Chapter 82
The Strengths, Weaknesses, Opportunities, and Threats Analysis of Big Data Analytics in Healthcare

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ABSTRACT

Improving the performance and reducing the cost of healthcare have been a great concern and a huge challenge for healthcare organizations and governments at every level in the US. Measures taken have included laws, regulations, policies, and initiatives that aim to improve quality of care, reduce costs of care, and increase access to care. Central to these measures is the meaningful and effective use of Big Data analytics. To reap the benefits of big data analytics and align expectations with results, researchers, practitioners, and policymakers must have a clear understanding of the unique circumstances of healthcare including the strengths, weaknesses, opportunities, and threats (SWOT) associated with the use of this emerging technology. Through descriptive SWOT analysis, this article helps healthcare stakeholders gain awareness of both success factors and issues, pitfalls, and barriers in the adoption of big data analytics in healthcare.

1. INTRODUCTION

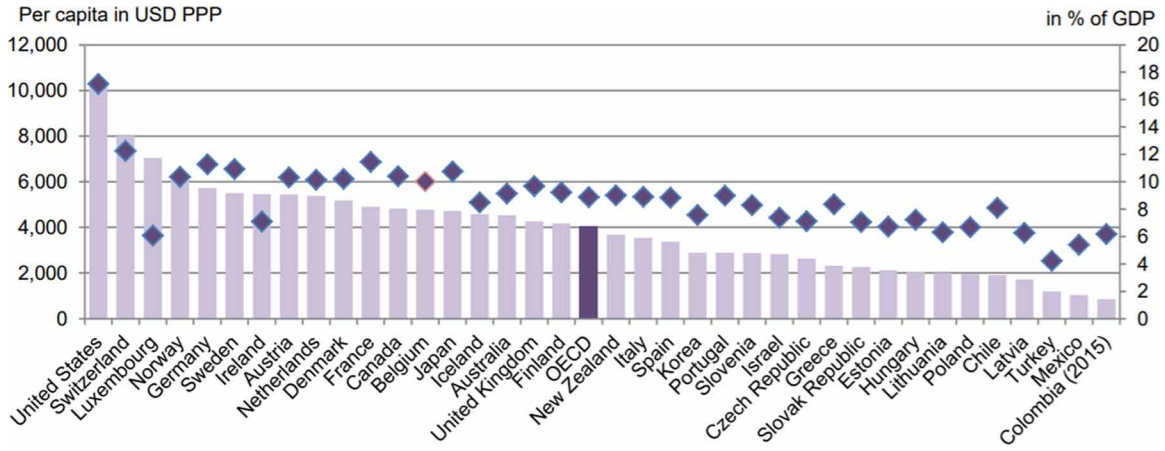
The US healthcare system has both strengths and weaknesses. It enjoys a large-scale, well-trained, and high-quality workforce of clinicians, nurses, and specialists, robust medical research programs, and the world's best clinical outcomes in select medical services. Yet, it suffers from high expenditure, low performance, and disparity in health status, access to care, and outcomes of care (Barnes, Unruh, Rosenau, & Rice, 2018).

DOI: 10.4018/978-1-6684-3662-2.ch082

1.1. High Cost of the US Healthcare System

According to a recent report published by The Organization for Economic Co-operation and Development (2018), in 2017 the US spending on healthcare was the largest, measured by both the spending per capita and the percentage of the gross domestic product (GDP) among its 37 member nations. Figure 1 shows that the US spent over $10,000 per capita on healthcare that year, or about 17% of GDP.

Figure 1. 2017 health spending per capita as share of GDP (Organization for Economic Co-operation and Development, 2018, p. 2)



Even more alarming is the rapid growth in US healthcare spending. According to the Centers for Medicare and Medicaid Services (CMS), healthcare spending is projected to grow at an average rate of 5.8 percent from 2012-2022, 1.0 percentage point faster than the expected average annual growth in the GDP. By 2022, US healthcare spending is projected to be nearly 20% of GDP (Centers for Medicare and Medicaid Services, 2012).

1.2. Low Performance of the US Healthcare System

This extremely high spending is sharply contrasted with the low performance in the US healthcare system. In 2000, the World Health Organization (WHO) published a report that measured and ranked the health system performance of 191 countries. According to this report, the US healthcare system was unimpressively ranked at 37, below most industrialized countries including France, the UK, and Canada, and even below some less developed countries such as Colombia and Chile (Tandon, Murray, Lauer, & Evans, 2000). Almost two decades later, there has not been much improvement in the performance of the US healthcare system. According to a 2017 report from the Commonwealth Fund, the US is ranked last out of 11 high-income industrialized countries based on measures including care process, access to care, administrative efficiency, equity, and health outcomes (Schneider, Sarnak, Squires, Shah, & Doty, 2017). Figure 2 shows that the US healthcare system performs at the bottom on four of the five measures.