

## Chapter 3

# Normalizing Cross–Border Healthcare in Europe via New E–Prescription Paradigms

**Alexander Berler**

*National School of Public Health, Greece & epSOS, Greece*

**Ioannis Apostolakis**

*National School of Public Health, Greece*

### ABSTRACT

*The 21<sup>st</sup> century started with some significant efforts globally in the e-health sector. This was mainly pushed as a generic strategy from many nations and international organizations in order to cope with issues such as ageing population, demographic shift, social security limitations, and financial instability. A second reason was the introduction of new technologies such as cloud computing, Web interoperability standards, mobile health, and social media that are steadily changing the way healthcare has been seen in the last decades. In addition to that, globalization, commuting, immigration, and increased mobility raised the issue of cross-border healthcare and the right to access normalized healthcare services anywhere, anytime. In that context, the authors analyze the technological offerings and result of the epSOS (European Patient Smart Open Services) framework and how it has affected strategic decisions in electronic prescription in Greece, thus creating a new useful e-health national application. They prove that by rethinking healthcare, reusing established standards such as HL7 CDA (Health Level Seven Clinical Document Architecture) and IHE (Integrating the Healthcare Enterprise) profiles, it is possible to propose a new innovative system that is in fact based upon new technological propositions such as REST (Representational State Transfer) architecture and cloud computing.*

### INTRODUCTION

The healthcare delivery landscape will change significantly in the future to master changes of society, such as constant population ageing and demographic rise (Mirkin, 2001). Those changes have already started and demand that e-health plays a significant role within a reformed healthcare system (European

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Commission, 2012). It is commonly agreed that e-health is a benefit for the patients, the healthcare practitioners, the healthcare provider organizations and the nations as a whole.

Eysenbach states that:

*E-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology. (Eysenbach, 2001)*

The future of healthcare is to be patient-centric and with a focus on health promotion and health maintenance. Patient centred healthcare implies that patients and their relatives have a more active role in the design and enforcement of new healthcare treatments. So, patient should be the centre of care and all related information and decisions should incorporate each patient's individual options for better treatment. Patients and practitioners should operate in partnership so that medical decisions respect patient's need, beliefs and preferences. Practitioners should focus on making sure that patients have substantial information and support so that they can make appropriate decisions and participate in their own care (Institute of Medicine, 2001). New e-health services with the use of ICT (Information and Communication Technologies) such as Internet, cloud computing, social media are reshaping day by day the healthcare delivery systems (Apostolakis et al, 2012; Gwee, 2011; Cambria et al, 2010).

Appropriate and viable use of interoperable e-Health solutions has already demonstrated its ability to propose a strategy for reshaping the system towards a patient centred system. In other words, e-health seems to have the ability to enable and establish patient centred healthcare systems, where information systems interoperate and exchange patient information seamlessly on behalf of patient's welfare and social rights. However, the more complex and the more fragmented the healthcare provision and the insurance systems are the more complex and fragmented will the e-Health services be. Both positive as negative lessons learned from the past should influence future decisions (Calliope, 2010b).

On the demand side, citizens and patients want to be empowered and are increasingly well informed with the use of social media. Life expectancy steadily rises (Leon, 2011) and so is the prevalence of chronic conditions that are more often diagnosed at early stages. At the moment, the vast majority of national healthcare budgets concerns chronic disease management (Kaiser, 2012). Medical treatments, diagnostics tools and procedures, as well as the extensive use of new technologies in equipment and pharmaceutical industry increase the cost of healthcare. The use of new ICT technologies can and should automate and optimize healthcare delivery and related costs to the extent possible. Patient societies and other stakeholders demand and expect that no geographical borders exist in healthcare delivery, that seamless and adequate continuum of care prevails. Today's citizens are far more mobile for leisure or work than before, and this is well studied and documented (Rosenmöller et al, 2006; Glinos, 2012). Early epidemiological surveillance via warning and alert systems (WHO, 2005), as well as research and continuous professional training will require enhanced secondary use of aggregated health data of individuals to support the effectiveness, efficiency and sustainability of the health systems.

On the supply side, the demographic shift and population ageing has puts increased pressure on healthcare delivery systems (Mirkin, 2001, Bloom, 2011). In addition, the increase of patients' numbers creates a shortage of skilled healthcare labour resources and medical expertise. As a consequence

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