

A Computer Simulation Analysis of Blood Bank Inventory Policies

ABSTRACT

A detailed model of a hospital blood bank inventory system is developed. The effects on the overall performance of the system of several alternative inventory control policies are analyzed by means of digital computer simulation. The performance of the system is evaluated in terms of three measures of effectiveness: blood shortage, blood outdating and operating cost.

This study confirms previous findings that the operating cost of the blood bank can be minimized by: (1) operating at the optimal inventory level and, (2) reducing as much as possible the number of days blood spends in the assigned inventory. It is also shown that sophisticated ordering policies do not give better results than the simple ordering policy commonly used by most blood banks' managers. Finally, perhaps the most important result of the study is that the optimal inventory level is apparently independent of the time blood spends in assigned status.