



Original Article

Which Recommendations Are You Using? A Survey of Emergency Physician Management of Paroxysmal Atrial Fibrillation

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ABSTRACT

Background: Both the Canadian Cardiovascular Society (CCS) and the Canadian Association of Emergency Physicians (CAEP) have published documents to guide atrial fibrillation (AF) management. In 2021, the CAEP updated its AF checklist. Prior to this update, the recommendations of the 2 organizations differed in several key areas, including the suggested cardioversion timeframe, the factors determining cardioversion eligibility, and anticoagulant initiation after cardioversion. Whether emergency physicians (EPs) are aware of, or adhering to, one, both, or neither of these documents is unknown.

Methods: We assessed document awareness, adherence, and EP practice using a piloted questionnaire administered to EPs at 5 emergency departments in 3 provinces.

Results: Of 166 survey recipients, 123 (74.1%) responded. The majority (64.7%) worked at an academic site, 38.8% identified as female, and median years in practice was 10.0. Most (93.1%) were aware of at least one of the documents; 45.7% were aware of both. Reported awareness was higher for the CCS (77.6%) vs the CAEP (61.2%) guidelines. Respondents varied in their adherence, with 40.5% using

RÉSUMÉ

Introduction : La Société canadienne de cardiologie (SCC) et l'Association canadienne des médecins d'urgence (ACMU) ont publié des documents pour orienter la prise en charge de la fibrillation auriculaire (FA). En 2021, l'ACMU a actualisé sa liste de vérification sur la FA. Avant cette actualisation, les recommandations des deux organismes différaient sur plusieurs points importants, notamment le laps de temps suggéré avant la cardioversion, les facteurs qui déterminent l'admissibilité à la cardioversion, et l'amorce du traitement anticoagulant après la cardioversion. On ignore si les médecins d'urgence (MU) connaissent ou adhère à un, à deux ou à aucun de ces documents.

Méthodes : Nous avons évalué la connaissance qu'ont les MU de ces documents, leur adhésion et leur pratique grâce à un questionnaire pilote soumis aux MU de cinq services des urgences de trois provinces.

Résultats : Parmi les 166 participants à l'enquête, 123 (74,1 %) y ont répondu. La majorité (64,7 %) travaillait dans un établissement universitaire, 38,8 % étaient des femmes, et le nombre médian d'années de pratique était de 10,0. La plupart (93,1 %) connaissaient au moins un des documents; 45,7 % connaissaient les deux. La connaissance

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia.¹ AF is associated with a significant social and

economic burden, and it independently increases the risk of mortality secondary to ventricular dysfunction and thromboembolic events.²⁻⁴ The prevalence of AF is predicted to increase dramatically,⁵ with a commensurate increase in emergency department (ED) visits.⁶

The Canadian Cardiovascular Society (CCS) and the Canadian Association of Emergency Physicians (CAEP) are the 2 major organizations that have provided clinical guidance for managing AF in Canadian EDs. In 2018, the CAEP published an AF checklist focused on ED care, and the CCS followed by publishing an update to its AF clinical practice guideline. Owing partly to the timing of the publications, the

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See page 472 for disclosure information.

parts of both documents. Considerable practice variability occurred when recommendations conflicted. Despite its use not being recommended by either organization, half of respondents (50.0%) reported using the CHA₂DS₂-VASc score as their stroke-risk assessment tool.

Conclusions: Although most surveyed EPs were aware of at least one organization's AF documents, many reported using parts of both. When recommendations conflicted, EPs were divided in their decision-making. These findings emphasize the need to improve consensus between organizations and further improve knowledge translation.

