Poster Title: Evaluation of a pharmacist-guided antimicrobial stewardship program on antibiotic prescribing rates in a suburban internal medicine clinic

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Purpose: Greater than 60% of antibiotic expenditures are associated with the outpatient setting with at least 30% of antibiotics deemed unnecessary. Overprescribing of antibiotics can lead to increased adverse drug events, *Clostridiodies difficile* infections, and antibiotic resistance. Antimicrobial stewardship programs across the United States have been shown to improve patient outcomes, save healthcare dollars, and limit the progression of antibiotic resistance. The purpose of this medication use evaluation (MUE) was to evaluate the impact of a pharmacist-guided antimicrobial stewardship program on Advanced Practitioner Registered Nurses' (APRNs) antibiotic prescribing rates in an internal medicine clinic.

Methods: This was a single center, retrospective MUE assessing the effects of an antimicrobial stewardship program. The stewardship program was implemented on August 15th, 2019 and involved two components. The first was a 45 minute educational presentation to clinic APRNs overviewing antimicrobial stewardship and discussing guideline-recommended management of common viral-induced infections. The second was introducing a delayed antibiotic prescribing protocol between clinic pharmacists and APRNs. If an APRN saw a patient for acute sinusitis, acute pharyngitis, upper respiratory tract infection (URTI), or acute bronchitis and the APRN was undecided on whether the patient needed an antibiotic, then the APRN could refer the patient to the pharmacist for telephone follow-up. Upon follow-up, if the patient's condition was not improved or had worsened, the pharmacist would propose an order to the APRN for a guideline-recommended antibiotic regimen. If the patient improved, no prescription was written. This MUE included adults who were seen by one of five APRNs at the internal medicine clinic. Eligible patients were seen by an APRN between August 16, 2018 and November 16th, 2018 (pre-implementation group) or August 16, 2019 and November 15th, 2019 (post-implementation group). Statistical analysis was performed using the chi square test on categorical data and the unpaired t test on continuous data. This study was submitted to the health system's institutional review board and was granted exempt status.

Results: Five hundred and sixty eight adults were included in the analysis (251 patients pre-implementation and 317 patients post-implementation). In both the pre-implementation group and post-implementation group, the average age of the patients was 64 with 70% being female. The primary outcome was to determine the total difference in antibiotic prescribing rates amongst the APRNs before and after the implementation of the stewardship program. In the pre-implementation group, 69% of patients received an antibiotic prescription compared to 58% ($p=0.01$) in the post-implementation group. The delayed antibiotic prescribing referral process was utilized for 13 patients out of 317 patients reviewed in the post-implementation group and resulted in 12 patients not receiving an antibiotic. Secondary outcomes included the difference in prescribing rates for each of the individual diagnoses. There was a decrease in prescribing rates after program implementation as compared to pre-implementation for acute pharyngitis (56% vs 36%), URTI (59% vs 32%), acute bronchitis (82% vs 70%), and sinusitis (100% vs 96%).

Conclusions: Study results indicate a statistically significant decrease in overall antibiotic prescribing after implementation of the stewardship program. In all four infections reviewed, prescription rates decreased post program implementation. These results encourage continuous implementation of antimicrobial education programs and interdisciplinary collaboration among providers to help and protect patients from unnecessary drug therapy.