



EHRA
European Heart
Rhythm Association

EHRA 2021

ACTIVITY
REPORT

| President's Introduction

On behalf of the EHRA Board 2020-2022, I am honoured to present the 2021 activity report of the European Heart Rhythm Association (EHRA) of the European Society of Cardiology (ESC). We would like to sincerely thank all the volunteers who invest so much time and energy participating in the life of the association. EHRA is a strong community of electrophysiologists (EPs) and allied professionals from Europe and beyond.

Even though 2021 was once again unusual and had its ups and downs due to the COVID-19 pandemic, we had a very productive year filled with many activities.

Our annual congress was held online and was very successful. We are very grateful for the work done by the EHRA Congress Scientific Programme Committee who built a wonderful programme with 119 sessions over three days. The congress was attended by more than 3,500 participants from 91 countries with great interaction between EPs from around the world. Thank you for your active participation in this meeting. We hope that in 2022 we will have the chance to meet in person in Copenhagen from 3 to 5 April!

As always, our Education Committee was very active. We had very successful courses on cardiac devices and EP, including two in a hybrid format. EHRA also continues to actively collaborate on educational programmes in different countries. The 'EHRA in Russia' and 'EHRA in Kazakhstan' courses were very well attended. In addition, the EHRA educational slides on cardiac pacing and electrophysiology were translated into Greek and Turkish and delivered locally by our colleagues in these countries. EHRA organised 17 webinars throughout the year covering the spectrum of innovations in EP.

The widely recognised EHRA Cardiac Pacing and Electrophysiology exams for physicians and EPs were successfully delivered online. 2021 saw the development of a local Spanish exam in invasive cardiac electrophysiology in collaboration with the Latin American Heart Rhythm Society.

The EHRA Digital Committee has put substantial effort in the digital health area, with the presentation of many sessions during the congress as well as the development of a practical guide on the use of digital devices, which are now present in our daily activities. The afibmatters.org website has been updated with new features (patient tools, video testimonials, etc.) in collaboration with the ESC Patient Forum. Furthermore, we have started working on the development of a new patient website, in

close collaboration with patients and nurses, which is dedicated to patients with an implanted cardiac device: www.myrhythmdevice.org

The e-Communication Committee has intensified our communication through social media as well as with the creation of EHRA podcasts featuring key opinion leaders. Don't miss a fantastic paper in EP Europace: "Twitter for professional use in electrophysiology: practical guide for #Epeep".

Within the Research Pillar, the level of EHRA scientific documents and scientific initiatives this year was impressive with a dozen publications, focussing mainly on practical guidance such as 'Optimal implantation technique for conventional pacemakers and implantable cardioverter defibrillators' and the '2021 update of the EHRA practical guide on the use of non-vitamin K antagonist in patients with atrial fibrillation'. You have received many surveys from the EHRA Scientific Initiatives Committee and we thank you for your regular and active participation. The results of all these surveys are published in *EP Europace*.

2021 also saw the launch of a new EU funded project: EHRA-PATHS.

Last but not least, we are very proud to announce that this year EHRA has a record membership with over 4,150 paying members, testifying to the vitality of our association. We are currently working on a new and simpler membership scheme. We were also delighted to award 20 new Fellows of EHRA (FEHRA) as well as an Emeritus FEHRA.

All these activities, and many others, are possible only with the involvement and the wonderful work of volunteers and Board members, as well as the support of the EHRA community. We must also thank our staff members at the European Heart House for their valuable commitment as well as the ESC leadership for its support to EHRA.

I hope you will appreciate the results of these contributions and this report will reinforce your willingness to be an EHRA contributor or to become one of our active members if you are not yet involved in these activities. Feel free to contact the EHRA Board and staff. We need all of you, Young EPs, and more senior EPs, with your energy and your projects. Join the EHRA family!

Stay safe
EHRA is Yours



Highlights 2021



Our mission:

“Improving the quality of life and reducing sudden cardiac death by limiting the impact of heart rhythm disturbances.”

Over 6,500 healthcare professionals
participated in our webinars

Over 4,150 EHRA Members
Record membership

3,436 registrations
EHRA 2021 Online Congress
119 sessions

58 centres from 15 countries
participate in the EP Insight Programme

33 educational events
(courses, webinars and exams)

12 languages
are available on [Afibmatters.org](https://www.afibmatters.org)

4 EU-funded projects
with EHRA involvement

| EHRA Board 2020-2022

Executive Board Members

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Prof. Christophe Leclercq

FESC, FEHRA



Past-President

Prof. Hein Heidbuchel

FESC, FEHRA



President-Elect

Prof. Jose Luis Merino

FESC, FEHRA



Treasurer

Prof. Haran Burri

FEHRA



Secretary

Prof. Kristina Hermann Haugaa

FESC, FEHRA



Ex-Officio: Appointed Members, Working Group Representatives

Prof. Gerhard Hindricks

Editor-in-Chief of *EP Europace* Journal

FESC, FEHRA



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Rep. of the ESC Working Group on e-Cardiology

FESC



Prof. Michael Gatzoulis

Rep. of the ESC WG on Adult Congenital Heart Disease

FESC



Assoc. Prof. Carol Ann Remme

Rep. of the ESC Working Group on Cardiac Cellular Electrophysiology

FESC



Prof. Elijah Behr

Rep. of the European Cardiac Arrhythmia Genetic Group

FESC



| EHRA Board 2020-2022



CONGRESS PILLAR

Pillar Chairperson

& Congress Scientific Programme Committee Chairperson

Prof. Isabelle C. van Gelder
FESC, FEHRA



ADVOCACY PILLAR

Pillar Chairperson

& Digital Committee Chairperson

Dr. Emma Svennberg
FESC



EDUCATION PILLAR

Pillar Chairpersons

& Certification Committee Chairperson

Dr. Stylianos Tzeis
FEHRA



& Education Committee Chairperson

Prof. Jan Steffel
FESC, FEHRA



& Selection Committee Chairperson

Dr. Giovanni Luca Botto
FESC, FEHRA



mHealth, Health Economics and PROM Coordinator

Prof. Giuseppe Boriani
FESC, FEHRA



Patient Coordinator

Prof. Jean-Claude Deharo
FESC



e-Communication Committee Chairperson

Dr. David Duncker
FESC, FEHRA



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& Scientific Documents Committee Chairperson

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FEHRA



Scientific Initiatives Committee Chairperson

Assoc. Prof. Serge Boveda
FESC, FEHRA



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& International Affairs Coordinator

Prof. Helmut Pürerfellner
FESC



National Cardiac Societies Committee Chairperson

Assist. Prof. Sime Manola
FESC







Young EP Committee Chairperson

Dr. Kasia Malaczynska-Rajpold



Congress Pillar

 CONGRESS PILLAR	
 Pillar Chairperson	
& Congress Scientific Programme Committee Chairperson Prof. Isabelle C. van Gelder FESC, FEHRA	Congress Scientific Programme Committee Co-Chairperson Dr. Tom De Potter

EHRA congress is the annual highlight of the association. It is also the leading European EP conference, providing participants with the latest in science and education in the field of cardiac rhythm disorders.

