Europace (2015) **17**, 1733–1738
doi:10.1093/europace/euv371

EHRA research network surveys: 6 years of EP wires activity

Maria Grazia Bongiorni[1]*, Jian Chen[2], Nikolaos Dagres[3], Heidi Estner[4], Antonio Hernandez-Madrid[5], Meleze Hocini[6], Torben Bjerregaard Larsen[7], Laurent Pison[8], Tatjana Potpara[9], Alessandro Proclemer[10], Elena Sciaraffia[11], Derick Todd[12], and Carina Blomstrom-Lundqvist[11]

[1]CardioThoracic and Vascular Department, University Hospital, Pisa, Italy; [2]Department of Clinical Science, Haukeland University Hospital, University of Bergen, Bergen, Norway; [3]Second Cardiology Department, Attikon University Hospital, University of Athens, Athens, Greece; [4]Department of Cardiology Medizinische Klinik und Poliklinik I, LMU Klinikum der Universität München, München, Germany; [5]Cardiology Department, Ramon y Cajal Hospital, Alcalá University, CarreteraColmenar Viejo, Madrid 28034, Spain; [6]HôpitalCardiologique du Haut Lévêque Université Victor Segalen Bordeaux II, Bordeaux, Pessac 33604, France; [7]Department of Cardiology, Cardiovascular Research Centre, Aalborg University Hospital, Aalborg, Denmark; [8]Department of Cardiology, Maastricht University Medical Centre, Maastricht, The Netherlands; [9]School of Medicine, University of Belgrade, Serbia and Cardiology Clinic, Clinical Center of Serbia, Belgrade, Serbia; [10]Division of Cardiology, University Hospital S. Maria della Misericordia, IRCAB Foundation Udine, Udine, Italy; [11]Department of Cardiology, Institution of Medical Science, Uppsala University, Uppsala 75185, Sweden; and [12]Institute of Cardiovascular Medicine and Science Liverpool Heart & Chest Hospital, UK

Received 28 September 2015; accepted after revision 14 October 2015

Clinical practice should follow guidelines and recommendations mainly based on the results of controlled trials, which are often conducted in selected populations and special conditions, whereas clinical practice may be influenced by factors different from controlled scientific studies. Hence, the real-world setting is better assessed by the observational registries enrolling patients for longer periods of time. However, this may be difficult, expensive, and time-consuming. In 2009, the Scientific Initiatives Committee of the European Heart Rhythm Association (EHRA) has instigated a series of surveys covering the controversial issues in clinical electrophysiology (EP). With this in mind, an EHRA EP research network has been created, which included EP centres in Europe among which the surveys on 'hot topic' were circulated. This review summarizes the overall experience conducting EP wires over the past 6 years, categorizing and assessing the topics regarding clinical EP, and evaluating the acceptance and feedback from the responding centres, in order to improve participation in the surveys and better address the research needs and aspirations of the European EP community.

Keywords EP wire • EHRA network • Survey • Electrophysiology • Cardiac implantable electronic devices • Atrial fibrillation • Clinical practice

Introduction

Guidelines and recommendations for clinical practice are mainly based on the results of randomized, controlled trials, which are usually conducted in the selected patient populations and specific environment. However, real-world clinical practice is often influenced by factors that are different from controlled scientific studies. Hence, the real-word setting may be better studied in the observational registries that enrol patients, preferably 'all-comers', for longer periods of time. Nonetheless, this type of studies may be difficult to conduct, as they may be expensive and time-consuming for the majority of hospital departments.[1]

In 2009, the Scientific Initiatives Committee (SIC) of the European Heart Rhythm Association (EHRA), under the leadership of Professor John Morgan, felt that it would be helpful for cardiac rhythm management specialists in Europe to generate surveys related to the challenging or debated issues in clinical electrophysiology (EP), highlighting the areas of particular concerns and underlining the topics for which evidence-based medicine should be implemented. With this in mind, SIC created an EHRA research network of the European centres among which the short surveys called EP Wires and directed at physicians mainly involved in EP were administered.[2] These were on-line surveys specifically designed to capture and analyse the daily cardiac EP practice in Europe, and the first EP wire reported on the outcome of AF ablation.[3]

The EHRA network of EP centres was built after each of the centres agreed to be part of the EHRA Research Network. All

* Corresponding author. *E-mail address:* m.g.bongiorni@med.unipi.it

European centres were invited to join the network and could accept the invitation using a link provided on the EHRA website.

The surveys have initially been conducted on a quarterly basis, increasing to monthly release since 2011; the number of questions has increased, and the questionnaires have administered within the continuously growing EP network, under the next-term SIC chaired by Professor Carina Blomstrom-Lundqvist. In 2014, the network expanded to 33 countries including Russia, Armenia, Azerbaijan, Egypt, Tunisia, and Turkey (*Figure 1*).

