

A Stochastic Programming Model for Rehabilitation Scheduling Problem in Hospital

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ABSTRACT

Under restriction of medical resources and competitiveness of medical industry, the innovation of medical technology and medical service quality become the important factors on the market. Among service quality factors, queue time is always rated on the top by customers. Although the reservation policy is carried on in most of hospitals in Taiwan, it is a common scene that a long queue in front of rehabilitation department in hospitals. This is because the reservation mechanism only provides the order of patients but not scheduling details. Recently, the lack of medical personnel makes an efficient scheduling plan more important than ever for the department of rehabilitation care. The objective of this study, considering the uncertainty of patients' arrivals, is to set up a stochastic programming model for rehabilitation scheduling problem in order to minimize the total complete time of all patients who make reservations in advance. The proposed model considers limited equipment resources and dynamic arrivals. We apply two stochastic models, including wait-and-see and here-and-now, to optimize the objective. The results reveal here-and-now model which meets the realization is approximated to the ideal wait-and-see model.

Keywords : Rehabilitation、Scheduling、Uncertainty、Stochastic programming

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