Following the global COVID-19 crisis, we organised an online congress from 23 to 25 April 2021. International key opinion leaders contributed to this congress. We were honoured to have so many registrants from all over the world. Interestingly, **50% of the registrants were under 40 years old and 40% were female**. As expected the main channel was the most popular live broadcast channel during each of the three days of the congress. The average time delegates spent watching live content was 3:08 hours. There were a total of five channels available during 2.5 days.

Although it was a success, everybody is looking forward to an in-person congress in 2022.

Facts and Figures

-  **3,436** registrations
-  **119** sessions
-  **91** countries represented
-  **23** satellite symposia



EHRA 2021
ONLINE CONGRESS

23-25 APRIL

In conjunction with the 45th annual meeting of the ESC Working Group on Cardiac Cellular Electrophysiology

#EHRA2021

EHRA European Heart Rhythm Association



EHRA 2022
3-5 April | Copenhagen & Online

EHRA 2022
3-5 April

Back to the rhythm
Join us in Copenhagen or online from wherever you are in the world



EHRA 2021 featured six joint sessions with sister societies

Society	Topic	Session title	Chairs	Faculty
APHRS	Device therapy	How to optimise device programming: getting the best for your bucks	C. Leclercq T. Ngarmukos	W. Hua C.P. Lau A. Sultan Z. Whinett
CASSA	OAC	ESC Guidelines AF 2020, focus on oral anticoagulation (OAC)	A. Chin J.L. Merino	K. Govender P. Kirchhof J. Moses T. Potpora
CSPE	Syncope and bradycardia: treatment	Physiological pacing: current and future directions	C. Leclercq S. Zhang	W. Hua W. Huang C. Israel S.M.A. Sohaib
HRS	Digital health Hospital information systems, electronic medical records, clinical decision support	Digital EP New ways to le@rn - training in a new world	C. Albert E. Svennberg	J. Ector A. Goette K. Patton G. Van Hare
JHRS	Arrhythmias and device therapy: treatment	Inherited cardiomyopathies - what's new?	H. Heidbuchel W. Shimizu	E. Behr A.P. Maggioni H. Morita S. Ono
LAHRS	General arrhythmias?: invasive diagnostic methods	Pacing manoeuvres to sort out the tachycardia mechanism	M. Figueiredo H. Pürerfellner	MS. Abello J.L. Merino S. Nava Townsend P. Sommer

Education Pillar



EDUCATION PILLAR



Pillar Chairpersons

& Certification Committee Chairperson

Dr. Stylianos Tzeis
FEHRA



& Education Committee Chairperson

Prof. Jan Steffel
FESC, FEHRA



& Selection Committee Chairperson

Dr. Giovanni Luca Botto
FESC, FEHRA



With high-quality educational courses and webinars year-round, as well as certification and professional training, education remains the most attractive benefit of being an EHRA Member. EHRA is very active in maintaining a strong connection within the community and adapted the two EHRA courses to a hybrid format. As certification is a key mission for EHRA, the exams were also held online.



E-learning platform

with a **CP** (20 courses and 6 case presentations) and **EP track** (28 courses)



A key reference library

with access to 400 references



17 webinars



5 certification exams

for **EP**, **CP** and allied professionals



Over 400 congress educational grants



33 EHRA Recognised Training Centres (ERTC)

ESC e-Learning Platform

Coming soon: a new more intuitive e-learning platform !

The platform delivers a series of training modules and coordinates cardiovascular training for the various subspecialties.

EHRA Key Reference Library

The Key Reference Library is based on EHRA Core Curriculum for the heart rhythm specialist and provides a guide for both electrophysiologists in training, those who plan to sit the EHRA Certification Exams, as well as experienced specialists wanting to update their knowledge. It includes more than **400 references** from all fields of invasive electrophysiology and cardiac devices.

The Key Reference Library is a dynamic online document that EHRA Members may suggest correcting, adding or replacing references and/or descriptions.

Education Pillar

EHRA Educational Courses

Every year, EHRA designs and provides the latest educational training programmes to help maintain professional excellence among cardiologists specialising in pacing and arrhythmias. EHRA delivered two online and two hybrid courses.

Date	Topic	Location	Course Director	Attendees
May	EHRA Interventional EP and Examination Preparatory Course (EPC)	Online	M. Earley M. Hemels	112
June	EHRA Course on Cardiac Pacing, ICD and Cardiac Resynchronisation	Online	J.C. Nielsen C. Steinwender	254
Oct.	EHRA Course on Advanced EP, with Focus on AF Ablation	Vienna and Online	T. De Potter L. Mont	74
Nov.	EHRA Course on Advanced EP, with Focus on VT Ablation	Nice and Online	T. Deneke M. Saba	59

EHRA Educational Slides

The EHRA Educational Slides programme allows local representatives from EP National Cardiac Societies / EP Working Groups to benefit from EHRA courses' slides to organise local courses in their language. This initiative was developed in response to the travel and language barriers that could arise when attending the EHRA educational courses which are conducted in English only.

In 2021, three local courses took place.

