

Abstract

This paper proposes a transformative framework where process improvement (standardisation) and staffing optimisation (integer programming) are integrated to enhance the performance of managed care organisations (MCOs) considering future surging demand. Four models (baseline and optimised for current and future states) are developed and compared using simulation. We find significant differences for all performance metrics between three alternatives and baseline model for current state: (1) optimised model for current state achieves cost reduction (31.71%) and higher staff utilisation (63.14%), without significant capacity increase; and (2) baseline model for future state results in significant capacity gain (2.05%), with less significant cost reduction and utilisation. Furthermore, optimised model for future state obtains largest capacity gain (2.31%), greatest cost reduction (44.43%), and highest utilisation (93.43%). All models result in acceptable average queue length. Additionally, process improvement affects all performance metrics, especially capacity, whereas staffing optimisation influences all other performance metrics than capacity.

Citation

Gao, Z., X. Shan, S. Shan, and M. T. Khasawneh, "Staffing Optimization in Standardized Care Management Processes", *Journal of Operational Research Society*, 70(3): 459-471, 2019.