

Book of Abstracts

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Nigerian Mathematical Society (NMS)

THEME:

**MATHEMATICS:
BEDROCK FOR SCIENTIFIC AND
TECHNOLOGICAL ADVANCEMENT**

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Venue:

Department of Mathematics, J.O.C. Ezeilo Building (a.k.a. Abuja)
U.N.N.

H: Statistics

H1: DETERMINATION OF OPTIMAL PERFORMANCE FOR THE QUEUING SYSTEM AT NATIONAL HEALTH INSURANCE SCHEME (NHIS) UNIT OF THE GENERAL HOSPITAL, MINNA, NIGER STATE.

¹Lawal .A, ²Isaac .A

¹Department of Mathematics, Federal University of Technology Minna

²Department of Mathematics, Federal University of Technology Minna

¹Lawal.adamu@futminna.edu.ng ²Isaacadaji4real@gmail.com

Abstract

Queuing is a common situation that occurs in everyday life. Waiting in relation to the time spent by patients to access services in healthcare department is increasingly becoming a major source of concern to most healthcare system. This is because keeping patients waiting for too long could worsen their health situation and incur more cost (waiting cost) on them. In the other hand, providing more service capacity to operate the queuing system will increase the service cost. In this study, the performance for the queuing system at National Health Insurance Scheme (NHIS) unit of the General Hospital, Minna, was investigated using a multi-server queuing model. The two conflicting cost were balanced and the optimal performance for the queuing system was determined. The relevant data used in the research was collected for a period of four weeks through direct observations and interviews. The results from the research showed that for morning session, the average queue length, waiting time of patients as well as overutilization of Doctors at the unit could be reduced at an optimal server level of 3 Doctors and at a minimum total cost of 6219.98 per hour as against the present server level of 2 Doctors with high total of 26025.12 per hour which include waiting and service costs and for evening session, the present server level of 1 Doctor should be maintained. The result from this research is an important information to the management of NHIS unit of General Hospital Minna to provide better service to the patients at a minimum cost.

Keywords: Service Cost, Servers, Customers, Utilization factor, Waiting Cost

Subject Classification: (60G99)