Date	Topic	Location	Course Director	Attendees
April	EHRA educational slides for the EHRA Cardiac Pacing, ICD and CRT course (Translated to Turkish)	Online	J. Steffel	793
May	EHRA educational slides for the EHRA Cardiac Pacing, ICD and CRT course (Translated to Greek)	Online	S. Tzeis	12
May	EHRA educational slides for the EHRA Interventional Electrophysiology and Examination Preparatory course in Turkish (Translated to Turkish)	Online	M. Glikson	530

EHRA Collaborative Courses

EHRA in Russia

EHRA has renewed its support to Russian colleagues through the 'EHRA in Russia' programme, which:

- Helps young EPs in Russia by providing them with tailored educational programmes;
- Increases EHRA Membership among Russian heart rhythm physicians and allied professionals interested in or involved in the field of EP and CP; and
- Co-develops two EP educational courses per year in Russian, in partnership with the Russian Society of Clinical Electrophysiology, Arrhythmology and Cardiac Pacing (RSSA).

Date	Topic	Location	Course Director	Attendees
March	New frontiers in diagnostics, prevention and treatment of cardiac arrhythmias	Online	M. Didenko C. Leclercq E. Pokushalov A. Romanov	54
Dec.	Implantable devices for the diagnosis and treatment of cardiac arrhythmias, heart failure and prevention of sudden cardiac death	Online & onsite	M. Didenko J. C. Nielsen A. Revishvili A. Romanov	71

EHRA in Kazakhstan

The second edition of the EHRA collaborative course in Kazakhstan took place online on 24-25 September, 2021.

This course, titled Cardiac arrhythmia management and cardiac electrophysiology for cardiologists was organised by the Kazakh Society of Arrhythmologists. It gathered 360 participants from 18 countries over two days.

EHRA faculty included Christophe Leclercq, Jose Luis Merino, Haran Burri and Laszlo Geller.

Webinars

EHRA organised a total of 17 webinars, as shown in the table below.

In line with its decision to focus on its community during the pandemic, EHRA provided broad access to most of its webinars. As a result, EHRA produced seven webinars exclusive to EHRA Members and 10 open-access webinars (available to all). Furthermore, EHRA delivers quarterly "Fundamentals in arrhythmias" webinars which are addressed to general cardiologists, cardiology fellows in training (young EHRA Members, Cardiologists of Tomorrow (COT)) and cardiologists wishing to update their scientific knowledge on the topic. One of these fundamental webinars was made accessible to all.

All webinar recordings are available [here](#).

Date	Topic	Presenter	Moderator	Attendees
Feb.	Ventricular tachycardia and sudden cardiac death substrates in dilated cardiomyopathy - relevance of etiology and genetics, targets and strategies for catheter ablation*	M. de Riva	J.L. Merino	198
March	His-Purkinje conduction system pacing for cardiac resynchronization therapy - are we ready?*	S. Richter	J. C. Nielsen	236
March	A holistic approach in AF patient care and stroke prevention	T. Potpara & G. Lip	J. Steffel	717
April	Assessing comorbidities in AF patients as "AF never comes alone"	J. de Groot & P. Rossing	C. Ruff	775
May	Management of AF patients undergoing PCI: Where are we now	R. Mehran & M. Sanmartin	D. Capodanno	664
June	Postoperative atrial fibrillation: risk factors, predictive scores and prevention*	B. O'Brien	M. La Meir	33
July	Primary electrical disorders: between ECG and genes*	M. Gollob & M. Ackerman	E. Schulze-Bahr	146
July	EHRA CONGRESS 2021 - Highlights	T. de Potter & J.L. Merino	G. Hindricks	428
Sept.	Rise of the machines: the role of artificial intelligence and machine learning in arrhythmia diagnosis and management*	S. Narayan	E. Svennberg	78
Sept.	Locations of ablation sites and important considerations for CIED therapy - FUNDAMENTAL	M. Didenko	S. Yen Ho	351
Oct.	Insights from the new EHRA practical guide on NOACs in atrial fibrillation*	G. Lip & J. Steffel	H. Heidbuchel	392
Oct.	Reducing inappropriate and unnecessary ICD shocks	A.Rao & C. Veltmann	G. Boriani	517
Oct.	Atrial fibrillation screening implementation - state of the art and future directions - A Horizon 2020 AFFECT-EU webinar*	R. Schnabel, G. Boriani & L. Neubeck	D. Linz	546
Nov.	Conduction system pacing: from His bundle to left bundle branch area pacing	O. Cano Perez & K. Vernooy	H. Burri	619
Nov.	How to improve patient compliance necessitating oral anticoagulation due to non-valvular atrial fibrillation?	I. C. van Gelder & C. Blomstrom-Lundqvist	D. Lane	333
Nov.	How to manage elderly patients with atrial fibrillation and multiple comorbidities?	A. Götte & R. P. Giugliano	G. Lip	450
Dec.	Current role of cardiovascular pharmacotherapy for arrhythmia management Which patients benefit from leadless pacemakers?*	G. A. Dan	E. Arbelo	93

* Exclusive access for EHRA Members.



STEEER-AF

Stroke prevention & rhythm control Therapy: Evaluation of an Educational programme of the European society of cardiology in an unblinded cluster-Randomised controlled trial in patients with Atrial Fibrillation (STEEER-AF) is a two-armed, parallel-design, international multicentre trial (3 phase project).

In 2014, EHRA, together with the ESC and the ESC Council on Stroke, performed a needs assessment (Phase 1 - completed) to understand the educational needs of cardiologists, neurologists and GPs/FPs in six countries in the following areas:

1. Current treatment and management of AF;
2. Utilisation of optimal stroke prevention strategies with AF patients; and
3. Other potential issues and barriers in the management of AF.

This study identified gaps in knowledge and skills of physicians as a major factor in poor adherence to guidelines.

This needs assessment supported the development of evidence-based educational interventions to be deployed in Germany, France, Italy, Spain, UK and Poland, including the design and the deployment of educational activities followed by CME certification with earning up to 11 points (Phase 2 - in progress).

A quantitative study to assess outcome using a pragmatic cluster-randomised trial will be conducted in those 6 ESC countries and will be led by investigators from those countries, with 10 to 12 sites per country (Phase 3 - in progress). The primary objective of the trial will be to determine whether a comprehensive education programme for healthcare professionals who treat patients with AF will improve guideline-adherent treatment for stroke prevention and rhythm control, compared with no structured education. (Note: the start has been delayed due to the current coronavirus pandemic.)

The study launch will be done on a country-by-country basis. Several sites were activated in France and in Germany and recruitment of patients started in December 2021. Educational intervention is planned to begin in 2022.

