

Roadmap for implementation of digital health for the European Society of Cardiology

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Declaration of Interests

- Research grants administered by Imperial College London from Bayer, Boston Scientific, Abbott, and ResMed
- Consultancy and speaker fees from AstraZeneca, Servier, Novartis, Pfizer, Bayer, Medtronic, Boston Scientific, Abbott, Bristol Myers Squibb, Amgen, MSD.
- Non-Executive Director of NICE (2016-2020)
- **Chair, Digital Health Committee of the European Society of Cardiology**
- Chief Physician-Scientist (Heart Failure) for AstraZeneca



What is the European Society of Cardiology?

- An independent, non-profit organisation of healthcare professionals who volunteer their time and expertise
- Represents >95,000 men and women in the field of cardiology from Europe, the Mediterranean Basin and beyond.



The ESC Community

The ESC is a global organisation that caters for all cardiovascular specialists.

Our diversity is our strength

100,000

scientists, clinicians,
nurses & allied
professions

57

**National Cardiac
Societies**

from Europe and the
Mediterranean basin

47

**Affiliated Cardiac
Societies**

from around
the globe

29

**Subspecialty
Communities**





The ESC's role in fighting cardiovascular disease

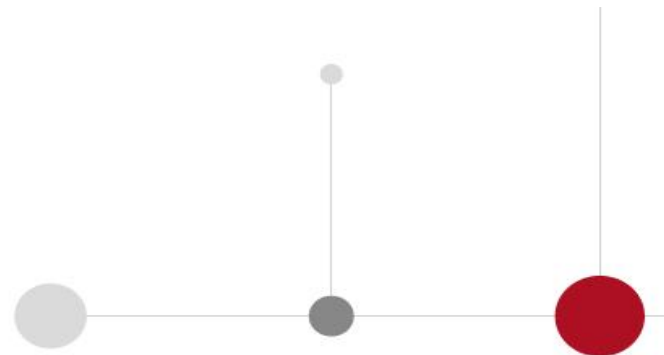
The ESC acts in the interests of patients by providing cardiologists with the support and tools they need to deliver the best possible care. This not only means saving lives, but ensuring a good quality of life for the growing number of people living with cardiovascular disease.

The ESC does this by:

- 
- Disseminating evidence-based, scientific knowledge through **15 scientific journals, numerous books** and the world's leading cardiovascular congress.
 - Harmonising standards of care through their internationally respected **ESC Clinical Practice Guidelines**.
 - Shaping heart health policy and regulation by fostering partnerships and providing scientific expertise and independent data.
 - Providing a wealth of ESC scientific content, easily accessible on the ESC website, used by some 400,000 visitors each month.



Supporting our members



Improving members' access to the latest science, best practices and networking

The ESC is a member organisation. Cardiologists and other healthcare professionals join the ESC and its subspecialty communities, to be part of a society that **represents their interests** within the health sector and gives them opportunities to **network**, access the **latest science** and use a broad array of services that support their ongoing **professional development**.

Healthcare professionals can choose 'ESC Professional Membership', ESC subspecialty memberships, or a combination of any memberships of their choice.

What we do

Leading congresses

Broad global reach and cutting-edge scientific programmes that change the way clinicians practice medicine

The ESC organises and co-organises **14 cardiology congresses**.

Its award-winning flagship event, ESC Congress, is the **largest and most influential cardiovascular assembly in the world**, attracting more than 32,000 participants from some 150 countries each year. It is the pivotal event in the cardiology calendar, allowing healthcare professionals to keep up to date on the latest science while networking with their peers from different countries.



What we do

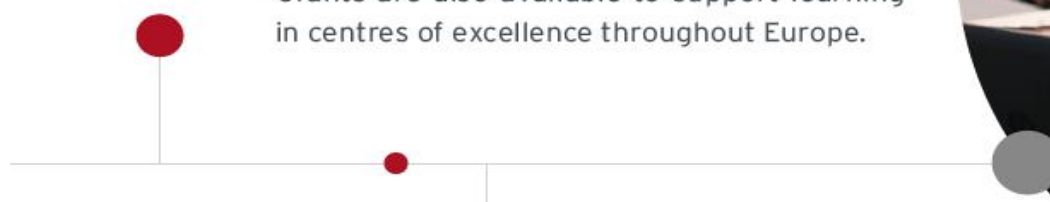
Needs-driven education

Robust and independent education, built on a strong, evidence-based foundation

The ESC delivers a broad portfolio of independent education initiatives. It is leading a revolution in medical education by producing impactful, **needs-driven programmes**; analysing cardiology trends and surveying healthcare professionals on what they believe is preventing or promoting best patient outcomes.

