

Implementation of Improvements to Increase Quality in the Production of Medical Equipment: A case study in a Small Business

Daniel José dos Santos, Laís Aparecida de Paula, Luís Fellipec da Silva Pacheco, Pedro Patrocino de Faria, Wanderson Fagnoli Vaz Gonçalves, Renata Duarte Merlim, Luiz Melk de Carvalho, Flávio Henrique Batista de Souza

Centro Universitário de Belo Horizonte UNIBH ¹, Brazil

Abstract

The global context, due to the pandemic and attention to the production of medical equipment, requires companies to have an optimized production capacity. Thus, this research demonstrates a case study of a small manufacturer, focusing on the production of a power module capable of delivering an electrical stimulation intensity superior to that of all other equipment available in the world market. During the process, quality tools were used (5W2H, PDCA, Flowchart, Organization Chart, and Ishikawa), aligned with modeling and simulation via Petri Net, to identify and solve bottlenecks. With the use of these methodologies, it was possible to find and prioritize the root cause of one of the problems that influences the quality of the product and later model and simulate the process and propose a more profitable and effective solution. This study enabled the implementation of a new production model that allowed for cost reduction and minimized material losses. Specifically, it was possible to verify the optimization of the production of the external protection structure (cabinet), with a saving of 88% in the value of this equipment component.

Keywords: Petri Nets, Medical equipment, Quality tools, Process Management.