Certification

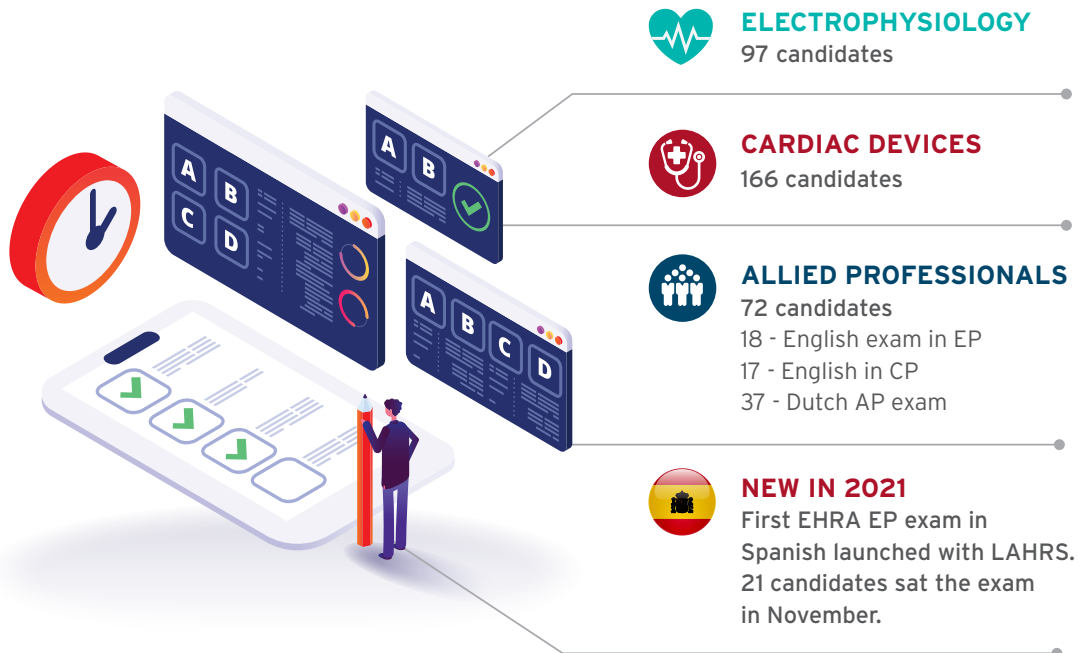
Designed to certify both practical experience and expertise in cardiac devices and electrophysiology, EHRA Certification was launched in 2005. In recent years, success rates have improved, which may in part be due to the exam preparatory courses organised by the EHRA Education Committee.

In 2021, for the second consecutive year, the online format allowed candidates to sit the EHRA certification exam using their own computer or tablet from their preferred location.

The exam consists of a rigorous test of knowledge with pass marks set by the standard-setting committee using validated statistical methods. EHRA certification process assesses the competence, knowledge and skills of physicians and allied professionals. Success in the exam provides a 10-year certification at level 1, but for physicians, an additional logbook is needed to achieve the full level 2 certification.



The proportion of candidates sitting the online exam in 2021



EHRA Recognised Training Centres (ERTC)
EHRA Certification Committee is also in charge of **EHRA Recognised Training Centres (ERTC)**, an initiative that encourages good educational practices by providing a quality label for training excellence and efficiency.

33 centres from 18 countries have gone through the selection process and are now enrolled in the programme.





| Education Pillar

Selection

EHRA Selection Committee continues to manage training fellowship activities which promote the development of academic medicine in the field of cardiac rhythm disorders.

EHRA Training Fellowship grants

EHRA Training Fellowships are offered to give physicians the opportunity to gain specialised training in clinical electrophysiology or cardiac pacing carried out in an ESC member country, preferably outside their home country.

Nine EHRA Training Fellowship grants were awarded to physicians from across Europe.

EHRA Congress Educational Grants

The Selection committee is committed to guaranteeing the access rule to EHRA Congress Grants. Over 400 Congress Educational grants were awarded for EHRA 2021 Online Congress.



<p>  ADVOCACY PILLAR  Pillar Chairperson & Digital Committee Chairperson Dr. Emma Svennberg FESC </p>	<p>  mHealth, Health Economics and PROM Coordinator Prof. Giuseppe Boriani FESC, FEHRA </p>	<p>  Patient Coordinator Prof. Jean-Claude Deharo FESC </p>
	<p>  e-Communication Committee Chairperson Dr. David Duncker FESC, FEHRA </p>	 

Horizon 2021: EU-Funded Projects

EHRA is involved in several EU-funded projects and is recognised as an important partner to disseminate the results within the cardiovascular community (practitioners, researchers and institutions) ensuring a large audience is aware of the latest and best practices to improve the patients' outcomes.

ESCAPE-NET (European Sudden Cardiac Arrest Prevention Education Network)

Together with large international scientific societies/associations and the European Resuscitation Council (ERC), EHRA is involved in disseminating and translating outcomes into European clinical practices to prevent sudden cardiac arrest and improve survival after such an event. The annual consortium meeting took place in Amsterdam on 26 & 27 October 2021.



PROFID

The PROFID project officially started on January 2020 and is working on developing a clinical decision support tool (risk score) to predict the risk of sudden cardiac death (SCD) and identify those post-MI patients who will optimally benefit from an implantable cardioverter-defibrillator (ICD).

As of the beginning of the project, the consortium has been working towards the development and validation of a clinical prediction model (CPM) for predicting the risk of SCD corrected for the competing risk of dying from any other cause, by considering 23 datasets from Europe, Israel and the US, containing data of approximately 225,000 patients. The main results will be used to build and validate a CPM using state-of-the-art methods, the results of which will be used to select the final PROFID risk model.

A personalised strategy for ICD implantation with application of the CPM will be compared with current clinical practice in two international randomised clinical trials. PROFID-Reduced (NCT04540354) and PROFID-Preserved (NCT04540289) have been registered at ClinicalTrials.gov. More than 500 hospitals in 12 countries across Europe have been classified as potentially eligible for study participation and opinion-leader physicians have been nominated in these countries.

Patient information sheets and informed consent forms were created and intensively reviewed by two major patient organisations in Europe.

The focus was on developing a conceptual cost-effectiveness model structure, in preparation for development of health economics analysis plans, and the evaluation of health technology assessment methods in the PROFID partner countries and their potential impact on the reimbursement decisions for personalised medicine approaches.

