



Identification and development of Lean and Safety projects



Maria Crema*, Chiara Verbano

Department of Management and Engineering, University of Padova, Stradella San Nicola, 3, 36100 Vicenza, Italy

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ABSTRACT

Nowadays, healthcare systems are forced to perform highly from dissimilar perspectives. Solutions that combine diverse managerial approaches could be helpful to face this challenge. To this extent, this paper aims at studying how to implement Health Lean Management (HLM) projects with benefits of Clinical Risk Management (CRM). Considering the innovativeness of the topic, a multiple case study has been conducted selecting HLM projects with patient safety improvements (L&S projects) from operative units of different hospitals. Data were collected by executing semi-structured interviews. In-depth interviews, observations and analysis of relevant documentation were also performed to triangulate the information about hospital context, organizational and managerial aspects. Based on these data, a cross-case analysis was performed. Categorizing the cases, three clusters with distinguishing profiles emerged. Significant propositions were grasped highlighting the organizational and managerial characteristics of L&S projects. In particular, cases regarding front-office processes show distinct features and projects with intentional direct impacts on patient safety report peculiar characteristics, highlighting the need of CRM involvement to achieve multiple objectives. Besides interesting common evidences, indications distinguished by clusters are delineated. Patient safety improvements are intentionally obtained by managing wastes and errors, while they are unexpectedly reached by identifying and solving organizational issues. This research contributes to define guidelines for implementing L&S projects, which are still missing in literature, but which constitute a support for hospital managers who operate in a complex and turbulent context.

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1. Introduction

During last years, healthcare context has been facing an unrestrainable increase of costs due to aging population, use of expensive advanced technologies and clinical errors.

Public institutions can no longer afford this huge expense that weighs down the load they already have to bear because of the international crisis and of the pressure to public “spending review”. In addition, quality standards for obtaining accreditations and complying with ethical issues are even more challenging. With the aim to cut healthcare costs, a reduction of wastes in hospitals is fostered.

Abbreviations: HLM, Health Lean Management; CRM, Clinical Risk Management; L&S, Lean & Safety; PDISI, Patient Direct and Intentional Safety Improvement; PDUSI, Patient Direct and Unexpected Safety Improvement; PIUSI, Patient Indirect and Unexpected Safety Improvement; OBJ, objective; RES, result; Q&A, Quality and Accreditation unit; H, high; M, medium; L, low; LHU, local health unit; O.U., operative unit; DH, Day Hospital; EMR, Electronic Medical Record; ICT, Information and Communication Technology; PDCA, Plan, Do, Check, Act; VSM, Value Stream Map; PDTA, diagnostic therapeutic pathway.

* Corresponding author.

E-mail addresses: crema@gest.unipd.it (M. Crema), chiara.verbano@unipd.it (C. Verbano).

Political maneuvers have promoted numerous incentives to strengthen the mechanisms of the healthcare market, such as the provision of rewards for physicians based on results, and not on the number of visited patients, on the enrichment of the offer for citizens, on the increase of the information transparency (Spear, 2005). Notwithstanding these programs, the persistent stagnation of the system does not outline encouraging scenarios. The current conjuncture is adding socio-demographic, economic and administrative issues; in this problematic context, new solutions for service operations management, focusing on customer needs, are required in order to improve a system that too often seems inefficient, ineffective, and dangerous (Berry and Bendapudi, 2007). The challenge of the healthcare operators is assuring the same quality of care with increasingly scant resources and a demand growing in terms of both volumes and service complexity.

The development of synergic methodologies that combine different managerial approaches could be a solution to realize a more patient-centered, safe, equitable, efficient, acceptable, accessible, timely and effective healthcare service, according to a wide definition of quality in healthcare (WHO, 2006; Agency for Healthcare Research and Quality, 2011; Institute of Medicine, 2001).

In this paper, the results of a multiple case study are reported, investigating how Health Lean Management (HLM) projects with impacts on Clinical Risk Management (CRM) could be developed taking advantages from both approaches.

In keeping with this general purpose, after describing the theoretical background (second section) and introducing the research objectives and the followed methodology (third section), the results of the cross-case analysis will be reported and discussed (fourth section). At the end, the research contribution and conclusion will be derived.

2. Theoretical background

2.1. HLM and CRM to improve healthcare processes

Due to the sector complexity, market-based solutions have demonstrated their ineffectiveness in solving the healthcare challenges that hospitals are facing; moreover, the excessive focus on the expenditure does not permit to physicians to size the great healthcare opportunities of improving quality, increasing efficiency and reducing costs (Spear, 2005).

Even if healthcare operations management was investigated since the 90s, in order to improve the management of healthcare processes (Henderson, 1994), and although the interest on it is increasing as demonstrated by Dobrzykowski et al. (2014), new approaches implemented in manufacturing sector are struggling to establish in this context.

