
Preface

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The healthcare sector is one of the long existing and fast evolving professions. Research breakthroughs of new instruments and procedures are evidence of medical and healthcare scientific advances. However, until recently, the operation and management of health service delivery as a whole has been lagging behind, as shown by the increasing administrative overhead and the lack of access to healthcare by many people in various forms.

Great engineering and management efforts have been called upon to address the problems in health service redesign and operation in the recent decade. Established practices in traditional industries, such as manufacturing and supply chain management, can be successfully applied to health services. Innovative applications of these

approaches and methods will greatly contribute to the shift to system- and process-oriented healthcare paradigms. This special issue aims to examine some relevant studies and cases that are emerging to function as references for healthcare researchers and practitioners.

The paper ‘Reduction of service time variation in patient visit groups using decision tree method for an effective scheduling’, by Huang and Kammerdiner, presents a case study in an orthopaedic surgery clinic on the classification using a decision tree technique. It studies how the redesign of scheduling better manages the variability of treatment times, which can help alleviate the waiting time for both patients and physicians, reduce overall costs of waiting and overtime, and consequently improve the overall service quality.

The paper ‘Investigating the impact of process complexity on quality of care in hospital emergency departments’, by Strawderman et al., examines the impact of emergency room process complexity on hospital quality outcomes. Several emergency department nurse managers from hospitals in Mississippi, Alabama, and Louisiana in the USA were interviewed regarding the processes of registration, laboratory testing, medication administration, radiology, and discharge. Then, based on the gained insights, methods of reducing patient steps and registration process complexity are discussed.

In the paper ‘Clustering the clusters – knowledge enhancing tool for diagnosing elderly falling risk’, by Rueangsirarak et al., a new approach is proposed to analyse and diagnose the risks associated with elderly falling by applying K-means clustering to cluster and assess the fall risks data of elderly people in Thailand. These data were collected using motion capture technology.

The paper ‘Response surface optimisation of surgery start times in a single operating room using designed simulation experiments’, by Sun and Li, focuses on determining the amount of time reserved for each of pre-sequenced surgeries. Therefore, surgical teams are able to know their exact start times in advance. In this way, the buffer time can be redistributed to each of the surgeries in order to minimise total overtime and idling costs.

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