sup> The fact that there are currently several non-aligned standards suggests that there is a lack of high-quality data to support them. National research funds with the financial means to supply this evidence, such as the National Institutes of Health [United States] and the National Institute for Health and Care Research [United Kingdom], are starting to do so (e.g., the NIHR-funded PARADISE-AF [NIHR131227] for risk prediction of POAF after cardiac surgery).

According to this review and survey of guidelines, the standard treatment in the UK for preventing post-ac surgery POAF is the use of b-blockers, which is in accordance with guidelines, followed by a measurement of serum potassium and magnesium concentrations, which is not. Little risk assessment is used to identify patients who are more likely to have POAF, and as a result, interventions are not as well targeted. Randomized controlled trials are still necessary to assess the safety, cost-effectiveness, and effectiveness of almost all interventions.

## REFERENCES:

1. NICOR: National adult cardiac surgery audit 2017-20. National Institute of Cardiac Outcomes Research; 2021.
2. NHS England. National Cost Collection 2020-21. Available at: <https://www.england.nhs.uk/costing-in-the-nhs/national-cost-collection/#ncc1819>.
3. Mariscalco G, Klersy C, Zanobini M, et al. Atrial fibrillation after isolated coronary surgery affects late survival. *Circulation* 2008;118:1612-8.
4. Dobrev D, Aguilar M, Heijman J, et al. Postoperative atrial fibrillation: mechanisms, manifestations and management. *Nat Rev Cardiol* 2019; 16:417-36.
5. Ahlsson A, Fengsrud E, Bodin L, et al. Postoperative atrial fibrillation in patients undergoing aortocoronary bypass surgery carries an eightfold risk of future atrial fibrillation and a doubled cardiovascular mortality. *Eur J Cardiothorac Surg* 2010;37:1353-9.
6. El-Chami MF, Kilgo P, Thourani V, et al. New-onset atrial fibrillation pre- dicts long-term mortality after coronary artery bypass graft. *J Am Coll Car- diol* 2010;55:1370-6.
7. Hravnak M, Hoffman LA, Saul MI, et al. Resource utilization related to atrial fibrillation after coronary artery bypass grafting. *Am J Crit Care* 2002;11:228-38.
8. Lai FY, Abbasciano RG, Tabberer B, et al. Identifying research priorities in cardiac surgery: A report from the James Lind Alliance Priority Setting Partnership in adult heart surgery. *BMJ Open* 2020;10:e038001.
9. Burrage PS, Low YH, Campbell NG, et al. New-onset atrial fibrillation in adult patients after cardiac surgery. *Curr Anesthesiol Rep* 2019;9:174-93.
10. National Institute of Health and Care Excellence. NG 196: Atrial fibrilla- tion: Diagnosis and management.
11. O'Brien B, Burrage PS, Ngai JY, et al. Society of Cardiovascular Anes- thesiologists/European Association of Cardiothoracic Anaesthetists prac- tice advisory for the management of perioperative atrial fibrillation in patients undergoing cardiac surgery. *J Cardiothorac Vasc Anesth* 2019; 33:12-26.
12. UK Health Research Authority Decision Tool. Available at: <https://www.hra-decisiontools.org.uk/research/>.
13. Gibbison B, Murphy GJ, Akowuah E, et al. Pre-operative and prehabilita- tion services in UK cardiac surgery centres. *Anaesthesia* 2023;78:388-91.

14. Gibbison B, EC de Cothi. Care pathways to prevent, identify, and treat delirium in United Kingdom cardiac surgery centers. *J Cardiothorac Vasc Anesth* 2024;38:348–9.
15. Andrade JG, Aguilar M, Atzema C, et al. The 2020 Canadian Cardiovascular Society/Canadian Heart Rhythm Society comprehensive guidelines for the management of atrial fibrillation. *Can J Cardiol* 2020;36:1847–948.
16. Joglar JA, Chung MK, Armbruster AL, et al. 2023 ACC/AHA/ACCP/ HRS guideline for the diagnosis and management of atrial fibrillation: A report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. *Circulation* 2024;83:109–279.
17. Hindricks G, Potpara T, Dagres N, et al. 2020 ESC guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS): The Task Force for the Diagnosis and Management of Atrial Fibrillation of the European Society of Cardiology (ESC) Developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC. *Eur Heart J* 2021;42:373–498.
18. Fleet H, Pilcher D, Bellomo R, et al. Predicting atrial fibrillation after cardiac surgery: A scoping review of associated factors and systematic review of existing prediction models. *Perfusion* 2023;38:92–108.
19. D’Agostino RS, Jacobs JP, Badhwar V, et al. The Society of Thoracic Surgeons Adult Cardiac Surgery Database: 2018 Update on outcomes and quality. *Ann Thorac Surg* 2018;105:15–23.
20. Blessberger H, Lewis SR, Pritchard MW, et al. Perioperative beta-blockers for preventing surgery-related mortality and morbidity in adults undergoing non-cardiac surgery. *Cochrane Database Syst Rev* 2019;9:CD013438.
21. White KC, Laupland KB, Bellomo R, et al. Trials and the importance of usual care. *Crit Care* 2024;28:223.
22. Campbell NG, Allen E, Sanders J, et al. The impact of maintaining serum potassium  $\geq 3.6$  mEq/L vs  $\geq 4.5$  mEq/L on the incidence of new-onset atrial fibrillation in the first 120 hours after isolated elective coronary artery bypass grafting—Study protocol for a randomised feasibility trial for the proposed Tight K randomized non-inferiority trial. *Trials* 2017;18:618.
23. Wennberg JE. Unwarranted variations in healthcare delivery: Implications for academic medical centres. *BMJ* 2002;325:961–4.