From the literature, it emerges that research on HLM is just at the beginning (D'Andreamatteo et al., 2015). As recent studies report, specific HLM techniques are usually adopted to solve specific problems and, when a HLM project is analyzed, results are often not properly reported, in that numeric values or statistical tests are missing (Holden, 2011; Mazzocato et al., 2010). Moreover, HLM is typically used as a toolkit to be adopted in a specific unit, without following a system and process view, without developing the right "soft" conditions and without a focalization on the external customer (patient) as required by public services (Radnor et al., 2012; Radnor and Osborne, 2013).

Pedersen and Huniche (2011) have identified the barriers and the success factors of lean management. According to these scholars, the existence of previous experiences of lean implementation and change management can positively influence the project results. Moreover, the presence of management commitment and backing, employees buy-in, long-term view of continuous improvement, external change agencies, improvement champions and dedicated staff, are required in addition to ownership of improvements, effective information communication, sustainability and sharing of lean results (Pedersen and Huniche, 2011; Kinder and Burgoyne, 2013; D'Andreamatteo et al., 2015).

As a strategy for business process analysis with a strong focalization on efficiency and on value added for the patient, HLM should be adopted not only to improve administrative processes, but mainly to add a significant improvement to the clinical and assistance processes (De Souza, 2009; Langabeer et al., 2009).

Clinical processes could be analyzed through HLM principles, tools and practices, redesigning and managing them in a scientific and systematic way, and contributing to clinical errors reduction.

This last result is usually pursued by staff in charge of CRM, which, besides managing litigations and claims, should monitor, reduce and prevent patient harms, identifying and analyzing processes, and investing on the factors that positively influence the clinical practice (Mills and Von Bolschwing, 1995; Vincent et al., 1998). A corrective/reactive approach should be substituted by a preventive/proactive approach, alerting errors, and classifying, analyzing and controlling clinical risks as part of a systematic

approach (Motschman and Moore, 1999; Foss and Moore, 2003). Therefore, the most recurrent problems and their underlying causes can be identified and appropriate actions can be executed to improve clinical processes. For the adoption of a proactive CRM, an organization culture change is necessary, favoring a safety culture that encourages the transparency and error prevention. Besides a culture of responsibility and a commitment at the strategic level, learning culture, staff empowerment, education, leadership, training and communication should be properly enhanced, in order to develop the right CRM culture inside the organization (Briner et al., 2010; Verbano and Turra, 2010).

In particular, Nakhleh (2008) states that flexibility, competences, skills and experience gained by workers are the key factors for error reduction and patient safety maximization. According to Briner et al. (2013), a CRM is maturely developed in a hospital if there is a function for central CRM coordination, dialogue with and between hospital areas, and strategic CRM objectives.

2.2. Emerging synergies between HLM and CRM

As Vincent (2001) emphasizes, CRM is just one facet of quality improvement, but its connections with other quality improvement systems should be made more explicit and meaningful. Furthermore, research is requested to understand how to lean a process, without making it prone to errors, and to measure HLM effects on patient safety (Pawlicki and Mundt, 2007; Holden, 2011).

Reduction of wastes could mean quality improvement and patient safety enhancement. In some empirical cases, results of quality improvement and patient satisfaction, reducing wastes and cutting costs, are reported (e.g. Printezis and Gopalakrishnan, 2007). According to Runciman (2002), patient safety should be achieved combining different methodologies belonging to clinical governance, risk management, and quality improvement.

Nevertheless, CRM and HLM have been never combined by formulating a synergic clinical process management methodology, which could achieve performance improvements in terms of patient safety, efficiency and effectiveness with patient-centre focus.

Someone conceives HLM and CRM as two alternative and antipodal solutions. Based on its definition, HLM focuses on eliminating wastes while, according to a conservative CRM, barriers (e.g. procedures, protocols, check points) should be erected in order to detect the error before it becomes an active failure. Patient safety investments are convenient from an economic-financial point of view, when they prevent from future costs of additional cares, prolonged length of stay caused by adverse events, high expenses for litigation, compensations and other economic damages (deriving for example from negative hospital image). Only combining HLM and CRM, it is possible to recognize that such layers of defenses cannot be categorized as wastes, stressing efficiency to the detriment of patient safety, but also that CRM should not be adopted through duplications and wastes, away from a responsible and accurate use of public resources.

There are several managerial and organizational aspects that are in common or that could be merged in an integrated approach, denying the conception of HLM and CRM as antipodes. For instance, transformational leadership (Flin and Yule, 2004) are required for both approaches in order to foster the team working and employee empowerment. A culture change that bases the organizational innovation on a process-oriented view is the background for a successful implementation of both HLM and CRM and it should start from staff education and training.

There are also a number of common tools adopted in HLM and in CRM (5 Whys, Ishikawa diagram, flow chart are just some examples), and new integrated tools for identifying and solving organizational wastes and clinical risks at the same time are developing.

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