Available online at www.sciencedirect.com

ScienceDirect

journal homepage: http://www.elsevier.com/locate/crvasa

Expert consensus statement

e-Health: A position statement of the European Society of Cardiology☆ Summary of the document prepared by the Czech Society of Cardiology

Miloš Táborský [a,*], Aleš Linhart [b], Hana Skalická [c]

[a] Department of Internal Medicine I – Cardiology, University Hospital Olomouc, I.P. Pavlova 6, Czechia
[b] 2nd Department of Internal Medicine – Cardiology and Angiology, First Faculty of Medicine and General University Hospital, Prague, Czechia
[c] Kardioambulance s.r.o., Prague, Czechia

ARTICLE INFO

Article history:
Received 21 February 2017
Accepted 2 March 2017
Available online 7 April 2017

Keywords:
e-Health
m-Health
p-Health
Cardiology

Introduction

e-Health encompasses the use of information and communication technologies (ICTs) in the support of health and health-related activity. It can be subdivided into several domains, listed in Table 1.

e-Health has the potential to provide innovate solutions to health issues, and is often viewed by politicians and healthcare professionals as a key 'enabling' technology to improve care and the experience of care for the those living with chronic conditions, particularly at a time of constrained healthcare funding.

Behind all of this stands the individual/citizen/patient/customer, who is increasingly familiar with ICT and expects to find it supporting modern healthcare delivery, facilitating more personalized and person-centred care at the right time and in the right place.

In theory, technological innovation should bring better interprofessional co-operation, information sharing, decision support, and flexibility to the healthcare system. However, there are important societal and professional constraints that reduce the impact of such innovation, including legal, ethical, and data protection issues. Healthcare professionals may be resistant to such innovation, particularly if the technologies

☆ For permissions: please e-mail: journals.permissions@oup.com

* *Corresponding author.*
E-mail address: milos.taborsky@seznam.cz (M. Táborský).

http://dx.doi.org/10.1016/j.crvasa.2017.03.001

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

Telemedicine and telecare (including disease management services, remote patient monitoring, teleconsultations, and homecare)
Clinical information systems (electronic medical records, decision support and monitoring of clinical and institutional practice)
Integrated regional and national information networks and associated e-referrals and e-prescribing
Disease registries and other non-clinical systems used for education, public health, patient/disease-related behaviour, and healthcare management
'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, but increasingly less medicalized)
'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.)
'Big Data' — large-scale integration and analysis of heterogenous data sources, usually of high volume (amount of data), velocity (speed of data in and out), and variety (range of data types and source), 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

are considered to be 'solutions seeking a problem' and where the evidence for the impact on quality of care is seen as less than robust. Indeed, ensuring proper integration of new technologies into the healthcare system is often difficult, requiring process redesign or 'disruption'. Regulatory bodies, reimbursement authorities, and national and international political bodies often find it difficult to react quickly, or consistently, to this rapidly changing area.

The European Union has an e-health action plan for 2012–2020, which states that the promise of ICT to increase efficiency, improve quality of life, and unlock innovation in health markets remains largely unfulfilled. Initiatives such as large-scale pilot projects (e.g. European patients smart open services), the 2011 Directive on the Application of Patients' Rights in Cross Border Healthcare, and the establishment of an e-health network have made some difference but the Action Plan identified several barriers to widespread adoption of e-health, including:

- Lack of awareness of, and confidence in, e-health solutions
- Lack of inter-operability
- Limited large-scale evidence of the cost-effectiveness
- Lack of legal clarity for health and well-being mobile applications and the lack of transparency regarding the utilization of data collected, including data that crosses international boundaries
- Inadequate, or fragmented, legal frameworks
- Lack of reimbursement
- Regional differences in accessing ICT services, with limited access in deprived areas

Aims

The European Society of Cardiology (ESC) [1] is involved with e-health on many different levels. Its members deal with the changes in practice that ICT innovation brings, including electronic medical records, e-referrals or e-prescribing, teleconsultation, and telemonitoring. The Society uses electronic collection of data in its programme of disease and practice registries, the EuroObservational Research Programme, and is involved in pan-European research projects on semantic inter-operability.

The European Society of Cardiology vision

The vision of the ESC is to play a pro-active role in all aspects of thee-health agenda, helping to develop, assess, and implement effective ICT innovations in the support of cardiovascular health and health-related activity across Europe. This vision will be realized through the action plan below:

The action plan

- To facilitate wider implementation of e-health.
- To educate and train ESC members in the appropriate use of e-health.
- To play an active role in discussions regarding regulation and quality control of ICT technologies, including (where appropriate) setting benchmark quality standards for relevant technologies.
- To play an active role in the societal and political discussions regarding data security and confidentiality issues, recognizing the geographical variation in legal constraints. This includes appropriate patient access to data.
- To support research into the development, evaluation, and implementation of e-health technologies, with an emphasis on establishing the clinical and cost-effectiveness of such innovation, and including the patient perspective. The actions patients take in response to data collected requires particular scrutiny (especially where this action is not supervised by healthcare professionals).
- To promote policy dialogue related to e-health at local, national, and international level with all relevant stakeholders, including payers. Reimbursement issues often delay the implementation of e-health solutions, even where the evidence base for clinical and cost-effectiveness/sustainability is secure.
- To provide a resource for citizens in the member countries to assist them in assessing the potential benefit and risk of e-health applications in cardiovascular disease prevention, diagnosis, and treatment.

Specific issues

m-health and p-health

The EU recently issued a consultation document on m-health. It highlighted the pace of change—with nearly 100 000