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CARDIOPULSE

Digital learning and the future cardiologist

Report from the ESC Education Conference 2018

Education is one of the key pillars of how the European Society of Cardiology (ESC) aims to reduce the burden of cardiovascular disease. We are currently in the midst of a transformation in how we deliver and receive education, with new digital technologies, the growth of smart devices, and 24 hrs per day access to different sources of learning. With huge potential for enhancing the educational environment, these changes also lead to challenges and important practical implications on patient care and work-life balance.
The 5th ESC Education Conference (January 2018) was dedicated to exploring how we should train the digital cardiologist of the future, including workshops and plenaries on social media, mobile and online resources, and pathways to reliably educate trainee cardiologists, certified cardiologists and patients. The conference included National Training Directors, the Young Cardiology community and patient representatives from 45 ESC countries. In this report, we discuss the key outputs from the conference and how to integrate digital learning in contemporary cardiology practice.

Introduction

The European Society of Cardiology (ESC) is a leader in the field of cardiology education and has recently laid down its vision for how to improve education for trainees as well as certified cardiologists.[1,2] Although the ESC has an action plan for how to integrate electronic health services into patient care,[3] the rapidly evolving field of digital education has received less attention but has considerable impact on clinical practice. All cardiologists, and those in training, routinely use digital sources of learning and yet we lack an understanding of the challenges and limitations for integration of new technologies. There are also important opportunities to advance and stimulate a transformation in educational practice across the ESC. These topics were addressed at the 5th ESC Education Conference, held at the European Heart House in Sophia Antipolis (France) in January 2018. In this Cardiopulse article, we report a summary of the main conclusions of this meeting of National Directors of Training (representing 45 ESC countries), Young Cardiologists and patient representatives. The conference included workshops and plenaries on several key themes relating to digital learning and how we train the cardiologist of the future (*Figure 1*).

Social media

Although younger professionals are the most intuitive target for promoting medical education through social media, the potential value for 'older' cardiologists is as yet unrealized. The strongest argument for using social media is the possibility to interact with fellow learners, experts in the field, and even the public at large. However, a key limitation is the unregulated nature of discussion. Social media should be used to discuss, not to argue—unmoderated content and the lack of authoritative knowledge challenge the effective use of social media. The ESC could foster the bi-directional interaction between online learning materials and social platforms, using interaction and exchange between professionals to promote tutorials, clinical cases and how-to sessions that improve clinical practice.

Smartphones and mobile applications

Smartphone apps are commonly used at bedside-level for risk score calculation, guideline consultation, and communication. For educational purposes, apps could provide contextual digital learning opportunities for trainees and certified cardiologists, as well as information directed to patients. Challenges include: (i) ensuring independent and reliable content; (ii) providing regular content updates; (iii) avoiding interference in the patient–clinician interaction due to (over)use of technology; (iv) the need to develop new patient pathways and generate standard procedures; and (v) maintaining data privacy and confidentiality. We also identified clear opportunities for improving the use of smartphone apps: (i) translating content to other languages (in collaboration with National Cardiac Societies); (ii) further development of 'multitasking' ESC apps, with educational content, guidelines, and clinical decision tools; (iii) tagging educational content systematically, hence making all ESC education searchable; (iv) developing different approaches to learn and be informed, including news feeds, audio- and video-based resources and the online ESC textbook; (v) generating real-time collaborative platforms to engage colleagues for discussion and to improve patient care; and (vi) creating patient-tailored content to enhance self-care and adherence.

Online resources

A wide variety of online resources are already in use, including internet searches ('Dr Google'), webcasts, online repositories (PubMed, Medscape), and clinical cases. The main limitations identified regarding the use of such online resources were availability, the willingness of the

