World Academy of Science, Engineering and Technology
International Journal of Industrial and Systems Engineering
Vol:12, No:03, 2018

A Location-Allocation-Routing Model for a Home Health Care Supply Chain Problem

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Abstract : With increasing life expectancy in developed countries, the role of home care services is highlighted by both academia and industrial contributors in Home Health Care Supply Chain (HHCSC) companies. The main decisions in such supply chain systems are the location of pharmacies, the allocation of patients to these pharmacies and also the routing and scheduling decisions of nurses to visit their patients. In this study, for the first time, an integrated model is proposed to consist of all preliminary and necessary decisions in these companies, namely, location-allocation-routing model. This model is a type of NP-hard one. Therefore, an Imperialist Competitive Algorithm (ICA) is utilized to solve the model, especially in large sizes. Results confirm the efficiency of the developed model for HHCSC companies as well as the performance of employed ICA.

Keywords : home health care supply chain, location-allocation-routing problem, imperialist competitive algorithm, optimization
Conference Title : ICSCLM 2018 : International Conference on Supply Chain and Logistics Management
Conference Location : Singapore, Singapore
Conference Dates : March 22-23, 2018