

The Netherlands Heart Rhythm Association is the working group on arrhythmias of the Dutch Society of Cardiology (NVVC). The NHRA represents all Dutch cardiologists who work in the field of invasive and non-invasive treatment of arrhythmias, with a special focus on catheter ablation and implantable devices for tachy- and bradyarrhythmia.

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The Dutch Society of Cardiology was founded in 1934, while in 2008 the NHRA was established as a merge from the separate Dutch working groups on heart stimulation and arrhythmias.

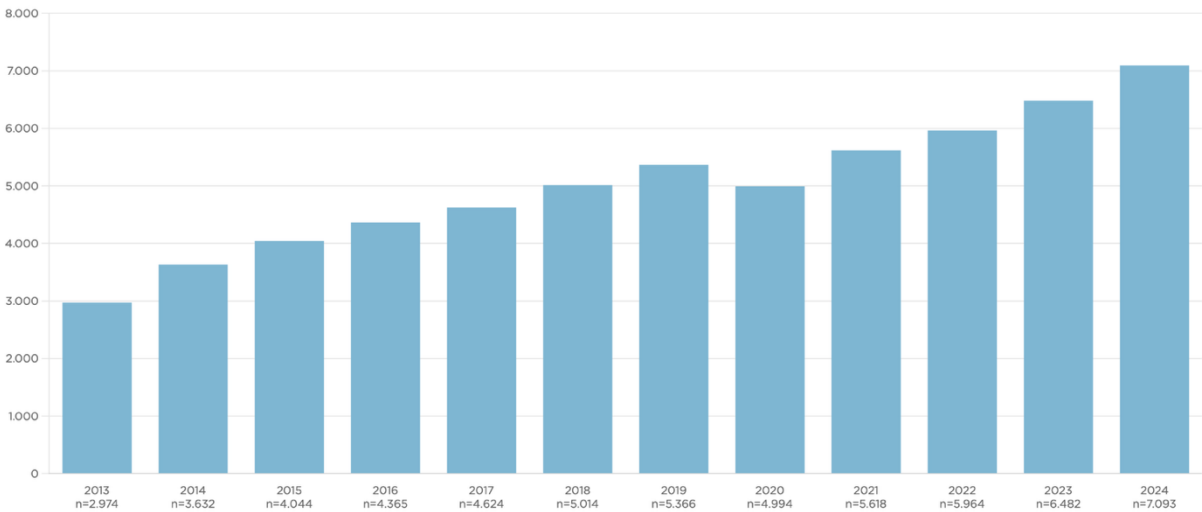
The NHRA has >170 active members and is one of the most important stakeholders in the organisation of arrhythmia care in the Netherlands. Besides its function as a representation of the Dutch cardiologists who work in the field of arrhythmia, the NHRA is involved in training and education, quality assurance, research, innovation and advocacy, both on a national level as well as an international level through EHRA. For those purposes, the NHRA has several committees that address the aspects above.

Invasive arrhythmia care in the Netherlands has been regulated since many years and the NHRA is an important stakeholder in this matter. For example, in the Netherlands, only high-volume centres with back-up cardiothoracic surgery are allowed to perform catheter ablations with standards for the minimum number of procedures per operator per year. This practice has resulted in 15 centres for catheter ablations, all with >>400 procedures per year. Similarly, implantable cardioverter defibrillator (ICD) implantation and follow-up is restricted to white-listed hospitals, where cardiologists and allied professionals meet prespecified quality standards for both education and experience, exemplified by EHRA certification. Nationwide, around 90 hospitals perform pacemaker implants and follow-up whereas only 28 have a license to implant ICDs. In 2025, a new ICD implantation directive was published with up-to-date requirements for these centres and their operators.

