

IMPACT OF ANTIMICROBIAL STEWARDSHIP PROGRAMME ON ANTIMICROBIAL UTILISATION, COST AND BACTERIAL RESISTANCE IN A MALAYSIAN PUBLIC TERTIARY HOSPITAL

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ABSTRACT

*Antimicrobial stewardship programme (ASP) was introduced as one of the strategies to curb the rise of multi-drug resistant (MDR) organism. The findings on the programme establishment are important in strengthening ASP measures. This study aimed to assess the impact of ASP implementation on the antimicrobial utilisation, antimicrobial cost and the MDR bacterial resistant rate before and after the programme initiation. A retrospective cohort study involving adult inpatient in a public tertiary hospital was conducted between pre-ASP implementation in year 2015 and post-ASP implementation from year 2016 to 2019. The statistical analysis of Student t-test or Mann-Whitney U test was used depending on the data distribution. The mean defined daily dose (DDD) per 1,000 patient days for ASP targeted antibiotics was significantly decreased by 17% from 161.52 DDD per 1,000 patient days in pre-ASP period to 134.49 DDD per 1,000 patient days in post-ASP period mainly from the usage of third generation cephalosporin, carbapenem and colistin. The annual expenditure for ASP targeted antibiotics had significant monetary reduction from RM30,580.50 in pre-ASP period to RM20,590.60 during post-ASP period. Significant reduction in the mean MDR bacterial resistant rate were notable for extended spectrum beta-lactamase *E. coli* (27.48%–17.85%), methicillin-resistant *Staphylococcus aureus* (22.25%–15.73%) and MDR *Acinetobacter* spp. (71.46%–49.34%). The implementation of ASP leads to significant reduction on the ASP targeted antibiotics utilisation, antimicrobial cost and MDR bacterial resistance rate. These outcomes are beneficial in justification and expansion of ASP activities in Malaysia.*

Keywords: Antimicrobial stewardship, Antibiotic use, Antibiotic cost, Resistance

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