

Single-Minute Exchange of Die (SMED) and Lean Healthcare: Reducing Patient Journey in Emergency Care Units

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EXECUTIVE SUMMARY

Lean healthcare presents as a potential means to overcome barriers in the health sector by eliminating unnecessary movements, waiting, transport, and stockpiles. However, time spent in set-up activities does not add value to the process because the patient is not receiving service. One of the Lean tools that can help mitigate waste in those activities is the single-minute exchange of die (SMED); therefore, this study aims to evaluate the implications of using SMED in the health context. The authors conducted an exploratory search in scientific documents to achieve this goal. The content analysis was based on Bardin. From the findings, it is possible to identify the implications of the use of SMED in the health context, sort activities between internal and external setup, and reduce time spent on wasteful tasks, while increasing time available for value-adding activities.

INTRODUCTION

The goal of the healthcare field is, for all intents and purposes, to maximize the value of services provided to clients (Singh, 2021). When thinking about hospitals, clinics, and other healthcare facilities, it's important to remember that the outcomes and items given are health and treatments for patients (Franco, 2020). One of the ways to achieve this while meeting organizational goals is through the Lean methodology adoption (Davis, 2010), which can be applied in healthcare facilities through the Lean Healthcare use. Providing reliable, safe, and quality care while constantly seeking efficiencies is one of the challenges in healthcare (Hallam, 2018). Combined with the Lean approach to cost and waste reduction, Lean Healthcare offers great opportunities to become a significant area of research.

Many systems in health care are inefficient, and they end up causing more suffering to clients (who, for this study, will particularly be referred to as patients) than benefits. Although many of these inefficiencies are culturally ingrained in the daily exchanges of the businesses, they are the main reasons for patient dissatisfaction (Leite, 2019).

One of the main factors that can greatly reduce the value of the service to the customer is the waiting time, which is usually associated with negative experiences (Barlow, 2002; Bielen and Demoulin, 2007). Given that fact, the Single-Minute Exchange of Die (SMED) technique is a Lean tool known for its focus on optimizing set-up activities, with the goal of reducing idle time. Although this is a widely known shortcoming, not many studies address the Lean implementation and SMED in healthcare, and it deals with some criticism regarding its origins in industrial manufacturing, as the cultural underpinnings and principles prevalent in manufacturing and healthcare differ in several aspects (flow, products, operations, stakeholders) (Chiarini, 2016); therefore, caution is warranted when implementing Lean and SMED in healthcare.

Most hospitals, according to the Joint Commission on Accreditation of Healthcare Organizations (2006), use “conventional management thinking”, focusing on individual healthcare activities rather than processes. Local improvement (or improvement in operations) is prioritized in conventional management thought, which is still visible in manufacturing. Lean Thinking, on the other hand, transfers the focus of improvement from individual tasks to the process (or patient pathway), which is defined as “a set of activities that must be executed in the proper sequence and at the appropriate time to suit the demands of the patient” (de Souza and Pidd, 2011). Lean is most effective when applied across the entire process, from determining the need for a service to delivering that service without interruption.

Because of the large number of variables and the unpredictable nature of their interactions, healthcare systems are indeterministic, which means that future states and configurations cannot be easily anticipated by looking at and extrapolating previous data (Franco, 2020). Furthermore, the healthcare sector has faced numerous challenges around the world in the recent decade, such as limited resources (be it staff, equipment, or space), increased demand given the rise in population size and unhealthy lifestyles, and economic crisis (Franco, 2020). As a result, it's critical to find new ways to provide care more effectively while also exceeding customers' expectations (Crema and Verbano, 2021).

Delivering and financing high-quality healthcare services has been a major global goal recently, mainly because healthcare quality reflects citizens' perceptions of their quality of life. However, according to Franco (2020), this ecosystem faces important challenges such as:

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