Reducing Patient Waiting Time in Outpatient Department Using Lean Six Sigma Methodology

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This article addresses the issue of longer patient waiting time in the outpatient department (OPD) of a super specialty hospital attached to a manufacturing company in India. Due to longer waiting times at OPD, employees need to be away from the workplace for a longer duration. This problem was addressed through the Lean Six Sigma (LSS) methodology. The process, starting from registration of a patient to dispensing of medicine, was included in the project. The non-value added steps in the process were identified, and actions were initiated. A cause and effect diagram was prepared for high patient waiting time, and causes were validated with the help of data collected from the process. Statistical tools such as Kruskal–Wallis test, Box–Cox transformation, Control charts, normality test, etc., were used within the LSS methodology not only to identify the causes but also to sustain the improvements. As a result of this project, the average waiting time reduced from 57 min to 24.5 min and the standard deviation was reduced to 9.27 from 31.15 min. This will help the hospital to serve patients better and faster, which, in turn, will lead to a reduction in delay of treatment and a faster recovery of patients. The productivity loss due to absenteeism of employees from the workplace could be reduced. Generally, in an Indian healthcare scenario, most of the activities were dependent on individual doctors rather than processes. This project has helped the clinicians and the hospital management to identify the weak areas in the process for improvement. Because of the implemented solutions, understanding the history of past treatments and medications of the patients was easy for the doctors. Also, the practical validity of deploying LSS in a healthcare scenario was justified with this study. Copyright © 2013 John Wiley & Sons, Ltd.

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1. Introduction

Lean Six Sigma (LSS) is the latest generation of improvement approaches.¹ It is a business improvement methodology that aims to maximize shareholder value by improving quality, speed, customer satisfaction and costs. It achieves these by merging tools and principles from both lean and Six Sigma.² The lean improvement projects, executed using Define-Measure-Analyze-Improve-Control (DMAIC) methodology, are termed as LSS projects.¹,³ While lean is all about speed and efficiency, Six Sigma is about precision and accuracy: lean ensures resources are working on the right activities, while Six Sigma ensures things are done right the first time.⁴ The lean also aims to increase the speed of operations and simplify the process flow.⁵ LSS uses tools from both toolboxes in order to get the best of the two methodologies, increasing speed while also increasing accuracy.⁶ It focuses on improving processes, satisfying customers and achieving better financial results for the business.⁷,⁸ The concepts Six Sigma and Lean have evolved and changed the way that many people view improvement work.⁹–¹¹ A number of organizations in the healthcare sector also have been implementing Lean and Six Sigma initiatives for the last ten years for improving their processes. In previous years, several hospitals have adopted LSS, not only for quality improvement, and not just to deal with clinical and medical issues, but more generally for business improvement and in all areas of operations.¹² LSS projects in hospitals focus on different aspects of the workings of the hospital, including, length of stay, appropriate use of medication, better use of operating rooms and nursing efficiency, etc.¹³

The purpose of this paper is to demonstrate the power of LSS methodology in a hospital environment to reduce ‘patient waiting time in outpatient department (OPD)’ of a large hospital attached to a manufacturing company. The next section provides the readers with the details of the case study.