

Medical Equipment Simulation Analysis

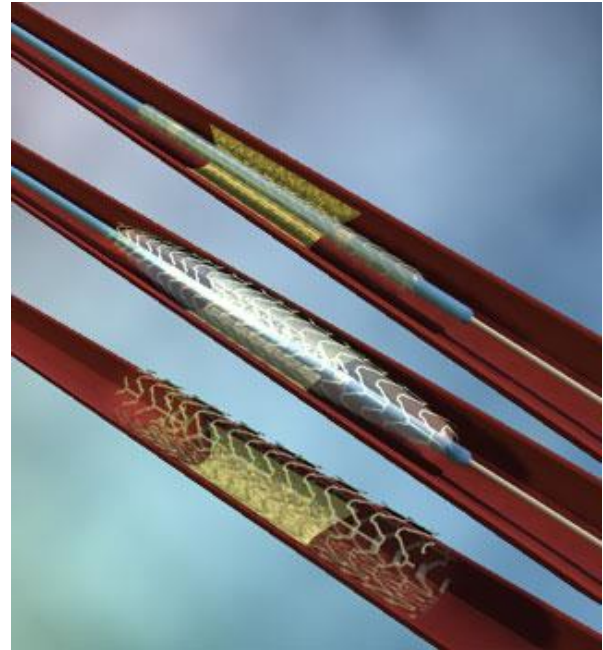
PROJECT SUMMARY

A medical equipment manufacturer wished to employ simulation to illustrate the product flow through the stent production department at their manufacturing facility. They wanted to identify the system constraints and to understand how the bottlenecks impact key performance metrics.

SYSTEM DESCRIPTION

The stent production department comprised the following processes:

- Chemistry
- Parylene
- Coating
- Crimp and Pack
- Sterilize
- Final Pack Out



OPPORTUNITY

Several opportunities were apparent at the onset of the project. By quantifying all bottlenecks, imbalances, and wastes within the system, applicable recommendations can be made to improve key performance metrics such as lead time and throughput.

APPROACH

PMC constructed a simulation model using Arena® software. The model provided the capability of modifying/customizing inputs involved in the process (cycle time, internal labor, external labor, setup time etc.). A user-friendly interface was developed in Excel® to facilitate the input of data for future analyses. Output data was exported to Excel® in a logical arrangement.



SOLUTION

PMC validated the model and identified the system constraints. What-if analyses were used to test each constraint and determine where the constraint will shift once process improvements are made on it as the current constraint. Sensitivity analysis was used to determine which operational parameter (e.g., cycle time, buffer size) was most influential relative to each constraint.

BENEFIT

The simulation model developed gave direction as to where process improvements should be focused. Expected lead time reduction and increased throughput were quantified through the model. Staff members from the manufacturer were trained in the use of the model and were instructed on future applications of the model.

