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 surveys on ‘hot topic’ were circulated. 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
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. EP wires can be divided into four main categories: (i) devices (pacemakers, implantable cardioverter-defibrillators [ICD], internal looprecorders); (ii) EP study and ablation; (iii) clinical arrhythmology; and (iv) management of atrial fibrillation (AF), including stroke prevention. 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.
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...
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 ELECTRas (European Lead Extraction ConTRolled registry) and AF epicardial ablation registry,54 and for Snapshot surveys conducted on specific topics collecting information about consecutive patients for a short period of time.55

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.

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References