documents contained several conflicting recommendations.⁷⁻⁸ Despite an additional CCS update in 2020,⁹ the conflicts remained.⁷⁻¹¹ The discrepancies surrounded the following 2 important management points for patients who are not on anticoagulation therapy: (i) eligibility and timing of safe cardioversion; and (ii) anticoagulation therapy in the setting of cardioversion. Both organizations suggested that cardioversion is safe until 48 hours in patients with nonvalvular AF if they are at low risk for stroke or transient ischemic attack (TIA). However, the CAEP provided the caveat that cardioversion may not be safe in high-risk patients 24-48 hours from AF onset, whereas the CCS was more restrictive and recommended cardioverting only high-risk patients at < 12 hours from AF onset. The factors that determined who remained eligible for cardioversion, beyond 24 hours for the CAEP and 12 hours for the CCS, also differed slightly. The CAEP recommended using the CHADS-65 (Congestive Heart Failure, Hypertension, Age ≥ 65 Years, Diabetes, Stroke/TIA) algorithm, and the CCS recommended using the CHADS₂ (Congestive Heart Failure, Hypertension, Age ≥ 75, Diabetes, and Prior Stroke/TIA [doubled]) score. Finally, when deciding on anticoagulation therapy after cardioversion, the CCS recommended a minimum of 4 weeks for all patients, irrespective of their stroke risk.⁷⁻⁹ In contrast, the CAEP recommended anticoagulation therapy in only those patients who qualified via the CHADS-65 algorithm.⁸ The CAEP did, however, state in its checklist that physicians prescribing oral anticoagulant (OAC) should consider shared decision-making to include patients' preferences with regard to risks and benefits.⁸

In 2021, the CAEP updated its AF checklist. Although the CAEP has now aligned with the CCS in restricting the cardioversion timeframe to 12 hours in high-risk patients, the other differences remain.¹² Furthermore, the CAEP has added a new recommendation against cardioverting any non-anticoagulated patients with a prior history of stroke or TIA, whereas previously, it had aligned with the CCS by including only recent strokes or TIAs. Regardless of these changes, the impact that the previous conflicts may have had on the clinical practice of emergency physicians (EPs) is unknown. This study aimed to explore EP awareness, adherence, and clinical practice, considering the conflicting

rapportée était plus élevée pour les lignes directrices de la SCC (77,6 %) que pour les lignes directrices de l'ACMU (61,2 %). L'adhésion des répondants variait, mais 40,5 % utilisaient des parties des deux documents. La variabilité considérable de la pratique était observée lorsque les recommandations étaient contradictoires. Bien que son utilisation ne soit pas recommandée par l'un ou l'autre de ces organismes, la moitié des répondants (50,0 %) signalait utiliser le score CHA₂DS₂-VASc comme outil d'évaluation du risque d'accident vasculaire cérébral.

Conclusions : Bien que la plupart des MU interrogés connaissaient au moins un document sur la FA des organismes, plusieurs signalaient utiliser des parties des deux documents. Lorsque les recommandations étaient contradictoires, les MU étaient divisés sur la prise de décision. Ces résultats confirment la nécessité d'améliorer le consensus entre les organismes et d'améliorer davantage l'application des connaissances.

recommendations of the CCS 2018/2020 guidelines and the CAEP 2018 AF checklist.⁷⁻⁹

Methods

Study design and time period

We performed a cross-sectional survey of EPs at 5 community and academic hospital sites in 3 provinces (Table 1). The survey was hosted on the SurveyMonkey platform (Momentive Inc., San Mateo, CA), and responses were collected from November 2020 to April 2021. Research ethics board approval was obtained from Sunnybrook Health Sciences Centre.

Study setting and population

Due to coronavirus disease 2019 (COVID-19) restrictions, the original study protocol was modified from in-person recruitment at hospital rounds to recruitment at virtual rounds or business meetings; a study investigator (L.L.C., D.D.C., or P.J.D.) introduced the study, and an electronic survey was circulated. At one site where this was not possible, the survey was sent via e-mail, with a reminder sent at 1 week. All participants were practicing EPs.

Methods of measurement

The survey consisted of 3 sections, as follows: (i) demographic information; (ii) questions regarding AF document awareness and adherence; and (iii) 3 clinical vignettes. The latter assessed the decisions to cardiovert and/or anticoagulate (Supplemental Appendix S1). The vignettes were chosen to represent commonly seen patients with paroxysmal non-valvular AF for whom the AF documents would differ. The survey was piloted on 8 EPs and senior emergency medicine residents, and iterative changes were made.