ESC Education includes online learning (webinars, online courses with MCQs, clinical case portal...), face-to-face courses, including postgraduate programmes in collaboration with world-renowned universities and certification.

Grants are also available to support learning in centres of excellence throughout Europe.



What we do

Robust research

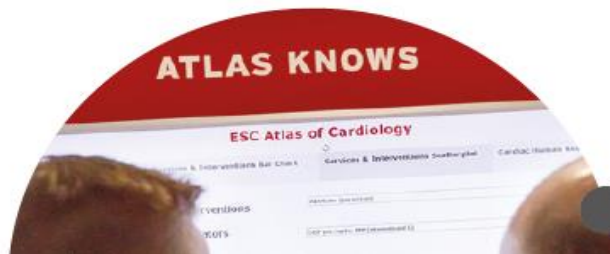
Unbiased, real-life data that illustrate what is happening in cardiology today

The ESC's key aims in this area include incubation, innovation, and management of world-class cardiovascular-related research programmes. It conducts research, drawing on expertise from ESC institutional members and international networks, including **21 Registries**, involving **150,000 patients** across **89 countries**.*

The 'ESC Atlas of Cardiology' collates data from more than 40 healthcare realities. It highlights the gaps and inequalities in cardiovascular medicine today and is an invaluable tool in the ESC's Advocacy programme.

The ESC is also a consortium partner in numerous EU funded research projects and provides grants to individuals to support excellence in research.

*As of July 2019



What we do

Advocating for heart health

Beyond science: Shaping an environment favourable to cardiovascular health

ESC Advocacy leverages the knowledge, network and influence of the cardiology profession to promote policy, regulation and research funding that advance cardiovascular science, support high quality healthcare, and encourage evidence-based decision making.

For all other information please contact:

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“There is a new and rapidly changing healthcare landscape, where digital technologies are becoming increasingly *normalized into the everyday delivery of healthcare.*”



Source: KPMG International

Digital health: heaven or hell? KPMG

Available at: <https://assets.kpmg.com/content/dam/kpmg/pdf/2016/03/digital-health-heaven-hell.pdf>



European Heart Journal
doi:10.1093/eurheartj/ehv416

EHJ POSITION STATEMENT

Eur Heart J 2016; 37: 63–6

e-Health: a position statement of the European Society of Cardiology

Martin R. Cowie^{1*}, Jeroen Bax², Nico Bruining³, John G. F. Cleland⁴, Friedrich Koehler⁵, Marek Malik⁶, Fausto Pinto⁷, Enno van der Velde⁸, and Panos Vardas⁹

