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## **Root Cause Analysis of No Shows at a Diagnostics Center and Methods to Reduce Them**

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**Author Note:** Ajay Goyal recently completed the Master of Science in Industrial and Systems Engineering at Binghamton University, a.k.a., the State University of New York at Binghamton. Daryl Santos is a Professor in the SSIE Department and advised Ajay on his master's project, upon which this paper is based.

**Abstract:** The aim of this effort is to conduct a root cause analysis to find reasons for missed appointments at a diagnostic center. The analysis is completed using control charts, Pareto analysis, cause and effect diagrams, and ANOVA to determine the relationship between time, procedures and reasons for no shows. Once the root causes are determined, methods are devised to eliminate them. A PDSA cycle for each method is attached to act as a standard operating procedure. We thank the entire staff of STAR Imaging and Research Center for all the help they have provided in the course of this project. STAR Imaging and Research Center (STAR) is a premier diagnostic imaging clinic located in Pune, India. It is focused on providing specialized diagnostic imaging and basic blood tests to patients and physicians. It is one of the only imaging centers in Pune that operates on all days of the week. Despite its smooth day-to-day business operation, the imaging center is facing revenue loss due to daily missed appointments by clients. This project will analyze the root causes of these 'no shows' and help reduce them. In June 2018, for example, the imaging center has had a missed-appointment rate of 20.11%. On an average, the imaging center loses \$70 per missed appointment. Based on their data from January 2018 to June 2018 these no shows accounted for an approximate revenue loss of \$103,110. The goal here is to bring down the missed appointment rate by at least 5% which will save approximately \$25,777 for the imaging center. Primarily, the reasons responsible for these missed appointments were statistically organized and analyzed. A literature research was then conducted to study the causes which typically led to the highest number of no shows. Solutions were then constructed to help mitigate the rate of these no-shows.

**Keywords:** Root Cause Analysis, Imaging, Missed Appointments