



# ACHIEVEMENT OF CLINICAL DECISION SUPPORT SYSTEMS ON OPTIMIZING ANTIBIOTIC USAGE AND REDUCING MEDICATION COSTS IN A TERTIARY HOSPITAL IN THAILAND

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## Background

Sappasitthiprasong Hospital, a tertiary hospital in Thailand, reported that 54.5% of bloodstream infections involved drug-resistant pathogens, and 54.84% of Tigecycline prescriptions were inappropriate. To address this, a multidisciplinary team implemented a Clinical Decision Support System (CDSS) in September 2022 to optimize antibiotic use, particularly Tigecycline. The platform integrates guidelines, monitoring tools, and dosing calculators to support Antimicrobial Stewardship (AMS) decisions.

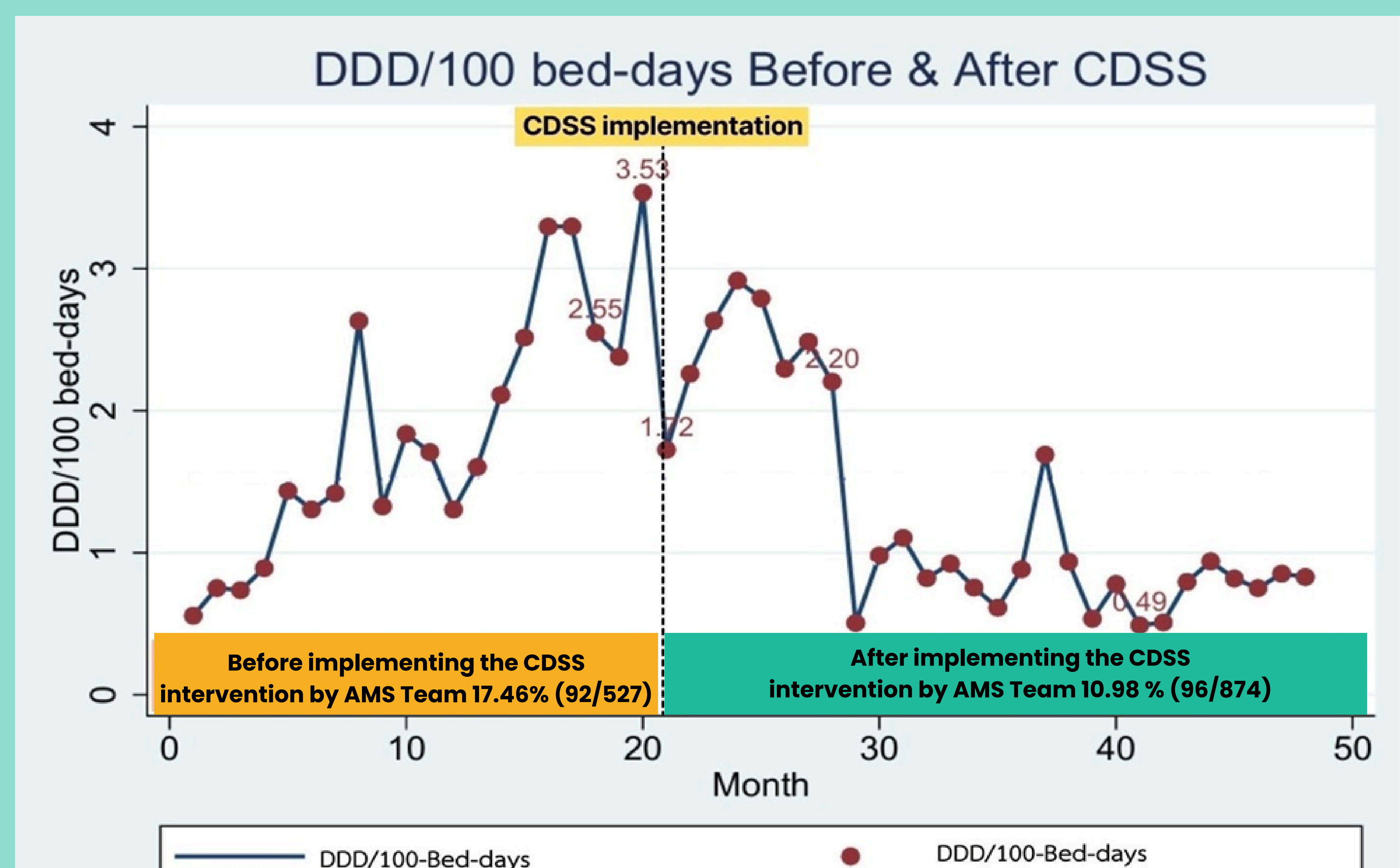
### Objectives:

1. Compare monthly defined daily doses (DDD) of Tigecycline per 100 patient-days before and after CDSS.
2. Assess AMS intervention rates and cost impact.

## Method

A retrospective study (Jan 2021–Dec 2024) using Interrupted Time Series Analysis and linear regression assessed trends in Tigecycline use and AMS interventions.

## Result



Before CDSS, Tigecycline use rose by 0.13 DDD/month; after implementation, it declined by 0.07 DDD/month ( $p < 0.001$ ). This reflected a 6.99% monthly increase pre-CDSS and a 5.47% decrease post-CDSS. An immediate 51.27% reduction was observed ( $p < 0.001$ ). Over 28 months, cumulative use declined by 1.97 DDD per 100 patient-days ( $p < 0.001$ ). AMS interventions fell from 17.46% to 10.98% ( $p = 0.001$ ) [Picture 1]. Monthly Tigecycline costs dropped by ~88,129 THB (~2,415 USD), with average savings of 584,953 THB/month (~16,027 USD).

## Conclusion

CDSS implementation improved antibiotic appropriateness, reduced AMS workload, and generated substantial cost savings. Local adaptation and user engagement are key to sustainability.

