

# One year of antimicrobial stewardship in the "REVERSE" project: effects of a cross-sectional intervention in an Italian medicine ward

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## Introduction

The ASST Santi Paolo e Carlo Hospital, Milan, has been participating in the REVERSE project, an EU-Horizon programme, which aims to reduce the incidence of multi-drug resistant infections in high prevalence settings. In the study's context, we participated in a programme on Antimicrobial Stewardship (AMS), which involves the adoption of a ward to educate and support healthcare professionals in optimizing antimicrobial agent (ABT) selection, dosing, and duration.

## Materials and Methods

A weekly cross-sectional interventional study of "audit and feedback" has been conducted in two different Medicine wards (3A and 3B), from October 2024 to September 2025. All active ABT prescriptions have been evaluated, for 6 month in each ward.

Each ABT therapy has been judged as: appropriate, adequate or inappropriate according to internal guidelines, where available, or according to the protocol guidelines.

Data were collected in the REDCap tool and the impact of intervention on appropriateness has been evaluated by chi-square for trend.

## Results

38 interventions of audit and feed-back have been carried out across one year: 234 antimicrobial therapies have been evaluated, 198 with a single ABT and 36 with ABT-combination.

Ceftriaxone (49%), piperacillin/tazobactam (30%), azithromycin (7%), amoxicillin/clavulanate (5%) and meropenem (3.8%) were the main ABT used. Therapy inappropriateness rate was 40% in empiric and 21% in targeted therapy. Reasons of inappropriateness were: absence of indication (45%), duration of therapy (25%), too-broad spectrum (18%) and too-narrow spectrum (10%).

A decrease of inappropriate prescriptions from 55.3% to 15.4% ( $p=0.04$ ) and from 37.5% to 26.3% ( $p=0.2$ ) was observed in each ward respectively after six month of intervention. (Table 1 and 2)

