

## The Lean Healthcare Practices and Performance Improvement Measurement for the Malaysian Healthcare Industry

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### Abstract

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 practices and techniques combined with continuous improvement. The aim of this study is to propose the relationship between the lean healthcare practices (LHP) and performance improvement measurement (PIM). LHP is expected to be suitable to their characteristics and improve their competitiveness, business performance, and achievement of business excellence operation in Malaysian healthcare industry. The researcher will propose three phase of research activities for this study. The first phase is the critical literature review. In the second phase, the research activities will focus on data collection. In this phase, the researcher will conducting validation case study. In the third phase, the research activities will be on data analysis. The input data would be analyzed using SPSS and SEM. healthcare improvement performance measurement has been in existence for many years, it seems that there is no consensus on the collective strategic set of measures used by companies. User friendly and systematic practice content are structured according to LHPI initiative, quality improvement effort, and performance improvement systems for continuous assessment to monitor and manage the level of quality service improvement and sustainable hospital performance.

**Keywords:** Lean Healthcare Practices, Performance Improvement Measurement, Healthcare Industry, Malaysia

**Introduction**

Lean implementation includes healthcare, central government, and local government (Radnor, 2010). 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 practices and techniques combined with continuous improvement. Furthermore, lean healthcare is significantly useful for patient, employees, and stakeholders (Villeneuve, 2011; Vlachos & Bogdanovic, 2012) as it is uniquely created to make continuous improvement of their work and bring some added value to the customer.

Waste elimination is a main aspect in lean healthcare. Waste consists of seven types which are errors, production, processing, inventory, employee, transportation, and waiting time, which do not meet customer requirement. Waste in healthcare includes delays between the waiting time, operation, capacity, operational, medical services and procedures (Kollberg et al., 2007). According to Habidin et al. (2012), healthcare industries focus on reduce cost, price, deliveries time, waste elimination, and errors in various aspects of the operation. In relation to that, the lean healthcare system is the better practice to be implemented in the healthcare industry. This is because it can provide benefit and lean practices to reduce costs, increase quality, and operation for Malaysian healthcare industry. However, the implementation of lean in the healthcare sector is quite complicated and a better understanding is needed compared to the manufacturing sector due to several challenges; how to reduce cost and reduce inefficiency in operational level (Hwang et al., 2014) ; if the organization fail to curb the problem, waste will certainly emerge.

Vlachos and Bogdanovic (2012) mentioned that the lean healthcare systems are not only to eliminate waste, but can add value to customers. Machado et al. (2014) 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, Boyer (1996) states that quality management, problem solving, training, and teamwork is an important aspect toward the success of lean healthcare implementation. This is supported by Papadopoulou and Ozbayrak (2005) 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 practices can be applied and finally be able to fulfill customer satisfaction.

Achanga et al. (2006) also suggested that lean implementation consists of four critical success factors in terms of leadership, management commitment, financial, skills and training, and organizational culture. In line with that, some authors (Sakakibara et al., 1993; Flynn et al., 1995, Swink et al., 2005; Narasimhan et al., 2006; Shah & Ward, 2007; Silva et al., 2015) stated that there is a requirement for practices to contribute to the success of lean implementation. To ensure the successful implementation of lean healthcare in improving healthcare performance, performance measurement is measured in terms of company's needs, quality program, technology, increased competitive advantage, and teamwork. Thus, financial and non-financial performance is required by the healthcare organization because the current business era requires not only quality as a business strategy but also as a system

in terms of financial, quality, customer satisfaction, and innovation. In addition, the healthcare performance should be measured. This is because lean is based on the relationship between lean and performance (Shah & Ward, 2007).

Performance refers to the organizational performance, firm performance, innovation performance, quality performance, and customer performance (Khaidir et al., 2012). It also can be measured as the financial performance and non-financial performance. Furthermore, healthcare performance is improving the operation by increase processes, production, and reduces costs. Other than financial aspects, customer and internal business process become the essentials in improving the healthcare performance. Thus, the performance measurement based on the financial and non-financial indicators is required in the healthcare industry to assist the decision making in terms of short or long term. Therefore, this study focuses on the extent to which performance improvement systems serve as a guideline to assist the implementation of lean healthcare practice. Regarding this, there is a significant of performance improvement systems (Arawati, 2005) in the lean healthcare and performance. This was also supported by Jamaludin et al. (2013), who noted that a set of practices needed to be developed as a benchmark to measure Malaysia's healthcare performance. In relation to that, the aim of this study is to propose the relationship between the lean healthcare practices (LHP) and performance improvement measurement (PIM). LHP is expected to be suitable to their characteristics and improve their competitiveness, business performance, and achievement of business excellence operation in Malaysian healthcare industry.

### **Literature Review**

This section will highlight the literature review of the Lean Healthcare Practices and Performance Improvement Measurement in Healthcare Industry Malaysia.

#### **Lean Healthcare Practices (LHP)**

Some lean healthcare implementation may fail because healthcare organizations focus on tools or systems for implementing over cultural factors in terms of leadership and organizational culture (Stelson et al., 2017). The author suggests a failure rate of 90 percent (Simons et al., 2017). 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. Regarding the first issue, lean healthcare is described in a variety of issues. The healthcare organizations implement lean as a tool in terms of reducing waste, based on the valuable, rather than as system providing the whole healthcare organization (Kaplan et al., 2014; Simons et al., 2017). Besides, 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 (Wood, 2014). To improve LHP improvements, this study should be combined with lean practices in order to improve the performance in the Malaysian healthcare industry.