A guidance document for researchers regarding the ethical issues related to the PROFID trials with links to the most relevant parts of the Helsinki Declaration was produced. It raises novel ethical issues, related to the PROFID-trials that will likely impact assessments by ethics committees. A paper has been submitted on the relationship between explainability and trust in the use of artificial intelligence (AI) in potentially life-threatening diseases. Furthermore, an internal report on ethical issues related to the use of AI in medicine was produced.



These projects have received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreements No. 733381, No. 847999, No. 847770 and No. 945260.

AFFECT-EU

The project involves 14 EU countries. Its major goal is to develop an accurate, risk-based and ready-for-implementation AF screening algorithm using digital devices for early detection and reduction of AF-related health inequities, morbidity and mortality in Europe.

The work has been kicked off with the review of the published data on AF screening.

By summer 2021, available data from 10 partner studies had been prepared for data sharing, and a database has been assembled to receive the data. In general, the merged AFFECT-EU database will have baseline data from electrocardiography (ECG), basic demography (age and sex), and medical history, as well as outcomes of AF detection and anticoagulation on all screenees. Further baseline risk factors such as smoking, alcohol consumption, vital signs and drug prescriptions, and stroke outcomes will be available for most screenees. A subset will have additional data such as blood tests, socioeconomic status and more.

The data from three of five cohorts have been received and are being harmonised into the database. Manuscripts on the association between alcohol consumption and incident AF, as well as the relationship between conventional AF risk factors and AF in different age groups have been published.

A list of ongoing (11 studies) and upcoming screening trials (11 studies) were collated and maintained for use beyond the project duration. A detailed plan for a patient-level meta-analysis has indicated a required size of >120,000 individuals, with 60,000 per arm to yield sufficient statistical power (80%) to determine if AF screening prevents stroke. In advance of the publication of the primary trial outcomes, partners have conducted a formal systematic review to identify all available studies in a report submitted to the European Commission services.

In a comprehensive and systematic review of economic evaluation literature of AF screening, evidence has suggested that in principle AF screening is cost-effective regardless of strategy and method.

In order to increase visibility and disseminate study progress across Europe and beyond, Facebook, Twitter and LinkedIn accounts have been established by the ESC. A project website has been set up to inform interested visitors about project progress in a structured manner.

EHRA-PATHS

The EHRA/ ESC is the coordinator on this project, which addresses multimorbidity in elderly AF patients through interdisciplinary, patient-centred, systematic care pathways. This project aims to transform and improve clinical practice in the field of AF to embrace holistic, inclusive and personalised treatment strategies. The project started in April 2021.



During the initial phase of the project, the consortium has completed the following activities:

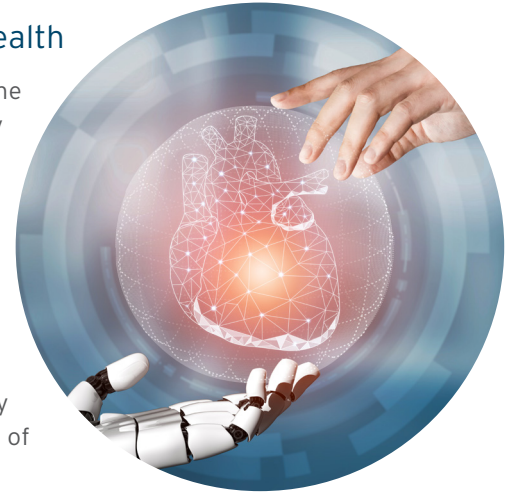
- A statistical analysis plan, which will be submitted as a report, including analyses of 1) comorbidities, including time-trends; 2) polypharmacy; and 3) demographic aspects, including time-trends.
- The data management plan has been compiled and is in line with regulatory requirements, medical and scientific claims, and methodological necessities, and will be submitted.
- Communication and dissemination channels (Twitter and project website) have been launched, and the first newsletter has been circulated.
- Within work package 2 on current practice on assessing, diagnosing and managing AF-associated comorbidities, a survey has been created, which will explore current clinical practice with regard to comorbidities in older patients.



These projects have received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreements No. 733381, No. 847999, No. 847770 and No. 945260.

During 2021, EHRA has made a vast commitment to digital health

"Telemedicine and the use of digital devices for follow-up has been brought to the forefront during the COVID-19 pandemic and EHRA has adapted accordingly by creating a new digital committee. Surveys of electrophysiologists in Europe identified focus areas for the digital committee; to meet some of the demands the current focus is on bringing practical digital examples of implementation to our members. During EHRA 2021 the digital committee played an active role by providing several digital sessions, and during the ESC Digital Summit 2021 presented a session titled, Atrial fibrillation during the digital EHRA. A webinar titled, Rise of the machines: the role of artificial intelligence and machine learning in arrhythmia diagnosis and management was recently developed to provide an update on the role of artificial intelligence in the field of electrophysiology.



In addition, several key documents on m-Health and the role of wearables have been produced in collaboration with the ESC working group on e-cardiology and with our sister societies.

The digital committee is currently working on a practical guide on how to use digital devices, which is set to launch during EHRA 2022.

One key goal for the digital committee is the engagement of patients in digital health, actively collaborating with patients in creating the updated afibmatters.org website. In the practical guide on digital devices the role of patients will be highlighted, and a patient representative is an essential part of the writing group."

Dr. Emma Svennberg, EHRA Digital Committee Chair

Patient Initiatives

afibmatters.org

What's new?

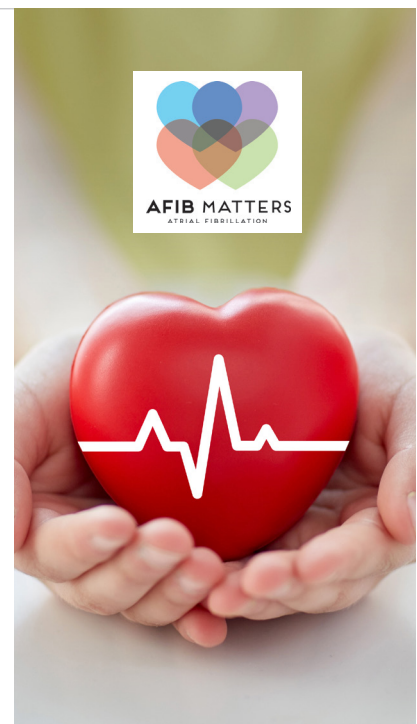
- Useful tools such as patient checklists
- Video testimonials
- New version in 2021: Arabic
now afibmatters.org is available in 12 languages



In 2021, new users increased by 28,7% compared to the previous year and page views by 23,4%.

