Poster #24
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Title of Research: Effect of Antibiotic Stewardship Programs on C. Difficile Incidence: A Meta-Analysis
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Introduction/Purpose:
Despite vigorous infection control measures, Clostridium difficile continues to cause significant disease burden. Antibiotic stewardship programs (ASPs) may prevent C. difficile infections by limiting the exposure to antibiotics. Our objective was to perform a meta-analysis of published studies to assess the effect of antibiotic stewardship programs on the risk of C. difficile infection in hospitalized adult patients.

Experimental Design:
Searches of PubMed, Web of Science, CINAHL, and the Cochrane databases were conducted to find all published studies on interventions related to antibiotic stewardship and C. difficile. Two investigators independently assessed study eligibility and extracted data. Risk of bias was assessed using the Downs and Black tool. Risk ratios were pooled using random-effects models. Heterogeneity was evaluated using the Cochran Q and the I2 statistics.

Results:
The final search yielded 890 articles, of which 77 full articles were reviewed, and a total of 16 articles were identified for inclusion. When results of all studies were pooled in a random effects model, a significant protective effect (pooled RR 0.41; 95% CI 0.30-0.56) was observed between ASPs and C. difficile incidence. When data were stratified by intervention type, a significant effect was found for active ASPs (complete removal of drug or prior approval requirement), but not for passive interventions (education or post-prescription review). Furthermore, ASPs were particularly effective in geriatric acute care settings. However, these pooled analyses showed heterogeneous effects ($p<0.2$), a common limitation for meta-analyses of quality improvement studies.

Conclusions:
Active antibiotic stewardship programs with drug removal or a prior approval requirement were associated with significantly reduced risk of C. difficile infection.