

Optimization of Economic Order Quantity of Multi-Item Inventory Control Problem through Nonlinear Programming Technique

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Abstract : To obtain an efficient control over a huge amount of inventory of drugs in pharmacy department of any hospital, generally, the medicines are categorized on the basis of their cost 'ABC' (Always Better Control), first and then categorize on the basis of their criticality 'VED' (Vital, Essential, desirable) for prioritization. About one-third of the annual expenditure of a hospital is spent on medicines. To minimize the inventory investment, the hospital management may like to keep the medicines inventory low, as medicines are perishable items. The main aim of each and every hospital is to provide better services to the patients under certain limited resources. To achieve the satisfactory level of health care services to outdoor patients, a hospital has to keep eye on the wastage of medicines because expiry date of medicines causes a great loss of money though it was limited and allocated for a particular period of time. The objectives of this study are to identify the categories of medicines requiring incentive managerial control. In this paper, to minimize the total inventory cost and the cost associated with the wastage of money due to expiry of medicines, an inventory control model is used as an estimation tool and then nonlinear programming technique is used under limited budget and fixed number of orders to be placed in a limited time period. Numerical computations have been given and shown that by using scientific methods in hospital services, we can give more effective way of inventory management under limited resources and can provide better health care services. The secondary data has been collected from a hospital to give empirical evidence.

Keywords : ABC-VED inventory classification, multi item inventory problem, nonlinear programming technique, optimization of EOQ

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