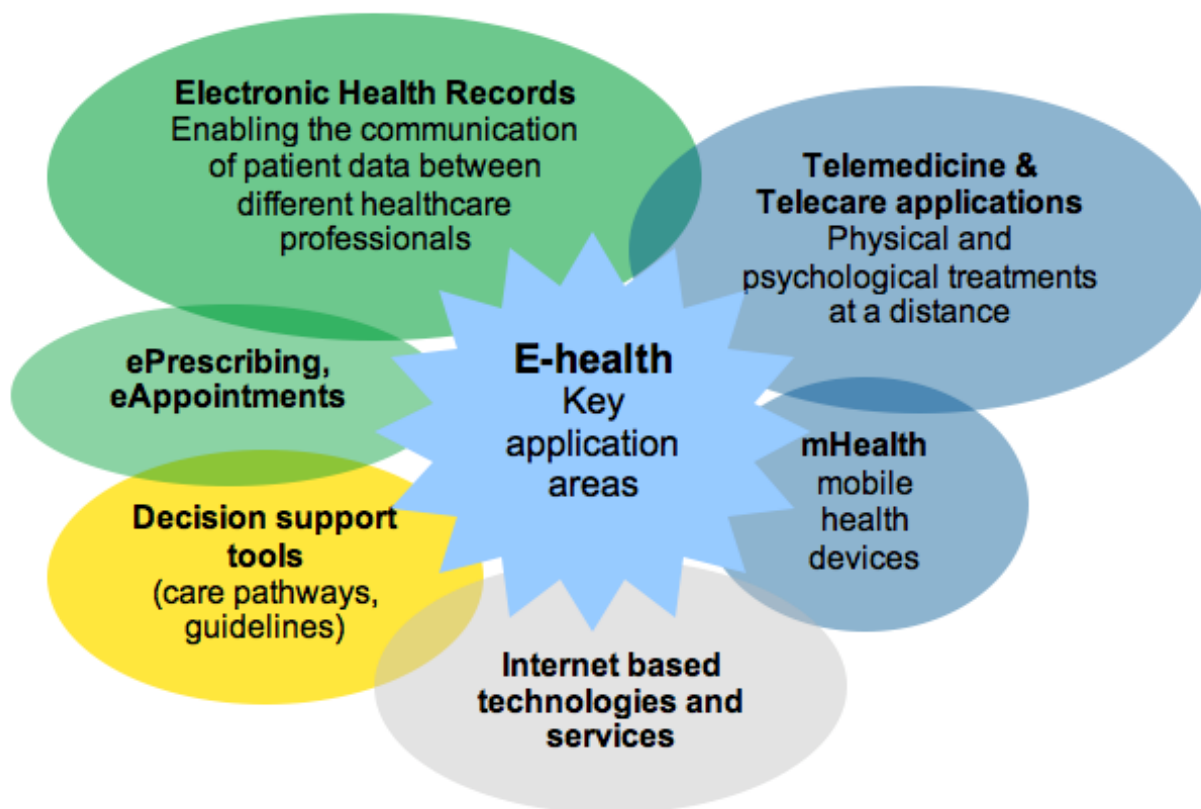
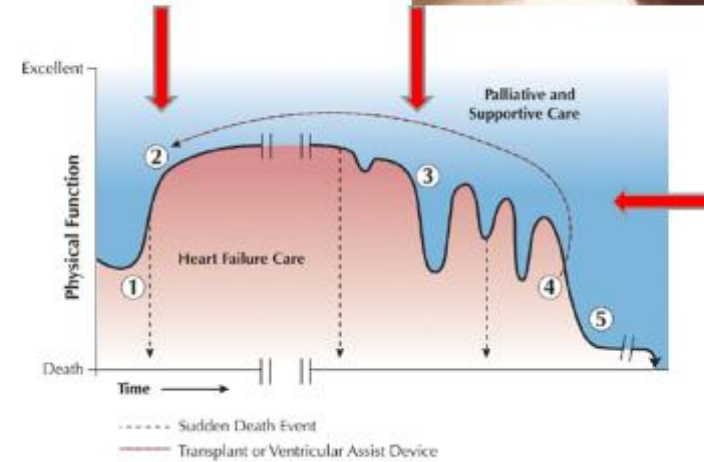


Table 1 The domains of e-health, involving healthcare administration and support, education, healthcare delivery, and research

- (1) Telemedicine and telecare (including disease management services, remote patient monitoring, teleconsultations, and homecare)³
- (2) Clinical information systems (electronic medical records, decision support and monitoring of clinical and institutional practice)
- (3) Integrated regional and national information networks and associated e-referrals and e-prescribing
- (4) Disease registries and other non-clinical systems used for education, public health, patient/disease-related behaviour, and healthcare management
- (5) 'Mobile' health (m-health) including mobile applications ('Apps'): medical and public health practice supported by mobile technologies delivering health information, screening patients, monitoring physiological signs, providing direct care and patient education (sometimes considered part of telemedicine,³ but increasingly less medicalized)
- (6) 'Personalized' health (p-health): wearable or implantable micro- and nano-technologies with sensors and/or therapy delivery devices to help facilitate health and social care decision making and delivery (including fall detectors, implantable insulin pumps, defibrillator vests, etc.).
- (7) 'Big Data'—large-scale integration and analysis of heterogeneous data sources, usually of high volume (amount of data), velocity (speed of data in and out), and variety (range of data types and source)⁴, ideally linked at the individual person level to provide a more holistic view of a patient/individual and shed light on social and environmental factors that may influence health.⁵

