

Supply Chain Practices of Lean Healthcare Performance Improvement (LHPI) in Malaysian Healthcare Industry

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Abstract— The purpose of this study is to review the supply chain factors of lean healthcare performance improvement (LHPI). Seven supply chain factors of LHPI (leadership, employee engagement, customer engagement, continuous improvement, just in time, lean production, and workflow processes) had been identified. The researcher chose Malaysia's healthcare industry as a population of this study because the industry will face strong pressures and take initiatives in order to manage the healthcare in a cost and performances effective manner. For practical implications, the LHPI tool process is user friendly, easy to use, systematic and practical thus can assist practitioners to understand the concept of lean healthcare practices in the Malaysian healthcare industry. Thus, the implementation of LHPI is significant to the Malaysian healthcare industry in order to improve the supply chain factors.

Keywords— Supply chain, lean healthcare, healthcare performance, performance improvement, healthcare industry, Malaysia

1. Introduction

Due to the supply chain plays in the healthcare industry, lean has been the subject of numerous studies, and different tools have been suggested in the literature for lean healthcare.

Lean refers to the tool and techniques for efficiency, quality, and cost [1]. However, there are some discussions whether lean thinking which has its background in the manufacturing sector will be suitable to be applied in healthcare firms [2]. As

proposed by [3], lean thinking can be experienced in medical services because the goal is to deliver valuable products to the customer; it has been stated that lean thinking or lean management has been considered as the latest tool of the current management system in the healthcare [4]. For instance, the application of lean management enables the attainment and sustainment in the healthcare organization [5]. Needless to say that, lean from the manufacturing industry [6] is undoubtedly can be adopted in the healthcare industry to improve the healthcare management.

One of the main objectives in implementing lean is to reduce waste in terms of cost [7]. Waste is known as seven deadly wastes which include production, inventory, delivery, transportation, processing, waiting, and defects [8]. Hence, lean in healthcare is shown to improve the healthcare flow, wait times, and the quality of healthcare processes.

Lean implementation includes healthcare, central government, and local government. The implementation of lean in healthcare, particularly public and private hospitals can reduce processes and procedures such as patient information, waiting time, and processes of discharge. Moreover, lean practices can reduce waste and improve productivity based on the lean tools and techniques combined with continuous improvement.

The literature emphasizes that to develop a Lean Healthcare Performance Improvement (LHPI) tool in improving quality and reducing costs, technical lean activities can be part of a lean management system that is supported by lean healthcare practices.

2. Literature Review

In this study, healthcare industry is known as one of the important sectors in Malaysia due to the role in keeping the citizen's health at an optimum rate. Furthermore, the healthcare industry plays an important role in developing and extending support to healthcare in order to enhance healthcare quality. Thus, the healthcare industry has become one of the significant contributors towards the Malaysian economy development.

LHPI is one of the management practices that can be considered as the techniques and tools [9]. LHPI is considered as a strategy of process improvement that beneficial to a healthcare organization [10]. The literature has mentioned some benefits of LHPI including process, delivery, patient satisfaction, patient safety, improving quality management, and healthcare performance [11, 12, 13]. Thus, LHP has been described as a lean tool or practical applications that require the management and organization to provide the lean benefits, particularly in the Malaysian healthcare industry.

Regarding this, this study aims to apply the LHPI in the Malaysian healthcare industry in order to improve lean management. However, the lean healthcare industry should focus on the use of lean tools or practical approach [13], with some previous literature [14] describing the lean engagement and its effects as important to the healthcare industry in order to improve the healthcare performance.

The LHPI is a tool management system that can change how healthcare is organized and managed. The main principle of lean is to reduce waste, costs, and increase quality and delivery time of products and services. The lean principle is modeled by the Toyota Production System (TPS). The healthcare industry is different from manufacturing, but the implementation of LHPI is relevant in the healthcare organization. In the healthcare industry such as clinics and hospitals, any small errors or failures can cause it.

2.1 LHPI dimensions

Based on the previous literature, the authors have identified seven factors as follows: Leadership (LD), Employee Engagement (EE); Customer Engagement (CE); Continuous Improvement (CI); Just in Time (JIT); Lean Production (LP); and Workflow Processes (WP). Most of these factors were adopted and adapted based on LHP studies [15, 16, 17, 18, 19, 20, 21, 22]. Although these studies provided different findings such as LHPI factors, there is a set of practices provided for the LHPI implementation. The LHPI includes the seven main dimensions (LD, EE, CE, CI, JIT, LP, and WP) which are believed to be LHPI for the Malaysian healthcare industry.

3. Methodology

The researcher will propose three phase of research activities for this study. The first phase is the critical literature review. All these research activities will be conducted to establish the use of the proposed lean healthcare practices on the performance improvement system for Malaysian healthcare industry. This will then pave the way towards formulating a research model, developing the research hypotheses, and lean healthcare instrument in investigating the lean healthcare implementation in the industry. Finally, the procedure for determining the population, number of samples and selection, building and modifying the instrument, selection of the companies for pilot study and full survey, as well as the procedure for obtaining, and permission to engage the research undertaken will be determined in this phase.

In the second phase, the research activities will focus on data collection. In the third phase, the research activities will be on data analysis. The input data would be analyzed using SPSS and SEM. Next, discussions and implications of the results will be presented and a suggestion for improvement will also be discussed. Finally, this study will provide the conclusion and recommendations for the alternative process structure based on the research finding.

The researcher chose Malaysia's healthcare industry as a population of this study because the industry will face strong pressures and take initiatives in order to manage the healthcare in a cost and performances effective manner.

4. Conclusions

The LHPI tool process is user friendly, easy to use, systematic and practical thus can assist practitioners to understand the concept of lean healthcare practices in the Malaysian healthcare industry. The LHPI tool is very structured, feasible and practical to be implemented in healthcare industries to manage operational activities towards achieving better performance result. The LHPI tool is comprehensive to manage the overall performance of business operation and company systems. The LHPI tool can be applied although the manufacturers and assemblers are currently applying different manufacturing system. Lastly, the LHPI tool is easy to assess and cost-effective in time for the documentation process.

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