The Journal of Emergency Medicine, Vol. 57, No. 4, pp. 437–443, 2019

0736-4679/$ - see front matter

https://doi.org/10.1016/j.jemermed.2019.06.029

Original Contributions

DETECTING ATRIAL FIBRILLATION IN THE EMERGENCY DEPARTMENT IN PATIENTS WITH CARDIAC IMPLANTABLE ELECTRONIC DEVICES

Matthew Pugh, DO,* Peter Belott, MD,* Kristina L. Greenwood, PHD,* Patricia L. McNamee, PHARMD,† Besa Smith, MPH, PHD,‡ Terri L. Craig, PHARMD,† Jack Mardekian, PHD,† Jeffrey Trocio, MPH,† Divina Fanning, MSN, RN, CCRC,* and Eric Carda, MPH†

*Sharp HealthCare, San Diego, California, †Pfizer Inc., New York, New York, and ‡Analydata, San Diego, California

Reprint Address: Kristina L. Greenwood, PHD, Sharp HealthCare Center for Research, 7930 Frost Street, Suite 300, San Diego, CA 92123

☐ **Abstract—Background: Clinical guidelines emphasize identifying atrial fibrillation (AF) as a strategy to reduce stroke risk. Cardiac implantable electronic device (CIED) interrogation at the point of care may facilitate AF detection, increasing opportunities to identify patients at high risk for stroke. Objectives: This study sought to quantify AF prevalence and assess stroke risk in patients with a CIED who presented to the emergency department (ED). Methods: This noninterventional, retrospective observational study included adult patients who presented at a single facility ED that incorporated device interrogation as a routine standard practice for all patients with a CIED. Interrogations were conducted in 494 unique patients, and relevant demographic/clinical information was captured from electronic medical records. Results: AF was detected via CIED interrogation in 54.8% (271/494) of the unique patient population that presented to the ED. Device interrogation detected the presence of AF in 110 patients *without* a documented past history or current diagnosis of AF, representing 22.3% (110/494) of total unique patients. Based on CHA_2DS_2-VASc (Congestive heart failure, Hypertension, Age > 75 years, Diabetes mellitus, prior Stroke or transient ischemic attack or thromboembolism, Vascular disease, Age 65-74 years, Sex category [female]) risk scoring methodology, over three-quarters of these newly detected AF patients (78.2%, 86/110) were classified in a high stroke risk category that reflected a > 2.2% annualized risk, and over half (57.3%, 63/110) presented to the ED for reasons unrelated to cardiac/dysrhythmia problems. Conclusions: The use of technology-assisted device interrogation of CIEDs at the point of care has promise in identifying patients with asymptomatic AF. Results suggest consideration of routine device interrogation of CIEDs in the ED, regardless of reason for admission or history of AF.** © 2019 Elsevier Inc. All rights reserved.

☐ **Keywords—atrial fibrillation; stroke; CIED; interrogation**

INTRODUCTION

Approximately 795,000 people in the United States suffer a stroke each year (1). Of those, at least 15% are related to clinically diagnosed atrial fibrillation (AF), which confers a fivefold increased risk of stroke (2–4). Another 25% of strokes may be related to subclinical AF or atrial tachydysrhythmia (AT) (5). Even short episodes of AF or AT put patients at a two- to three-times-higher risk of stroke compared with patients without subclinical AF (6). Subclinical AF may be detected by cardiac

Disclosures: This study was sponsored by Pfizer, United States. Sharp HealthCare was a paid consultant to Pfizer in connection with the conduct of this study. Kristina L. Greenwood and Divina Fanning are employees of Sharp HealthCare and did not receive any direct financial support for their work on this manuscript. Matthew Pugh, Peter Belott, and Besa Smith were contracted by Sharp HealthCare in connection with conducting this study and with the development of this manuscript.

RECEIVED: 17 October 2017; FINAL SUBMISSION RECEIVED: 11 June 2019;
ACCEPTED: 19 June 2019

implantable electronic devices (CIEDs), including pacemakers with atrial leads, implantable cardioverter-defibrillators with atrial leads, or leadless insertable cardiac monitors, which allow for the uninterrupted monitoring of heart rhythm and the ability to detect AF using specific algorithms. Increased use and continuous technological improvement of CIEDs present an opportunity to identify and manage patients with subclinical AF and patients with previously undiagnosed AF. Recent studies have demonstrated very high rates of sensitivity and specificity for true detection of AF in current CIEDs (7–9).