After 6 years of dedicated work on the EP wire concept, SIC thought it would be prudent to evaluate the status of their work and draw conclusions about past editions, analysing the possible critical issues of this important communication tool, validating the usefulness of the initiative from the scientific point of view and through a feedback from the communities of practicing EP specialists.

The purpose of this review was to summarize the results of past EP wires in terms of coverage of the main topics in EP and to evaluate the acceptance and the feedback from the responding physicians, in order to increase the participation in the surveys and to better address the research needs and aspirations of the European EP community.

Methods

The review analyses the overall experience from published EP Wires categorizing and assessing the topics regarding the challenges and controversial issues in arrhythmology and their impact on daily clinical activity.

The surveys were carefully planned not to burden the responders with requirements for extensive data collection and were designed in such a way that the responder can answer the survey questions quickly without reference to any particular material. Centres were contacted on a regular basis and, at each centre, there was one physician who anonymously replied to the survey. Basic questions included in each EP wire were related to the number and type of cardiac implantable electronic device implantations and the number of ablations performed annually. The surveys were led by members of SIC and the results were published in *Europace*.

In addition, a specific questionnaire on the EP wire acceptance and usefulness has been sent to the centres involved in the EHRA research network. In this questionnaire, EP specialists were asked about their opinion regarding the weight of EP wires according to their knowledge and impact on their clinical practice. Responses were received from 31 of the EHRA research network hospitals. 99.5% of 31 responding centres provided complete answers.

Results

EP wires explored all main topics in arrhythmology

The EP wire surveys were based on a network of 155 European or other centres in 2012, 220 centres in 2013 and 224 centres in 2014 and 2015.

The topics covered by EP wires explored all the main areas faced by the physicians in clinical EP and cardiac pacing. This activity generated 50 scientific articles. The complete list of EP wire articles is accessible on the EHRA web page via the link http://www.escardio.org/Guidelines-&-Education/Journals-and-publications/Recommended-readings/Heart-Rhythm/Electrophysiology-Wire/EHRA-Electrophysiology-EP-Wire.[4]

EP wires can be divided into four main categories: (i) devices (pacemakers, implantable cardioverter-defibrillators [ICD], internal looprecorders);[5–19] (ii) EP study and ablation;[3,20–27] (iii) clinical arrhythmology;[28–42] and (iv) management of atrial fibrillation (AF), including stroke prevention.[43–55] Many EP wires addressed more than one. *Figure 2* shows the number of participating centres, the median of responding centres per survey, and the number of EP wires published in the four main categories.

Devices

Fifteen surveys were conducted and the results relating to devices and cardiac electrophysiology practice were published as EP wires.

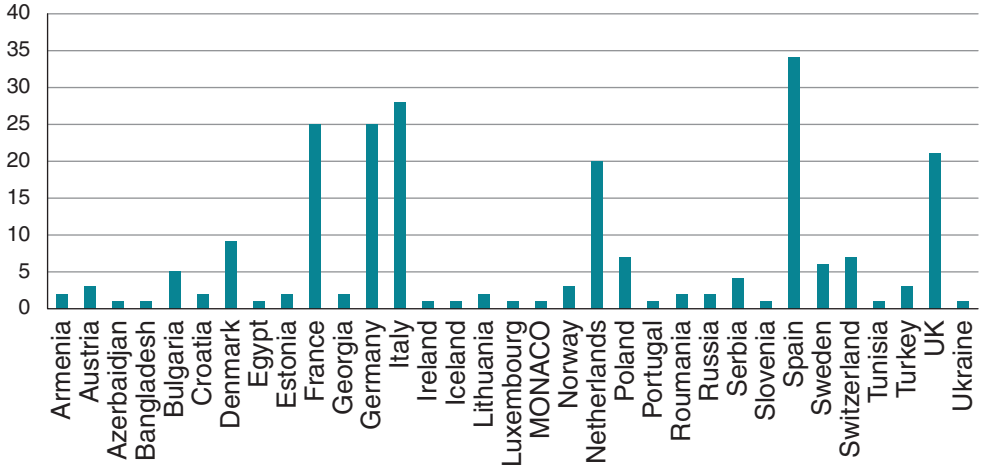

Figure 1 EHRA EP network participating centres by country.