Regarding the second issue on the difficulties to measure the LHP, the literature supports LHP in the healthcare industry. However, the evidence is limited and findings should be explained with solutions (Simons et al., 2017). Some studies show the outcomes and have included the outcomes for the customer or the employee in the healthcare industry (Dixon-Woods et al., 2012; McIntosh et al., 2014). Thus, this study focused on the LHP dimensions

tools to improve the healthcare management to improve the culture and maintain continuous improvement.

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 (Abdelhadi, 2015; Aij et al., 2015; Cheng et al., 2015; Al-Hyari et al., 2016; Gupta et al., 2016; Matthias & Brown, 2016; Gadolin & Andersson, 2017; Rees & Gauld, 2017; Simons et al., 2017). Although these studies provided different findings such as LHP success factors, there is a set of practices provided for the LHP implementation. The LHP includes the seven main dimensions (LD, EE, CE, CI, JIT, LP, and WP) which are believed to be LHP critical success factors for the Malaysian healthcare industry.

### **Performance Improvement Measurement (PIM)**

In an attempt to measure Performance Improvement Measurement (PIM) , multiple indicators of performance were used to measure both financial (Mathur et al., 2011; Elg et al., 2013; Sedevich-Fons, 2014; Gu & Itoh, 2016; Pirozzi & Ferulano, 2016; Soysa et al., 2016) and non-financial measures (Ignone et al., 2013; Mesabbah & Arisha, 2016; Lu et al., 2017). Organizations in the public and private sectors are struggling with their PIM especially in the healthcare industry. PIM is important to improve healthcare performance for the short and long term performance. Thus, this study focused on the PIM to improve the healthcare industry.

Appropriate PIM can ensure that the healthcare industry adopts long-term aspects and allocate the healthcare resources to be most effective healthcare activities. Thus, PIM is an important measure in order to improve the healthcare organization towards performance, processes, and continuous improvement towards healthcare objectives. According to Lu et al. (2017), PIM can be used as an instrument to promote the achievement of healthcare system objectives. This study focused on PIM that contributed to the healthcare industry such as financial performance and non-financial performance. Therefore, it is enabling healthcare organization to improve the healthcare performance and to make positive contributions in the Malaysian healthcare industry.

For this study, two dimensions of PIM are relevant: Financial Performance (FP) and Non-Financial Performance (NFP). This is supported by Ignone et al. (2013), Sedevich-Fons (2014), Vakani and O'Beirne (2015), Soysa et al. (2016), and Lu et al. (2017) who mentioned that PIM is essential to the healthcare industry in order to improve healthcare performance. Based on this, this study focused on the FP and NFP for the Malaysian healthcare industry.

### **The Relationship between LHP and PIM**

According to Hong et al. (2014), it is suggested that LHP and PIM have a direct positive relationship in the healthcare industry. As healthcare achievement from the relationship between LHP and PIM, this relationship leads healthcare companies to improve the financial outcomes. It is also reasonable to expect that the outcomes from LHP would bring about a positive impact on PIM such as sales, revenues, and profit. Thus, this hypothesis 1 would be the following:

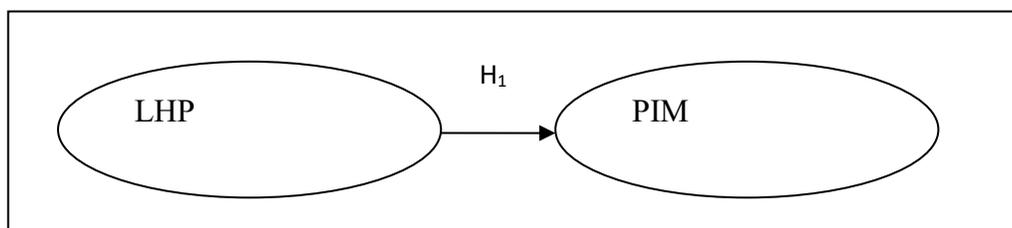
H<sub>1</sub>= There is a positive and direct significant relationship between LHP and PIM for Malaysian healthcare industry.

### Method

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, quality improvement efforts 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 this phase, the researcher will conducting validation case study. 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.

### Proposed Conceptual Model

Figure 1.1 represents the Conceptual Model proposed by the researcher. The research model aims to investigate the relationship between lean healthcare practices and performance improvement measurement for the Malaysian healthcare industry.



Notes: LHP=Lean Healthcare Practices; PIM=Performance Improvement Measurement

Figure 1.0 Proposed Conceptual Model

### Conclusion and Significant of the Study

In the globalization era, companies need to determine the strategic lean healthcare practices and measures to evaluate, control, and improve manufacturing production process by measuring strategic performance improvement. Although healthcare improvement performance measurement has been in existence for many years, it seems that there is no consensus on the collective strategic set of measures used by companies. User friendly and systematic practice content are structured according to LHPI initiative, quality improvement effort, and performance improvement systems for continuous assessment to monitor and manage the level of quality service improvement and sustainable hospital performance.

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