Logistic and production process in a regional blood center: modeling and analysis

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Resumen

Background: The blood supply chain is a complex system that considers different interconnected elements that have to be synchronized correctly to satisfy in quality and quantity the final patient requirements. Aim: To determine the blood center maximum production capacity, as well as the determination of the necessary changes for a future production capacity expansion. Material and Methods: This work was developed in the Blood Center of Concepcion, Chile, operations management tools were applied to model it and to propose improvement alternatives for the production process. The use of simulation is highlighted, which permitted the replication of the center behavior and the evaluation of expansion alternatives. Results: It is possible to absorb a 100% increment in blood demand, without making major changes or investments in the production process. Also it was possible to determine the subsequent steps in terms of investments in equipment and human resources for a future expansion of the center coverage. Conclusions: The techniques used to model the production process of the blood center of Concepcion, Chile, allowed us to analyze how it operates, to detect "bottle necks", and to support the decision making process for a future expansion of its capacity (Rev Med Chile 2011; 139: 1150-1156).

Palabras clave

Palabras clave de autor: Computer simulation; Financial management; Hospital; Logistic models
KeyWords Plus: PLATELET PRODUCTION; OPTIMIZATION