This noninterventional, retrospective observational study sought to quantify the opportunity to improve the detection and management of AF in patients with a CIED who present to the emergency department (ED) through routine use of device interrogation. In accordance with the increasing adoption of technology to facilitate health care decisions, the hospital that conducted this study uses point-of-care technology-assisted device interrogation as standard routine practice in the ED. This care process provided a unique opportunity to evaluate the prevalence of AF for all patients with a CIED regardless of symptomatology presentation or reason for visit.

METHODS

Study Design

Participants in the study presented for any reason to the ED of a 343-bed hospital that is part of a large tertiary care system in southern California. The hospital has the highest per capita occupancy in the county that it serves, with a 48-bed ED that had more than 66,000 visits during fiscal year 2015. This hospital ED has implemented processes to interrogate CIEDs at the time of ED admission, regardless of suspected or confirmed diagnosis. As part of the ED initial triage process, staff asked patients if they had a CIED and if so, an automated care plan included an order for device interrogation. This routine practice utilizes point-of-care technology that produces actionable reports regarding device function and detection of dysrhythmias. An electrophysiologist then interpreted the results and signed off on the report. This study was approved by the Institutional Review Board for the health care system's Center for Research.

Participant Selection

All consecutive patients over the age of 18 years with a CIED who presented to the ED between March 1, 2015 and October 31, 2015 were included in the study. Patients in whom AF was detected through device interrogation, as well as patients with a past or current diagnosis of AF during the previous 5 years based on medical record documentation were included for further analysis. Patients with an incomplete interrogation report were excluded from the analysis. There were no additional exclusion criteria.

Methods and Outcomes

The primary objective of this study was to quantify the prevalence of any type of AF detected by the CIED. This was a binary endpoint, that is, presence or absence of AF, and there was no quantification of the cumulative percentage of time in AF to assess AF burden. Secondary objectives were to calculate stroke and bleed risk, and describe relevant demographic, clinical characteristics, and health care service utilization outcomes. Standardized reports were generated for patients meeting inclusion criteria from the facility's electronic medical record (EMR) and device interrogation technology systems. Data elements from the EMR included demographics, current and past history of select comorbid conditions, and discharge disposition. The reason for ED visit was documented as the primary presenting problem reported by the patient or person accompanying the patient. Service utilization data included documentation of direct admission from the ED to inpatient care, hospital length of stay, and any repeat visits to the ED during the study time period. The interrogation report contained data regarding the device manufacturer, implant date, battery status, and detection of episodes indicating AF or ventricular dysrhythmia. There was no requirement from the interrogation report related to quantification of the AF burden based on time and duration of the dysrhythmia.

To assess whether AF was correlated with a clinical diagnosis, presence of AF was based on current diagnosis in ED records (International Classification of Diseases, Ninth Revision code 427.31; International Classification of Diseases, 10th Revision codes I48.0 to I48.9), history of AF documented in the EMR during the past 5 years, or results from device interrogation reports as confirmed by an electrophysiologist. Risk scores were calculated retrospectively based on demographics and clinical diagnoses from the patients' medical record, using CHA_2DS_2-VASc scoring methodology for stroke risk (10). The CHA_2DS_2-VASc scoring methodology utilizes clinical characteristics that have been identified as stroke risk factors in patients with AF, to calculate an adjusted annualized risk score. Factors include congestive heart failure; hypertension; age over 65 years (with an additional point for people 75 years and older); diabetes mellitus; prior stroke, transient ischemic attack, or thromboembolism (2 points); vascular disease; and female sex. Based on

these clinical risk factors, patients are given a score and classified as follows: 0 = low risk, 1 = intermediate risk, and ≥ 2 = high risk. The ATRIA (AnTicoagulation and Risk factors In Atrial fibrillation) scoring methodology was used for bleed risk, classifying scores of 0 to 3 as low risk, 4 = intermediate risk, and > 4 points = high risk (11).

