Applying Computer Simulation Modelling to Minimizing Appointment Lead-Time in Elderly Outpatient Clinics: A Case Study

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Abstract

Appointment lead-time is a pivotal parameter in elderly outpatient clinics. In this regard, delayed medical care may represent complications in the elderly population and the development of more severe diseases. However, healthcare managers are not skilled in methods effectively reducing waiting times. Therefore, this paper presents the computer simulation modelling to tackle this problem. In this regard, the real-world system was initially simulated and then, three improvement scenarios were designed and validated operationally and financially. The results evidenced that Scenario 2 was the best choice since it provided a low investment per reduced day and a significant reduction (47.1%) regarding the probability of waiting for more than 8 days per appointment. With this proposal, the quality of medical care in elderly population can be meaningfully increased and decision-making process can be effectively supported.

Keywords

Appointment lead-time, Discret event simulation (DES),Elderly, Healthcare, Outpatient clinics