181. Evaluation of a Pilot Initiative for Tracking and Monitoring Indications Associated With Antibiotic Orders

Jamie John, PharmD[1]; Nicole Harrington, PharmD, BCPS[1]; Julianne Gardner, PharmD[1]; Jillian Dougherty, PharmD, BCPS[1]; Donna Walsh, PharmD[1]; Erin Dzuriak, PharmD[1]; Marci Drees, MD, MS[1]; Stephen Eppes, MD[2]; Sharath Kharidi, MD[1] and Linda Cheung, PharmD Candidate[1]; [1]Christiana Care Health System, Newark, Delaware, [2]Sidney Kimmel Medical College, Thomas Jefferson University, Philadelphia, Pennsylvania

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Background. The Christiana Care Antimicrobial Stewardship Program developed a pilot initiative for tracking and monitoring antibiotic utilization across the health system. This initiative aligns with the Joint Commission's elements of performance, which calls for tracking and reporting of antibiotic prescribing, as well as the Centers for Medicare and Medicaid Services recommendations for documentation of antibiotic indication, dose, and duration with each order. A customized indication list in the order entry field was created for cefepime, ceftriaxone, levofloxacin, and ciprofloxacin orders.

Methods. A retrospective chart review of antibiotic indications was completed. A maximum of 50 orders per each antibiotic from December 31, 2017 to January 6, 2018 were randomly selected to be evaluated. The primary endpoint of our study was the percent of cases in which the indication was selected according to the true indication per chart review. Secondary endpoints included the percent of cases in which "other indication" was selected where an available indication was appropriate, percent of cases in which the appropriate dose and frequency were prescribed, and percent of cases in which the duration of therapy was appropriate for urinary tract infections (UTIs).

Results. A total of 540 orders were profiled between December 31, 2017 and January 6, 2018, of which 182 were reviewed. In regards to the accuracy of selected indication, 94% of cefepime, 88% of ceftriaxone, 78% of ciprofloxacin, and 89% of levofloxacin orders were considered appropriate. Dosing was most appropriate among ciprofloxacin orders (100%), followed by ceftriaxone (96%), cefepime (94%), and levofloxacin (74%). Frequency was most appropriate among ceftriaxone orders (98%), followed by ciprofloxacin (87%), levofloxacin (78%), and cefepime (74%). Duration of therapy was appropriate in greater than 90% of UTI orders.

Conclusion. The pilot initiative for tracking and monitoring of antibiotic indications has allowed for enhanced transparency between providers regarding antimicrobial use. Further evaluation may provide greater understanding of antibiotic utilization and aid in identifying opportunities for improvements.

Disclosures. All authors: No reported disclosures.

182. Successes of a System-directed and Multi-faceted Inpatient Antimicrobial Stewardship Program in a Large, Integrated Delivery Organization

Peter Colley, PharmD, BCPS-AAHIVQ[1]; Rema Thyagarajan, PharmD, BCPS[2]; Hoa Nguyen, MD, MS, PhD[3]; Andrew Masica, MD, MSCI[4]; Donald Storey, MD[1]; [1]Pharmacy, Baylor University Medical Center, Dallas, Texas, [2]Pharmacy, Baylor Scott and White Health, Dallas, Texas, [3]Baylor University Medical Center, Dallas, Texas, [4]Baylor Scott and White Health, Dallas, Texas and [5]Baylor Scott and White Health, Irving, Texas

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Background. In 2015, Baylor Scott and White Health (BSWH) implemented a system-wide antimicrobial stewardship program (ASP) across 22 acute care facilities. The ASP committee, led by an Infectious Diseases (ID) Physician and ID Pharmacist, includes membership of health system leadership, facility-specific ID physician and clinical pharmacy leaders, informatics, infection control, and microbiology. The committee's purpose was to facilitate local implementation of antimicrobial stewardship interventions recommended by the Centers for Disease Control and Prevention and to improve antimicrobial use at BSWH.

Methods. The ASP created and approved antibiotic use guidelines (carbapenems, vancomycin, daptomycin, fluoroquinolones), policies, and set performance goals related to antibiotic use, which were then implemented locally at each facility. Beginning July 2016, all 22 acute care facilities went live with a clinical decision support (CDS) tool, a mobile device platform for physician access to ASP guidelines, and a requirement for antibiotic review at 48–72 hours. The CDS software also provided tracking of utilization data as days of therapy (DOT) standardized to 1,000 patient-days at risk (DAR) at the local facility and health system levels. The ASP committee tracked and reported metrics on the usage of total and targeted antibacterials, with comparisons in usage made between fiscal years (FY) 2017 and 2018. Means of total antibacterial usage and targeted antibiotics were compared between July to March of each FY using t-tests.

Results. Mean total antibacterial usage for the BSWH system was 649.6 vs. 622.6 DOT/1,000 DAR for FY17 and FY18, respectively (difference-Δ: 27.0; CI 95%: 7.9–46.1; $P = 0.008$). Mean targeted antibacterial usage (in DOT/1,000 DAR, FY17 vs. FY18) was 100.2 vs. 92.8 for vancomycin (Δ: 7.4; CI 95%: 5.0–9.9; $P < 0.001$), 30.4 vs. 20.7 for carbapenems (Δ: 9.7; CI 95%: 7.2–12.3; $P < 0.001$), 80.1 vs. 60.1 for fluoroquinolones (Δ: 20.0; CI 95%: 17.1–22.9; $P < 0.001$), and 4.6 vs. 4.4 for daptomycin (Δ: 0.2; CI 95%: -0.5–1.0; $P = 0.454$).

