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Improving healthcare quality: A technological and managerial innovation perspective

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ABSTRACT

This paper provides an overview of the current state of the art in the field of healthcare quality, with a special focus on technological and managerial innovation. It also serves as an introduction to the special issue of healthcare quality and innovation. We synthesize the results of selected studies, emphasizing the themes of healthcare quality and innovation in terms of diversity of continental localities, study purpose, study methods, and topics discussed in each individual paper. Our review provides valuable information and strategic insights for healthcare policy makers and managerial decision makers in both the private and public sectors to use in planning and controlling healthcare quality, activities, and services.

1. Introduction

Healthcare quality is a major driver of innovation, growth, and competitiveness. Healthcare quality and its relevant associated businesses, particularly from a managerial perspective, are a key source of business dynamism, innovation, and improvements in the social ecosystem. However, current healthcare quality performance is inadequate in both developed and developing countries. The implementation of meaningful advances in social changes through healthcare quality innovation will require a number of initiatives, including promoting a new quality paradigm in the healthcare industry, synthesizing expertise on ways to prevent social vulnerability, a commitment to the systematic practice of innovation, and methods to facilitate access to resources. Since an overview of the current state of the art in healthcare quality has not been properly explored, this paper will combine a literature review with an introduction to special issue papers focusing on the three sub-topics of healthcare technology, process, and knowledge innovation; the healthcare value chain, supply chain, and logistics; and the healthcare system, quality, and social innovation.

In the United States (US), healthcare spending represented approximately 18% of the gross domestic product (GDP) in 2011 and is predicted to reach 20% by 2020 (Berwick and Hackbarth, 2012; Keehan et al., 2011). New technology and its broad adoption into the healthcare industry are considered two of the main contributors to this spending increase (Aaron and Ginsburg, 2009; Barbash and Glied, 2010; Burns et al., 2011; Hillestad et al., 2005). In these previous studies, new healthcare technology emergence equates with higher fixed costs to hospitals and additional packages to insurance companies and federal supports, such as Health Information Technology for Economic and Clinical Health. In contrast to other industries, new technology has been slow to be adopted. In the present special topic issues, we emphasize a variety of technological innovations in the healthcare industry and provide points that lead to innovation with healthcare policy makers and decision makers who are keenly aware of how to connect these points with technological innovation. The theoretical argument for expanding the concept of innovation originates in the definition of innovation and healthcare structure.

Historically, innovation in other industries is generally studied from the perspectives of production and process development (Utterback and Abernathy, 1975). However, most healthcare organizations find it challenging to innovate within organizations in terms of management, system, and culture (Boer and During, 2001; Damanpour and Gopalakrishnan, 2001; Dougherty and Dunne, 2011; Francis and Bessant, 2005). The unsettling task of applying organizational approaches to innovation requires further study. Moreover, innovation in the healthcare industry has yet to uncover its impactful potential to innovate, even though there has been much recent progress on many fronts, such as open innovative systems (Bessant et al., 2012), innovative dynamics in hospitals (Djellal and Gallouj, 2005), the implication of Geisinger's practice (Paulus et al., 2008), and the influence of top managers in adopting innovative management practices (Young et al., 2001). These meaningful studies should help to integrate validated healthcare innovation models for practitioner use.

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The healthcare industry is distinctive in that its performance measures extend beyond profit maximization or cost minimization; instead, the industry may pursue goals such as cancer survival rate increase, longevity increase, reduced surgery recovery time, or an increase in the quality of life of patients with chronic diseases, which has improved in the US (Porter, 2010). Performance measures in healthcare are most intensively studied, which reflects hospitals' quality of care and efficiency. Currently, public and private efforts to report on hospital performance have mostly utilized process and outcome measures of quality (see the accreditation of hospitals by the Joint Commission: Accreditation, Health Care, Certification (JCAHO), The Healthcare Effectiveness Data and Information Set (HEDIS)). Outcome measures predominate and include mortality, complication rates, costs, etc.; process measures include evidence-based care guidelines (Palmer, 1997).

Thus, this introductory paper is intended to identify emerging study topics in the field of healthcare quality and innovation management. The papers covered in this review address the valuable implications of social change through healthcare quality innovation, and their topics include studies of multi-sectors, health service providers (physicians and hospitals), health service buyers (insurance companies), regulatory agencies (the Food and Drug Administration (FDA)), pharmaceutical companies (medicine providers), pharmaceutical innovation for FDA approval, health service provider adoption of mobile technology, knowledge centrality, and process innovation in Swiss Hospitals. Hence, this review illustrates the complex dynamics of technological and managerial innovation that are unique to healthcare quality.

2. Healthcare quality innovation

The cost versus merits of new technology adoption is not the intended focus of this editorial. Researchers have already studied the benefits of health information technology (HIT) adoption versus financial investment (Hillestad et al., 2005; Schoen et al., 2006); the impact of Electronic Health Records (EHR) implementation in practice: the quality or efficiency in ambulatory care (DesRoches et al., 2008); the quality of medical care and healthcare (Jamal et al., 2009); and EHR and the impact of decision support (DS) on ambulatory care quality (Romano and Stafford, 2011). While TFSC routinely highlights the significance of technology and its impacts, technological innovation is not the only solution for healthcare innovation.

