

STEEER-AF: a cluster-randomised education trial from the ESC

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TITLE: STEEER-AF – a cluster-randomised education trial from the ESC

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The need for new evidence

Atrial fibrillation (AF) is predicted to double in prevalence over the next few decades, placing an increasing burden on patients and healthcare services.^{1,2} The management of AF is complex and appropriate treatment relies on good knowledge and skills of healthcare staff.³ Guidelines produced by the European Society of Cardiology (ESC) are designed to assist healthcare professionals to provide optimal care for patients with AF.⁴ Treatment that is adherent to guidelines results in lower rates of mortality, incident stroke and major bleeding.⁵⁻⁷ However, there is a major challenge across the ESC to apply guidelines correctly, with significant gaps in the knowledge and skills of healthcare professionals treating AF patients, particularly for stroke prevention and rhythm control therapy.^{8,9}

The response by the ESC

The ESC has taken unprecedented steps in recent years to improve education for healthcare professionals in cardiology, including many new educational concepts in congresses, online learning, smartphone applications, curriculum development, the ESC textbook, and collaboration with National and international societies.¹⁰ This includes a concerted effort to educate a variety of healthcare professionals and provide guideline-related training and support¹¹, using a multi-faceted educational approach to make best use of digital learning opportunities.^{12,13}

However, the true value of these educational approaches is unknown. Considering the time and expense required to train a workforce and keep staff updated, randomised controlled trials are needed to evaluate the effectiveness of AF education. Previous trials have demonstrated the potential of education to impact patient-level treatments such as anticoagulation¹⁴; the ESC will now embark on a trial that includes the best of its broad learning interventions, with the aim of improving guideline-adherent therapy and outcomes for patients with AF.

STEEER-AF

The STEEER-AF trial (**S**troke prevention and rhythm control **T**reatment: **E**valuation of an **E**ducational programme of the European society of cardiology in a cluster-**R**andomised trial in patients with **A**trial **F**ibrillation) is a joint effort by the ESC Education team, the European Heart Rhythm Association (EHRA) and the ESC Council on Stroke. This pragmatic trial will operate in six large ESC countries (France, Germany, Italy, Poland, Spain and the United Kingdom) and is led by investigators from those six countries, supported by a central team at the ESC. The primary objective of STEEER-AF is to determine whether a comprehensive educational programme for healthcare professionals who treat patients with AF, compared to no added education, will improve guideline-adherent treatment for stroke prevention and rhythm control. The secondary objectives will assess the provision of integrated care, patient-reported quality of life and the impact on major adverse clinical outcomes. To avoid contamination of effect across neighbouring individual patients, STEEER-AF will use a cluster-randomised approach. Within each country, hospitals/health centres will be randomised to receiving the intervention or control, taking account of the current adherence to guidelines to provide balanced groups.

Around 70 centres are expected to take part in STEEER-AF, with each centre recruiting around 25 adult patients who have been diagnosed with AF and consent to data collection (Figure 1). Centres are required to complete recruitment before they are randomised. In centres that are randomised to the intervention, healthcare professionals who have treated these AF patients will receive a specifically designed educational programme, supported by trained trainers in each country. Centres randomised to the control group will receive whatever usual education is offered to healthcare professionals. The same patients will be reviewed after 6-9 months as part of routine clinical care, and remote collection of major clinical events will occur at 18 months.

