

## Volume 4 - Issue 1, 2010 - Editorial

### Shrinking the Gaps: E-Health and Cardiology



**Panos Vardas**

Editor-in-Chief, Cardiology (2007-7/2016)

\*\*\*\*\*@\*\*\*med.uoc.gr

Immediate ESC Past President  
Chairman European Heart Agency  
(ESC) Brussels  
Head of Cardiology Department  
University Hospital of Heraklion,  
Crete, Greece  
LMC Forum Chairman

[LinkedIn](#)

---

According to Moore's law (named after Intel cofounder Gordon E. Moore), computer capacity increases exponentially, approximately doubling every two years. Two decades ago, for many medical professionals, a computer was still a novelty. Nowadays, an office without one looks bare, incomplete.

The healthcare industry has been slow to adopt this new technology. Understandably, caution has been the watchword. Rather than being welcomed and embraced by cardiologists, computers initially penetrated our ranks by stealth, disguised as echocardiographs, digital ECG recorders, or implantable devices.

Until quite recently, the use of computers in medicine, now called e-health, was at roughly the same stage as the motor car industry was a century ago. Technology is now progressing much faster than it was then, but the three factors that transformed the car from an expensive toy for the hobbyist into the everyday necessity we take for granted also apply to computers: accessibility, standardisation, and cost. Now, as e-health attracts ever-growing interest, we should keep these three factors in mind as we scrutinise the burgeoning array of options on offer.

Historically, the practice of medicine has been hampered by distance: the distance between patient and physician, between general practitioner and specialist, between specialist and the patient's medical records. Never before have those gaps, in both distance and time, been smaller than they are today; and the gaps are still shrinking. Twenty years ago, mobile phones were rare, most people had not heard of the internet, and the World Wide Web had not yet come into existence. Nowadays, it is almost taken for granted that any e-health system should have a network dimension as a major component.

Telemedicine is a particularly promising domain for cardiology, because we know that early interventions can be extremely cost-effective, as well as beneficial to the patient in terms of survival and recovery. Teleconsultation can shrink the gap between a patient (or GP) and the consultant cardiologist at a regional hospital. Home monitoring for patients with chronic cardiac conditions, especially the elderly, can save them unnecessary trips to hospital, while giving them continual reassurance about their status. Future developments in wearable devices are likely to extend this kind of application even further.

The electronic health record has been around in one form or another for a long time, but the expansion of computer networks, local, regional and worldwide, has transformed the possibilities. Most of the security questions have already been answered in order to meet the exigencies of international finance, and the door is now open for the free (and secure) exchange of medical information to allow collaboration within and between healthcare centres. And why should motivated citizens not have access to their e-health records, just as they already do to their e-banking records?

Medical databases can also find application outside daily practice, providing valuable core data for clinical trials. Some see the integration of medical record systems and clinical trial databases as one of the main challenges for medical informatics. Here, of course, interoperability is the key. Although it is not easy to replace natural language by codification schemes such as ICD and SNOMED without losing important information, the standardisation of terminology and coding is a prerequisite for information sharing on a broader scale.

And of course, we must count the cost. Investments in e-health must undergo the same rigorous cost-effectiveness analysis as developments in other areas of medicine, before the respective technology can be incorporated into guidelines. E-health should be considered first and foremost as an investment in better healthcare.

There is not the space here to discuss more ambitious projects, like the Virtual Physiological Human, in silico environments, personal health systems, or tailored drugs. These applications must await the future; others are already with us. However, here, too, the gap is shrinking, and it is

© For personal and private use only. Reproduction must be permitted by the copyright holder. Email to [copyright@mindbyte.eu](mailto:copyright@mindbyte.eu).

likely that, within the professional lives of most people reading this, the practice of e-cardiology will take us to places we can barely imagine.

Yours Faithfully,

**Panos E. Vardas, MD, PhD**

Professor of Cardiology

Published on : Mon, 4 Jan 2010