It is our belief that, due to its sheer size and complexity, healthcare innovation is necessary in every healthcare sub-sector. The healthcare industry roughly consists of four sectors: health service providers (physicians and hospitals), health service buyers or payers (insurance companies), regulatory agencies (FDA), and suppliers (pharmaceutical companies) (Burns et al., 2011). To usher in innovation engagement from each sub-sector, the theoretical and empirical studies of healthcare innovation must become more vigorously active, which is why we focus on holistic approaches to innovation in the healthcare industry that make a major contribution to healthcare researchers and practitioners.

To better understand innovation in health care, it is necessary to briefly discuss the healthcare sub-sectors. As healthcare service providers, hospitals strive to increase cancer survival rates, reduce surgery recovery times, enhance the quality of life of patients with chronic diseases, and improve longevity and preventative disease measures. These overarching goals should not be confined by cost or by process improvement practices (Porter, 2010). However, this is typically not the case, as cost effectiveness and process measures have become the most validated methods of evaluating hospital performance to determine their sustainability. For example, the Balanced Scorecard was developed by Kaplan and Norton (1996) and serves as an integral measure of both external and internal aspects of a hospital organization, such as customer service, innovation, learning, and financial performance. In contrast, the total quality management (TQM) tool examines process measures of patients in hospitals (Carman et al., 1996; Douglas and Judge, 2001). Currently, public and private efforts to report on hospital performance have utilized both process and outcome measures (see the accreditation of hospitals by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) and Healthcare Effectiveness Data and Information Set (HEDIS)). These process measures include evidence-based care guidelines, which enable hospitals and health service providers to confine their processes to a measurable level of performance (Palmer, 1997). The empirical research paper by Cleven et al. (2016) supports the increased use of process measures. These authors conclude that the attentiveness toward process in Swiss Hospitals has meaningful findings for researchers and practitioners in that the process-oriented construct is positively correlated with both quality of care and financial performance.

The pharmaceutical industry is a supplier of medications, another integral component of healthcare innovation. Two approaches to innovation dominate studies in the pharmaceutical industry: knowledge protection as innovative incentives based on laws and legal agencies and knowledge sharing and transfer as innovative activities both within and between firms. The expedited process for new drug applications (NDAs) encourages pharmaceutical companies to develop novel drugs from new molecular entities and grants protections for them, enabling companies to capitalize on their research and development (R&D) investments into their lengthy drug development process (Kesselheim, 2010; Kushner, 2008). Under current regulations, the pharmaceutical industry has produced new drugs along with new patents and exclusivity rights. The number of patents and their length of exclusivity often determine the economic value of new medications and provide companies with financial compensation for their long investment process. Knowledge sharing and transfer within and between pharmaceutical and biotech R&Ds were examined as innovation activities (Cummings and Teng, 2003; Gassmann and Reepmeyer, 2005; Orsenigo et al., 1997). In terms of innovation and innovation management, the pharmaceutical industry is exemplary at interconnecting new knowledge creation, new drug development, and economic value creation. Along this same line of research, a paper by Dong and Yang (2016) investigates the murky area between knowledge spillover and new product development in the US pharmaceutical industry and reports a significant implication of knowledge centrality when analyzing network and patent citations.

Finally, healthcare regulation and healthcare policies drastically impact insurers, the uninsured, insurance companies, Medicare, Medicaid, and Veterans Health Administration beneficiaries. Notably, since the Affordable Care Act (ACA), also known as Obamacare, was activated, the US healthcare industry has been rattled. The ACA created many political complications and conflicts of interest between federal and state governments, including the two main political parties (Jones et al., 2014). In 2015, there were mergers and acquisitions among the top five healthcare insurers to develop efficient operating costs and to generate more than half of their revenues from the Medicare and Medicaid government programs.

It is clear that the current industrial map has changed. This new environment is a reverse of the reimbursement policy changes that took place during the 1980s when the US hospital industry was in turmoil. This change altered consumer expectations and created new sources of competition (Ginn, 1990; Thomas and McDaniel, 1990). As a result, US healthcare public policy shifted from planning and regulation toward a more competitive environment (Benjamin and Lee, 1988). After the Hill-Burton Act expired in 1974, federal legislation pursued cost reductions and healthcare quality improvements. In 1982 and 1983, federal and state governments launched regulatory actions. Essentially, the Medicare Prospective Payment System (PPS), enacted in 1983, was a prospective reimbursement of hospital expenses for Medicare patients that forced hospitals to contain operation costs and vigorously compete with other hospitals. Under the PPS reimbursement system, hospitals receive a set amount to treat a patient with a given diagnosis regardless of the actual costs incurred. This change in policy has driven all hospitals to become more economically oriented.