

Increasing Operating Room Utilization Through Implementation of Lean and Six Sigma Principles: A Literature Review

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Abstract

Rationale, aims, and objectives: Lean and Six Sigma methodologies are set of principles aimed at improving organizations through restructuring processes, and via identification and elimination of steps that do not add value for the consumer and result in wasted time, resources and expenses. Owing to its multifaceted nature and high impact on patient health and recovery, as well as its significant financial impact, the operating room (OR) environment is an obvious substrate for Lean and Six Sigma implementation. In this review, we aim to prioritize the most effective and reproducible optimization Lean and Six Sigma tool and to raise awareness among healthcare professionals about the current experience of Lean and Six Sigma utilization in the daily work routine in the OR. Methods: A computerized search from inception up to June 2019 of the online electronic databases PubMed and Google Scholar was performed. Studies investigating Lean or Six Sigma interventions considering various OR aspects were examined. Results: Most of the studies originated in the USA and demonstrated Value Stream Mapping (VSM) as the most common practiced optimization technique followed by the Define, Measure, Analyze, Improve, Control (DMAIC) tool. These methods provided the most effective sole tools for promoting positive changes in the work environment. Conclusions: Lean and Six Sigma implementation in the OR was found to be associated with improved safety and quality of care, reduced waiting times, increased patient satisfaction and cost reduction. We suggest that the implementation of a synergized approach, combining VSM and DMAIC tools, in the routine workflow may lead to a positive impact on productivity and efficiency, regardless of the scale or type of surgical procedures performed.

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Figure 1. Article inclusion flowchart