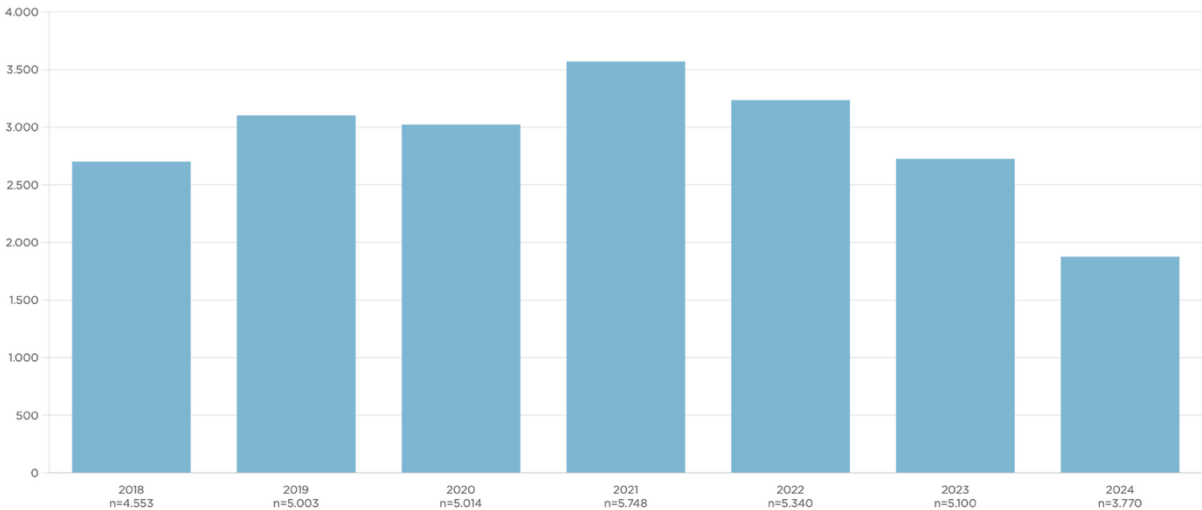
The recent ESC-EHRA Atlas on arrhythmia care and the Netherlands Heart Registration (NHR) are valuable sources to highlight the position of the Netherlands in arrhythmia care.^{1,2} In 2023, we performed circa 650 ablations per million inhabitants (~50% for atrial fibrillation), circa 850 pacemaker implantations per million inhabitants and circa 170 ICDs per million inhabitants, in a population of nearly 18 million inhabitants (see figures below).¹

Figures on number of catheter ablations and ICD implantations
Data from the Netherlands Heart Registration

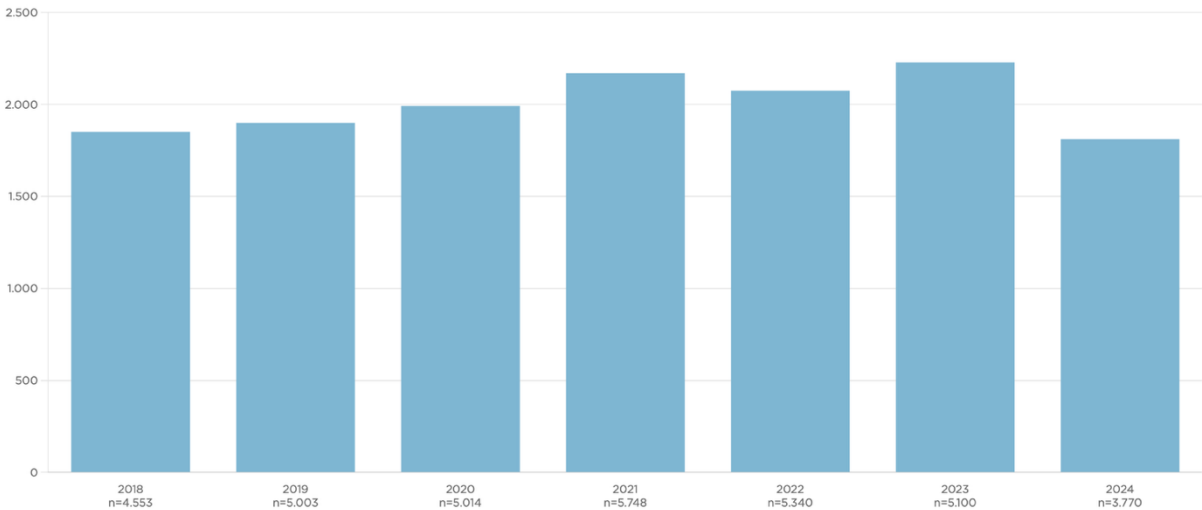
Number of ablations for arrhythmia 2013-2024