Outcome measures

The primary outcomes of the study were the following: proportion of respondents who (i) were aware of the current Canadian AF documents, and (ii) reported adhering to one or more of the current Canadian AF documents. Secondary

Table 1. Participant characteristics

Study sites	City
Memorial University of Newfoundland	St. John's
Michael Garron Hospital	Toronto
Sunnybrook Health Sciences Centre	Toronto
University Health Network	Toronto
University of Saskatchewan	Saskatoon
Clinical experience	n = 116 (%)
Years in practice, mean (SD)	12.5 (10.5)
Years in practice, median (IQR)	10.0 (5.0–18.5)
Gender	n = 116 (%)
Female	45 (38.8)
Male	69 (59.5)
Other	2 (1.7)
Residency training	n = 116 (%)
CCFP	5 (4.3)
CCFP-EM	64 (55.2)
FRCPC-EM	43 (37.1)
Other	4 (3.4)
Hospital setting	n = 116 (%)
Academic (tertiary)	75 (64.7)
Community	18 (15.5)
Both tertiary and community	23 (19.8)

CCFP, Canadian College of Family Physicians; EM, emergency medicine; FRCPC, Fellow of the Royal College of Physicians of Canada; IQR, interquartile range; SD, standard deviation.

outcomes included alignment of the decision to cardiovert patients, as well as to initiate subsequent anticoagulation therapy, with recommendations from 1 of the 2 documents, and the proportion of respondents who reported using the CHADS-65 vs another AF stroke risk stratification score (if any).

Data analysis

Survey responses were downloaded into Microsoft Excel (Microsoft Corp., Redmond, WA). Surveys containing only demographic information were excluded. Surveys with otherwise missing data were included when a response was provided. As missing data were infrequent, such data were not imputed but rather were directly reported.

We used descriptive statistics to report the survey outcomes. Open text comments were screened by an investigator (R.C.D.) and then confirmed by a second investigator (L.L.C.). Comments were reported if a theme emerged, which was defined as 2 or more mentions of the same topic (Supplemental Table S1).

Results

Study participant characteristics are shown in Table 1. In total, 123 of a possible 166 self-reported EPs participated, for a response rate of 74.1% (95% confidence interval [CI] 66.7%–80.6%). Of the 123 participants who started the survey, 7 participants completed only the demographic information and were excluded. Of the remaining 116 participants, 9 had missing data.

Awareness and adherence to Canadian AF documents

Of the 116 participants, 93.1% (95% CI, 86.9%–97.0%) were aware of at least one of the documents, with less than

Table 2. Awareness of and adherence to Canadian AF documents

Awareness	n = 116; n (%)	95% CI
CAEP 2018	18 (15.5)	9.5–23.4
CCS 2018 or 2020	37 (31.9)	23.6–41.2
Both	53 (45.7)	36.4–55.2
Neither	8 (6.9)	3.0–13.1
Adherence	n = 116; n (%)	95% CI
CAEP 2018	26 (22.4)	15.2–31.1
CCS 2018 or 2020	30 (25.9)	18.2–34.8
“Parts of both”	47 (40.5)	31.5–50.0
“Neither”	4 (3.4)	1.0–8.6
“I don't know these documents”	6 (5.2)	1.9–10.9
“It depends”	3 (2.6)	0.5–7.4

AF, atrial fibrillation; CAEP, Canadian Association of Emergency Physicians; CCS, Canadian Cardiovascular Society; CI, confidence interval.

half (45.7%; 95% CI, 36.4%–55.2%) reporting awareness of both (Table 2). Fewer participants were aware of the 2018 CAEP AF checklist, compared with the 2018/2020 CCS guidelines, at 61.2% (95% CI, 51.7%–70.1%) vs 77.6% (95% CI, 68.9%–84.8%). A total of 7% (6.9%; 95% CI, 3.0%–13.1%) of participants were unaware of either organization's document.

A quarter of the respondents (25.9%; 95% CI, 18.2%–34.8%) reported adhering to only the CCS guidelines, compared to 22.4% (95% CI, 15.2%–31.1%) who reported adhering to only the CAEP AF checklist. A larger proportion of participants (40.5%; 95% CI, 31.5%–50.0%) reported adhering to parts of documents from both organizations, and 5.2% (95% CI, 1.9%–10.9%) and 3.4% (95% CI, 1.0%–8.6%) of participants reported not knowing about and not adhering to either organization's document, respectively (Table 2).

