
POSTER ABSTRACT**Optimal nurse staffing and scheduling for emergency departments**18th International Conference on Integrated Care, Utrecht, 23-25 May 2018

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Workforce staffing and scheduling for clinical units in healthcare system is a formidable challenge [1]. Currently, several weeks in advance a nurse manager often spends a significant amount of their time, relying solely on their intuition and experience, to optimize the staffing and scheduling of nurses in their clinical unit to minimize costs and improve quality of care, where they need to take into account a wide range of parameters including different nurse shift lengths 12hrs, 8hrs and 4hrs, work rules, patient to nurse ratio, etc. Hence, obtaining an optimal solution for nurse staffing and scheduling for a nurse manager seems highly challenging, which leads to unacceptable levels of under/over-staffing. Over-staffing increases unnecessary healthcare costs, while in the case of understaffing, either quality of care is adversely affected or the nurse manager needs to bring in highly-expensive agency nurses at the moment of the occurrence of understaffing to cover the unpredicted nurse demand, which again leads to an increase in healthcare costs.

In this paper, as part of our population health strategy, we have developed a fast, greedy algorithm to solve this complex workforce optimization problem for the following four core-staff nurse staffing patterns: 1 12+8+4, 2 12+8, 3 12, and 4 8, where in Pattern 1, there are nurses with three shift lengths 12hrs, 8hrs and 4hrs and 12hr nurses are the most preferable and 8hr nurses are the second most preferable of the three, and so on. The tool proved successful not only in observing work rules of the clinical unit, but also in providing a great coverage for the nurse demand.

References:

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