Operating rooms planning and scheduling with mix integer programming and meta-heuristic method

ABSTRACT

The surgery department is required to improve its performance by efficient usage of its available resources. Surgery department interdependencies with other hospital functions and departments are numerous and complex, which causes some restrictions on surgery ward performance and consequently hospital performance. Operating room (OR) schedule determines day to day operations that take a place at the surgery department. Creating such a schedule is a complex task, due to a multitude of constraints, preferences and objectives that planners need to take into account. Meanwhile, the schedule has major effects on the performance of surgery department and the hospital. This paper provides a review of recent operational research on operating room planning and scheduling with focus on multi-objective simulation optimization with use meta-heuristic method: in operating room, as a practical suggestion for hospitals. Recent researches were collected based on some keywords including simulation optimization, and operating room by google scholar, Scopus, and Pubmed. The findings showed that, there are not much practical suggestion in this case and still there is a gap and needs to be discovered.

Keyword: Operating room; Simulation optimization; Meta-heuristic