

# Chapter 42

## Engaging Patients and Lowering Costs: Technology to the Rescue

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### ABSTRACT

*Societies need solutions to achieve the “triple aim” of improved health outcomes, better patient care, and lower costs; and engaging patients in their care by using technological solutions is claimed as a possible strategy to achieve this vital goal. On this basis, the chapter focuses on reviewing, categorizing and synthesizing technological tools currently available in the market today designed to engage patients in their own care process. In particular, the goals of medication adherence, reduced hospital readmission, behavior modification, and health literacy - with related technologies - are assessed, since they are considered today's most expensive health care burdens. The advantages, shortcomings, and potential economic impact of such tools are finally discussed.*

### INTRODUCTION

Judging by the investment dollars stimulating the digital health industry, the provocative statement that “patient engagement is the blockbuster drug of the century” (Chase, 2012) appears to be on track. Rock health has reported that 2014 venture capital funding into that space exceeded USD \$4 billion, nearly equivalent to the prior three years. It is evident how this has moved investments to foster the patient engagement demand without burdening healthcare systems (Graffigna & Barello, 2015). The potential payoff promises to contribute to a triple aim approach, a framework developed by the institute for healthcare improvement (Ihi, 2015) to improve population health and patients’ experience of care while reducing costs (Berwick, Nolan, & Whittington, 2008). The reward can be huge. Consequently, tools aimed to activate the patient with a specific health care-related action represent to date one of the top investment

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categories inside the digital health market (Ricciardi, Mostashari, Murphy, Daniel, & Siminerio, 2013; Wang, 2015). Despite high expectations, the value of technologies for patient engagement in controlling health care costs is still largely unknown.

Moving from these premises, the following paragraphs detail how technologies are developing to reply to the need of improving the patients' experience of care, that is giving them a new more active role in the healthcare path, while lowering costs (Ihi, 2015; Berwick et al., 2008). Thereafter, on this basis, the chapter focuses on reviewing, categorizing and synthesizing technological tools currently available in the market today designed to engage patients in their own care process. In particular, the goals of medication adherence, reduced hospital readmission, behavior modification, and health literacy - with related technologies - are assessed, since they are considered among today's most expensive health care burdens (Iuga & mcguire, 2014; Goetzel et al., 1998). The advantages, shortcomings, and potential economic impact of such tools are finally discussed.

## **BACKGROUND**

Stating that health care costs, especially in the united states, continue to capture an extraordinary amount of the gross domestic product is nothing of news (Levit et al., 2003). A quick assessment of published data in just a few related healthcare categories reveals staggering costs.

The cost of medication non-adherence in the U.S. has been estimated at \$100 billion to \$300 billion annually (Hagland 2013; pharmaceutical research and manufacturers of america [pharma], 2011) and is directly related to poor clinical outcomes, high health care costs, and lost productivity (Sokol, Mcguigan, Verbrugge, & Epstein, 2005). Approximately 3.3 million adult 30-day hospital readmissions occurred during 2011 in the united states, associated with about \$41.3 billion in hospital costs (Hines, Barrett, Jiang, & Steiner, 2011). Estimates from the Institute of Medicine (2012) indicate that a health-literate society could save excess health care costs estimated at \$73 billion.

Needless to say, those are too many billions to ignore.

Societies need solutions to achieve the "triple aim" of improved health outcomes, better patient care, and lower costs. Patient engagement seems to be a possible answer to the economical and organizational issues contemporary societies has to cope with, since it increases individual responsibility and awareness about one's health/wellbeing and the risk of unhealthy behaviors (Graffigna & Barello, 2015). Engaging patients in their own care is claimed as a promising strategy to achieve this vital triple aim goal (Hibbard & Greene, 2013). However, patients are one of the most underutilized resources in the healthcare ecosystem. The enabled patient can assume a starring role in their healthcare journey including involvement in the health plan and decision process, and embrace the growing wave of efforts to improve the quality of health care (Menichetti, Libreri, Lozza, & Graffigna, 2014).

Indeed, a growing body of evidence demonstrates that citizens who are more actively involved in their healthcare experience better health outcomes and incurs lower costs (Hibbard, Greene, & Overton, 2013). As a result, many public and private health organizations are defining and applying strategies to engage their clients. Different efforts have been made to define what engaging patients really mean and how this goal can be accomplished (Barello, Graffigna, Vegni, & Bosio, 2014; Hibbard et al., 2013). Graffigna suggests a comprehensive analysis of patient engagement should be defined as "a processual multi-level experience that results from conjoint cognitive (think), emotional (feel) and conative (act)

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