National and International collaboration

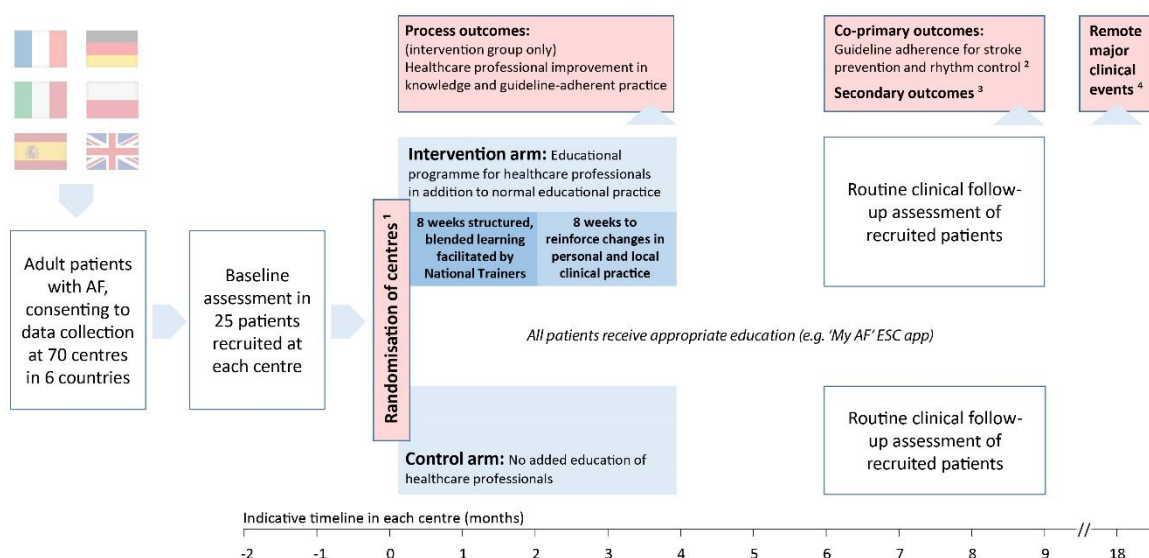
At the heart of STEEER-AF is cooperation within and across borders to improve the care that patients with AF receive. We are indebted to the Principal Investigators at each centre, the National Trainers, those supporting the Country Leads, staff at the ESC, EHRA and ESC Council on Stroke, the Birmingham Clinical Trials Unit, and the members of the international oversight committees (see Supplementary Appendix). We wish to thank the Patient Involvement Team for their assistance in designing this trial to meet the needs of patients with AF and writing patient-facing documents (Mary Stanbury, patient representative; Jaqueline Jones, public representative; and Trudie Lobban, Heart Rhythm Alliance/AF patient association). The start of STEEER-AF was delayed due to the current coronavirus pandemic; we aim to commence this trial as soon as it safe to do so according to national lockdown policies.

We are grateful to Boehringer Ingelheim, BMS/Pfizer Alliance, Bayer, Daiichi Sankyo and Boston Scientific for providing unrestricted educational grants to the ESC to help fund this trial. We also acknowledge support from the Oxford Biomedical Research Centre, funded by the National Institute for Health Research (NIHR), as well as the NIHR Academy and British Heart Foundation for funding the Chief Investigator (CDF-2015-08-074 and AA/18/2/34218). The views expressed are those of the authors and not of the funders listed. To avoid introducing bias, the specifics of the educational programme will only be released after all recruitment and education have been completed. After this time, the full protocol for the trial will be available at the STEEER-AF website (www.escardio.org/aftrial).

Conclusion

The STEEER-AF trial is designed to see if better education for healthcare professionals can improve how patients are treated and how AF is managed, with the aim of preventing strokes and other adverse outcomes, and improving patient quality of life. STEEER-AF will bring together the best that the ESC, EHRA and the ESC Council on Stroke can provide in terms of learning resources, and provide a blueprint for better education across cardiovascular health.

Figure 1: STEEER-AF summary



AF = atrial fibrillation; ESC = European Society of Cardiology.

¹ Minimisation algorithm accounting for country and guideline adherence for stroke prevention and rhythm control at baseline.

² Class I and III recommendations on stroke prevention and rhythm control therapy (ESC Guidelines on the Management of AF).

³ Proportion of relevant guidelines attained; Appropriate use of anticoagulation; Integrated AF care approach; Patient quality of life.

⁴ Composite of mortality, stroke, transient ischaemic attack, pulmonary or systolic embolus, acute coronary syndrome/myocardial infarction, heart failure and major or clinically-relevant bleeding; plus hospital admissions.

