Local search heuristics for elective surgery scheduling considering patient urgency

ABSTRACT

This paper study a surgery scheduling and surgeon assignment problem in operating rooms focusing on elective patients with different urgency. A long waiting time can increase the patient's urgency and lead to health complication. Our aim is to maximize the sum of the urgency values assigned to each surgery. An integer linear programming model is referred to solve the problem. As the model consume a high computational time to solve for a large-scale instance, we developed a local search algorithm based on a simple heuristic to deal with the problem. To test the efficiency of our proposed heuristics, we compare the solutions of integer linear programming model with the heuristics. The results show that solutions obtained by the local search algorithm are good quality and has significantly reduce the computational time even when considering more surgeries in the waiting list.