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Designing Blood Supply Chain: A Case from Multiple Hospitals in Dhaka City

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Abstract

In Bangladesh, hospitals do not offer any blood providing service to patients. Hence, patients are required to arrange the required blood by themselves. As a result, many critical patients die because of not arranging the blood at the right time. One of the plausible solutions could be that hospitals can provide the necessary amount of blood for their patients. This paper aims to explore how hospitals in Bangladesh could design a blood supply chain systems to efficiently manage the blood providing service for their patients. Data was collected from three top ranked government hospitals in Dhaka city. Based on the collected data, the inventory size, safety stock and reorder point for different types of blood for these hospitals were calculated. Hospitals can maintain an inventory of blood according to their forecasted demand, provide the blood directly to patients. The inventory could be replenished by taking different strategies, such as at a periodic interval or lot-for-lot. Additionally, a framework is proposed to manage the blood supply chain for hospitals incorporating digitalization aspects, that includes when and how to collect blood from donors in an efficient way, and sharing of blood among hospitals to tackle uncertainties. In a larger scale, all hospitals in Dhaka city could be connected in a web-based system to share the real time information about their inventory status. Different volunteer organizations could be included in the web-based system so that they can collect the required amount of blood from universities and corporate areas. Finally, several barriers to implementing such a system on a larger scale are reported. It is expected that adopting such initiative will improve the healthcare service provided by hospitals in Bangladesh, and eliminate the death caused by lack of blood supply in emergency situations.

Keywords

Blood Supply Chain, Inventory Management, Digitalization, Healthcare, Supply Chain Management

Biographies

Ahsan Sadat, Md Jul Hossain Shoumik, Prodipto Kumar Dey and **Shadman Sharar Mahin** are final-year IPE students at AIUB. Their areas of interest cover Lean Manufacturing and Supply Chain Optimization. They are currently working on research based on their respective fields of interests

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