References

1. Lane DA, Skjoth F, Lip GYH, Larsen TB, Kotecha D. Temporal Trends in Incidence, Prevalence, and Mortality of Atrial Fibrillation in Primary Care. *J Am Heart Assoc.* 2017;**6**
2. Krijthe BP, Kunst A, Benjamin EJ, Lip GY, Franco OH, Hofman A, Wittteman JC, Stricker BH, Heeringa J. Projections on the number of individuals with atrial fibrillation in the European Union, from 2000 to 2060. *Eur Heart J.* 2013;**34**:2746-2751
3. Rienstra M, Hobbelt AH, Alings M, Tijssen JGP, Smit MD, Brugemann J, Geelhoed B, Tieleman RG, Hillege HL, Tukkie R, Van Veldhuisen DJ, Crijns H, Van Gelder IC. Targeted therapy of underlying conditions improves sinus rhythm maintenance in patients with persistent atrial fibrillation: results of the RACE 3 trial. *Eur Heart J.* 2018;**39**:2987-2996
4. Kirchhof P, Benussi S, Kotecha D, Ahlsson A, Atar D, Casadei B, Castella M, Diener HC, Heidbuchel H, Hendriks J, Hindricks G, Manolis AS, Oldgren J, Popescu BA, Schotten U, Van Putte B, Vardas P. 2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS. *Eur Heart J.* 2016;**37**:2893-2962
5. Nieuwlaat R, Olsson SB, Lip GY, Camm AJ, Breithardt G, Capucci A, Meeder JG, Prins MH, Levy S, Crijns HJ. Guideline-adherent antithrombotic treatment is associated with improved outcomes compared with undertreatment in high-risk patients with atrial fibrillation. The Euro Heart Survey on Atrial Fibrillation. *Am Heart J.* 2007;**153**:1006-1012
6. Lip GY, Laroche C, Popescu MI, Rasmussen LH, Vitali-Serdoz L, Dan GA, Kalarus Z, Crijns HJ, Oliveira MM, Tavazzi L, Maggioni AP, Boriani G. Improved outcomes with European Society of Cardiology guideline-adherent antithrombotic treatment in high-risk patients with atrial fibrillation: a report from the EORP-AF General Pilot Registry. *Europace.* 2015;**17**:1777-1786
7. Proietti M, Nobili A, Raparelli V, Napoleone L, Mannucci PM, Lip GY. Adherence to antithrombotic therapy guidelines improves mortality among elderly patients with atrial fibrillation: insights from the REPOSI study. *Clin Res Cardiol.* 2016;**105**:912-920
8. Heidbuchel H, Dagres N, Antz M, Kuck KH, Lazure P, Murray S, Carrera C, Hindricks G, Vahanian A. Major knowledge gaps and system barriers to guideline implementation among European physicians treating patients with atrial fibrillation: a European Society of Cardiology international educational needs assessment. *Europace.* 2018;**20**:1919-1928
9. Wijtvliet E, Tieleman RG, van Gelder IC, Pluymaekers N, Rienstra M, Folkeringa RJ, Bronzwaer P, Elvan A, Elders J, Tukkie R, Luermans J, Van Asselt A, Van Kuijk SMJ, Tijssen JG, Crijns H, RACE 4 Investigators. Nurse-led vs. usual-care for atrial fibrillation. *Eur Heart J.* 2020;**41**:634-641
10. Kotecha D, Bax JJ, Carrera C, Casadei B, Merkely B, Anker SD, Vardas PE, Kearney PP, Roffi M, Ros M, Vahanian A, Weidinger F, Beeri R, Budaj A, Calabro P, Czerwinska-Jelonkiewicz K, D'Ascenzi F, De Potter T, Fox KF, Hartikainen J, McAdam B, Milicic D, Pasquet AA, Sionis A, Sohaib SMA, Tsioufis C, Verhorst PMJ, Kirchhof P. Roadmap for cardiovascular education across the European Society of Cardiology: inspiring better knowledge and skills, now and for the future. *Eur Heart J.* 2019;**40**:1728-1738
11. European Society of Cardiology. ESC Strategic Plan 2016-2020. <https://www.escardio.org/The-ESC/About/esc-strategic-plan-2016-2020> [Accessed 20 December 2019]
12. Kotecha D, Chua WWL, Fabritz L, Hendriks J, Casadei B, Schotten U, Vardas P, Heidbuchel H, Dean V, Kirchhof P, European Society of Cardiology Atrial Fibrillation Guidelines Taskforce, CATCH ME Consortium, European Heart Rhythm Association. European Society of Cardiology smartphone and tablet applications for patients with atrial fibrillation and their health care providers. *Europace.* 2018;**20**:225-233
13. Rossello X, Stanbury M, Beeri R, Kirchhof P, Casadei B, Kotecha D. Digital learning and the future cardiologist. *Eur Heart J.* 2019;**40**:499-501
14. Vinereanu D, Lopes RD, Bahit MC, Xavier D, Jiang J, Al-Khalidi HR, He W, Xian Y, Ciobanu AO, Kamath DY, Fox KA, Rao MP, Pokorney SD, Berwanger O, Tajer C, de Barros ESPGM, Roettig ML, Huo Y, Granger CB. A multifaceted intervention to improve treatment with oral anticoagulants in atrial fibrillation (IMPACT-AF): an international, cluster-randomised trial. *Lancet.* 2017;**390**:1737-1746