

The two faces of healthcare digitalization. Lessons to be learned

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Abstract

Introduction: The digital revolution is here. We are witnessing its impact in all fields of activity. Healthcare is one of the domains where digital technologies have aroused great expectations, bringing almost unlimited opportunities, from electronic medical archives, EHRs, AI software for medical decision support, computer-aided learning, to medical imaging, telecare, wearable devices, nano technologies and robot-assisted surgery. It is said that “progress is not an illusion, it happens, but it is slow and invariable disappointing” (George Orwell). Not all digital solutions have led to better health outcomes and values. Most EHRs implementations are more costs oriented than patient-centred, the physician is spending more time in front of a display than with a patient, and advanced technologies solutions are costly, and so on. In the last years, voices roused to expose the “techno-utopian and entrepreneurial vision of the digital health phenomenon” (Deborah Lupton). The goal in this study is to draw a global, objective picture of the advantages and disadvantages of different digital solutions for healthcare and based on these findings, to suggest balanced approaches, avoiding pitfalls. *Methods:* This study is based on literature review (1992-2000; 2016-2019) and country reports on digital implementations and strategies for healthcare. *Results:* At the level of terminology there are three terms that described a digital environment: digitization – making information accessible in digital format, digitalization – using digital technologies in the management of digital data and information, and digital transformation - building new business models that integrate digital data, processes and technologies and are patient centred. Digitization is represented by EHR implementations. Commonly recognized advantages of EHRs are: improving clinical and administrative (including financial aspects) outcomes, facilitating research and reducing costs. Most authors consider the following disadvantages: high acquisition and maintenance costs, alterations in workflow due to a new system, privacy and security issues (vulnerable to hacking), and potential corruption of patient data due to system failure. Though the benefits of advanced AI solutions, robot-assisted surgery, computer vision, virtual and augmented reality applications are widely recognized, there are limitations that have to be considered due to subjective assumptions, predictions based on former cases and different clinical contexts. *Conclusions:* The magic word in maximizing the benefits of digitization and digitalization in healthcare is “change”. Healthcare organizations have to acknowledge the cultural change implied by the digital world and to prepare all the actors involved, doctors, nurses, patients, to a new way of work and collaboration. The change has to be reflected also at the level of healthcare information systems design that has to be user-centred and to enable health data sharing between different IT systems. Strategic decisions must be made not only for organization culture transformations but also for investments in the right technologies.

Keywords:

Digital technologies; Health information systems; EHR; Health data sharing; Telecare