"As a patient, I see educational websites as a companion on my journey. Especially in the beginning, they help me to better understand my condition and treatment options and to prepare for consultations. But I also go back later, often after consultations, to look up explanations for medical terms mentioned in my report, or when there is a new decision to take about the next steps in my treatment. Information provided on these websites empower me to play a more active role in my care."

- Inga



myrhythmdevice.org

Coming soon!

A new dedicated resource, created together with healthcare professionals and patients, for patients with cardiac devices and future recipients as well as their caregivers.

Women in EP

From September 2020, the Women in EP activities have been integrated into EHRA Young EP Committee.

e-Communication

EHRA continues to increase its presence on social media through its Presidential account on Twitter which now gathers more than 1,800 followers @EHRAPresident. Make sure you follow the trend and keep up to date with the latest news from your association. '#EHRA_ESC'. Stay in contact with your community.

To develop EHRA's relationship with members of its community, the committee has developed a 'Stay in contact page'.

The e-Communication committee also actively contributes to many EHRA projects lead by other committees: patient websites, scientific surveys, etc. The committee recently published a paper titled: "Twitter for professional use in electrophysiology: practical guide for #EPeep".




EHRA Cardio Talk
"Keep the rhythm"

NEW!

The monthly podcast series feature key opinion leaders in EP and cardiac pacing tackling topics about EHRA papers, interviews with experts, and education.

The series launched with the first three editions at the end of 2021.

NOAC practical guide
Guest: Jan Steffel
Host: David Duncker

Screening for AF
Guest: Emma Svenneberg
Host: David Duncker

Esophageal complications related to AF ablation
Guest: Thomas Deneke
Host: David Duncker





Research Pillar

 RESEARCH PILLAR  Pillar Chairperson & Scientific Documents Committee Chairperson Dr. Nikolaos Dargès FEHRA	 Scientific Initiatives Committee Chairperson Assoc. Prof. Serge Boveda FESC, FEHRA
	

Scientific Documents

The committee facilitates, develops and publishes Scientific Documents that address fields of high relevance for clinical practice. Most are developed in close cooperation with our international sister societies. The focus is on practical guides that provide advice to clinicians in areas that are not covered in detail by current guidelines. EHRA scientific documents are published in *EP Europace* journal. Recent examples include:

- EHRA expert consensus statement on optimal implantation technique for conventional pacemakers and implantable cardioverter defibrillators
- 2021 European Heart Rhythm Association Practical Guide on the Use of Non-Vitamin K Antagonist Oral Anticoagulants in Patients with Atrial Fibrillation
- EHRA and ESC Working Group on e-Cardiology consensus paper: Critical appraisal of technologies to assess electrical activity during atrial fibrillation
- EHRA review article: Management of anticoagulation therapy for stroke prevention in atrial fibrillation patients with diabetes mellitus



In 2021
EHRA Key
messages were
downloaded by
users from **58**
countries

EHRA Key Messages App

Free app containing the main messages and highlights of published scientific documents in concise and accessible formats.

Ranked as
one of the best
electrophysiology
journals in the world,
EP Europace's
Impact Factor is
5.214 in 2020!



EP Europace

Official journal of EHRA, the ESC Working Groups on Cardiac Cellular Electrophysiology and e-Cardiology



Research Pillar

Scientific Initiatives

The Scientific Initiatives Committee (SIC) undertakes research providing a picture of daily EP practice and insight into how consistently arrhythmia treatment is applied across ESC member countries.

In order to improve the efficiency and scientific value of research initiatives at the European level, the SIC has set a strategic plan for 2020-2022 which mainly focuses on:

- 1 Primary prevention of sudden cardiac death SCD;
- 2 AF management; and
- 3 Health economics and communication: arrhythmia management during the COVID-19 era.

The SIC can count on the collaboration of more than **190 EP centres** that form the EHRA Scientific Research Network.

2021 publications

- The use of social media for professional purposes by healthcare professionals: the #intEHRAct survey (October 2021)
- The use of remote monitoring of cardiac implantable devices during the COVID-19 pandemic: an EHRA physician survey (August 2021)
- Investigation on Sudden Unexpected Death in the Young (SUDY) in Europe: results of the EHRA Survey (August 2021)
- Worldwide sedation strategies for atrial fibrillation ablation: current status and evolution over the last decade (July 2021)
- Antithrombotic treatment management in low stroke risk patients undergoing cardioversion of atrial fibrillation <48 h duration: results of an EHRA survey (May 2021)
- Current perspectives on wearable rhythm recordings for clinical decision-making: the wEHRables 2 survey (April 2021)
- Use and misuse of instant messaging in clinical data sharing: the EHRA-SMS survey (March 2021)
- Antithrombotic therapy for stroke prevention in patients with atrial fibrillation who survive an intracerebral haemorrhage: results of an EHRA survey (January 2021)
- All survey results are published in *EP Europace* and on EHRA/ESC website





Research Pillar

Registries and Trials

EHRA is represented within the European Observational Research Programme (EORP) for a number of important registries. These registries enable a timely assessment of the ESC Clinical Practice Guidelines, monitoring their implementation and adherence. EHRA and EORP collaborate on the two following registries:

- **Atrial Fibrillation Phase III** was launched in July 2018 in adherence to the new ESC Atrial Fibrillation Guidelines published in 2016. Enrolment has been completed and patients are in the follow-up period. Some 228 sites from 31 countries enrolled 8,683 patients. The statistical report was delivered in December 2019 and the publication is now in process. New atrial fibrillation guidelines were published in 2020 including results of the AF III Registry. Lastly, the final database lock is scheduled for Q1 2022.
- **The Epicardial Hybrid Atrial Fibrillation Ablation Registry (EHAFAR)** describes the diagnostic and therapeutic approaches used in routine practice when performing epicardial hybrid atrial fibrillation ablation (EHAF) procedures. The database was locked and forwarded to the coordinators in January 2020. Analyses are still in progress.



