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Simulation Analysis of Patient Flows and Staffing Schedules in an Outpatient Department

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Abstract: The dramatic increase in the cost of health care has compelled researchers and health care professionals to examine new ways to improve efficiency and reduce costs. On the other hand, long waiting times for treatment in the outpatient department, followed by short consultations has long been a complaint of patients. This issue is becoming increasingly important in Japan given its progressively aging society. In this context, a discrete event-simulation model to examine congestions in a mixed-patient type environment in an outpatient department of a university hospital was developed. A special purpose data generator was designed to conduct experiments in bottleneck situations at consultation rooms in the existing system. Combining the simulation model with an optimization program, some best doctor mixes were identified, which drastically reduced patient waiting time, without adding extra resources.

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