Exploring EP rationale for adhering to one document over the other revealed the following 2 themes: (i) “this document makes more clinical sense to me”; and (ii) “this document matches how I am used to practicing.”

Management of AF in clinical vignettes

Responses around decision-making for cardioversion and prescription of anticoagulation are reported in Table 3 and Figure 1. For the first vignette—a 60-year-old male with diabetes mellitus and hypertension, presenting with non-valvular AF for 16 hours—the patient is eligible for cardioversion according to the 2018 CAEP AF checklist, whereas the 2018/2020 CCS guidelines recommend against it. About half of participants (46.0%; 95% CI, 36.6%–55.7%) reported that they would cardiovert the patient. For those who chose to cardiovert the patient, the majority (76.9%; 95% CI, 63.2%–87.5%) would prescribe 4 weeks of anticoagulation therapy. A greater proportion (87.2%; 95% CI, 72.6%–95.7%) would make this decision if they decided against cardioversion. Fewer participants (73.5%; 95% CI, 64.3%–81.3%) would prescribe anticoagulation therapy if the patient spontaneously cardioverted. Themes for the participants who chose “it depends” for cardioversion included the following: (i) confirm timing of onset; (ii) use shared decision-making and patient preference; and (iii) consider transesophageal echocardiography. The use of shared decision-making and patient preference was the only theme that emerged for participants who chose “it depends”

Table 3. The effect of age, duration of AF, and patient comorbidities on cardioversion and prescription of anticoagulants in the emergency department

Survey question	60-year-old man AF duration: 16 h PMH: DM, HTN n = 113	60-year-old man AF duration: 30 h PMH: DM, HTN n = 111	52-year-old man AF duration: 28 h PMH: none n = 107
Would you cardiovert the patient?			
Yes	52 (46.0, 36.6–55.7)	30 (27.0, 19.0–36.3)	61 (57.0, 47.1–66.5)
No	39 (34.5, 25.8–44.0)	67 (60.4, 50.6–69.5)	35 (32.7, 24.0–42.5)
It depends	22 (19.5, 12.6–28.0)	14 (12.6, 7.1–20.3)	11 (10.3, 5.2–17.7)
CAEP 2018	Yes	No	Yes
CCS 2018/2020	No	No	Yes
If you responded ‘yes’ to cardioverting the patient, would you start 4 weeks of anticoagulation?			
Yes	40 (76.9, 63.2–87.5)	24 (80.0, 61.4–92.3)	31 (50.8, 37.7–63.9)
No	10 (19.2, 9.6–32.5)	3 (10.0, 2.1–26.5)	26 (42.6, 30.0–56.0)
It depends	2 (3.8, 0.5–13.2)	3 (10.0, 2.1–26.5)	4 (6.6, 1.8–16.0)
CAEP 2018	Yes	Yes	No
CCS 2018/2020	Yes	Yes	Yes
If you responded ‘no’ to cardioverting the patient, would you start 4 weeks of anticoagulation?			
Yes	34 (87.2, 72.6–95.7)	61 (91.0, 81.5–96.6)	25 (71.4, 53.7–85.4)
No	3 (7.7, 1.6–20.9)	4 (6.0, 1.7–14.6)	10 (28.6, 14.6–46.3)
It depends	2 (5.1, 0.6–17.3)	2 (3.0, 0.4–10.4)	0 (0.0, 0.0–0.0)
CAEP 2018	Yes	Yes	No
CCS 2018/2020	Yes	Yes	No
If you responded ‘it depends’ to cardioverting the patient, would you start 4 weeks of anticoagulation?			
Yes	16 (72.7, 49.8–89.3)	10 (71.4, 41.9–91.6)	4 (36.4, 10.9–69.2)
No	2 (9.1, 1.1–29.2)	1 (7.1, 0.2–33.9)	3 (27.3, 6.0–61.0)
It depends	4 (18.2, 5.2–40.3)	3 (21.4, 4.7–50.8)	4 (36.4, 10.9–69.2)
CAEP 2018	N/A	N/A	N/A
CCS 2018/2020	N/A	N/A	N/A
Would you start 4 weeks of anticoagulation if the patient spontaneously cardioverted?			
Yes	83 (73.5, 64.3–81.3)	87 (78.4, 69.6–85.6)	46 (43.0, 33.5–52.9)
No	21 (18.6, 12.0–27.0)	16 (14.4, 8.5–22.4)	50 (46.7, 37.0–56.6)
It depends	9 (8.0, 3.7–14.6)	8 (7.2, 3.2–13.7)	11 (10.3, 5.2–17.7)
CAEP 2018	Yes	Yes	No
CCS 2018/2020	Yes	Yes	No

Values are n (%; 95% confidence interval).

