

Simulating King Khalid University Outpatient Hospital Pharmacy Queuing System

Tariq Aziz
Advanced Manufacturing Institute
King Saud University
Riyadh, KSA

Ibrahim M. Alharkan
Department of Industrial Engineering
King Saud University
Riyadh, KSA

Mohamed Hatem Mohamed Alhaag
King Saud University, University
Riyadh, KSA

Abstract

This Paper focuses on improving & to build a discrete event simulation model for modeling out-patient pharmacy workflow queuing system with the intent of exploring options for designing a more efficient the queuing system of KKHU outpatient pharmacy Riyadh KSA. In this paper simulation and modeling of King Khalid University Hospital (K.K.U.H.) out Patient Pharmacy (male section) is being carried out. The simulation carried out is terminating because the runs are performed during the rush hours from 9:00AM to 12:00PM & 1:00PM to 3:00PM only. Simulation models of existing workflows in the pharmacy for KKHU outpatient pharmacy were created using discrete event simulation software (Arena) and calibrated using data. The data is collected for each server containing seven servers. Model inputs included prescription arrival times & processing times for each Server, Baseline of model is the predictions of prescription turnaround times, were then compared to those observed in reality. Various scenarios were tested and the results compared to those of the baseline models. The result found from the simulation model shows that a long waiting time exist in the system. The basic purpose of simulation model is to identify the right solutions to reduce the patients' waiting time and at the same time enhanced the quality of services of the KKHU Outpatient Pharmacy. The proposed Simulation model can be effective to the system and is possible to be implemented in the department.

Keywords

Queuing system, Simulation, Arena Software, Servers, waiting time, Service time, Patient arrival times

Biography



Tariq Aziz is a Researcher in Advance Manufacturing Institute, King Saud University (Riyadh, Saudi Arabia). He received his BSc in Industrial Engineering and Management from the University of Punjab (Lahore, Pakistan) and his MSc in Manufacturing System Engineering from the King Saud University (Riyadh, Saudi Arabia). He has diverse expertise in human-computer interaction, quality engineering and simulating human machine systems. He previously worked on projects related to the application of Six Sigma and risk management in entertainment industry of Saudi Arabia. He is recently working on 'biomedical feet joint implant for rheumatoid patients' and 'multi task performance assessment' (CAN, MAP).