Data and Statistical Analysis

Descriptive statistics were used to depict frequencies of demographics and clinical characteristics of the study population in addition to the prevalence of diagnosed and device-detected AF. Because the reason for visit information in the EMR was pulled directly from a narrative data field, rather than from a standardized response checklist, the researchers reviewed the list of all aggregate responses that were blinded with respect to any other patient data. The researchers subsequently categorized reason for visit into one of two groups: 1) related to cardiac condition, chest pain, device problem, or dysrhythmia, and 2) other reasons. The "other" reasons included responses such as cerebrovascular, endocrine, gastrointestinal, pulmonary, urinary-renal conditions, or miscellaneous symptoms. Further analyses examined the frequency of AF within patient cohorts stratified by reason for the ED visit, stroke and bleed risk scores, service utilization, and discharge disposition. Means and standard deviations are presented for continuous variables, and categorical variables are expressed as proportions. All analytic database maintenance and statistical procedures were conducted using SAS software version 9.4 (SAS Institute Inc., Cary, NC).

RESULTS

Overall Study Sample

There were 600 patient encounters between March 1, 2015 and October 31, 2015. A total of 75 patients (12.5% of all eligible encounters) did not receive device interrogation due to various circumstances, such as insufficient battery power, incomplete interrogation reports, or discontinuation of the standard order for interrogation. This resulted in 525 device interrogations that were conducted across a final study sample of 494 unique patients. The manufacturers of the CIED units in order of prevalence were Medtronic (Dublin, Ireland; 26.3%), Biotronik (Berlin, Germany; 22.3%), Boston Scientific (Marlborough, MA; 19.8%) and St. Jude Medical (St. Paul, MN; 19.2%); 12.2% were undocumented.

Prevalence of AF

AF was identified in 77.7% (384/494) of unique patients with a CIED who presented to the ED based on past history or current diagnosis documented in the EMR, or device interrogation with clinical confirmation. Point-of-care CIED interrogation yielded a positive AF detection in 54.9% (271/494) of patients, regardless of past or current AF diagnosis. Device interrogation detected the presence of AF in 110 patients who did not have a documented past history or current diagnosis of AF. This represents 22.3% (110/494) of total unique patients in the study.

Characteristics of Patients Presenting to the ED with a CIED

Demographics, patient characteristics, clinical measures, service utilization, and discharge disposition results are summarized in Table 1 for the total unique sample of patients with interrogated devices at index visit during the study period. Females represented 47% of the population, and people of Hispanic ethnicity accounted for over half of the patients (50.8%). The second most prevalent ethnic group was white individuals who reported their ethnicity as non-Hispanic (21.7%). The average patient age was 74 years, 89.1% of unique patients had an assigned primary care physician, and 6.3% of patients reported that they were current smokers.

The mean CHA_2DS_2-VASc stroke risk score was 4.2 for the entire study population. Based on the CHA_2DS_2-VASc calculator, this would confer an annualized stroke risk of over 4.8%, assuming this population was not on anticoagulants (11). Over 80% (82.0%) had scores ≥ 2 on the CHA_2DS_2-VASc, putting the majority of the population in the high stroke risk category.

The mean ATRIA bleed risk score was 3.9; 42.9% of patients had scores ≥ 4, which confers an intermediate to high risk of bleeding (12). Over two-thirds of patients (68.8%) were admitted to the facility as inpatients for continued treatment subsequent to the ED visit, with an overall mean length of stay of 3.7 days.

Analysis of Patients with AF Newly Detected by Technology

Device interrogation detected the presence of AF in 110 patients *without* a documented past history or current diagnosis of AF, representing 22.3% of total unique patients. Table 2 presents additional analyses of this subset of 110 patients. Results indicate that 86 (78.2%) had a high risk of stroke, indicated by a CHA_2DS_2-VASc score ≥ 2. On the ATRIA, 45.5% of patients (50/110) had an intermediate to high bleed risk score of 4 or

Table 1. Characteristics of 494 Patients Who Presented to the Emergency Department with a Cardiac Implantable Electronic Device (CIED) and an Order for Device Interrogation, March 1, 2015 through October 31, 2015