Number of primary prevention Implantable Cardioverter Defibrillator implantations 2018-2024



Number of secondary prevention Implantable Cardioverter Defibrillators 2018-2024



The NHRA committees

NHRA Device Committee

The NHRA Device Committee is a subcommittee of the NHRA consisting of 8-12 cardiologists with thorough experience in device procedures, follow-up and trouble shooting. The committee monitors the quality of care regarding implantable cardiac devices and addresses surfacing issues in the field. For field actions, joint recommendations are formulated and distributed to the centres.

NHRA Guidelines Committee

The NHRA Guideline Committee addresses the applicability of new ESC-EHRA guidelines for the Dutch situation in close cooperation with the Dutch Society of Cardiology. Recently, the Dutch ministry of Health, Welfare and Sports, together with our National Health Care Institute, started a project concerning value-based healthcare around ICD implantations. Amongst others, this led to a Dutch position paper regarding the indications for primary prevention ICDs in non-ischemic cardiomyopathy with stricter, less-lenient indications as compared to the ESC-EHRA guidelines.^{3,4} This practice has indeed resulted in a further decline of primary prevention ICDs in The Netherlands (see figures above).

NHRA Congress Committee

The NHRA Congress Committee organizes the annual NHRA congress. Traditionally, this congress is held the day before the Dutch Society of Cardiology (NVVC) fall meeting and offers the audience a varied program on arrhythmia topics. The NHRA congress audience exists of Dutch arrhythmia experts, fellows, general cardiologists, PhD-students and allied professionals, totalling over 170 attendants yearly. Speakers are mainly established Dutch experts in the field of arrhythmia, but every year there is also a session on Dutch trials often presented by PhD-students. Almost every year, the organization attracts an international keynote speaker. One of the highlights of the meeting is the 'Bert Thalen lecture' accompanied by the Bert Thalen medal. Bert Thalen was one of the pioneers in pacemaker therapy.^{5,6} This honorary lecture is, since 2009, given by colleagues with great achievements in the Dutch field of arrhythmia care.

Bert Thalen medal laureates:

2009: Prof. dr. Hein J.J. Wellens
2010: Dr. Berry L.M van Gelder
2011: Prof. dr. Norbert M. van Hemel
2012: Prof. dr. Chiel M. Janse
2013: Prof. dr. Richard N.W. Hauer
2014: Dr. Willem G. de Voogt
2015: Prof. dr. Luc J.L.M. Jordaens
2016: Prof. dr. Isabelle C. van Gelder
2017: Prof. dr. Harry J.G.M. Crijns
2018: Prof. dr. ir. Jacques M.T. de Bakker
2019: Prof. dr. Jan G. van Dijk
2021: Prof. dr. Arthur A.M. Wilde
2022: Prof. dr. Ton P. Gorgels



NHRA Committee for the Netherlands Heart Registration (NHR)

Previously, national data concerning device implantations was collected in a database (NCDR, National Cardiac Device Registry). To improve quality, feedback and research, the database was broadened to more interventions and a cooperation with the National Society of Thoracic Surgery was formed. The NHR is now a service-oriented quality and registration organization where high-quality registration of all cardiac interventions and cardiac operations in the Netherlands takes place. In addition, registrations are also designed for various, common syndromes. The objective of the NHR is to contribute to maintaining and further improvements in the quality of care by collecting, analysing, and reporting on relevant data on the treatment of patients with cardiac disease.

