

**THE STUDY OF SUPPORTIVE FACILITIES ALLOCATION IN NEW HOSPITAL BUILDING**

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SIROVETNUKUL, Ph.D.**ABSTRACT**

This study was conducted for two main reasons. Firstly, it aimed to investigate patient congestion in outpatient department under two circumstances: (1) facilities located in one building and (2) classification of the facilities in different allocated buildings. The facilities were classified according to outpatient flow value chain developed from the original value chain model. Throughout the past decades, there has been a great deal of interest in the application of discrete-event simulation for solving issues in hospital especially related to patient flow. Therefore, discrete-event simulation was used to model the outpatient flow value chain. The second objective was to plan capacity for the support facilities. Opt Quest was used to run the capacity optimization model under the constraints of less congestion and shorter cycle time at the pharmacy facilities.

The research found that the floors where their support facilities were separated from primary facilities were less congested which led to smoother patient flow. Therefore, patients circulated in the hospital under less congested environment. Moreover, the study also provided meaningful reasons on the selected support facilities, which was allocated differently from the primary facilities to do the capacity planning. Since it was the optimum capacity improvement, the utilization of the resource capacities remained high, hardly idle, but the congestion and total time of the facilities were reduced.

**KEY WORDS: DISCRETE-EVENT SIMULATION / PATIENT FLOW / VALUE  
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