ATRIAL FIBRILLATION
NETWORK

EAST-AFNET 4 Trial

The EAST (Early treatment of Atrial fibrillation for Stroke prevention) - AFNET 4 Trial has been completed! After more than a decade of successful team work (design published in 2013, 1), we reported the main results at ESC Congress 2020 - The Digital Experience and published simultaneously in the *New England Journal of Medicine* (2). Following the publication of the main paper, the steering committee led subanalyses that were presented as clinical science hot lines at EHRA 2021, Heart Rhythm Society 2021, ESC Congress 2021, and at the American Heart Association 2021. Further analyses are ongoing. The first three subanalyses were published in *EP Europace*, *Circulation*, and *European Heart Journal*. Further subanalyses are ongoing.

The subanalyses further underpin the main finding of EAST - AFNET 4: Patients with newly diagnosed atrial fibrillation have lower rates of cardiovascular death, stroke, or hospitalisation for heart failure or acute coronary syndrome when treated with systematic, early rhythm control therapy using antiarrhythmic drugs and/or AF ablation compared to usual care.

The EAST - AFNET 4 results are already changing the way rhythm control is viewed and used. The main paper was cited over 250 times, and the subanalyses attracted much attention at the different congresses throughout the year. The results were also discussed in detail during the 8th AFNET/EHRA consensus conference in October 2021.

The success of the trial is the outcome of an exceptional collaboration between EHRA and AFNET, involving the investigators and their teams at the 135 study sites in 11 countries, the study management teams and the funding partner of AFNET and EHRA who enabled the trial.

| Membership Pillar



MEMBERSHIP PILLAR



Pillar Chairperson

& International Affairs Coordinator

Prof. Helmut Pürerfellner
FESC



National Cardiac Societies Committee Chairperson

Assist. Prof. Sime Manola
FESC



Young EP Committee Chairperson

Dr. Kasia Malaczynska-Rajpold



National Cardiac Societies

The National Cardiac Societies Committee's activities are driven by three main objectives:

Strengthen relations between EHRA and EP National Cardiac Societies (NCS)/ Working Groups (WG) as well as monitor their expectations to facilitate collaboration

Encourage individual members to join EHRA and become more involved in the association

Implement actions and procedures which lead to better networking, such as the traditional EHRA Summit, and joint sessions on EPNCS/WG events

EHRA Summit

The event was held virtually on 17 June 2021. More than 40 EP NCS and EP WG representatives from 35 countries participated in this second online edition. The programme tackled 'New normality' for EHRA after the COVID-19 pandemic: What will change, what will remain?

Improving Collaboration with Our Partners

- **EP Working Group of the moment**
This initiative showcases a new EP NCS or EP WG of the EHRA network quarterly. It highlights the efforts and activities these partner organisations are undertaking and promotes the interaction between the various EP NCS/WG and EHRA.
Countries showcased in 2021: Norway, Italy, Poland and Tunisia.



| Membership Pillar

- **EHRA Joint Sessions**

Date	Local Organiser	Event	Topic of joint session	Faculty	Attendance
21 Feb.	Associação Portuguesa de Arritmologia, Pacing e Eletrofisiologia (APAPE) & Instituto Português do Ritmo Cardíaco (IPRC)	ARRITMIAS 2021 Online	Arrhythmology practice in the era post COVID-pandemic	Chairpersons: C. Leclercq, L. Parreira Speakers: N. Cabanelas, P. Cunha, A. Kostopoulos, I. R. Luque	430
17 Apr.	Croatian Working Group on Arrhythmias and Cardiac Pacing	CRORHYTHM 2021 Online	Atrial Fibrillation	Chairpersons: Radeljić, Bernat, Puljević Speakers: A. Anic, R. Bernat, C. Leclercq, S. Manola, N. Pavlovic	125
21 May	Russian Society of Clinical Electrophysiology, Arrhythmology and Cardiac Pacing (RSSA)	9th All-Russian Congress of Arrhythmology Hybrid	Diagnosis and interventional treatment of atrial fibrillation and left atrial tachyarrhythmias Young EP Joint session	Chairpersons: J. Kosiuk, E. Mikhailov Speakers: B. Antolic, M. Gorev, M. Nesti, S. Garkina	-
18 Jun.	Polish Heart Rhythm Society	e-POLSTIM Online	Atrial fibrillation ablation AD 2021	Chairpersons: S. Boveda, M. M. Farkowski, J. L. Merino, Ł. Szumowski Speakers: A. Glowniak, S. Boveda, P. Buchta, J. L. Merino	111
16 Sept.	Italian Arrhythmology and Cardiac Stimulation Association (AIAC)	AIAC Bologna, Italy	Interventional EP in 2021 and beyond	Chairpersons: C. Leclercq, A. D'Onofrio Speakers: G. Boriani, R. De Ponti, C. Leclercq, H. Burri, G. Hindricks, L. Vitali-Serdoz, P. Palmisano, M. Nesti, L. Santini, F. Guerra	250
23 Sept.	Working Group on Arrhythmias and Cardiac Pacing of Hungarian Society of Cardiology	Hungarian National Arrhythmia Congress Eger, Hungary	EHRA Joint Session	Chairpersons: L. Gellér, E. Zima, A. Anic Speakers: V. Traykov, L. Sághy, G. Duray	190
2 Oct.	Working Group on Arrhythmias of the Tunisian Society of Cardiology	National Congress of the STCCCV 2021 Hammamet, Tunisia	Sudden cardiac death	Chairpersons: C. Leclercq, Y. Ben Ameer Speakers: S. Chabrak, X. Jouven, S. Oulai, J-C. Deharo	145

| Membership Pillar

Date	Local Organiser	Event	Topic of joint session	Faculty	Attendance
15 Oct.	Working Group on Cardiac Pacing and Electrophysiology of the Slovenian Society of Cardiology	Annual Congress of the Slovenian Society of Cardiology Ljubljana, Slovenia	Atrial fibrillation	Chairpersons: A. Pernat (Slovenia), S.Tzeis (Greece) Speakers: F. Naji, S. Manola, N. Pavlovic, S. Tzeis, B. Antolič	53
21 Oct.	Belgium Heart Rhythm Association (BeHRA)	15th Belgium Heart Rhythm Meeting (BHRM) Brussels, Belgium	Specific Pacing tools and algorithms	Chairpersons: I. Blankoff, L. Timmers Speakers: H. Burri, C. Leclercq, C. Israel, H. Heibuchel	166
30 Oct.	Bulgarian Association of Cardiac Stimulation & Electrophysiology	6th National Congress of Bulgarian Arrhythmia Society	EHRA Joint Session	Chairperson: V. Traykov Speakers: C. Leclercq, V. Traykov, S. Manola, V. Velchev	250
17 Dec.	Turkey	Turkish Society of Cardiology, Arrhythmia Meeting	New options for lesion creating in atrial fibrillation ablation	Chairpersons: D. F. Bayrak, J. Kosiuk Speakers: E. E. Özcan, J. Kosiuk, B. Akdemir, Z. Sallo	167

International Affairs

EHRA International Affairs Coordinator helps to develop the association's international relationships by strengthening EHRA's collaboration with its sister societies. Leadership meetings are regularly organised on topics of mutual interest including scientific documents, education and joint sessions during congresses.

