A Review of the Impact on Hospital Revisits through Culture Follow-up by Emergency Medicine Pharmacists Prescribing via Collaborative Practice Agreements

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Background: Patients presenting to the Emergency Department (ED) due to an infectious process are often discharged on empiric antibiotics prior to finalization of microbiology cultures. Follow-up of culture and susceptibility data ensures discharged ED patients receive appropriate antimicrobial therapy. Physicians historically have been responsible for culture review of discharged ED patients; however, recent literature has reported decreased ED and hospital admissions, decreased time to culture review, and improvement in the appropriateness of therapy through pharmacist involvement. While pharmacy involvement in culture follow-up has been studied, an assessment of the impact that prescribing pharmacists may provide is lacking. Collaborative practice agreements, enabling pharmacists to initiate and modify drug therapy, provides a unique opportunity to impact patient care through antimicrobial stewardship.

Research Objective: The objective of this study was to evaluate the impact of a clinical pharmacist practitioner-driven (CPP) antimicrobial follow-up program as compared to physician-managed (MD) in the ED.

Methodology: This retrospective, non-inferiority, cohort study evaluates the antimicrobial culture follow-up program utilized in the ED of a large tertiary care, community teaching hospital. Patients discharged from the ED with subsequent positive cultures who required modification of empiric antibiotics were eligible for inclusion. The primary outcome was the percentage of unplanned visits within 7 days following discharge from the ED. Secondary outcomes include the percentage of unplanned visits within 30 days following discharge from the ED, documentation of culture follow-up in the electronic medical record, time from ED discharge to culture follow-up, and appropriateness of antimicrobial therapy ordered at follow-up.

Results: A total of 1,557 patients with positive cultures following an ED visit were evaluated, among these 510 patients received empiric antimicrobial therapy requiring modification. Urine (67%) and wound cultures (16%) resulted in the largest number of specimens requiring a change in antimicrobials. The most common reasons for modifying therapy were susceptibility mismatch (47%), no antibiotic ordered (31%) and incorrect duration (18%). Revisit rates at 7 days in the CPP-managed arm were decreased to 10% from 13% in the physician-managed arm. This met the pre-determined non-inferiority criteria for the primary endpoint. Revisit rates at 30 days in the CPP-managed arm were also decreased to 24% from 27% in the physician-managed arm. Additionally, the secondary endpoints of percent documentation and appropriateness of therapy were improved significantly in the CPP-managed arm.

Conclusion: Antimicrobial stewardship may be provided by emergency medicine pharmacists through culture follow-up of patients discharged from the ED. Patients with subsequent positive cultures necessitate review of microbiology data to ensure adequate therapy is maintained. CPP-driven antimicrobial follow-up is non-inferior to a physician-managed process with regard to hospital revisits at 7 days.