

# Opportunities and Threats for E-Health on an Ageing Society

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## INTRODUCTION

E-health includes tools for health professionals and for patients (personalized health systems), enabling the promotion of patient's autonomy (raising the involvement of patients and responsibility for their own health). This autonomy, associated with a communication system capable of providing, timely, specific information to the patients, can be a possible way to reduce costs in the health sector.

This chapter is driven by the following evidence: the population is ageing (in 2013, life expectancy on average across OECD countries exceeded 80,5 years); information and communication technologies (ICTs) have an increasingly key role on health sector (for example, 60% of the countries, that respond to the 2009 Global Survey on e-health conducted by the World Health Organization (WHO), offered some form of teleradiology; and near 30% of those countries use some form of patient monitoring by mobile technology); the weight of health expenditures grew (despite the deceleration since 2009, the weight of health expenditure on GDP, on OECD countries, increased from 7,8%, in 2000, to 8,9% in 2013). We intend to correlate these three dimensions by demonstrating that e-health could help controlling the expenditures with the health of the elders and improve their quality of life. However, there are many obstacles for good results in the short term.

The use of ICTs in health can be organized into three axes: e-health; health information systems; and, media and communication in health. The growing computerization of clinical practice places important challenges to practitioners and health institutions, but it also presents significant opportunities. The objective of the use of the ICTs for health professionals is not to reduce human contact in the provision of care, but mainly to improve the medical procedure to create the conditions so that patients can have a better quality of life, staying independent and active. Also, the development of the Internet can be considered as an opportunity and, simultaneously, a challenge for health professionals. Patients have easy access to a large volume of health information. In addition, Internet allows the exchange of experiences and views between the patients. The great challenge for patients is to select and decode the information on the Internet.

The increase in the elderly population is forcing the healthcare market to offer senior-friendly products and services related to long-term care, health and wellbeing. ICTs and specifically e-health have notables' technological advances covering health services such as teleconsultation, telemonitoring, telecare, e-prescription and e-referral. These advances allow to support the ageing and ill population in maintaining independence and mobility for as long as possible. Despite the evolution of ICTs, the senior population is still info-excluded in many ways. This may inhibit them to fully extract its advantages, restricting the results of the use of e-health tools.

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This chapter intends to demonstrate that despite the opportunities of usage of e-health on treatment and accompaniment of the senior patients, there are financial, educational and social constraints setting obstacles for e-health to be the solution for controlling health expenditure, in the short run.

## IMPACT OF POPULATION AGEING ON HEALTH AND HEALTHCARE

The developed and emerging economies witnessed a significant improvement in overall health status across populations, which was reflected in improvement on living conditions, a reduction of certain risk factors (e.g., smoking rates) and progress in health care (OECD, 2013).

The reasons behind these improvements are not consensual among researchers. There are some authors who argue that the improvement verified in populations' health status was achieved due to technical developments in medicine. Others authors defend that such phenomenon were due to social advances verified in the living conditions of populations (McKeown and Lowe, 1974). However, marginal gains on population health eventually reached a threshold, paving the way for technological innovation, including ICTs, in healthcare, as the main catalyst for future development in the sector. In addition, little is known about what will be the consequences in terms of age structure or in terms of health status of the population or the best way to provide health care.

In reality the life expectancy on average across OECD countries exceeded 80 years, an increase of ten years since 1970. Switzerland, Japan and Spain lead a large group of over two-thirds of OECD countries in which life expectancy at birth now exceeds 80 years. A second group, including the United States, Chile and a number of central and eastern European countries, has a life expectancy between 75 and 80 years (OECD, 2015). In the case of the 28 EU countries, the overall size of the population is projected to be slightly larger by 2060 but much older than it is now. The EU population is projected to increase (from 507 million in 2013) up to 2050 by almost 5%, when it will peak (at 526 million) and will thereafter decline slowly (to 523 million in 2060). The life expectancy at birth for males is expected to increase by 7.1 years over the projection period, reaching 84.8 in 2060. For females, it is projected to increase by 6.0 years, reaching 89.1 in 2060 (European Commission, 2015).

Population ageing is a sign of economic and social progress however, in developed countries, can also be a sign of increase in healthcare spending (Reinhardt, 2003; Reinhardt and Oliver, 2015). Even though some studies confirm the positive and significant influence of ageing on healthcare spending (Jönsson and Eckerlund, 2003; Schulz *et al.*, 2004; Breyer and Felder, 2006; Breyer *et al.*, 2010; European Commission, 2015); there are others that estimate a residual or insignificant influence (Barros, 1998; Gerdtham and Jönsson, 2000; Stearns and Norton, 2004; Ginsburg, 2008; Kingsley, 2015); and others that reveal a mix effect, i.e., ageing increases spending on health until a certain age level and then its effect decreases (Bains, 2003).

However, the contribution of the ageing population to the growth in healthcare spending is much lower than is commonly perceived. Some studies defend that it is not age per se that enhances the increase in healthcare spending but it is the proximity of death (Moïse, 2003; Seshamani and Gray, 2004a,b); Serup-Hansen *et al.*, 2002; Stearns and Norton, 2004; Schulz *et al.*, 2004; Breyer and Felder, 2006; Arora, 2015).

Along with the increase in life expectancy, the rise in the complexity of medical procedures and the emergence of new chronic diseases created a pressure on health systems budgets, revealing the need to reduce health costs. Because of ageing, accompanied by chronic diseases and the change of family structures, we also observe the rise on long-term care (Knapp and Somani, 2009; Guerzoni and Zuleeg, 2011). In fact, the *European Commission 2009 Ageing Report* estimates that the number of people rely-

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