Characteristic*	Study Sample N = 494 n (%)
Demographics	
Sex	
Male	262 (53.0)
Female	232 (47.0)
Age at discharge	
Mean (SD)	73.5 (14.5)
Race/ethnicity	
Hispanic	251 (50.8)
White non-Hispanic	107 (21.7)
Asian	64 (13.0)
Black non-Hispanic	33 (6.7)
Other/unknown	39 (7.9)
Patient characteristics	
Current smoker	31 (6.3)
Comorbid conditions†	
Hypertension	375 (75.9)
History AF	238 (48.2)
Congestive heart failure	214 (43.3)
Coronary artery disease	203 (41.2)
Diabetes	201 (40.7)
Myocardial infarction	9 (1.8)
Cerebrovascular attack (stroke)	7 (1.4)
Thromboembolism	6 (1.2)
Transient ischemic attack	4 (0.8)
Stroke risk score (CHA_2DS_2-VASc)	
< 2	29 (5.9)
2 or greater	405 (82.0)
Unknown	60 (12.1)
Mean (SD)	4.2 (1.6)
Bleed risk score (ATRIA)	
< 4	222 (44.9)
4 or greater	212 (42.9)
Unknown	60 (12.1)
Mean (SD)	3.9 (2.5)
Service utilization	
Primary care physician prior to ED	
No	54 (10.9)
Yes	440 (89.1)
Hospital admission	
No	154 (31.2)
Yes	340 (68.8)
Length of stay	
< 1 day	182 (36.8)
1 up to 3 days	116 (23.5)
3 or more days	196 (39.7)
Mean (SD)	3.7 (5.5)

AF = atrial fibrillation; CHA_2DS_2-VASc = Congestive heart failure, Hypertension, Age > 75 years, Diabetes mellitus, prior Stroke or transient ischemic attack or thromboembolism, Vascular disease, Age 65-74 years, Sex category (female); ATRIA = AnTicoagulation and Risk factors In Atrial fibrillation; ED = emergency department.

* Patient characteristics reflect measurement at index encounter within the study period.

† Patients may have multiple comorbid conditions.

greater. Of these 110 patients, 63 (57.3%) had presented to the ED for reasons unrelated to current cardiac/dysrhythmia problems.

With respect to service utilization, 70 of these 110 patients (63.6%) were admitted for acute inpatient treatment for various reasons, with an average length of stay of 4.6 days. Subsequent to discharge from the ED or acute inpatient care, 20 of these 110 patients (18.2%) were transferred to a facility-based setting for ongoing treatment.

DISCUSSION

This observational study represents a large and diverse sample of patients, including high proportions of patients who are female and of Hispanic ethnicity with a CIED who presented to the ED for various clinical reasons. The high percentage of patients of Hispanic ethnicity is representative of the catchment area for the study institution, which is situated near the United States/Mexico border. Further, these demographics may reflect broader representation for gender and more diverse U.S. demographics for ethnicity compared with existing literature.

The hospital that conducted this study had previously made point-of-care device interrogation standard routine practice in the ED. In this study, AF was detected through device interrogation in over half of all unique patients (54.9%). Of these patients, 40.6% (110 patients) had no prior documentation of AF in their medical record. These findings echo previous research showing that AF is common in patients with CIEDs who have no history of AF prior to device implantation (13,14). Without routine device interrogation, AF may have gone undetected, limiting the patient's opportunity for further evaluation and appropriate treatment.

A recent Scientific Statement from the American Heart Association discusses the current literature regarding consideration of the burden of AF beyond simply its presence or absence in subclinical cases (15). A review of recent evidence suggests that higher AF burden is associated with a higher incidence of stroke; however, it is unclear if a threshold exists. Furthermore, in patients with CIEDs, the temporal relationship between ischemic stroke and episodes of AF is not well defined. As such, current guidelines recommend assessing stroke risk on the basis of individual patient risk profile, including characteristics from the CHA_2DS_2-VASc scoring paradigm, not on AF pattern, type, or burden. Further studies are warranted to understand the relationship of total burden of AF to ischemic stroke risk and appropriate management in subclinical AF.

Patients with CIED represent a unique patient population compared with individuals without a device. Practice guidelines or recommendations for device interrogation of a CIED vary among centers (16). The newly released 2019 American Heart Association/American College of Cardiology/Heart Rhythm Society (AHA/ACC/HRS)

Table 2. Characteristics of 110 Patients Without a Past History or Current AF Diagnosis, for Whom AF was Detected by a Cardiac Implantable Electronic Device (CIED) in the Emergency Department

