

Impact of Antimicrobial Stewardship Services in a Community Teaching Hospital

Purpose:

Since the discovery and use of antimicrobials to cure infectious diseases, antimicrobial resistance has been a consequence of treatment that complicates future infections. Antimicrobial stewardship (AMS) programs are an effort among healthcare professionals to optimize the use of antimicrobials to minimize resistance rates and other side effects of antimicrobial use. The AMS program at HSHS St. Elizabeth's Hospital has had protocols and restrictions in place to direct therapy decisions. An AMS pharmacist was recently appointed to provide proactive AMS services known as Prospective Audit and Feedback (PAF). This study aimed to evaluate the effect PAF had on antimicrobial use and other consequences of antimicrobial use.

Methods:

This retrospective chart review included patients admitted to HSHS St. Elizabeth's Hospital in O'Fallon, IL. Data were collected using the institution's electronic health record and clinical decision support software. The primary outcome was antimicrobial use defined as Days of Therapy/1000 patient days (DOT/1000PD). Secondary outcomes included intervention type and Hospital-acquired *Clostridioides difficile* infection (HAI C.diff). Antimicrobial use and HAI C.diff were collected 4 months pre and post PAF implementation with a 1 month washout period. Antimicrobial use and HAI C.diff were analyzed using a two-tailed student's t-test. Frequency of each intervention type was also reported.

Results:

The primary outcome of average monthly DOT/1000PD was 780.73 ± 28.8 post-PAF implementation vs 710.1 ± 22.4 pre-PAF ($P = 0.0082$). A total of 451 interventions were made from May to August 2022. Therapy optimization was the most frequent intervention and was conducted 130 times. A recommendation to discontinue antimicrobials was the second most frequent intervention made accounting for 99 of the total interventions. A mean of 1 HAI C.diff case was recorded post-PAF implementation vs 0.5 pre-PAF ($P = 0.3559$).

Conclusion:

Antimicrobial resistance and other consequences of antimicrobial use have made antimicrobial stewardship services a vital role in preventing further complications to treatment. The AMS pharmacist at HSHS St. Elizabeth's Hospital has a unique opportunity to provide proactive therapy recommendations to healthcare providers. The primary outcome of DOT/1000PD was associated with an increase in antimicrobial use post-PAF implementation. The most frequent intervention type was therapy optimization. No difference in HAI C.diff cases were identified.