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The Impact of Inpatient New Boarding Policy on Emergency Department Overcrowding: A Discrete Event Simulation Study

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Abstract : In this study, we investigate the effect of a new boarding policy - short stay, on the overcrowding efficiency in emergency department (ED). The decision variables are no. of short stay beds for least acuity ED patients. The performance measurements used are national emergency department overcrowding score (NEDOCS) and ED retention rate (the percentage that patients stay in ED over than 48 hours in one month). Discrete event simulation (DES) is used as an analysis tool to evaluate the strategy. Also, common random number (CRN) technique is applied to enhance the simulation precision. The DES model was based on a census of 6 months' patients who were treated in the ED of the National Taiwan University Hospital Yunlin Branch. Our results show that the new short-stay boarding significantly impacts both the NEDOCS and ED retention rate when the no. of short stay beds is more than three.

Keywords : emergency department (ED), common random number (CRN), national emergency department overcrowding score (NEDOCS), discrete event simulation (DES)
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