AF, atrial fibrillation; CAEP, Canadian Association of Emergency Physicians; CCS, Canadian Cardiovascular Society; DM, diabetes mellitus; HTN, hypertension; N/A, not applicable; PMH, past medical history.

for questions surrounding the decision to provide anticoagulation therapy.

When the duration of AF increased from 16 to 30 hours in the same patient (vignette #2), the percentage of participants who would cardiovert decreased to 27.0% (95% CI, 19.0%–36.3%). The majority of those who chose to cardiovert (80.0%; 95% CI, 61.4%–92.3%) and those who chose not to cardiovert (91.0%; 95% CI, 81.5%–96.9%) would send the patient home on anticoagulation therapy, aligning with both documents. Similarly, 78.4% of participants (95% CI, 69.6%–85.6%) would prescribe anticoagulation therapy if the patient spontaneously cardioverted. Themes for the participants who chose “it depends” for cardioversion included the following: (i) confirm timing of onset; (ii) use shared decision-making and patient preference; (iii) discuss both rate- and rhythm-control options with the patient; and (iv) use patient symptoms and stability to guide decision-making. Use of shared decision-making and patient preference was the only

theme that emerged for those choosing “it depends” for questions surrounding the decision to provide anticoagulation therapy.

The final vignette concerned a 52-year-old male with no past medical history, presenting with nonvalvular AF for 28 hours. Just over half of participants (57.0%; 95% CI, 47.1%–66.5%) chose to cardiovert the patient, despite both documents recommending this approach. Half of those who chose to cardiovert this patient (50.8%; 95% CI, 37.7%–63.9%) elected to send him home on anticoagulation therapy, whereas 71.4% (95% CI, 53.7%–85.4%) would make that decision if they chose not to cardiovert. If the patient spontaneously cardioverted, 43.0% (95% CI, 33.5%–52.9%) would initiate anticoagulation therapy. The only theme for the participants who chose “it depends” for cardioversion was using shared decision-making and patient preference. Furthermore, rationale for the participants choosing “it depends” for questions surrounding anticoagulation included the following:

