



BUGS
vs
DRUGS

Question of the Week

Is there any evidence that antimicrobial stewardship programs actually reduce bacterial resistance?

Antimicrobial stewardship is often heralded as an effective means to reduce the inappropriate use of antimicrobials and, thus, minimize the risk of resistance development. However, the evidence to support these claims may be lacking given the difficult nature of conducting prospective, randomized controlled trials to evaluate the effectiveness of antimicrobial stewardship programs. Much of the evidence is based on retrospective observations or before-and-after studies.

In an attempt to better evaluate the effectiveness of antimicrobial stewardship programs in reducing resistance, Kaki and colleagues conducted a systematic review of the literature, focusing on the critical care setting.¹ A total of 24 studies met the quality inclusion criteria and included 3 randomized controlled studies, 3 interrupted time-series studies, and 18 uncontrolled before-and-after studies. Stewardship interventions were associated with reductions in antimicrobial utilization (11%-38% reduction in defined daily doses/1000 patient-days), lower total antimicrobial costs (\$5-\$10/patient-day), shorter average duration of antibiotic therapy, less inappropriate use, and fewer antibiotic adverse events. Stewardship interventions beyond 6 months were associated with reductions in antimicrobial resistance rates. Antibiotic stewardship was not associated with increases in nosocomial infection rates, length of stay, or mortality.

Further research is needed to fully evaluate the effectiveness of antimicrobial stewardship programs in a variety of hospital settings. However, current evidence tends to support a number of benefits of these programs in improving both clinical and economic outcomes.

1. Kaki R, Elligsen M, Walker S, et al. Impact of antimicrobial stewardship in critical care: a systematic review. *J Antimicrob Chemother.* 2011;66(6):1223-1230.