

# Structural Conceptual Framework of Supply Chain Process for Lean Healthcare Practices and Healthcare Performance

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**Abstract**— The purpose of this study is to review the supply chain process of lean healthcare practices (LHP). LHP consists of leadership, employee engagement, customer engagement, continuous improvement, just in time, lean production, and workflow processes had been identified. For this research purpose, questionnaires will be distributed in selected hospitals by the researcher. For implications, this finding would provide good material as guideline and references to manufacturing industry especially to Malaysian healthcare firm, Malaysian government hospital, lean healthcare consultants, and local and international academics. Thus, LHP tools are important to improve healthcare performance in the Malaysian healthcare industry. The paper contributes to supply chain management literature by identifying LHP in the Malaysian healthcare industry.

**Keywords**— Supply chain, lean healthcare, lean performance improvement, healthcare industry, conceptual framework, Malaysia

are higher in the [2]. Therefore, these challenges will need to be resisted and overcome to improve the management of the healthcare industry, thereby ensuring the quality of the health sectors. Lean healthcare practices (LHP) present two main challenges: First, the existence of strategies for lean healthcare and second, about the difficulties in measuring the lean healthcare implementation.

LHP is implemented as a practice for processes, flow, reducing interruptions (lean tools) as part of a lean management system with organizational culture and good leaders, but lack sustainability [3]. To improve LHP improvements, this study should be combined with lean practices in order to improve the performance in the Malaysian healthcare industry.

Healthcare industries focus on reduce cost, price, deliveries time, waste elimination, and errors in various aspects of the operation [4, 5, 6]. In relation to that, the lean healthcare system is the better tool to be implemented in the healthcare industry. This is because it can provide benefit and lean tools to reduce costs, increase quality, and operation for Malaysian healthcare industry.

## 1. Introduction

Supply chain process integration perspective is important in improving performance [1]. Some of the challenges faced by the healthcare industry, including rising costs of medicines and equipment, the demand for quality healthcare and advanced equipment is growing, and changing patterns of disease that inevitably will cause healthcare costs

## 2. Literature Review

Lean management can improve patient satisfaction, quality of management, efficiency, patient safety, and applying lean healthcare practices [7]. Therefore, this study can be implemented using lean healthcare practices in terms of principles, practices, tools, and techniques in order to improve the healthcare management.

Lean healthcare systems are not only to eliminate waste, but can add value to customers. [8] proposed a model to change lean healthcare in organizations which requires strong bases such as strong leadership, good teamwork, and strategic planning with a clear objective in order to fulfill customer satisfaction. Meanwhile, quality management, problem solving, training, and teamwork is an important aspect toward the success of lean healthcare implementation [9]. This is supported by [10] who found that employee commitment, communication, teamwork, and continuous improvement through a lean system and development of lean management are important to sustain lean. In summary, lean is not only to reduce waste but the understanding of lean as a whole is crucial as to ensure the organization manage to identify what tools or practices can be applied and finally be able to fulfill customer satisfaction.

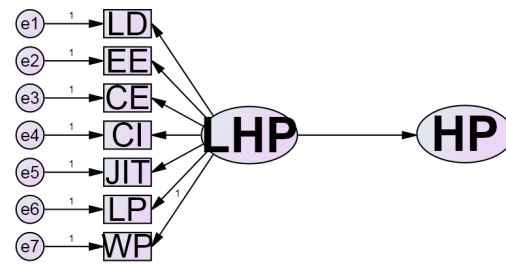
Lean implementation consists of four critical success factors in terms of leadership, management commitment, financial, skills and training, and organizational culture [11]. In line with that, some authors [12, 13] stated that there is a requirement for practices and tool to contribute to the success of lean implementation.

In addition, lean healthcare is also a tool for improvement which can be used by any organizations [14]. It is suitable for service industry to improve the delivery, quality, and flexibility [15]. Other than that, lean healthcare systems can be used by healthcare organizations to reduce waste and error [16, 17, 18, 19]. Reductions in errors can give benefits such as time, cost, welfare, motivation, and productivity.

Therefore, adopting a supply chain process of LHP can create efficiencies and effectiveness value that can lead to improve healthcare performance.

## 2.1 Proposed conceptual framework

The aim of this study is to identify the leadership implementation that is important in supporting healthcare organizations through LHP. A good employee engagement that influences the work commitment as a successful healthcare of LHP. Customer engagement can affect reduction in lead time and waiting-list time that increases patient satisfaction. This study can be considered as LHP dimension in order to improve the healthcare management. Just in time is important for LHP in order to increase patients' satisfaction. Lean production can be considered as LHP dimension in order to improve healthcare management. Thus, workflow processes can be implemented in terms of LHP for the Malaysian healthcare industry. Figure 1 presents the conceptual framework of supply chain process for LHP and HP.



Notes: Leadership (LD), Employee Engagement (EE), Customer Engagement (CE), Continuous Improvement (CI), Just in Time (JIT), Lean Production (LP), Workflow Processes (WP)

**Figure 1.** LHP: Conceptual framework of supply chain process for LHP and HP

## 3. Methodology

To answer the research questions, a conceptual model was developed based on the previous literature review. The model is based on the constructs and variables by questionnaire development for determining the implementation of LHP.

The questionnaire would be sent to the experts' panel for validation purpose and conducting a pilot study. The researcher would need to improve the questionnaire based on the expert's comments. The data obtained would be included in SPSS Statistics and later analyzed using IBM SPSS Statistics. Finally, the constructs would be developed among variables by using the Structural Equation Modeling (SEM) approach. Besides, the Exploratory Factor Analysis (EFA) would be used to identify the items, as well as to suggest items for deletion and places where item should be added [20, 21, 22, 23]. The second factor analysis is the Confirmatory Factor Analysis (CFA) on developed factors or constructs.

## 4. Conclusions

The finding of this study may indicate the development of LHP tool for the Malaysian healthcare industry. In addition, this finding would provide good material as guideline and references to manufacturing industry especially to Malaysian healthcare firm, Malaysia government hospital, lean healthcare consultants, and local and international academics. This study has important implications for lean healthcare practices, quality improvement effort, and performance improvement system in Malaysian healthcare industries. This research also assumed that LHP tools are important to improve hospital performance in the Malaysian healthcare industry.

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