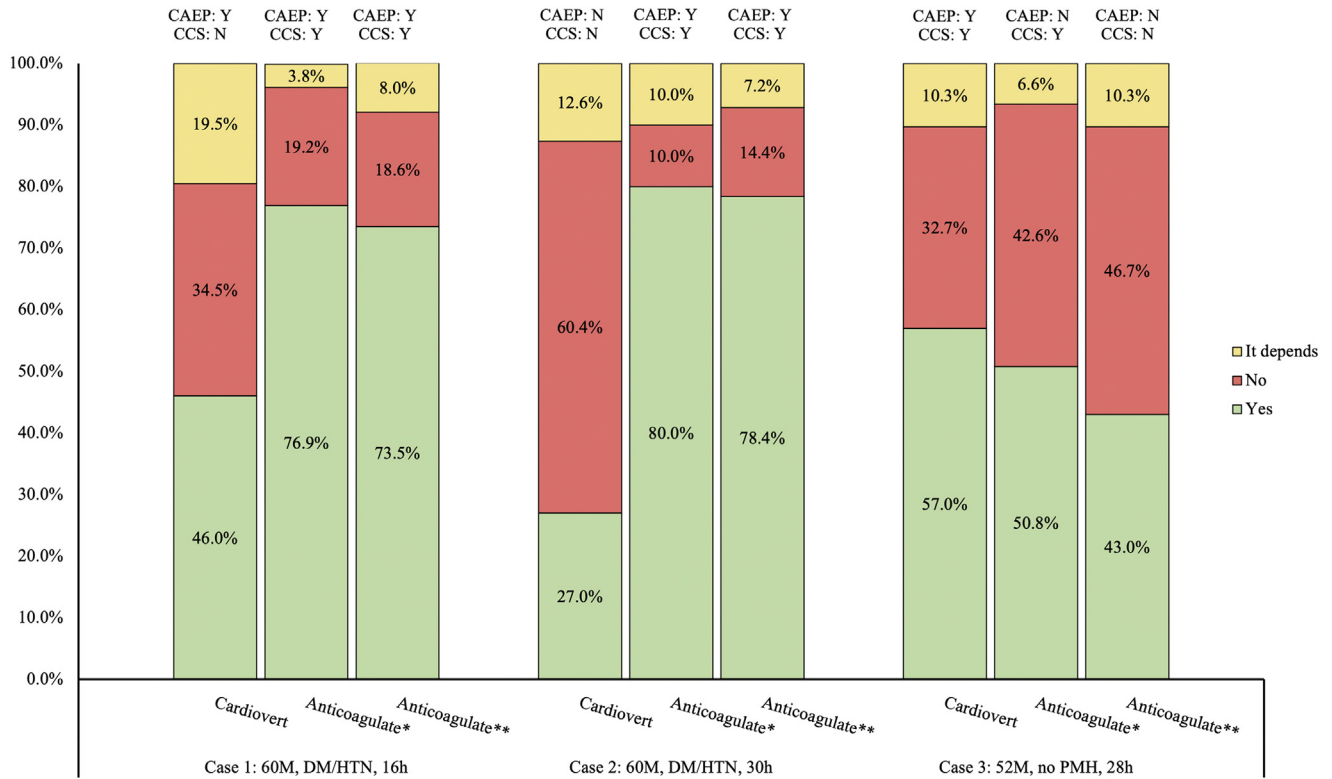


Figure 1. Management decisions surrounding cardioversion and prescription of anticoagulants in selected clinical vignettes. Hours indicate duration of atrial fibrillation. CAEP, Canadian Association of Emergency Physicians; CCS, Canadian Cardiovascular Society; DM, diabetes mellitus; HTN, hypertension; M, male; N, no; PMH, past medical history; Y, yes. *Physician would prescribe 4 weeks of anticoagulation after electrical cardioversion. **Physician would prescribe 4 weeks of anticoagulation after spontaneous cardioversion.

- (i) using shared decision-making and patient preference; and
- (ii) prescribing aspirin over an OAC.

Choice of stroke-risk stratification tool

Half of the respondents (50.0%; 95% CI, 40.6%-59.4%) use the CHA₂DS₂-VASc score (Congestive Heart Failure, Hypertension, Age [≥ 75 Years][doubled], Diabetes Mellitus, Stroke [doubled], Vascular Disease, Age [65-74] Years, Sex Category [Female]) as their preferred stroke-risk assessment tool, despite it not being recommended in either organization’s document (Table 4). Over a quarter of participants (28.5%; 95% CI, 20.5%-37.6%) reported using the CHADS-65 tool, whereas 16.4% (95% CI, 10.2%-24.4%) reported using the CHADS₂ tool.

Discussion

Interpretation of findings

Lack of awareness and insufficient dissemination of clinical guidelines are known barriers to clinical implementation.¹³ Most surveyed EPs reported being aware of at least one of the CAEP 2018 AF checklist or CCS 2018/2020 guidelines. Less than half (46%) were aware of both. Given that most of the study cohort had an academic practice (a context in which continuing medical education opportunities would be expected to be more accessible than they are at community

sites), this result is surprising. More EPs were aware of the CCS clinical guidelines than the CAEP AF checklist, a difference that may be explained by the fact that the CCS has been producing AF guidelines since 1994, whereas this was the CAEP’s first formal document.¹⁴ Our study suggests that awareness can be further improved and that alternative dissemination methods of current AF clinical guidelines among practicing EPs are needed.

When clinical recommendations conflict, confusion is introduced.¹⁵⁻¹⁶ When the recommendations by the CAEP and the CCS conflicted, practice variation occurred, with EPs being almost equally divided in their management choices.

