

INTISARI

Sistem pengelolaan persediaan di RSUD Tangguwisia Buleleng masih berbasis metode konsumsi tanpa pengendalian optimal, sehingga menimbulkan masalah seperti masih terjadinya *stockout*, *dead stock*, serta tingginya nilai persediaan. Penelitian ini bertujuan untuk menganalisis dampak penerapan metode *Minimum-Maximum Stock Level* (MMSL) terhadap nilai persediaan, nilai dan kejadian *stockout*, nilai dan kejadian *dead stock*, serta *Inventory Turnover Ratio* (ITOR) di Instalasi Farmasi RSUD Tangguwisia Buleleng.

Penelitian ini menggunakan desain *quasi-experimental* dengan pendekatan *one-group pre-test-post-test design*. Data retrospektif dikumpulkan dari Januari hingga Juni 2025 untuk analisis awal, sementara penerapan MMSL dilakukan secara prospektif. Sampel penelitian ditentukan melalui analisis ABC, berfokus pada item obat dan BMHP kategori A. Metode MMSL diterapkan dengan menghitung stok minimum dan maksimum berdasarkan rata-rata pemakaian harian, *lead time*, *safety stock*, dan periode pengadaan. Analisis perbedaan nilai persediaan, nilai *stockout*, nilai *dead stock* dan ITOR dilakukan menggunakan uji *Wilcoxon signed-rank test*, sedangkan perbedaan kejadian *stockout* dan kejadian *dead stock* dianalisis menggunakan *McNemar test*.

Hasil penelitian menunjukkan bahwa penerapan MMSL berpengaruh terhadap penurunan nilai persediaan obat dari Rp531.218.061 menjadi Rp272.475.910 ($p < 0,001$), dan BMHP dari Rp307.847.670 menjadi Rp209.354.695 ($p < 0,001$). Nilai *stockout* obat juga menurun signifikan dari Rp16.033.910 menjadi Rp5.322.550 ($p = 0,028$), sedangkan BMHP tidak signifikan yaitu dari Rp49.603.460 menjadi Rp25.481.500 ($p = 0,213$). Terjadi peningkatan nilai ITOR pada obat dari 2,32 menjadi 8,20 kali/tahun ($p < 0,001$) dan BMHP dari 4,31 menjadi 7,78 kali/tahun ($p < 0,001$). Nilai *dead stock* sebelum penerapan pada obat (Rp26.506.500) dan BMHP (Rp71.213.000) mengalami penurunan menjadi Rp0, namun tidak menunjukkan perbedaan yang signifikan ($p > 0,05$). Hal yang sama juga terjadi pada kejadian *stockout* dan *dead stock* pada item obat dan BMHP yang menurun tetapi tidak signifikan ($p > 0,05$). Sehingga, penerapan metode MMSL memberikan dampak positif terhadap efisiensi pengendalian persediaan di Instalasi Farmasi RSUD Tangguwisia Buleleng, namun belum memengaruhi efektivitas pengendalian persediaan.

Kata kunci: pengendalian persediaan, *Minimum-Maximum Stock Level*, *stockout*, *dead stock*, *Inventory Turnover Ratio*

ABSTRACT

The inventory management system at RSUD Tangguwisia Buleleng is still based on a consumption method without optimal control, leading to issues such as stockouts, dead stock, and high inventory value. This study aimed to analyze the impact of implementing the Minimum-Maximum Stock Level (MMSL) method on inventory value, stockout value and incident, dead stock value and incident, and Inventory Turnover Ratio (ITOR) at the Pharmacy Installation of RSUD Tangguwisia Buleleng.

This study employed a quasi-experimental design with a one-group pre-test–post-test approach. Retrospective data were collected from January to June 2025 for baseline analysis, while MMSL implementation was conducted prospectively. The research sample was determined using ABC analysis, focusing on category A drugs and medical consumables. The MMSL method was applied by calculating minimum and maximum stock levels based on average daily consumption, lead time, safety stock, and procurement period. Differences in inventory value, stockout value, dead stock value, and ITOR were analyzed using the Wilcoxon signed-rank test, while differences in stockout and dead stock occurrences were analyzed using the McNemar test.

The results showed that MMSL implementation significantly reduced drug inventory value from IDR 531,218,061 to IDR 272,475,910 ($p < 0.001$) and medical consumables from IDR 307,847,670 to IDR 209,354,695 ($p < 0.001$). Drug stockout value also significantly decreased from IDR 16,033,910 to IDR 5,322,550 ($p = 0.028$), while the reduction in medical consumables was not statistically significant ($p = 0.213$). ITOR increased significantly for drugs from 2.32 to 8.20 times/year and for medical consumables from 4.31 to 7.78 times/year ($p < 0.001$). Dead stock value decreased to zero for both drugs and medical consumables but was not statistically significant ($p > 0.05$). Similarly, stockout and dead stock incidents decreased but were not statistically significant ($p > 0.05$). Thus, MMSL improved inventory control efficiency but did not significantly affect effectiveness.

Keywords: inventory control, Minimum-Maximum Stock Level, stockout, dead stock, Inventory Turnover Ratio