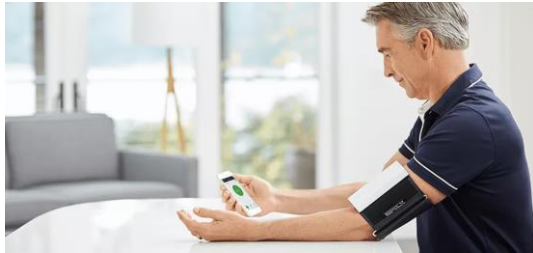


Remote consultation



Remote Monitoring

A digital “fingerprint” of our patients



The roadmap

- Set up the **Digital Health Committee** to coordinate a strategic approach
 - **Educate** members about DH
 - Support evidence-based **implementation**
 - **Advocacy** for standards & best practice
 - **Stakeholder engagement** to ensure co-design & appropriate evaluation of DH tools
 - Foster DH **research** in CV disease



Barriers and Solutions...

Frederix I et al. Eur J Prev Card 2019; 11: 1166 – 1177



Stakeholder resistance to adopt digital health based care:

- Lack of patient motivation and digital health literacy skills
- Lack of healthcare provider belief in digital health care

Stakeholder resistance to adopt digital health based care:

- Establish patient digital health education programs
- Redesign contemporary workflow models

Legal, ethical & technical barriers:

- Mobile data privacy, security & liability concerns
- Lack of interoperability

Legal, ethical & technical barriers:

- Establish European-wide digital health certification programs
- Assure compliance to applicable digital health directives
- Assure interoperability of digital health services

Other barriers:

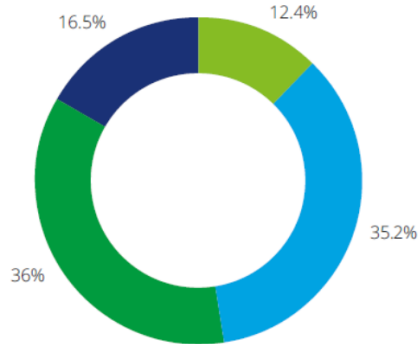
- Lack of health economical evaluations
- Lack of reimbursement

Other barriers:

- Encourage economical evaluations of digital health based care
- Inform health insurance industry & policy makers
- Stimulate digital health related knowledge & experience sharing

How to deploy digital health based care in Europe?

**ESC e-Cardiology Working Group
Position Paper: Overcoming challenges
in digital health implementation in
cardiovascular medicine**



Legend:
■ Inadequate
■ Problematic
■ Sufficient
■ Excellent

Source: Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU), European Journal of Public Health, 2015

The covid19 pandemic has accelerated DH adoption

- 2020 was the year of the “tech-celleration”
- Investment in digital health boomed, particularly for on-demand healthcare services and remote care
- Telemedicine went mainstream
- Digital health became truly global
- Apps and wearables challenged interaction with HCPs
- Regulators increasingly approved AI for medical uses
- Virtual events replaced in-person events



Bertalan Mesko, Medical Futurist Institute, 21 Jan 2021

https://www.linkedin.com/pulse/9-take-aways-digital-health-from-2020-bertalan-mesko-C3%B3-md-phd/?trk=eml-email_series_follow_newsletter_01-hero-1-title_link&midToken=AQFi90tixbv4eg&fromEmail=fromEmail&ut=3vj5SWxsSXMpA1

Digital Health Events

FROM a Summit 2019 (Tallinn, EE)



TO a virtual event 2020



Digital Health Week 2020: 3 Themes



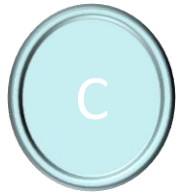
Devices & mobile applications in cardiology

What works in 2020?