Conclusion. BSWH has made significant progress in reducing targeted and overall total antibacterial usage through the implementation of an enterprise-level antimicrobial stewardship program using a multifaceted approach.

Disclosures. All authors: No reported disclosures.

183. Alerting and Education via the Electronic Health Record (EHR) Decreases Inappropriate Fluoroquinolone prescribing in the Emergency Department of a Large Integrated Hospital Network

Lisa Davidson, MD[1]; Leigh Ann Medaris, MD[1]; Tammi Agner, MA[2]; Marc Kowalkowski, PhD[3] and D. Matthew Sullivan, MD[2]; [1]Division of Infectious Diseases, Atrium Health, Charlotte, North Carolina, [2]IAS and Enterprise Information Management, Atrium Health, Charlotte, North Carolina, [3]Center for Outcomes Research and Evaluation, Atrium Health, Charlotte, North Carolina

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Background. Emergency department (ED) providers frequently use fluoroquinolones (FQs) as first-line therapy for common infections in discharged patients. In 2016 the FDA issued a warning against FQ use for three common conditions: cystitis, bronchitis, and sinusitis. This study evaluated the effect of an electronic health record (EHR) clinical decision support alert followed by targeted provider education on FQ prescribing in the ED.

Methods. We performed a nonrandomized, single arm, pre–post study of FQ prescribing in target indications before (November 2015–October 2016) and after (January 2017–December 2017) implementation of an EHR alert at 19 hospital-based and free-standing EDs in the Charlotte NC area. Providers were alerted when a patient was discharged from the ED on an FQ with a target diagnosis (infections identified as being inappropriate for FQ) without additional exclusions (e.g., penicillin allergy) (Figure 1). Initial provider education on appropriate FQ use accompanied EHR alert implementation at all 19 participating EDs in November 2016. Targeted follow-up education was delivered in August 2017. We compared overall FQ prescribing rates in pre- vs. post-alert intervals using chi-squared tests. We compared FQ prescription volume following alert failure by indication for high alert failure diagnoses (ICD10 codes with ≥75 alerts) in Q1 2017 vs. Q4 2017.

Results. Target population ED discharges remained stable pre- and post-alert implementation ($n = 37,975$; $n = 37,731$). FQ prescribing decreased 53% from pre ($n = 13,796$, 36%) to post alert ($n = 7,289$, 19%; $P < 0.01$). While total orders avoided after alert firing remained low, the total prescriptions (i.e., alert overrides) dropped from 789 in January 2017 to 397 in December 2017 (Figure 2). The largest decrease was observed after repeat provider education in August 2017. Diagnosis categories with high volume alert failures decreased from 15 unique ICD10 diagnosis ($n = 1,534$ prescriptions) in Q1 2017 to 3 (diverticulitis, pneumonia, gastroenteritis/colitis; $n = 419$ prescriptions) in Q4 2017.

Conclusion. Effective EHR alert implementation combined with timely and targeted provider education on appropriate prescribing reduces inappropriate ED provider FQ prescribing by more than 50%.

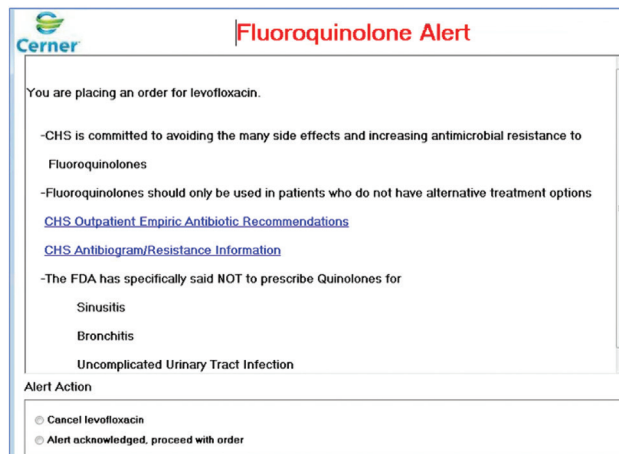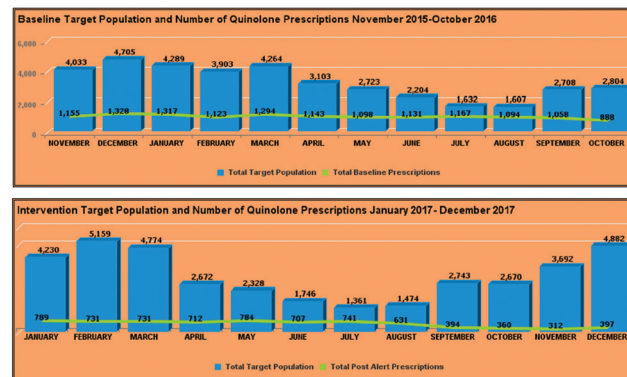Figure 1: Example of Emergency Department Fluoroquinolone Alert

Figure 2: ED Discharge Target Population and Number of Quinolone Prescriptions in Baseline vs Intervention Period

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