

Global Spotlights

EuroHeart: improving cardiovascular care through data collection and international collaboration

Lars Wallentin  ^{1,*}, Eva Prescott  ², and Stefan James  ¹

¹Department of Medical Sciences and Uppsala Clinical Research Center, Uppsala University, Dag Hammarskjölds väg 38, Uppsala SE-751 85, Sweden; and ²Department of Cardiology, Bispebjerg University Hospital, Copenhagen, Denmark

What is EuroHeart?

EuroHeart is an European Society of Cardiology (ESC) activity based on the collaboration between national quality registries in cardiovascular care across Europe.¹ The aim is to improve cardiovascular care by continuous monitoring and comparing patients, disease conditions, diagnostics, interventional and medical treatments, and outcomes in common heart conditions within and between different countries. EuroHeart also aims to form an infrastructure for registry-based randomized clinical trials (R-RCTs), safety studies of new implants and drugs, and observational studies to generate real-world evidence regarding the effectiveness and side effects of new or established treatment strategies in different patient groups.

How are patient data and privacy protected under general data protection regulation (GDPR)?

Each country retains full responsibility for its registration, data, and databases. No individual-level data are transferred between countries. Each country contributes to the collaborative results by performing mutually agreed analyses of its own data and sharing the aggregated results with EuroHeart.

Which disease conditions and interventions are included?

Currently, the collaboration concern registries on patients with:

- Acute coronary syndrome and/or percutaneous coronary intervention; and
- Valve disease and transcatheter valve procedures.

Within the next few years, the collaboration will also include registries on patients with:

- Heart failure and cardiac resynchronization therapy and implanted defibrillators; and
- Atrial fibrillation and ablation.

What is registered?

Registration is based on 70–100 standardized mandatory variables per disease condition. The selection and definitions of the disease and treatment-related variables and outcomes have been developed and published by the EuroHeart group in collaboration with participating registries and other stakeholders in each disease area.^{2–7} The evaluation of quality of care is based on the adherence to the ESC Guidelines and agreed quality indicators.

Which countries participate in the collaboration?

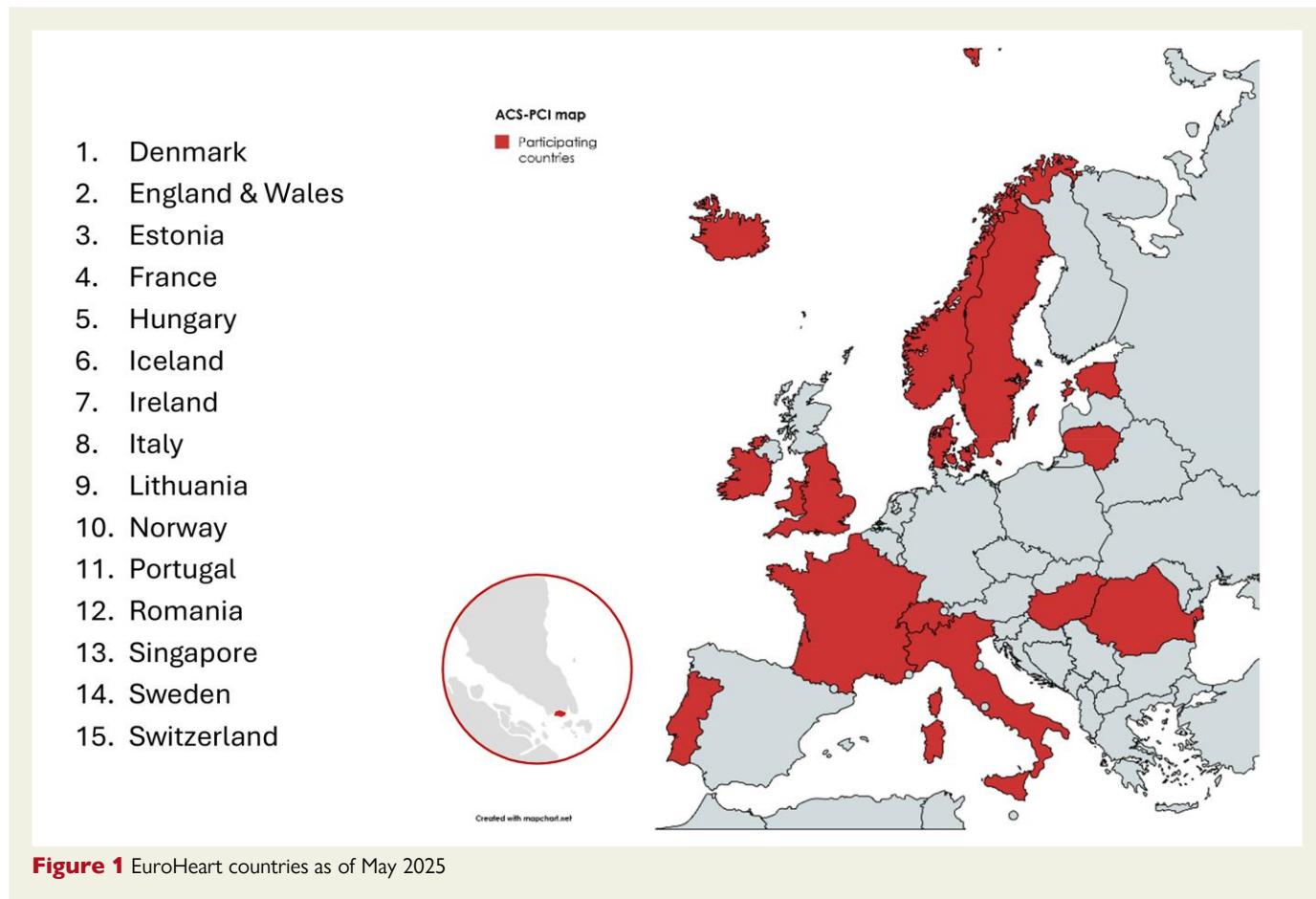
As of 2025, 15 countries are involved, as illustrated in the map in *Figure 1*. Countries may participate either with a National Registry covering the whole country or with a number of hospitals in a specific region or even with a number of hospitals spread in different areas of the country. The bearing principle is that the participating hospitals register continuous patients with a specific diagnosis without any further selection criteria. With the current network, around 150 000–200 000 patients will form the basis for evaluating the quality of care for myocardial infarction in EuroHeart 2025.