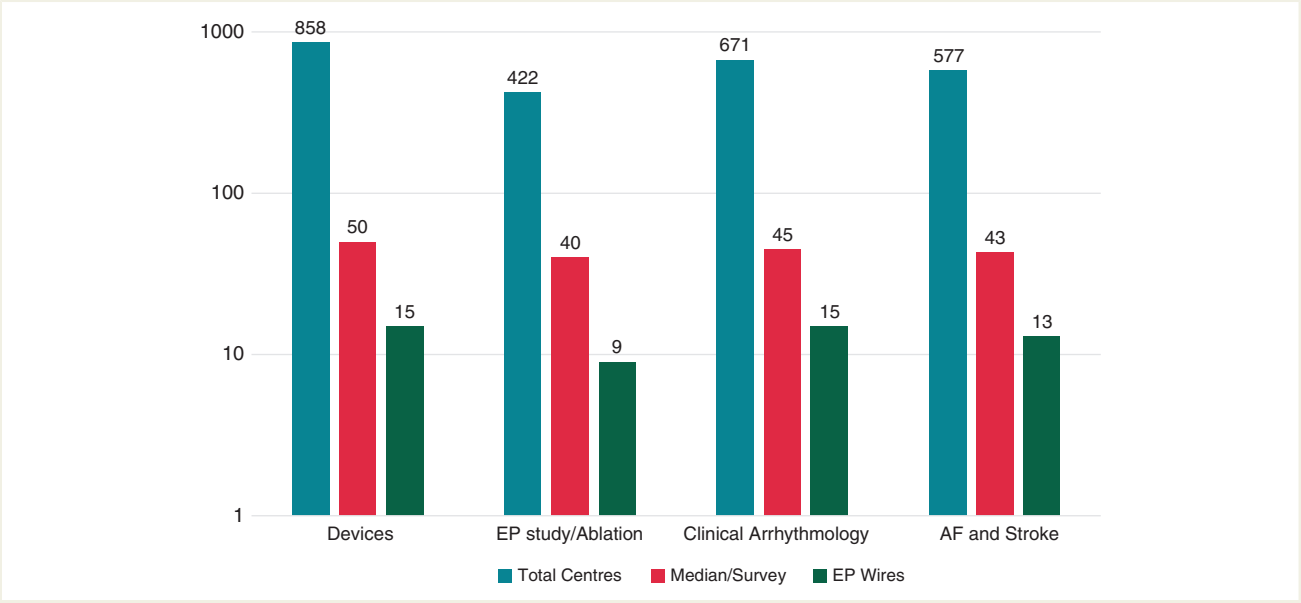

Figure 2 Number of participating centres, the median number of responding centres per survey, and number of EP wires published in the four main categories.

The total number of responding centres was 714. The median number of responding centres per survey was 52.

Within this category, several sub-categories have been covered: two EP wires addressed the implantation volume and follow-up, one EP wire was dedicated to ICD programming, two were on cardiac resynchronization therapy (CRT), four on devices/lead complications and their management (including lead extraction), and three on remote monitoring, arrhythmia detection, and magnetic resonance imaging.

Electrophysiology study and ablation

This category has dealt with various aspects of EP study and ablation procedures including cathlab equipment and facilities and ablation tools and techniques. It was represented by nine EP wires three of which focused on X-ray exposure, imaging techniques, and routine fluoroscopy use, with one survey specifically assessing personnel, equipment and facilities in device management. The remaining five EP wires were related to particular ablation tools and techniques, comparing different approaches and defining the validation of procedure success. The total number of responding centres was 422. The median number of responding centres was 40.

Clinical arrhythmology

Fifteen EP wires reported data about diagnostic strategies, screening and management of various arrhythmias and major arrhythmogenic syndromes. The number of centres responding on these topics was 671 (median, 45 centres per survey). The main category also included several important sub-categories: four EP wires addressed management of ventricular tachycardias and ventricular arrhythmias, four investigated cardiac arrest and sudden death, and seven explored various aspects of clinical arrhythmology, such as pre-excitation syndromes, inherited primary arrhythmias, channelopathies, syncope, paediatric arrhythmias, and elderly patients with arrhythmias.

Atrial fibrillation and stroke prevention

The management of AF and stroke prevention have been reported in 13 EP wires covering the multiple aspects of this topic. In total, 577 centres participated in this type of surveys (median, 43 centres per survey). Ten articles were related to diagnosis and AF management strategies, including silent and lone AF, three on anticoagulation therapy, focusing on the preferences for warfarin or non-vitamin K oral anticoagulants, or on stroke and bleeding risk evaluation, and two on left atrial appendage occluding devices. *Figure 2* shows number of participating centres, the median number of responding centres per survey, and number of EP wires published in the four main categories.

EP wires in clinical practice

The usefulness of and the interest in survey reports has been assessed in the latest survey asking the physicians about their opinion on this kind of surveys and the effect of EP wires on patient care. Most of the participants (83.9%) read EP wires reports in *Europace*, 25.8% frequently (>10 reports/year), 38.7% sometimes (5–10 reports/year), and 19.5% seldom (1–4/year).