### ABT Therapies in Medicine Ward (3B)

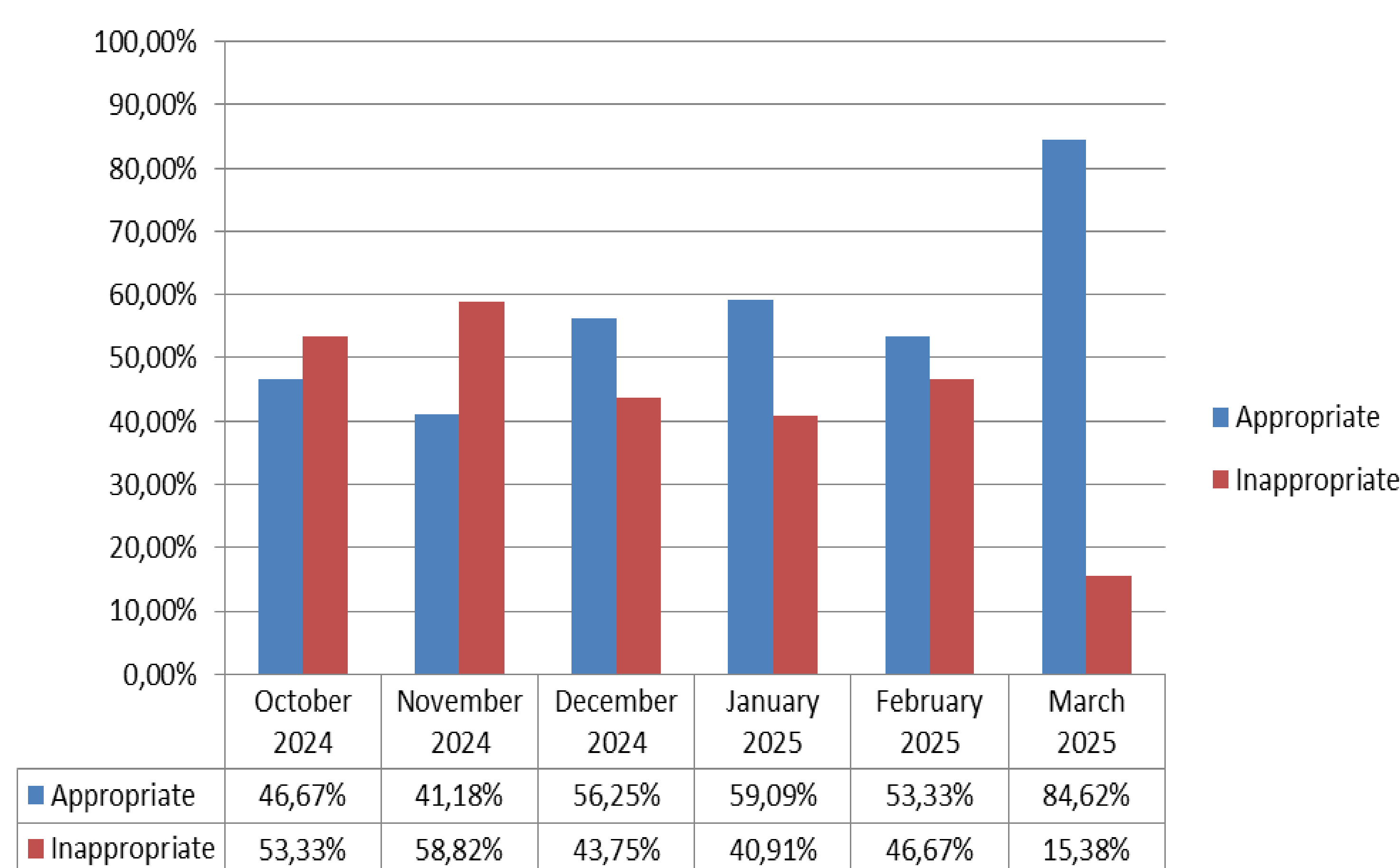


Table 1 – Antimicrobial Stewardship audit and feedback in Medicine Ward 3B

### ABT Therapies in Medicine Ward (3A)

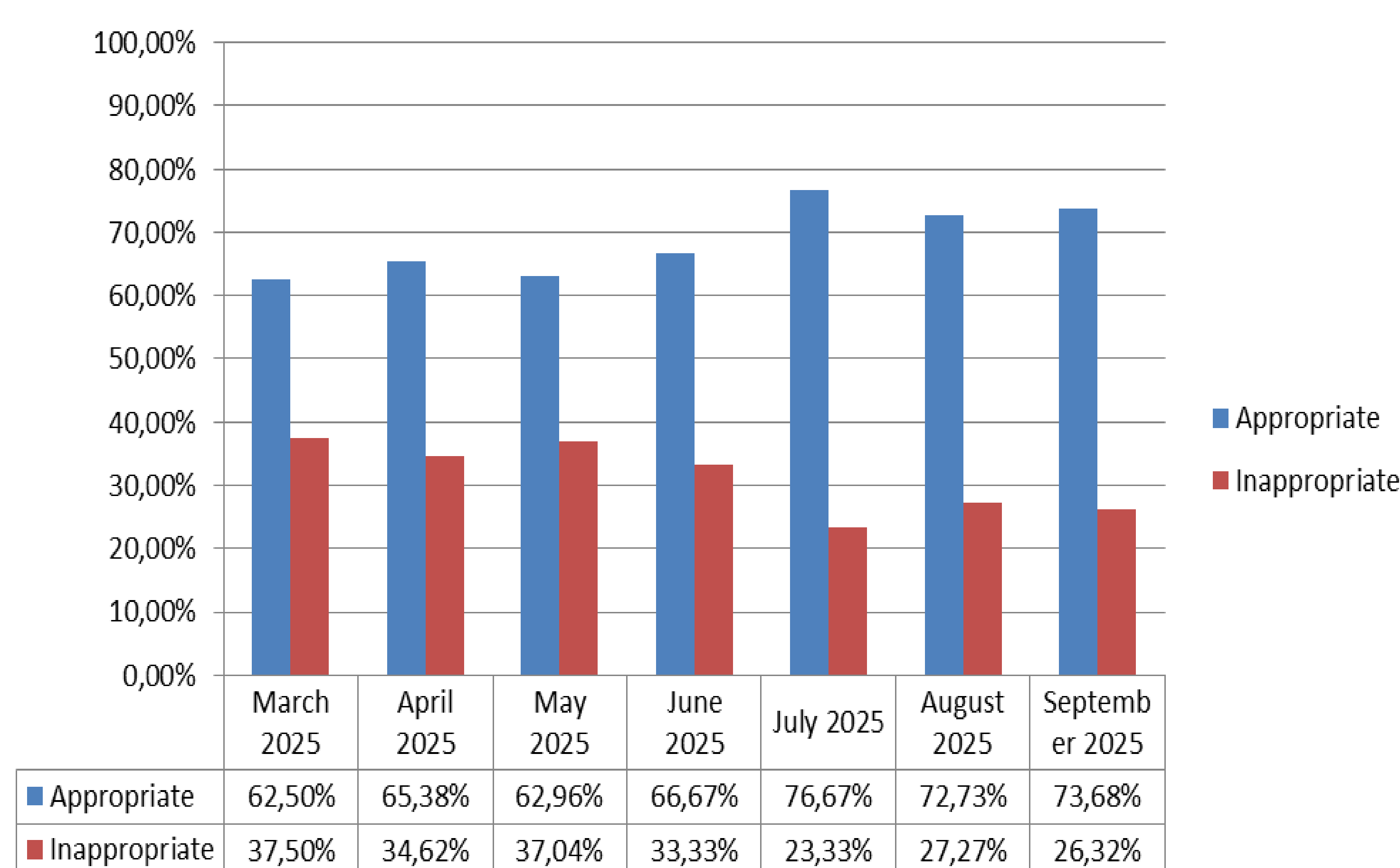


Table 2 – Antimicrobial Stewardship audit and feedback in Medicine Ward 3A

## Conclusion

Inappropriate ABT prescriptions were observed mainly in empiric treatment and in a context of ABT overuse in absence of a proved infection. After six months of AMS, we observed a significant decrease of inappropriate prescriptions that confirms the efficacy of these programs in optimising ABT use. Further analysis may provide information on potential benefits also in terms of patients' outcome.