

Opportunities and Challenges for Electronic Health Record: Concepts, Costs, Benefits, and Regulation

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INTRODUCTION

The emergence of electronic health record (EHR) in recent decades and its deepening and broadening has triggered either heated debates or highly technical discussions, and all this, not only but significantly, across the academic literatures of medicine, public health, governance, management, public policy, law and legal studies. Those issues present both opportunities and challenges. The process is gaining momentum, still limited to OECD countries however, but spreading fast, and its future shape will depend on the changes under way and the interaction of different users, actors, institutions, public policies, legislations and networks as much as the globalization and diffusion processes under way. The present chapter aims at giving a description of the recent evolution, the main characteristics and the challenges ahead. The history is recent, still debated, and most studies focus on recent trends, namely the last decade, and evidence is still lacking on many issues (Black et al., 2011; Greenhalgh, Hinder, Stramer, Bratan, & Russell, 2010; Greenhalgh, Potts, Wong, Bark, & Swinglehurst, 2009; Olson et al., 2014; Sidorov, 2006).

The literature on e-health –and more specifically on electronic health record–, in a period of little more than a decade, is now vast and the present discussion is limited to selected themes such as legal issues, governance, privacy, public interest, cost and benefits and prospects. The Electronic Health Record (EHR) is one of the most controversial elements of the concept of ehealth and its role in current reforms. It is at the centre of the transformation of professional and organizational structure of health care system under way in the last decade and for the proximate future.

The aim of this entry is to define some concepts about electronic health record and clarify their context in today's literature and giving an overview of the recent debates and dimension in recent history as well as its promises, processes and achievements.

CONCEPTS AND BACKGROUND

In this section, after a brief history, the issue of definition and several dimensions of electronic health records will be tackled. If the first known medical records can be traced to Hippocrates and the goals he attributed to these records were to describe accurately the course of a disease and gives a probable cause of it; the electronic dimension of these records can be traced back to the 1960s in some hospitals

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that started a more systematic recording and use of patients' data by services and doctors. But it is still more recently, in the 1990s, with the ever wider use of internet and online databases that the electronic health record emerged as a new tool in the public health systems of OECD countries.

There are different definitions of electronic health record, depending on the theoretical perspective or even the main user or the political point of departure taken in the implementation process. Even so, here and in the literature on the subject, the electronic health record has become and is the generic term. Other focuses like electronic medical record (or registry) and the electronic patient record are based on either the perspective of the user or the subject of the information. All these expressions are part of the general move from traditional management of health and medicine to electronic health and medicine or e-health (written more and more frequently ehealth as its use spreads across countries and within national health and health care systems).

To settle the record straight, the definition of the Electronic Health Record that can serve as a consensus for the current exposition as well as a starting point for further research is the one given by the International Standards Organization (document ISO/TR 20514:2005) as a "repository of information regarding the health status of a subject of care, in computer processable form" (ISO 2005, p.2).

Electronic health record has become a formal tool or formal system (Berg, 1997) to get rid of the papers and dispersed information and to concentrate the information in one or very few places and to create the "paperless ward", in much the same hope and biased perception as the paperless office. This formal tool is not just limited to move toward a paperless ward or more globally a paperless world. It is also a tool for control, governance, and, following Foucault, surveillance, and also, a path to governmentality (Foucault, 2010) or, in other words, regulation. Governmentality can be defined as a "particular rationality for governing the population which has become ubiquitous in modern societies" (Villadsen, 2011, p. 125). This is a bridge for setting the stage of the problem of power and electronic record of health data of individuals and citizens.

This challenge of governance and governmentality is related to the issues of regulation and the transformations of the role of the state, of values in society, and of the legal, economic and social norms. The governance is related to the issue of promoting benefits, controlling or reducing costs as discussed in the next paragraph. There are other issues that must be tackled such as the imposed or negotiated order, the role of networks and social online networks, the risk and uncertainty around EHR and its use, its relationship with medical technology and innovation, surveillance and management and managerialism in health care systems.

The hopes and intentions about the EHR are well described in an editorial of the Bulletin of the World Health Organization by Richard Alvarez, President and Chief Executive Officer, Canada Health Infoway: "Information technology, which has empowered most parts of our daily lives, is woefully absent from health care. Clearly the application of e-health technologies will pay huge dividends in improving the quality of health care for all" (Alvarez 2005, 323). This situation about a decade ago has drastically changed in the OECD countries and it will change for the other countries in the years to come. The question that the next section tackles is exactly the benefits and costs of the introduction of information technology for the use and control of health information and the digitalization of whole areas of the administrative management of health care interventions.

The research on the subject of electronic health record is still lacking clear cut conclusions. However, it is important to have more evidence-based reports and studies on the subject and to follow a more systematic research on the subject, for example through general reviews and meta-analyses. Following Black, Car, Pagliari and co-authors (2011, 1), a distinction of eHealth technologies as well as electronic health record can be made and the following categories can help identify the main areas of change: first,

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