

Using Simulation Analysis for Process Improvement in Clinical Laboratory of Hospital

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ABSTRACT

It is more important to enhance service quality and process improvement at laboratory in hospital as the demand and complexity due to the variety of tests increase. The laboratory of a hospital provides the reports of tests for doctors to refer and make diagnoses. However, laboratories in many hospitals have long waiting time wherein doctors cannot make right diagnoses at the right time. This results in malpractice lawsuits which cause healthcare costs to be increasingly on the rise and healthcare management at a high risk. Therefore, process improvement at laboratory in a hospital is indeed an important issue. This research uses SIMIO software to set up a virtual laboratory of a hospital to study the processes at laboratory. First, an experiment design considering arrivals and process operation time is conducted to collect average cycle time, number tests in system, and average waiting time; secondly, average cycle time is analyzed by ANOVA. It was found that the processes at a laboratory of a hospital can be improved by making certain adjustments of process operation time without changing human resources and test instruments.

Keywords : laboratory, simulation, process improvement

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