In the majority of the responding centres (58.1%), investigators cited EP wires in their own articles or congress presentations. All responders think that EP wire findings are realistic representations of clinical issues faced by practicing physicians (42% always, 58% sometimes) (*Figure 3A*).

Just over one-third of the respondents (38.7%) have stated that they trust EP wires because they show daily clinical practice, 48.4% partially believe that data show daily clinical practice, whereas the minority (9.7%) do not trust these data thinking that they are subjective. However, EP wire results influenced the clinical practice of 80.6% of responders (*Figure 3B*).

The majority (77.4%) of the centres reported that EP wires were helpful in identifying knowledge gaps in the EP community, whilst

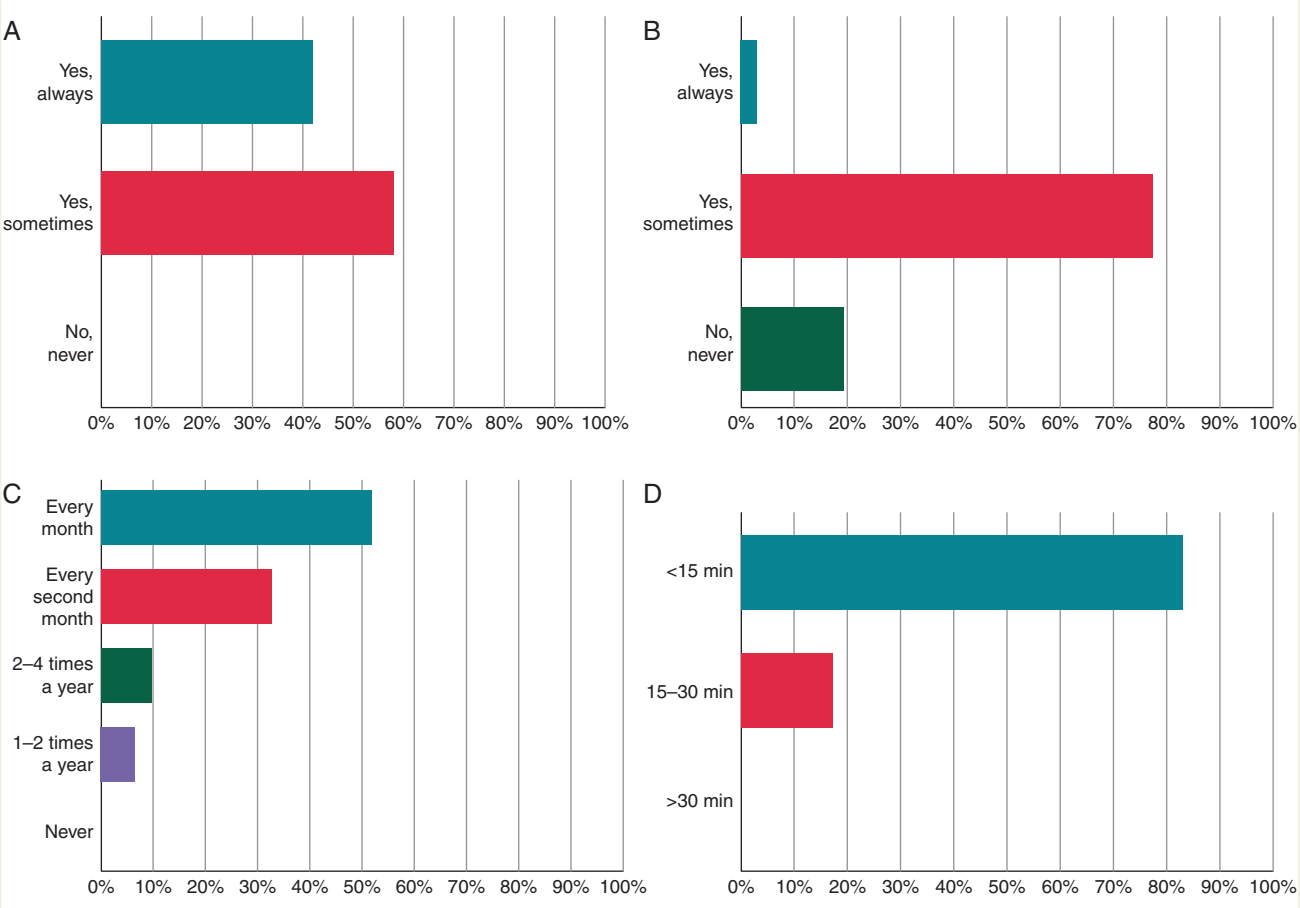

Figure 3 Centre replies on the usefulness and feasibility of the surveys. (*A*) Do you think EP wires subjects are a realistic representation of clinical issues physicians are faced with? (*B*) Do EP wire results influence your clinical practice? (*C*) How often do you reply to the EP wire surveys? (*D*) How much time do you consider acceptable to spend to answer EP wire questions?

only 3.2% said they were not helpful, and 19.3% of centres were not able to judge the role of EP wire reports.

