

عنوان مقاله:

A Blood Supply Chain Network with Backup Facilities Considering Blood Groups and Expiration Date: A Real-world Application

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خلاصه مقاله:

The purpose of this paper is to design a green Blood Supply Chain (BSC) network regarding expiration date and backup facilities. The proposed model is a bi-objective Mixed Integer Programming (MIP) one. The two objective functions are to minimize the total cost and the detrimental environmental impacts of shipping between facilities and generated wastes in the network. A Goal Programming (GP) approach is used to convert the multi-objective model into a single one. Moreover, to meet the demand, blood groups and plasma expiration date are also investigated. Since it has been proven that plasma of the people who have fully recovered from COVID-19, can help other patients to recover from this insidious disease; therefore, the proposed BSC network can supply the needs of this particular category of patients as well. To examine the feasibility of the proposed model, some random examples with different dimensions are generated and solved using the CPLEX solver of GAMS software. Furthermore, a real-case problem in Esfahan (Iran) was investigated to illustrate the applicability of the proposed model, and the sensitivity analysis was performed as well. Results approved the applicability of the proposed model in a real situation.

کلمات کلیدی:

blood supply chain, Goal Programming, blood groups, Expiration Date, Backup Facilities

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