NHRA Education and Certification

In 2018, the NHRA published the updated Dutch clinical cardiac electrophysiology curriculum. This document was prepared by the 'CORE' committee ("*Commissie Opleiding en Registratie Elektrofysiologie*"). The updated CORE curriculum forms the basis for education in fellowship programs in ablation across all 15 EP centers. Only fully certified cardiologists are candidates for a 2-years EP fellowship. The CORE curriculum also describes the requirements for ablation training centers and supervisors. The training center should have at least 2 electrophysiologists and a minimum of 250 catheter ablations should be performed annually. The training and the number of required procedures during the EP fellowship is in line with the EHRA core curriculum,⁷ and the requirements for level 2 certification as EHRA Certified Electrophysiology Specialist (ECES). Often, this fellowship is combined with level 2 certification as an EHRA Certified Cardiac Device Specialist (ECDS). For registration as an ablating cardiologist-electrophysiologist in the Netherlands, candidates must have completed their EP fellowship. Recertification is mandatory every 5 years and requires both continuing medical education credits and a minimum of 375 catheter ablations over those 5 years as first operator. Three centers, Erasmus Medical Center in Rotterdam, the Leiden University Medical Center and the Onze Lieve Vrouwe Gasthuis (OLVG) in Amsterdam are currently also official EHRA recognized training centers (ERTC).

In 2025 the NHRA published the updated Dutch directive on ICD centres and ICD implantations. In this directive, the minimal requirements for centres which perform ICD implantations and centres which perform (only) ICD follow-up. Also, the document contains the minimal requirements for ICD implanting cardiologists, including minimal numbers for procedures for the different device categories, and for allied professionals, to establish a continuing framework for high quality care all year round. Compliance to these minimal requirements is confirmed by quality assurance visitations every 5 years.

NHRA Research

The Netherlands have a longstanding history in research and cardiovascular research in particular, starting with renowned colleagues such as Willem Einthoven (1860-1927) and Karel Frederik Wenckebach (1864-1940). The NHRA also promotes scientific research into ablations and implantable cardiac devices. Currently, research projects are undertaken in the field of primary prevention ICDs in non-ischemic cardiomyopathy ("Dutch-ICD") and re-do procedures for atrial fibrillation ("STRAFA-NHRA"). Also, the NHRA partners with EHRA in the PROFID project⁸ on primary prevention ICDs in ischemic cardiomyopathy.

NHRA Collaboration and advocacy

The NHRA collaborates intensively with other organizations in cardiac and arrhythmia healthcare. Foremost, the NHRA is a working group of the Dutch Society of Cardiology (NVVC) and is their most important stakeholder in the field of arrhythmia care. In addition, the NHRA is the national representation in EHRA. Furthermore, the NHRA collaborates with the Dutch Federation of Medical Specialists (FMS), the Dutch National Health Care Institute (ZIN), the Dutch National Institute for Public Health and the Environment (RIVM), the Association for Allied Professionals in Invasive Heart Stimulation (VITHAS), the Dutch Heart Foundation (NHS) and patient organizations (Harteraad, STIN). In these collaborations, all aspects around arrhythmia care, including sustainable health care for future generations, are addressed. As an example, the NHRA is involved in the Dutch cardiovascular agendas of the National Health Care Institute and the Dutch Heart Foundation.

NHRA goals 2026-2029

In the NHRA's function as the representation of the Dutch cardiologists who work in the field of arrhythmia, including training and education, quality assurance, research, innovation and advocacy, there are several goals ahead outside our daily practice.

- Support of the Dutch-ICD and STRAFA-NHRA trials with potential important outcomes for patients with non-ischemic cardiomyopathy and atrial fibrillation in Europe and abroad.
- Enriching the (online) knowledge base and (organisational) content on arrhythmia care in the Netherlands.
- Further support and harmonisation of sustainable health care for our patients and our colleagues, within NHRA and EHRA.

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