Table 4. Preferred stroke-risk assessment tool

Tool	n = 116; n (%)	95% CI
CHA ₂ DS ₂	19 (16.4)	10.2–24.4
CHADS-65	33 (28.5)	20.5–37.6
CHA ₂ DS ₂ -VASc	58 (50.0)	40.6–59.4
None	4 (3.4)	1.0–8.6
Other	2 (1.7)	0.2–6.1

CI, confidence interval; CHADS₂, Congestive Heart Failure, Hypertension, Age ≥ 75, Diabetes, and Prior Stroke/Transient Ischemic Attack (doubled); CHADS-65, Congestive Heart Failure, Hypertension, Age ≥ 65 Years, Diabetes, Stroke/Transient Ischemic Attack (CHADS-65); CHA₂DS₂-VASc, Congestive Heart Failure, Hypertension, Age (≥ 75 Years) (doubled), Diabetes Mellitus, Stroke (doubled), Vascular Disease, Age (65-74) Years, Sex Category (Female).

Specifically, in a patient with 2 points with either the CHADS₂ or CHADS-65 score, presenting between 12 and 24 hours from AF onset, EPs were split in their decision about whether to cardiovert. Similarly, they were divided on providing anticoagulation therapy to a low-risk patient (eg, a patient meeting no CHADS-65 criteria) after cardioversion, with half (51%) prescribing anticoagulation therapy for 4 weeks. This variation in practice likely was due to differing recommendations; however, our survey was not designed to determine causality. Future studies are needed to assess the specific cognitive impact of conflicting recommendations on the physician decision-making process.

In narrative responses for this low-risk patient, 4.7% of participants suggested using aspirin over an OAC. This finding is concerning because both the CAEP and the CCS recommend using aspirin only in those who have coronary artery disease as their sole stroke risk factor⁷⁻⁹; aspirin offers suboptimal stroke prevention, with similar risks of bleeding.¹⁷⁻¹⁸ Equally concerning is that for this same patient, 71% of EPs would anticoagulate even if they did not cardiovert, which is not recommended by either organization. Interestingly, across all cases, if a patient spontaneously cardioverted instead of being electively cardioverted, EPs were less likely to prescribe anticoagulation therapy. In contrast, if EPs chose against cardioverting the patient, they were more likely to prescribe anticoagulation therapy on discharge, regardless of stroke risk and document recommendations. These findings highlight another issue—in addition to the challenge of interpreting conflicting guidelines, some EPs are not adhering to certain aspects of the current AF recommendations, suggesting either a lack of awareness or a lack of understanding on their part. The latter suggests a deficit in guideline presentation, and the former suggests a deficit in knowledge translation. Thus, these findings highlight a potential opportunity to optimize how the guidelines are written, as well as promoted, in order to improve clinician understanding and adherence.

Half of the EPs surveyed chose the CHA₂DS₂-VASC as their preferred stroke-risk assessment tool. Although the CHA₂DS₂-VASC is the recommended stroke-risk stratification tool in the European and American AF clinical practice guidelines,¹⁹⁻²⁰ the CCS has not used it since 2012.¹⁴⁻²¹ Particularly given that the study's group of physicians were mostly academic, the high proportion of EPs utilizing a stroke-risk tool that has not been recommended for use in the Canadian setting for almost a decade is surprising. These findings, and the lack of awareness of both tools, further highlight the need for frequent knowledge translation and dissemination initiatives in this constantly evolving area.

Comparison to previous studies

EPs surveyed in this study did not share consensus on which AF document they adhere to, if any. Their reported adherence to solely either the 2018 CAEP guidelines (22%) or solely the 2018/2020 CCS guidelines (26%) was low, with many EPs (46%) adhering to parts of the documents from both organizations. Reasons for this “pick and choose” approach focused on EPs making clinical sense of the document, the congruence (or incongruence) of the documents with their current practice, as well as engaging in shared

decision-making. A similar finding was illustrated by Canadian family physicians faced with conflicting cancer-screening guidelines.¹⁵ Similar to our findings, physicians' perceptions of the document's relevance to their clinical practice, as well as patient expectations, were noted determinants of screening decisions.¹⁵

