

ABSTRACT

Effective inventory management is crucial in hospital operations, particularly for disposable medical supplies (DMS) used in healthcare procedures. Hospital XYZ has experienced an excess DMS inventory, resulting in inventory costs exceeding the allocated budget. This study aims to design an inventory policy to minimize the total cost of DMS inventory at Hospital XYZ by employing the Periodic Joint Replenishment method. This method was chosen because it is relevant for addressing multi-item issues with stochastic demand.

The main problem faced is an overstock of DMS, averaging 31% in 2022. This led to a total inventory cost budget of Rp153,391,113, which exceeded the budget by Rp63,391,113. The primary cause of this overstock is the ineffectiveness of the ordering policy, mainly due to the need for a system capable of accurately monitoring and predicting inventory needs.

This research utilizes demand, pricing, ordering costs, and lead time data for DMS in 2022. The proposed improvement model is calculated using the Periodic Joint Replenishment algorithm to determine components of the inventory policy, including the time between orders (T), maximum inventory level, and safety stock amount.

The design results indicate that Hospital XYZ can significantly reduce total inventory costs by using the periodic joint replenishment method. Sensitivity analysis also shows that this method can adjust ordering policies in response to unexpected demand changes, thereby minimizing the risk of stockouts and overstock. Consequently, this policy can enhance inventory efficiency, reduce total costs, and optimize warehouse operations at Hospital XYZ.

This study concludes that the periodic joint replenishment method effectively minimizes total inventory costs for hospital disposable medical supplies and can improve overall inventory management efficiency. The benefits derived from this research include cost savings, increased customer satisfaction, and more accurate data for management in decision-making related to DMS inventory management.

*Keywords — **Periodic Joint Replenishment, DMS inventory, inventory management***