These sister societies included Asia Pacific Heart Rhythm Society (APHRS), Latin American Heart Rhythm Society (LAHRS), Heart Rhythm Society (HRS)

Joint sessions at sister societies' congresses

EHRA participated in joint sessions at several sister and affiliated societies' congresses as well as other international events.

Date	Local Organiser	Event	Topic of joint session	Faculty
July 2021	JHRS Japanese Heart Rhythm Society	JHRS 2021 Online	JHRS-EHRA joint session: Beyond Pvi non Pv foci ablation	M. Haïssaguerre K. Kitamura C. Leclercq B. Schmidt S. Yamashita
July 2021	HRS Heart Rhythm Society	Heart Rhythm 2021 Online	HRS-CHRS-EHRA joint session: Recent advances in CA of AF: do we now have all the answers?	J. G. Andrade P. Jais L. Macle J. L. Merino H. Pürerfellner A. Verma
July 2021	HRS Heart Rhythm Society	Heart Rhythm 2021 Online	HRS-EHRA joint session: VT functional substrate mapping	E. Anter C. Leclercq A. Porta-Sanchez K. Zeppenfeld

 | Membership Pillar

Date	Local Organiser	Event	Topic of joint session	Faculty
Sep 2021	CHRS Canadian Heart Rhythm Society	CHRS Annual Meeting Online	CHRS-EHRA-HRS joint session	H. Heidbuchel J. Joza A. D. Krahn L. Macle B. Mondésert L. D. Sterns
Oct 2021	GW-ICC (Great Wall - International Congress of Cardiology) / Asian Heart Society	32nd GW-ICC 2021 Asian Heart Society Congress 2021 Online	Recent developments in catheter ablation of atrial fibrillation(AF)	L. Boersma T. De Potter Q. Liu X. Liu H. Puererfellner W. Wei
Oct 2021	GW-ICC (Great Wall - International Congress of Cardiology) / Asian Heart Society	32nd GW-ICC 2021 Asian Heart Society Congress 2021 Online	Cardiac pacing - State of the art	H. Burri Y. Dong Q. Fang W. Huang J. C. Nielsen
Nov 2021	APHRs Asian Pacific Heart Rhythm Society	APHRs 2021 Suzhou, China	APHRs-EHRA joint session: screening and monitoring of atrial fibrillation	G. Boriani N. Y. Chan M. Chen M. Chen B. Freedman C. Leclercq F. Ouyang
Nov 2021	LAHRs Latin American Heart Rhythm Society	LAHRs 2021 Online	LAHRs-EHRA joint session: New ESC pacing guidelines 2021: what's new?	H. Burri J-C. Deharo C. Leclercq Y. Michowitz J. C. Nielsen
Nov 2021	Ecuadorian Society of Cardiology	Nucleus of Guayas 57 Jornadas de la Sociedad Ecuatoriana de Cardiología Nucleo del Guayas, 1er Congreso Internacional de Insuficiencia Cardíaca Online	Ecuadorian Society of Cardiology - Guayas Nucleus and EHRA joint presentation: Chapter on electrophysiology and arrhythmias	J. L. Merino
Dec 2021	WSA World Society of Arrhythmias	WSA 2021 Meeting Online	Electrophysiology Practice Webinar - Update 2022: WSA-EHRA Joint session	J. Bunch J. Kalman T. Potparra R. Schnabel
Dec 2021	IHRs Indian Heart Rhythm Society	Digital IHRs 2021 Online	IHRs-EHRA Joint session	M. Cowie M. Khalilullah C. Leclercq D. Padmanabhan U. Pandurangi E. Svennberg



Membership Pillar

EHRA Young Electrophysiologists (Young EP)

ECG competition

New initiative with **10 best ECG readers** competing in the finals held during the online EHRA Congress in April 2021. The session was attended by over **250 online participants**. A second edition is planned for EHRA 2022 in Copenhagen.

Young EP network

The network currently has over **300 members** (following the first clean-up of the database since the Young EP group was formed). The main channel of communication is our monthly newsletter, **Young EP News**, which is delivered to all the members. We are also very active on Facebook, Twitter and LinkedIn.

EHRA Young Summit

59 Young EP from 25 countries attended the 2nd online edition held online on 16 June 2021.

Career development

Re-launch of the **EP Insight Programme with a network of 55 participating centres from 13 countries**.

EHRA speed mentoring: 12 mentors and 13 mentees participated in 6 online sessions held in April 2021 following the EHRA Online Congress.

EHRA Young EP panelists list gives visibility to Young EP members during EHRA annual congress, providing them with the opportunity to participate in the Congress Scientific Programme.



Fellowship

Recognising excellence through the Fellowship of EHRA

Annual call for applications

1 August - 15 October

Membership record in 2021 with more than 4,150 members!

EHRA membership is tailored to fit the EHRA members' needs, with a special offer for young professionals

EHRA Silver Membership can be combined with ESC Professional Membership or another Subspecialty Association Silver Membership.
More information: www.escardio.org/EHRA-membership

Benefits

- EP Europace Journal print copy
- EP Europace Journal online access
- Discount on EHRA congress and educational courses
- Unlimited access to EHRA congress resources on ESC 365, monthly webinars and ESC e-Learning platform
- Access to EHRA grants, fellowships and training programmes
- Discount on EHRA books, ESC textbooks & handbooks, and OUP publications
- Voting rights*
- Access to EHRA Member Directory

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