An important aspect of our study is that it highlights the broader issue of discrepancies in clinical guidelines across all areas of medicine. Other notable examples of conflicting recommendations include those for mental health conditions and for managing chronic conditions, such as hypertension and diabetes.¹⁶⁻²²⁻²³ Although physicians are encouraged to use shared decision-making when guidelines conflict, few studies have investigated clinical practice in these situations.¹⁶⁻²³ Clinical guidelines are often portrayed as being the quintessence of evidence-based medicine. However, recommendations often rely on evidence or expert opinion of lower quality, a dilemma that the designers of these Canadian AF guiding documents faced. The differing recommendations on providing cardioversion and anticoagulation therapy are based on “low-quality evidence,” according to the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) standards.²⁴ Overall, differing interpretations of low-quality evidence, potentially in combination with other factors, such as financial and intellectual conflicts of interest, have been shown to lead to conflicting guidelines for the same condition.²⁵

Impact of the updated 2021 CAEP AF best practices checklist

The CAEP updated their AF best practices checklist in August 2021, after the current project was completed.¹² Aligning with the CCS, they restricted the timing of eligible cardioversion in patients with nonvalvular AF and no prior history of anticoagulation or stroke/TIA to under 12 hours from onset. In addition, they have offered the following advice on using the CHADS-65 tool in deciding who requires anticoagulation therapy after cardioversion: “OAC might be considered for a 4-week period after careful consideration of risks and benefits and a shared decision-making process with the patient.”¹²

The checklist still recommends that the elements of CHADS-65 instead of those of CHADS₂ be used to determine cardioversion eligibility between 12 and 48 hours in patients who are not already anticoagulated. However, one new discrepancy is that *any* prior stroke or TIA now precludes a patient from cardioversion regardless of symptom onset if not on anticoagulation. This recommendation differs from their previous checklist and the CCS guideline, which both excluded only recent strokes or TIAs. Thus, if a patient who is not already on an OAC with a remote stroke presents with new onset of AF in under 12 hours, the CAEP suggests against cardioversion whereas the CCS still supports it.

In the context of our study, the updated checklist may help reduce variation in clinical practice for scenarios such as vignette #1 (ie, when AF onset is between 12 and 24 hours in a high-risk patient). Yet, other findings, such as the variation in OAC prescribing for low-risk patients after cardioversion or the preferred EP-reported stroke-risk stratification tool (ie, CHA₂DS₂-VASC) are less likely to be impacted by this

updated best practices checklist. Similarly, the gaps identified in awareness of and adherence to Canadian AF documents are unlikely to be overcome by this recent update.

Strengths and limitations

This study is the first to investigate EP awareness of and adherence to Canadian AF documents in the setting of conflicting recommendations. Despite the conversion of our survey to an electronic format, our response rate was high at 74.1%. Incorporating time to complete the survey during rounds and business meetings helped achieve this high response rate. Our study included sites across Canada, strengthening its generalizability; however, it was only conducted at 5 sites, and although we attempted to assess community and academic practice, most participants worked in academic, tertiary centres. Our results may not accurately represent the practice patterns in community and rural EDs, which are more frequently staffed by family physicians and where cardioversion is less frequent.^{26,27} In addition, EPs who attended rounds may represent more academically motivated physicians or those with interest in AF. Lastly, the survey design is susceptible to response biases, such as social desirability bias—that is, participants may have felt that they should subscribe to the guiding document and answered questions in line with their recommendations, even if they would not do so in their everyday practice. This possibility was not assessed in our study (eg, no assessment was made to confirm that participants' practice aligned with their survey answers).

Conclusion

Our study found that conflicting recommendations by national bodies were associated with variation in practice, with respondents most commonly adhering to components of both recommendations based on what fits with their current practice. The study also highlights a significant research-to-practice gap in the ED management of AF. Future AF documents should focus on consensus across organizations to communicate a clear, unified message to optimize AF care in the ED and increase knowledge-translation processes to continually improve awareness and adherence.

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Supplementary Material

To access the supplementary material accompanying this article, visit *CJC Open* at <https://www.cjcopen.ca/> and at <https://doi.org/10.1016/j.cjco.2022.01.005>.