Survey compliance

More than half (51.6%) of the participating centres regularly responded every month, 32.3% undertook a survey every other month, and 9.7% and 6.5% of centres participated in the survey 2–4 and 1–2 times per year, respectively (*Figure 3C*).

The most common reasons for inability to take part in the survey, reported by 30% of the centres, were the limited time during which the survey should be completed, the high number of questions, and the frequency of the survey with too many questions. Most physicians (82.8%) consider that 15 min or less were acceptable time to spend on answering the EP wire questions, while 17.2% of respondents would spend between 15 and 30 min per survey (*Figure 3D*). Most of the respondents strongly agree that the survey adherence could be increased by reducing the number of questions (to maximum of 10 questions per survey) or reducing the number of surveys to six per year; the respondents do not support a higher number of questions or very few questions (five or less) every second week.

Many centres (53.6%) believe awarding the continuous medical education credit points may increase the response to EP wire. The overwhelming majority (90%) perceived the EP wire initiative as remarkable and only 10% as negligible. Overall, the initiative was well-appreciated, and 82.8% of responding physicians would like to propose topics for future EP wires.

Discussion

One of the EHRA-SIC objectives is the development and support of the links among the European centres practicing in the field of cardiac rhythm management, thus helping the community of arrhythmologists to validate adherence to guidelines and compare clinical practice in the areas where evidence-based medicine needs to be established or improved.

For this reason, the network of centres has been sent the short-form surveys carefully constructed to give the picture of daily EP practice in Europe and to produce scientific documents published in *Europace* on a monthly basis.

This review is the summary of 6 years of activity with 50 publications covering the major aspects of arrhythmology such as devices,

EP study and ablation, clinical arrhythmology, and management of AF, including stroke prevention. Many publications cover more than one subject simultaneously.

The most relevant issues in the various fields have been addressed, and EP wire surveys have shown variations in clinical practice but also a reassuring consistency with guideline and consensus recommendations. Some of these studies have underlined the need for more accurate collection of data regarding important issues of modern arrhythmology thus creating the basis for prospective registries such as ELECTRa (European Lead Extraction ConTRolled registry) and AF epicardial ablation registry,[56] and for Snapshot surveys conducted on specific topics collecting information about consecutive patients for a short period of time.[57]

The usefulness of the EHRA EP wire activity is well recognized by the participants, in terms of their influence on the clinical practice and in identifying knowledge gaps in the EP community in different regions inside and outside Europe. The documents are often cited in articles or congress presentations.

One important reason for not replying to the survey has been identified as the limited time physicians have in their clinical practice, almost all of the respondents believing that less than 15 min is acceptable time to spend on the EP wire questions. Considering the value of continuation of this activity, the respondents are in favour of reducing the number of questions or reducing the frequency of the surveys. Most physicians express their willingness to continue the surveys and strongly agree to have the possibility to propose subjects for future EP wires, thus becoming more involved in this scientific initiative and promoting an increased participation in the EHRA network.

Acknowledgements

The production of this EP Wire document is under the responsibility of the Scientific Initiative Committee of the European Heart Rhythm Association: Carina Blomström-Lundqvist (chair), Maria Grazia Bongiorni (co-chair), Jian Chen, Nikolaos Dagres, Heidi Estner, Antonio Hernandez-Madrid, Melece Hocini, Torben Bjerregaard Larsen, Laurent Pison, Tatjana Potpara, Alessandro Proclemer, Elena Sciraffia, and Derick Todd. Document reviewer for EP-Europace: Irene Savelieva (St George's University of London, London, UK). The authors acknowledge the EHRA Research Network centres participating in this EP Wire. A list of the Research Network can be found on the EHRA website. A special thanks to Yasmine Carrasset, Project Officer, EHRA Department, European Society of Cardiology (ESC), for the continuous support for the EP wire activity.

Conflict of interest: none declared.

