

PREDICTION OF PATIENT ADMISSIONS AND BED REQUIREMENT IN INPATIENT DEPARTMENT BY USING SYSTEM DYNAMIC SIMULATION (Peramalan Kemasukan Pesakit dan Keperluan Katil di Jabatan Pesakit Dalam dengan Menggunakan Simulasi Sistem Dinamik)

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ABSTRACT

Hospitals play a vital role in a nation's healthcare system. As the custodian of primary healthcare providers, hospitals strive to provide continuous and comprehensive care to patients. The increase of patients annually sparked the requirement for the hospitals to reasonably plan and project their resources especially treatment beds with the goal to meet the uprising patient's demand. A similar predicament is also encountered by one of the busiest public hospitals in Selangor, Malaysia. The spike in patients' demand has reflected in the hospital's struggle in embracing the rapid changes while providing the best quality health care. Therefore, this study focuses on the hospital's inpatient department which requires accurate resource planning and precise allocation of treatment beds. Hence, the system dynamics simulation modelling is developed to enable the prediction of the number of inpatient admission and the total number of treatment beds required to meet the demand at the hospital for a period of ten years. The study's findings revealed an increase in inpatient admission and roughly one bed is required to be added approximately every two years in pursuance to meet the demand. Conclusively, the surge in the inpatient's admission will parallelly increase the use of treatment beds by the patients. The results formulated by this study will enable the hospital management's decision making in terms of managing, planning and predicting of resources within their allocated budget while ensuring the betterment of service quality and enhancing the performance of the inpatient department.

Keywords: prediction; bed requirements; inpatient department; system dynamic simulation

ABSTRAK

Hospital memainkan peranan penting dalam sistem perkhidmatan kesihatan bagi sesebuah negara. Hospital adalah sebuah institusi yang memberikan penjagaan kesihatan yang berterusan dan menyeluruh kepada pesakit. Peningkatan permintaan pesakit saban tahun memerlukan kepada usaha yang berterusan dalam menyediakan perkhidmatan kesihatan yang terbaik dan berkualiti. Hospital perlu merancang dan menyediakan keperluan sumber terutamanya katil rawatan yang diperlukan bagi memenuhi permintaan pesakit. Kajian ini yang memfokuskan kepada jabatan pesakit dalam bagi salah sebuah hospital yang terletak di Selangor, Malaysia yang memerlukan perancangan dan peruntukan sumber yang tepat. Pemodelan simulasi Sistem Dinamik telah dibangunkan untuk membolehkan peramalan kemasukan pesakit dan bilangan katil yang diperlukan untuk memenuhi permintaan pada masa hadapan di jabatan pesakit dalam bagi tempoh sepuluh tahun. Penemuan kajian menunjukkan berlakunya peningkatan jumlah pesakit dan sebuah katil diramalkan perlu ditambah bagi setiap dua tahun dalam memenuhi permintaan peningkatan pesakit. Secara konklusif, peningkatan jumlah pesakit di jabatan pesakit dalam hospital akan meningkatkan penggunaan katil rawatan yang disediakan. Justeru, hasil kajian ini diharapkan dapat membantu pihak pengurusan hospital dalam membuat keputusan untuk mengurus, merancang dan meramalkan jumlah katil rawatan yang diperlukan berdasarkan bajet yang diperuntukkan dalam meningkatkan kualiti perkhidmatan dan prestasi operasi di jabatan pesakit dalam.

Kata kunci: peramalan; keperluan katil; jabatan pesakit dalam; simulasi sistem dinamik

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