How is registration performed?

Consecutive patients admitted to participating hospitals are registered either using online-based forms or by having equivalent data extracted from electronic health records, as close to the care event as possible. The care providers may use either the EuroHeart's specially designed

* Corresponding author. Email: Lars.Wallentin@ucr.uu.se

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IT platform or any other national or regional systems that capture the same variables and providing similar report functionalities. Outcomes are usually obtained by linking to other National Registries/Data Sources or by direct contacts with the patients or the care provider.

What are the benefits for participating hospitals?

Participation in the EuroHeart collaboration supports hospitals and countries in establishing and maintaining registries as part of a wider national quality improvement programme. The participation enables systematic monitoring of processes and quality of care for different patient groups with benchmarking against ESC Guidelines and quality indicators, and other hospitals and countries. Participating hospitals are encouraged to take part in research and development projects, including registry-based randomized trials (R-RCT).

Which were the key findings in the most recent report?

The 2024 EuroHeart Annual Report based on data from 2023 is available online.⁸ It provides detailed information on patient characteristics, conditions, treatments, and outcomes stratified by diagnosis (STEMI, NSTEMI), country, age, sex, and diabetes in 63 961 patients from seven countries. The report highlights several areas requiring improvement of

care. The 2025 Annual Report, based on data from 14 countries collected in 2024, will be presented at ESC Congress 2025 in August.

What about registry-based randomized clinical trial?

During the last decade, R-RCTs have emerged as a very cost-effective complement and alternative to the conventional RCTs for providing evidence on many unanswered questions on cardiovascular care raised by clinical investigators, healthcare authorities, or the industry. Embedding of a trial in a prospective national registry allows the recruitment and randomization of consecutive patients through routine care ensuring a representative target patient population. The registry simultaneously serves as the main part of the case-record form, and information on outcomes may be obtained from other national healthcare registries.⁹ The EuroHeart collaboration is currently planning and preparing the first multinational collaborative R-RCT. For this purpose, EuroHeart is developing an infrastructure including a specific study application for randomization and an eCRF capable of accepting data both by direct entry and by transfer from national registries and other data sources. This flexible set-up enables participation of countries and centres with different local infrastructure and IT capabilities.

How is EuroHeart governed in 2025?

EuroHeart started in 2019 as a pilot project. As of 2025, the project has transitioned into a permanent activity in the ESC, overseen and

synchronized with other data activities within the ESC Data Science Committee. EuroHeart is led by an executive committee which closely collaborates with the National Registry Leaders who are members of the National Leaders Committee.

How is EuroHeart funded?

EuroHeart is currently funded by the ESC, with support from the EU for specific activities. The EuroHeart network is also supported by National Registries and National funding for specific projects.

Which are the focus areas for EuroHeart in 2025?

In 2025 EuroHeart will focus on the following activities:

- (1) Expand the network of participating registries and countries;
- (2) Enhance use and reporting of the quality-of-care data;
- (3) Improve national registry coverage, completeness, and quality of data;
- (4) Extend registration to new disease domains including heart failure;
- (5) Encourage the use of the EuroHeart IT platform;
- (6) Support integration of the registration with electronic health records;
- (7) Develop co-ordinated federated individual-level analysis in the national data bases, allowing statistical analyses of individual data without data transfer between countries;
- (8) Generate new real-world evidence via research and publications;
- (9) Identify target areas and prepare for registry-based randomized trials; and
- (10) Explore possibilities of accreditation of hospitals via EuroHeart.

Declarations

Disclosure of Interest

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