References

1. Silverman SL. From randomized controlled trials to observational studies. *Am J Med* 2009;**122**:114–20.
2. Morgan J. EHRA Scientific Initiatives Committee: initiative for surveys. *Europace* 2009;**11**:1001.
3. Halimi F, Van Erven L. Validation of success following atrial fibrillation ablation: a European survey. *Europace* 2009;**11**:1002–3.
4. http://www.escardio.org/Guidelines-&-Education/Journals-and-publications/Recommended-readings/Heart-Rhythm/Electrophysiology-Wire/EHRA-Electrophysiology-EP-Wire (22 September 2015, date last accessed).
5. van Erven L, Morgan JM. Attitude towards redundant leads and the practice of lead extractions: a European survey. *Europace* 2010;**12**:275–6.
6. Marinskis G, van Erven L. Deactivation of implanted cardioverter-defibrillators at the end of life: results of the EHRA survey. *Europace* 2010;**12**:1176–7.
7. Morgan JM, Marinskis G. Defibrillation testing at the time of implantable cardioverter defibrillator implantation: results of the European Heart Rhythm Association survey. *Europace* 2011;**13**:581–2.
8. Marinskis G, van Erven L, Bongiorni MG, Lip GY, Pison L, Blomström-Lundqvist C. Practices of cardiac implantable electronic device follow-up: results of the European Heart Rhythm Association survey. *Europace* 2012;**14**:423–5.
9. Bongiorni MG, Blomström-Lundqvist C, Kennergren C, Dagres N, Pison L, Svendsen JH *et al.* Current practice in transvenous lead extraction: a European Heart Rhythm Association EP Network Survey. *Europace* 2012;**14**:783–6.
10. Dobreanu D, Dagres N, Svendsen JH, Marinskis G, Bongiorni MG, Blomström-Lundqvist C. Approach to cardiac resynchronization therapy. *Europace* 2012;**14**:1359–62.
11. Bongiorni MG, Marinskis G, Lip GY, Svendsen JH, Dobreanu D, Blomström-Lundqvist C. How European centres diagnose, treat, and prevent CIED infections: results of an European Heart Rhythm Association survey. *Europace* 2012;**14**:1666–9.
12. Marinskis G, Bongiorni MG, Dagres N, Dobreanu D, Lewalter T, Blomström-Lundqvist C. Performing magnetic resonance imaging in patients with implantable pacemakers and defibrillators: results of a European Heart Rhythm Association survey. *Europace* 2012;**14**:1807–9.
13. Bongiorni MG, Proclemer A, Dobreanu D, Marinskis G, Pison L, Blomstrom-Lundqvist C. Preferred tools and techniques for implantation of cardiac electronic devices in Europe: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:1664–8.
14. Hernández-Madrid A, Lewalter T, Proclemer A, Pison L, Lip GY, Blomstrom-Lundqvist C. Remote monitoring of cardiac implantable electronic devices in Europe: results of the European Heart Rhythm Association survey. *Europace* 2014;**16**:129–32.
15. Proclemer A, Grazia Bongiorni M, Etsner H, Todd D, Sciaraffia E, Blomström-Lundqvist C. Current implantable cardioverter-defibrillator programming in Europe: the results of the European Heart Rhythm Association survey. *Europace* 2014;**16**:935–8.
16. Todd D, Bongiorni MG, Hernandez-Madrid A, Dagres N, Sciaraffia E, Blomström-Lundqvist C. Standards for device implantation and follow-up: personnel, equipment, and facilities: results of the European Heart Rhythm Association Survey. *Europace* 2014;**16**:1236–9.
17. Sciaraffia E, Chen J, Hocini M, Larsen TB, Potpara T, Blomström-Lundqvist C. Use of event recorders and loop recorders in clinical practice: results of the European Heart Rhythm. *Europace* 2014;**16**:1384–6.
18. Grazia Bongiorni M, Dagres N, Estner H, Pison L, Todd D, Blomstrom-Lundqvist C. Management of malfunctioning and recalled pacemaker and defibrillator leads: results of the European Heart Rhythm Association survey. *Europace* 2014;**16**:1674–8.
19. Sciaraffia E, Dagres N, Hernandez-Madrid A, Proclemer A, Todd D, Blomström-Lundqvist C. Do cardiologists follow the European guidelines for cardiac pacing and resynchronization therapy? Results of the European Heart Rhythm Association survey. *Europace* 2015;**17**:148–51.
20. Pison L, Dagres N, Lewalter T, Proclemer A, Marinskis G, Blomström-Lundqvist C. Surgical and hybrid atrial fibrillation ablation procedures. *Europace* 2012;**14**:939–41.
21. Lewalter T, Dobreanu D, Proclemer A, Marinskis G, Pison L, Blomström-Lundqvist C. Atrial fibrillation ablation techniques. *Europace* 2012;**14**:1515–7.
22. Marinskis G, Bongiorni MG, Dagres N, Lewalter T, Pison L, Blomstrom-Lundqvist C. X-ray exposure hazards for physicians performing ablation procedures and device implantation: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:444–6.
23. Pison L, Proclemer A, Bongiorni MG, Marinskis G, Hernandez-Madrid A, Blomström-Lundqvist C. Imaging techniques in electrophysiology and implantable device procedures: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:1333–6.
24. Chen J, Todd DM, Hocini M, Larsen TB, Bongiorni MG, Blomström-Lundqvist C. Current periprocedural management of ablation for atrial fibrillation in Europe: results of the European Heart Rhythm Association survey. *Europace* 2014;**16**:378–81.
25. Estner HL, Chen J, Potpara T, Proclemer A, Todd D, Blomström-Lundqvist C. Personnel, equipment, and facilities for electrophysiological and catheter ablation procedures in Europe: results of the European Heart Rhythm Association Survey. *Europace* 2014;**16**:1078–82.
26. Estner HL, Grazia Bongiorni M, Chen J, Dagres N, Hernandez-Madrid A, Blomstrùöm-Lundqvist C. Use of fluoroscopy in clinical electrophysiology in