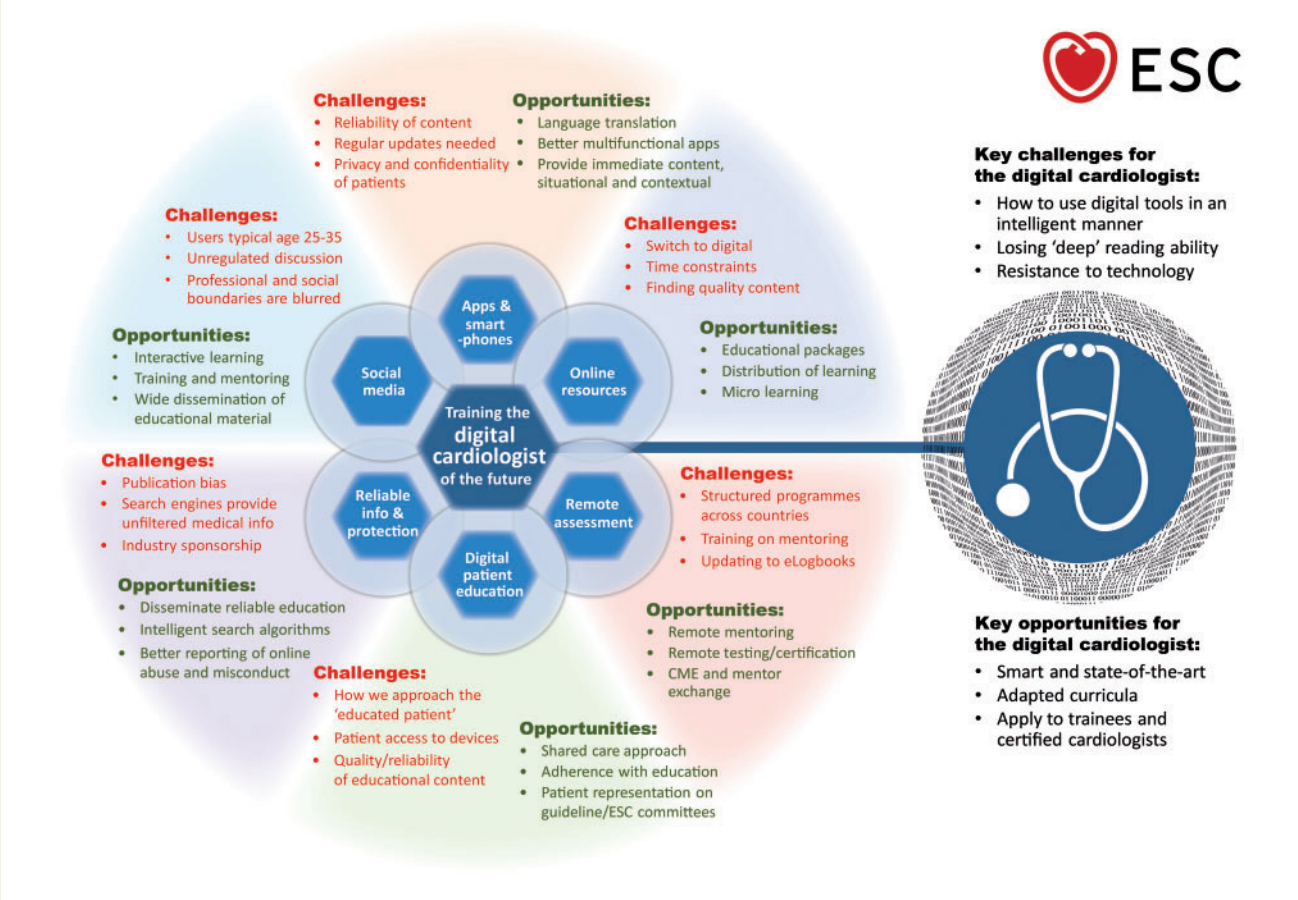

Figure 1 Challenges and opportunities to train the digital cardiologist of the future. Full details and videos can be accessed at: https://www.escardio.org/education-conference.

learner to switch from non-digital to digital sources, the quality of the content, and inhibiting factors for access, such as difficulties in searching and finding appropriate answers. The ESC could play a major role in providing online resources through: (i) improving the crosslink between the ESC topic list and educational content—producing 'electronic packages' of education targeted to a particular clinical scenario; (ii) providing 'unbiased' educational content as opposed to industry-supported learning; (iii) optimizing interaction with ESC education through social medial and search engines; (iv) supporting continued e-learning following ESC Congress sessions; (v) promoting 'micro-learning' videos to improve basic skills in cardiology; and (vi) implementing technology tools to identify and classify older or out-of-date educational content.