Characteristic*	Study Sample N = 110 n (%)
Demographics	
Sex	
Male	59 (53.6)
Female	51 (46.4)
Age at discharge	
Mean (SD)	71.2 (16.7)
Race/ethnicity	
Hispanic	60 (54.6)
White non- Hispanic	22 (20.0)
Asian	9 (8.2)
Black non-Hispanic	10 (9.1)
Other/unknown	9 (8.2)
Risk assessment	
Stroke risk score (CHA_2DS_2-VASc)	
< 2	12 (10.9)
2 or greater	86 (78.2)
Unknown	12 (10.9)
Mean (SD)	3.7 (1.6)
Bleed risk score (ATRIA)	
< 4	48 (43.6)
4 or greater	50 (45.5)
Unknown	12 (10.9)
Mean (SD)	3.7 (2.5)
Reason for ED visit	
Related to cardiac problems†	47 (42.7)
Not cardiac related‡	63 (57.3)

CHA_2DS_2-VASc = Congestive heart failure, Hypertension, Age > 75 years, Diabetes mellitus, prior Stroke or transient ischemic attack or thromboembolism, Vascular disease, Age 65-74 years, Sex category (female); ATRIA = AnTicoagulation and Risk factors In Atrial fibrillation; ED = emergency department.
* Patient characteristics reflect measurement at index encounter within the study period.
† Cardiac-related reasons for ED presentation categorized as device problem, dysrhythmia, cardiac condition or chest pain.
‡ Non-cardiac-related reasons for ED presentation included cerebrovascular, endocrine, gastrointestinal, pulmonary, urinary-renal conditions, or other miscellaneous symptoms.

Focused Update of the 2014 AHA/ACC/HRS Guideline for the Management of Patients with Atrial Fibrillation recommends that device detection of AF should prompt further evaluation of clinically relevant AF to guide treatment decisions (17). After the opportunity identified in this hospital ED, the institution implemented a quality-improvement project led by a Clinical Pharmacist and Nurse Specialist under the direction of the lead emergency physician, to evaluate the outcomes of expanded anticoagulant medication in patients with AF at high risk of stroke prior to discharge from the ED (18).

Limitations

Study limitations include the use of a retrospective design at a single facility. The greater proportion of female patients and patients of Hispanic ethnicity within this study, which mirrored the demographic profile of the geographical area, may limit the comparison of results to other device studies and the generalizability of these results in other geographies in the United States. The retrospective design and limited study duration did not allow for exploration of follow-up care, clinical outcomes post hospital, or ED discharge, precise data regarding medication use, or a cost–benefit analysis of the device interrogation program. Because the CHA_2DS_2-VASc and ATRIA scores were calculated based on existing patient data from the EMR, we were unable to evaluate the real-time impact of scores on delivery of patient care. The definition of device-detected AF was based on readings from the recorder in the device, and although confirmed by a physician reading the interrogation report, was not confirmed by a subsequent electrocardiogram, and the burden of AF detected was not quantified, as it was beyond the scope of the study.

CONCLUSIONS

In conclusion, routine device interrogation at the point of care in an ED setting offers the potential for clinicians to detect subclinical AF and, at a minimum, recommend appropriate follow-up for evaluation for stroke risk and AF management. The identification of newly detected AF in patients without a past history of AF and those who present to the ED for non-cardiac-related reasons has implications for the health system's initiatives related to stroke prevention and resource utilization.

REFERENCES

1. Writing Group Members, Mozzafarian D, Benjamin EJ, Go AS, et al. Heart disease and stroke statistics—2016 update: a report from the American Heart Association. Circulation 2016;133:e38–360.
2. Wolf PA, Abbot RD, Kannel WB. Atrial fibrillation: a major contributor to stroke in the elderly. Arch Intern Med 1987;147:1561–4.
3. Wolf PA, Abbot RD, Kannel WB. Atrial fibrillation as an independent risk factor for stroke: the Framingham Study. Stroke 1991;22:983–8.
4. Pisters R, Lane DA, Marin F, Camm AJ, Lip GY. Stroke and thromboembolism in atrial fibrillation. Circ J 2012;76:2289–304.
5. Liao J, Khalid Z, Scallan C, Morillo C, O'Donnell M. Noninvasive cardiac monitoring for detection of paroxysmal atrial fibrillation or flutter after acute ischemic stroke: a systematic review. Stroke 2007;38:2935–40.
6. Lau CP, Siu CW, Yiu KH, Lee KL, Chan YH, Tse HF. Subclinical atrial fibrillation and stroke: insights from continuous monitoring by implanted cardiac electronic devices. Europace 2015;17(suppl 2):ii40–6.
7. Purerfellner H, Gillis AM, Holbrook R, Hettrick DA. Accuracy of atrial tachyarrhythmia detection in implantable devices with arrhythmia therapies. Pace 2004;27:983–92.
8. Healey JS, Martin JL, Duncan A, et al. Pacemaker-detected atrial fibrillation in patients with pacemakers: prevalence, predictors, and current use of oral anticoagulation. Can J Cardiol 2013;29:224–8.