Artificial intelligence & Big Data in cardiology

Evidence & perspectives in 2020



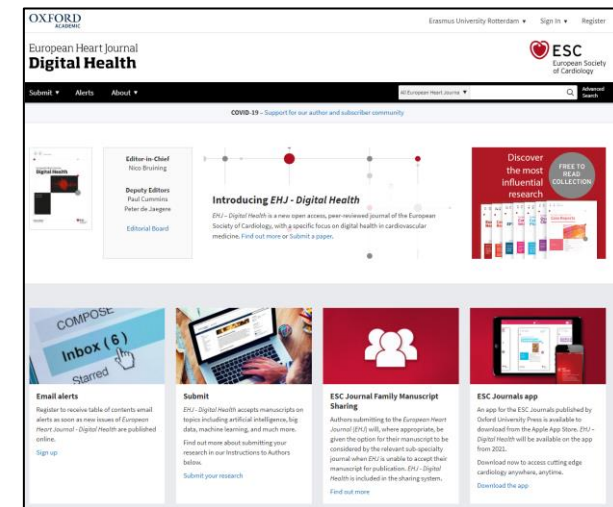
Telemonitoring & remote/teleconsultations

Integrating advances into daily practice

European Heart Journal - Digital Health

Goals:

- To become the preferred Digital Health journal in Cardiology
- Open access
- First issue Nov 2020, with 4 issues per year
- Accepted papers published immediately on-line
- Aim: Pubmed central 12 months
- Aim: Medline inclusion 18 months
- Aim: Impact factor 3 years
- Editor-in-Chief: Nico Bruining, NL

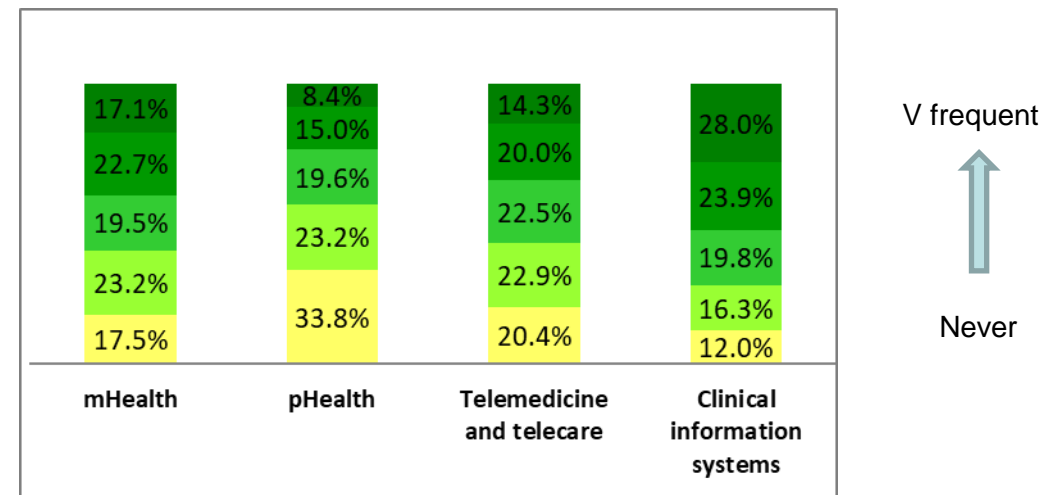
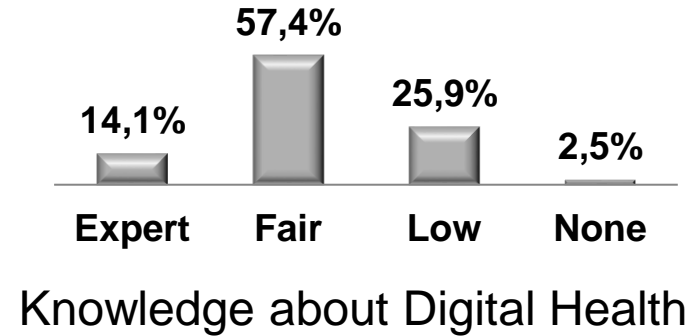


<https://academic.oup.com/ehjdh>



Advocacy & Best practice

Listening to our members needs



Daily exposure to Digital Health

EHJ-DH 2021 Asteggiano R et al.



Being part of
the
conversation



Thank you

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