

Simulation of Manchester Triage System in a Brazilian Hospital

Alan Vitor Cunha

Production Engineering Department
Facens University
Sorocaba, BRAZIL
alancunha1999@gmail.com

Franklin Leonardo dos Santos

Production Engineering Department
Facens University
Sorocaba, BRAZIL
franklinleonardo2020@hotmail.com

Henrique Ewbank de M. Vieira

Production Engineering Department
Facens University
Sorocaba, BRAZIL
henrique.vieira@facens.br

Rodrigo Luiz Gigante

Production Engineering Department
Facens University
Sorocaba, BRAZIL
rodrigo.gigante@facens.br

Simulation Competition

Abstract

The emergency care service stands out for its high complexity and importance. Intended to assist outpatients with different levels of severity, they often facing unpredictable and variable demand. In this sense, the risk classification instruments emerged as a way of managing the queues, scaling the service order according to risk criteria. Among the classifications, we highlight the Manchester Triage System (MTS), created in 1997 in England, and implemented in Brazil in 2008. It classifies risks in five levels, each of them having a color and a maximum waiting time allowed until first medical care. The MTS makes it possible to quickly identify and separate patients at risk of death and who need immediate care. With a literature review, it was identified that part of the emergency rooms that use the MTS are not able to comply with the requirements, exceeding the time of attendance, which can cause damage to the patients' health. This project aims to analyze the attendance process in an emergency care unit and check the appropriate number of doctors and nurses who must be present in order to respect the MTS. For this purpose, a simulation model for discrete events will be developed in the Flexsim software.

Keywords

Reception, Emergency hospital service, Manchester Triage System, Simulation.

Acknowledgements

To thank to Facens University, to its faculty, direction and administration staff, especially to our advisors, for the support, teachings and direction in the execution of the project.

Biographies

Alan Vitor Cunha, is student in Production Engineering from the Facens University.

Franklin Leonardo dos Santos, is student in Production Engineering from the Facens University.

Henrique Ewbank de M. Vieira, is Professor in Industrial Engineering at Facens University, Brazil. He has a Post-Doc in Environmental Sciences from Paulista State University, Sorocaba, Brazil. He earned PhD in Management from Federal University of Rio de Janeiro, Brazil, Graduate Certificates in Logistics & Supply Chain Analysis and in Systems & Supportability Engineering from Stevens Institute of Technology, New Jersey, USA, and B.S. in Industrial Engineering from Estácio de Sá University, Brazil. He has taught courses about operations research, management and data science for graduate and undergraduate students. His research interests include demand planning, inventory management, supply chain, and multi-criteria decision making.

Rodrigo Luiz Gigante, is master in Production Engineering from the University of São Paulo (2010); Bachelor of Applied Mathematics and Scientific Computing from the University of São Paulo (2007). He is a professor at Facens University. His areas of expertise are Operational Research, Discrete Event Simulation, Scheduling, Queue Theory, Production Planning and Control and Logistics.