

Transformasi Manajemen Rantai Pasok Internal Farmasi: Pendekatan Lean Six Sigma Dalam Pengendalian Dan Efisiensi Inventori Obat Di Medistra Hospital

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Deskripsi Lengkap: <https://lib.fkm.ui.ac.id/detail.jsp?id=139470&lokasi=lokal>

Abstrak

<div style="text-align: justify;">Latar Belakang : Pengelolaan inventori obat yang efisien merupakan faktor penting dalam menjamin ketersediaan obat, mutu pelayanan, dan efisiensi biaya rumah sakit. Ketidakefisienan pengelolaan inventori dapat menimbulkan berbagai waste, seperti kelebihan stok, kekosongan stok, obat non-moving, dan obat kedaluwarsa, yang berdampak pada peningkatan biaya, penurunan mutu pelayanan, serta keterlambatan terapi pasien. Berbagai faktor, antara lain perencanaan yang tidak akurat, lamanya waktu pengadaan, penyimpanan yang belum optimal, dan variasi proses operasional, menjadi penyebab utama ketidakefisienan pengelolaan inventori obat. Tujuan: Mengoptimalkan manajemen rantai pasok internal farmasi di Instalasi Farmasi Medistra Hospital melalui pendekatan lean six sigma dalam pengendalian dan peningkatan efisiensi inventori obat sehingga dapat mengurangi pemborosan, menekan variasi proses, mengoptimalkan ketersediaan obat, serta mendukung mutu pelayanan rumah sakit. Metode: Penelitian ini menggunakan desain operational research dengan pendekatan mix method, dimana kerangka kerja Lean Six Sigma melalui DMAIC digunakan sebagai panduan sistematis untuk mengintegrasikan analisis data kuantitatif inventori obat dan data kualitatif operasional. Teknik pengambilan sampel yang digunakan adalah stratified random sampling, dengan total sampel sebanyak 400 nomor perencanaan obat. Hasil: Pendekatan Lean Six Sigma mengidentifikasi lead time pengelolaan inventori obat sebesar 139 jam 26 menit 30 detik (5,7 hari), dengan 99% waktu proses merupakan kegiatan non-value added yang didominasi oleh waste tipe waiting sebesar 137 jam 37 menit 3 detik. Kondisi awal inventori menunjukkan nilai persediaan sebesar Rp 12.223.885.423,40, terdiri atas 343 item obat overstock senilai Rp 301.047.282, 88 item obat kosong, 35 item obat stagnan senilai Rp 34.775.208, dan 9 item obat expired senilai Rp1.613.710. Akar masalah yang teridentifikasi meliputi belum optimalnya SIMRS inventori, tingginya variasi me-too brand dalam formularium rumah sakit, variasi pengetahuan dan kompetensi petugas, belum adanya regulasi tindak lanjut purchase order kepada distributor, kurangnya pemahaman staf pembelian terhadap kebutuhan pelayanan, pembatasan jam persetujuan purchase order, kurangnya supervisi pada tahap penerimaan, keterlambatan penyimpanan obat, belum tersedianya visual management untuk penerapan FEFO/FIFO, serta penempatan obat LASA yang belum sesuai regulasi. Intervensi Lean Six Sigma dilakukan melalui penerapan standardized work, sosialisasi ulang alur kerja, implementasi sistem kanban pada tahap perencanaan, optimalisasi prinsip 5R di gudang logistik farmasi, serta penerapan visual management untuk mendukung implementasi FEFO/FIFO. Kesimpulan : Implementasi lean six sigma berhasil menurunkan lead time pengelolaan inventori obat, menurunkan nilai stok inventori obat dan jumlah item inventori obat, menurunkan nilai pembelian obat, menurunkan nilai obat overstock, menurunkan jumlah obat kosong, menurunkan jumlah obat stagnan dan menurunkan jumlah obat expired.</div><hr /><div style="text-align: justify;">Background: Efficient drug inventory management is essential to ensure medicine availability, improve service quality, and enhance hospital cost efficiency. Inefficient inventory management can generate various forms of waste, including overstock, stockouts, non-moving medicines,

and expired medicines, leading to increased costs, reduced quality of care, and delays in patient treatment. Inaccurate planning, prolonged procurement lead times, suboptimal storage practices, and variations in operational processes are among the major contributors to inefficiencies in drug inventory management.

Objective: To optimize internal pharmaceutical supply chain management at the Pharmacy Department of Medistra Hospital through the implementation of Lean Six Sigma to improve drug inventory control and operational efficiency, thereby reducing waste, minimizing process variation, optimizing medicine availability, and supporting the quality of hospital services.

Methods: This operational research employed a mixed-methods design. The Lean Six Sigma DMAIC (Define, Measure, Analyze, Improve, and Control) framework was used as a systematic approach to integrate quantitative drug inventory data with qualitative operational data. A stratified random sampling technique was applied, resulting in a total sample of 400 drug planning records.

Results: The Lean Six Sigma approach identified a total drug inventory management lead time of 139 hours, 26 minutes, and 30 seconds (5.7 days), of which 99% consisted of non-value-added activities, predominantly waiting waste, accounting for 137 hours, 37 minutes, and 3 seconds. The baseline inventory value was IDR 12,223,885,423.40, comprising 343 overstock items valued at IDR 301,047,282, 88 stockout items, 35 non-moving items valued at IDR 34,775,208, and 9 expired items valued at IDR 1,613,710. Root cause analysis identified several contributing factors, including suboptimal utilization of the Hospital Management Information System (HMIS) for inventory management, a high variation of me-too brands in the hospital formulary, variations in staff knowledge and competencies, the absence of regulations governing purchase order follow-up with distributors, limited understanding among purchasing staff regarding clinical service requirements, restrictions on purchase order approval hours, inadequate supervision during the receiving process, delays in transferring medicines to designated storage locations, the absence of visual management tools to support FEFO/FIFO implementation, and non-compliant placement of look-alike, sound-alike (LASA) medicines. Lean Six Sigma interventions included the implementation of standardized work, workflow reorientation, a kanban system during the planning stage, optimization of the Indonesian 5R workplace organization principles in the pharmacy logistics warehouse, and visual management to strengthen FEFO/FIFO implementation.

Conclusion: The implementation of Lean Six Sigma successfully reduced drug inventory management lead time, inventory value, the number of inventory items, drug purchasing expenditure, overstock value, stockout incidents, non-moving medicines, and expired medicines, thereby improving the efficiency of internal pharmaceutical supply chain management.