



De La Salle University - Dasmariñas

**MODELS FOR BED OCCUPANCY MANAGEMENT IN  
GENERAL EMILIO AGUINALDO  
MEMORIAL HOSPITAL**

**An Undergraduate Research Presented to  
the Mathematics Department  
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### ABSTRACT

This paper describes two models for bed occupancy management of hospital to anticipate bed demand so as to manage resources efficiently. It intends to determine if there's a need to increase the hospital's bed capacity to improve its current system. The researchers used two models for three wards of General Emilio Aguinaldo Memorial Hospital (GEAMH) based on patient's length of stay and admissions data. The Poisson bed occupancy model provides an estimation of bed occupancy to determine if the existing authorized beds have the probability of over occupancy. In the same way, the M/M/c queuing model provides an estimation of bed occupancy to determine if the existing authorized beds have the probability of lost demand or turned away patients. For these two models, the admissions data must follow a Poisson distribution. Using Chi-square test, it was analyzed that OB-Gyne, medicine and surgery ward of GEAMH follows a Poisson distribution which means the reliability of the results of these models were computed. The researchers used one of the requirements and criteria set at a general hospital of having bed occupancy rate from 80-85%. According to the health care planners, GEAMH plans to gradually increase their bed capacity in the future and this study might serve as a basis and guide for future bed capacity of the hospital.



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