9. Glotzer TV, Ziegler PD. Does atrial fibrillation detected by cardiac implantable electronic devices have clinical relevance? Cardiol Clin 2014;32:271–81.
10. Lip GY, Nieuwlaat R, Pisters R, Lane DA, Crijns HJ. Refining clinical risk stratification for predicting stroke and thromboembolism in atrial fibrillation using a novel risk factor-based approach: the euro heart survey on atrial fibrillation. Chest 2010;137:263–72.
11. Lip GY. CHA_2DS_2-VASc score for atrial fibrillation stroke risk. MD+Calc. Available at: https://www.mdcalc.com/cha2ds2-vasc-score-atrial-fibrillation-stroke-risk#evidence. Accessed May 7, 2019.
12. Fang MC, Go AS, Chang Y. A new risk scheme to predict warfarin-associated hemorrhage: the ATRIA (AnTicoagulation and Risk factors In Atrial fibrillation) study. J Am Coll Cardiol 2011;58:395–401.
13. Healey JS, Connolly SJ, Gold MR, et al. ASSERT Investigators. Subclinical atrial fibrillation and the risk of stroke. N Engl J Med 2012;366:120–9.
14. Ziegler PD, Glotzer TV, Daoud EG, et al. Incidence of newly detected atrial arrhythmias via implantable devices in patients with a history of thromboembolic events. Stroke 2010;41:256–60.
15. Chen LY, Chung MK, Allen LA, et al. Atrial fibrillation burden: moving beyond atrial fibrillation as a binary entity: a scientific statement from the American Heart Association. Circulation 2018;137:e623–44.
16. Marinskis G, van Erven L, Bongiorni MG, et al. Practices of cardiac implantable electronic device follow-up: results of the European Heart Rhythm Association survey. Europace 2012;14:423–5.
17. January CT, Wann LS, Calkins H, et al. 2019 AHA/ACC/HRS focused update of the 2014 AHA/ACC/HRS guideline for the management of patients with atrial fibrillation. Circulation 2019;140:e125–51.
18. Schwab K, Leung H, Smith A. Early identification and intervention in patients with atrial fibrillation in the emergency department can significantly improve guideline-based anticoagulation and reduce the risk of stroke. Ann Emerg Med 2017;70:S119–20.

ARTICLE SUMMARY

1. Why is this topic important?

Atrial fibrillation (AF) identification is a primary strategy to reduce the risk of stroke, a leading cause of death and disability in the United States. In the emergency department (ED), cardiac implantable electronic device (CIED) interrogation at the point of care can facilitate AF detection, which therefore increases opportunities to identify and manage patients at high risk for stroke.

2. What does this study attempt to show?

This study sought to quantify the prevalence of AF and assess stroke risk in patients with a CIED who presented to the ED for any reason.

3. What are the key findings?

AF was detected via CIED interrogation in 54.9% (271/494) of the unique patient population that presented to the ED. Among these patients, 40.6% (110/271) did not have a history or current diagnosis of AF, average stroke risk score was 3.7 on the CHA_2DS_2-VASc (Congestive heart failure, Hypertension, Age > 75 years, Diabetes mellitus, prior Stroke or transient ischemic attack or thromboembolism, Vascular disease, Age 65-74 years, Sex category [female]), and 78.2% (86/110) were determined to have a high stroke risk score based on the CHA_2DS_2-VASc scoring classification methodology. Of these 110 patients, 63 (57.3%) presented to the ED for a non-cardiac-related reason, which may have further increased the likelihood of missed opportunities to detect AF and prevent stroke.

4. How is patient care impacted?

The high prevalence of AF detection in patients with a high stroke risk who would not otherwise have had a CIED interrogation and whose AF may have gone undetected has implications for the health system. Routine device interrogation in the ED care setting has the potential to identify patients with AF who may benefit from stroke prevention interventions, regardless of reason for admission to the ED or documented history of AF.