GENERATING NURSE SCHEDULES BY USING LINEAR PROGRAMMING TO REDUCE EXTRA WORKDAYS

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ABSTRACT

In South Korea, 74.7% of nurses work shifts, which requires flexibility in the workplace. However, nurses' shift schedules are highly variable, depending on changes in workload, number of nurses, and bed occupancy. For example, fewer nurses may be on duty during night shifts, weekends, and holidays when workload or bed occupancy decreases, and more nursing staff may be needed during times of infectious disease outbreaks such as coronavirus or influenza. In addition, the number of nurses can fluctuate for a variety of reasons, including nurse resignations, sick leave, participation in training programs, and pregnancy and childbirth. In these situations, nurses often work beyond their scheduled hours.

Considering these various constraints, creating a shift schedule can lead to unnecessary overtime. In this study, we propose a method to design a nurse shift schedule that minimizes unnecessary overtime using linear programming. This can enhance the satisfaction of nursing staff, improve the quality of patient care, and increase the operational efficiency of the hospital.

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