



Poster 5 – 2018 Nordic Implementation Conference

Optimization of rosters for hospital departments

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Background

There is a large potential in optimization of rosters in hospitals. By making the methods data driven it is possible to use resources optimally – thus creating better capacity utilization. This is supported by scientific work and practical cases. With funding from the Danish Ministry of Health, Region Zealand investigates the potentials of implementation of data driven optimization of rosters.

Project aim

The aim of the project is to analyse the potentials in data driven optimization of rosters and develop decision support tools based on mathematical optimization methods. These tools help the planner when creating rosters. Possible consequences of the project are better rosters, more fairness regarding the rosters on an employee level, certainty of fulfilling union agreements, and better utilization of staff resources.

Project methods

Firstly, the information required to create the rosters will be transformed into data driven input. In the following steps, mathematical optimization methods from the area of operations research will be applied. A mathematical optimization model will be formulated and solved with respect to the given constraints such as union agreements and needed personnel. The solution to the model returns the optimal roster. Finally, the mathematical optimization model will be put into use in several pilot departments. Lessons learned will be applied when scaling up in a possible second phase of the project.

Project results

The project is in progress and it is expected that the first rosters generated by the mathematical optimization model will be implemented in the clinic in December 2017. Hence a utilization of theory and research literature in the field of operations research occurs. The analysis of the current ways to make rosters indicates potentials of improvements when implementing the methods of mathematical optimization in healthcare.

Preliminary or final conclusions/discussion

It is a difficult task to make rosters in hospitals. By applying the methods of mathematical optimization to solve the roster problem, it is possible to obtain a higher capacity utilization and release resources to the care of patients. Therefore, a vision of the project is to implement the mathematical optimization methods all over Region Zealand. Furthermore, there is numerous of other areas in healthcare where the methods of mathematical optimization may be applicable.