Remote assessments

Logbooks, both paper-based and electronic, are a key part of assessment for trainee cardiologists, but there is also an increasing trend to assess competence for certified cardiologists. Unfortunately there are no structured ESC-wide programmes for remote assessment, although many individual countries have established mechanisms.[1] There is a clear need to be able to remotely test and certify professional standards, and to homogenize logbooks and other remote monitoring across countries. We identified opportunities for development of assessments, such as promoting the training and accreditation of mentors, and providing lists of mentors/tutors in an ESC digital platform. Electronic tools could be developed to enable on-the-job collection of continued medical education to aid certification, and the planned updates for the ESC eLearning platform will create a more user-friendly portal to access connected and contextual educational content.

Educating patients through digital means

Although the ESC does support some content for patients (e.g. websites and apps for particular cardiovascular conditions), educating patients further could have distinct advantages, such as improving shared care approaches, increasing adherence to therapy and making clinical practice more patient-centred. There are important limitations to educating patients through digital means, such as appropriateness and quality of materials, access and availability of tools and devices for patients, and competing sources of information through web searches. The ESC has an opportunity to be a leader in reliable information for patients, including: (i) text designed for patients in press releases for major presentations; (ii) patient-summaries of ESC Guidelines and consensus documents; (iii) promoting patient education within core educational content, such as webinars and eLearning courses; and (iv) preparing clinicians to be able to take care of the educated patient.

Defining reliable information online

Industry-sponsored educational material can provide biased learning, but information from scientific societies, researchers and journals is also tainted with publication bias. Online search engines and websites provide unfiltered medical information that is not peer-reviewed, and yet more reliable sources (including the ESC) are usually lower down in the search list. The ESC has an opportunity in the digital learning environment to have a brand of reliable, unbiased education, presenting evidence-based (vs. eminence-based) data, transparently stating the source of information, as well as detailing any conflicts of interest. There is also the need to ensure that users are protected from online bullying and harassment, with better and easier reporting of abuse and misconduct. These 'checks and balances' on digital platforms will ensure that all users can benefit from the advances in digital education.

Training the digital cardiologist of the future

A digital cardiologist should ideally be able to use digital tools for clinical practice, teaching and training, and interacting with patients. The main challenge is to learn how to use digital technologies as a supportive tool, not to replace human thinking and common sense. As digital practices become more and more common, we need to keep all practitioners engaged (including teaching 'old' doctors 'new' tricks). In some cases, digital technology has the potential to increase workload, with subsequent impact on the time for patient interaction. There is also a tendency to lose the depth of understanding with shortened educational packages and soundbites. To promote digital cardiologists of the future, curricula need to be adapted to reflect the new digital capabilities expected in modern times. The eLearning portfolio of the ESC should reflect new learning styles and patterns, with more interactive and succinct information that also allows learners the opportunity to expand and deepen their knowledge.

Conclusions

We stand on the cusp of transformation in how we deliver and receive education. New digital technologies have massive potential, but understanding the practical implications is important in order to face the challenges on our time and the impact on patient care. With the help of its constituent National Cardiac Societies, the ESC is primed to be a leader in reliable education for trainees, certified cardiologists and patients with cardiovascular disease.

Full details and videos of the 5th ESC Education Conference (2018) can be found at https://www.escardio.org/education-conference. The website will also have initial reports from the 6th ESC Education Conference which took place in January 2019, with the theme of "*Educated healthcare professionals + Educated patients = Effective shared care*".

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Supplementary material

Supplementary material is available at *European Heart Journal* online.

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References

References are available as supplementary material at *European Heart Journal* online.

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When Cardiovascular Trials Collide

A Novel Framework Emerges from the Dissonance Created by the MITRA-FR and COAPT Trials

Replication is a cornerstone principle of science. If a finding in science is valid, it should be replicable when an experiment is repeated, whether the study is performed in the laboratory or in the context of a large-scale clinical trial. Replication provides reassurance that the same answer emerges when the same question is asked at a different point in time.