

Title: Antibiotic Prescribing Trends Following Suppression of Fluoroquinolone Susceptibilities

Author(s): Corrie D. Black, Pharm D Candidate, MS Angharad Ratliff, PharmD, BCPS, BCCCP, Jenny Mayo, MT, ML

Institution: Idaho State University/University of Alaska-Anchorage; Alaska Regional Hospital

Abstract:

Purpose: Current Antimicrobial Stewardship guidelines suggest utilizing cascade reporting for antibiotic susceptibility test results, however; recommendations supporting this are weak due to insufficient evidence. Additionally, there are strong recommendations to reduce fluoroquinolone use due their association with *Clostridium difficile* infections and extensive adverse effects. A previous study in this facility found that suppressing fluoroquinolones susceptibilities reduced prescribing at the beginning of 2018 while total antibiotic use remained constant. The purpose of this study was to further assess the prescribing trends of antibiotics during this intervention and to identify any change in use of narrower or broader spectrum agents.

Methods: Fluoroquinolone susceptibility reporting was suppressed January 1, 2018. Hospital wide antibiotic use was retrieved from a real time surveillance system in units of total defined daily dosage (DDD) for the first six months of both 2017 and 2018. The DDD for each antibiotic group was corrected based on the hospital census for each month to determine the DDD per 1,000 patient days for each group reviewed. The total DDD per 1,000 patient days post intervention was compared to pre-intervention numbers during the same months of the prior year and analyzed for statistical significance using the student's t test. The change in DDD per 1,000 patient days between January 1 through June 30 in 2017 and 2018 for fluoroquinolones was the primary outcome, and the change in other antibiotic groups was the secondary outcome.

Results: The total fluoroquinolone DDD per 1,000 patient days in January through June of 2018 was 146.99, a 32.6 percent reduction (P equals 0.018) from January through June in 2017 (217.93). In 2017, fluoroquinolones represented 8.3 percent of all antibiotics prescribed versus 5.2 percent in 2018. The average monthly DDD per 1,000 patient days for all antibiotic use in 2018 was 474.55 and in 2017 was 518.43 (P=0.214). During the same time nitrofurantoin DDD per 1,000 patient days increased 33.2 percent (P equals 0.301), macrolides 13.4 percent (P equals 0.484), and aminopenicillins with a beta lactamase inhibitor 3.5 percent (P equals 0.869). Other antibiotic DDD per 1,000 patient days that simultaneously decreased during the intervention time included clindamycin 22.1 percent (P equals 0.158), aminopenicillins 31.2 percent (P equals 0.441), third generation cephalosporins 16.6 percent (P equals 0.196), sulfamethoxazole-trimethoprim 9.4 percent (P equals 0.637), first and second generation cephalosporins 5.3 percent (P equals 0.619), and cefepime/piperacillin-tazobactam 5.3 percent (P equals 0.600).

Conclusion: The initiation of cascade reporting that suppressed fluoroquinolone susceptibilities resulted in a 32.6 percent reduction in fluoroquinolone prescribing that was statistically significant while total antibiotic use remained constant. Review of other antibiotic prescribing trends found that nitrofurantoin prescribing increased 33.2 percent, though not statistically significant, is consistent with antimicrobial stewardship alternative recommendations for uncomplicated cystitis. The increased macrolide and aminopenicillin-beta lactamase inhibitor use may possibly be due to the decreased fluoroquinolone prescribing. Other prescribing trends were otherwise un-substantial suggesting that cascade reporting with suppressed fluoroquinolone susceptibility did not cause alternative prescribing that may contradict other stewardship goals at this facility.

Disclosures: Authors have no disclosures to report.