Europe: results of the European Heart Rhythm Association Survey. *Europace* 2015; **17**:1149–52.
27. Dagres N, Bongiorni MG, Larsen TB, Hernandez-Madrid A, Pison L, Blomström-Lundqvist C. Current ablation techniques for persistent atrial fibrillation: results of the European Heart Rhythm Association Survey. *Europace* 2015; doi: 10.1093/europace/euv323.
28. Svendsen JH, Goette A, Dobreanu D, Marinskis G, Mabo P, Blomström-Lundqvist C. Outpatient evaluation and management of patients with ventricular premature beats or non-sustained ventricular tachycardia. *Europace* 2012;**14**:294–6.
29. Proclemer A, Dobreanu D, Pison L, Lip GY, Svendsen JH, Lundqvist CB. Current practice in out-of-hospital cardiac arrest management: a European heart rhythm association EP network survey. *Europace* 2012;**14**:1195–8.
30. Proclemer A, Dagres N, Marinskis G, Pison L, Lip GY, Blomstrom-Lundqvist C. Current practice in Europe: how do we manage patients with ventricular tachycardia? European Heart Rhythm Association survey. *Europace* 2013;**15**:167–9.
31. Svendsen JH, Dagres N, Dobreanu D, Bongiorni MG, Marinskis G, Blomström-Lundqvist C. Current strategy for treatment of patients with Wolff-Parkinson-White syndrome and asymptomatic preexcitation in Europe: European Heart Rhythm Association survey. *Europace* 2013;**15**:750–3.
32. Proclemer A, Lewalter T, Bongiorni MG, Svendsen JH, Pison L, Lundqvist CB. Screening and risk evaluation for sudden cardiac death in ischaemic and non-ischaemic cardiomyopathy: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:1059–62.
33. Dagres N, Bongiorni MG, Dobreanu D, Madrid A, Svendsen JH, Blomström-Lundqvist C. Current investigation and management of patients with syncope: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:1812–5.
34. Hocini M, Pison L, Proclemer A, Larsen TB, Madrid A, Blomström-Lundqvist C. Diagnosis and management of patients with inherited arrhythmia syndromes in Europe: results of the European Heart Rhythm Association Survey. *Europace* 2014;**16**:600–3.
35. Hernández-Madrid A, Hocini M, Chen J, Potpara T, Pison L, Blomström-Lundqvist C. How are arrhythmias managed in the paediatric population in Europe? Results of the European Heart Rhythm survey. *Europace* 2014;**16**:1852–6.
36. Chen J, Hocini M, Larsen TB, Proclemer A, Sciaraffia E, Blomström-Lundqvist C. Clinical management of arrhythmias in elderly patients: results of the European Heart Rhythm Association survey. *Europace* 2015;**17**:314–7.
37. Proclemer A, Bongiorni MG, Dagres N, Sciaraffia E, Todd D, Blomstrom-Lundqvist C. How are European patients at risk of malignant arrhythmias or sudden cardiac death identified and informed about their risk profile: results of the European Heart Rhythm Association survey. *Europace* 2015;**17**:994–8.
38. Chen J, Todd DM, Proclemer A, Sciaraffia E, Estner HL, Broadhurst P *et al.* Management of patients with ventricular tachycardia in Europe: results of the European Heart Rhythm Association survey. *Europace* 2015;**17**:1294–9.
39. Todd D, Hernandez-Madrid A, Proclemer A, Bongiorni MG, Estner H, Blomström-Lundqvist C. How are arrhythmias detected by implanted cardiac devices managed in Europe? Results of the European Heart Rhythm Association Survey. *Europace* 2015; doi: 10.1093/europace/euv310.
40. Cantú F, Goette A. Sudden cardiac death stratification in asymptomatic ventricular preexcitation. *Europace* 2009;**11**:1536–7.
41. Svendsen JH, Geelen P. Screening for, and management of, possible arrhythmogenic syndromes (channelopathies/ion channel diseases). *Europace* 2010;**12**:741.
42. Dagres N, Cantù F, Geelen P, Lewalter T, Proclemer A, Blomström-Lundqvist C. Current practice of ventricular tachycardia ablation in patients with implantable cardioverter-defibrillators. *Europace* 2012;**14**:135–7.
