

Planning and scheduling operating rooms with mix integer programming and meta-heuristic method

ABSTRACT

The performance of surgery department is improved through the efficient use of their available resources. There are numerous and complex relationships between surgery department and other hospital department that make some limitations for surgery ward performance and in consequent the hospital performances. One of these operations in surgery department is operating room (OR), which is scheduled day by day. Arranging this schedule is a complicated and difficult task because of wide variety of preferences, constraints and objectives that planners should be considered. On the other hand, this schedule plays a key role on the performance of surgery department and in consequence in the hospital performance. Therefore, the aim of this study is to improve the OR planning and scheduling model to increase surgery ward efficiency. The current study attempts to investigate the schedule that minimize OR staff overtime, OR Idle time, patients waiting time, and post anesthesia care unit (PACU) staff idle time while considering surgeon preferences. Multi-objective optimization is used with meta-heuristic method.

Keywords: Mix integer programming; Operating rooms; Planning and scheduling