43. Lip GY, Proclemer A, Dagres N, Bongiorni MG, Lewalter T, Blomström-Lundqvist C. Periprocedural anticoagulation therapy for devices and atrial fibrillation ablation. *Europace* 2012;**14**:741–4.
44. Lewalter T, Morgan J, Halimi F, Lip G, Dagres N, Blomström-Lundqvist C. Monitoring in the management of atrial fibrillation. *Europace* 2012;**14**:591–2.
45. Lip GY, Dagres N, Proclemer A, Svendsen JH, Pison L, Blomstrom-Lundqvist C. Left atrial appendage occlusion for stroke prevention in atrial fibrillation in Europe: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:141–3.
46. Dagres N, Lewalter T, Lip GY, Pison L, Proclemer A, Blomström-Lundqvist C. Current practice of antiarrhythmic drug therapy for prevention of atrial fibrillation in Europe: The European Heart Rhythm Association survey. *Europace* 2013;**15**:478–81.
47. Hernández-Madrid A, Svendsen JH, Lip GY, Van Gelder IC, Dobreanu D, Blomstrom-Lundqvist C. Cardioversion for atrial fibrillation in current European practice: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:915–8.
48. Lip GY, Bongiorni MG, Dobreanu D, Lewalter T, Hastrup Svendsen J, Blomström-Lundqvist C. Novel oral anticoagulants for stroke prevention in atrial fibrillation: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:1526–32.
49. Dobreanu D, Svendsen JH, Lewalter T, Hernández-Madrid A, Lip GY, Blomström-Lundqvist C. Current practice for diagnosis and management of silent atrial fibrillation: results of the European Heart Rhythm Association survey. *Europace* 2013;**15**:1223–5.
50. Potpara TS, Lip GY, Dagres N, Estner HL, Larsen TB, Blomström-Lundqvist C. Management of acute coronary syndrome in patients with non-valvular atrial fibrillation: results of the European Heart Rhythm Association Survey. *Europace* 2014;**16**:293–8.
51. Larsen TB, Potpara T, Dagres N, Pison L, Estner H, Blomström-Lundqvist C. Stroke and bleeding risk evaluation in atrial fibrillation: results of the European heart rhythm association survey. *Europace* 2014;**16**:698–702.
52. Pison L, Hocini M, Potpara TS, Todd D, Chen J, Blomström-Lundqvist C. Work-up and management of lone atrial fibrillation: results of the European Heart Rhythm Association Survey. *Europace* 2014;**16**:1521–3.
53. Pison L, Potpara TS, Chen J, Larsen TB, Bongiorni MG, Blomström-Lundqvist C. Left atrial appendage closure-indications, techniques, and outcomes: results of the European Heart Rhythm Association Survey. *Europace* 2015;**17**:642–6.
54. Potpara TS, Pison L, Larsen TB, Estner H, Madrid A, Blomström-Lundqvist C. How are patients with atrial fibrillation approached and informed about their risk profile and available therapies in Europe? Results of the European Heart Rhythm Association Survey. *Europace* 2015;**17**:468–72.
55. Larsen TB, Potpara T, Dagres N, Proclemer A, Sciarrafia E, Blomström-Lundqvist C. Preference for oral anticoagulation therapy for patients with atrial fibrillation in Europe in different clinical situations: results of the European Heart Rhythm Association Survey. *Europace* 2015;**17**:819–24.
56. ELECTRa: Bongiorni MG, Romano SL, Kennergren C, Butter C, Deharo JC, Kutarsky A *et al.* ELECTRa (European Lead Extraction ConTRolled) Registry—shedding light on transvenous lead extraction real-world practice in Europe. *Herzschrittmacherther Elektrophysiol* 2013;**24**:171–5.
57. Potpara TS, Larsen TB, Deharo JC, Rossvoll O, Dagres N, Todd D *et al.* Oral anticoagulant therapy for stroke prevention in patients with atrial fibrillation undergoing ablation: results from the First European Snapshot Survey on Procedural Routines for Atrial Fibrillation Ablation (ESS-PRAFA). *Europace* 2015;**17**:986–93.