

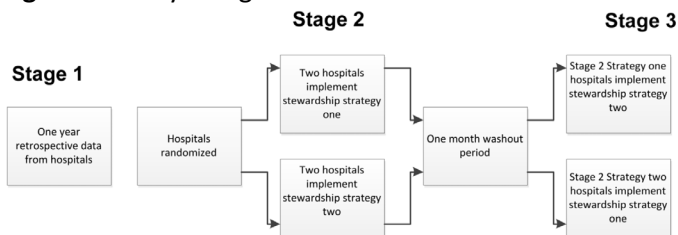
Antimicrobial Stewardship in Community Hospitals

Introduction

In this month's newsletter, we review a study published by DASON faculty on the feasibility of implementing 2 core antimicrobial stewardship (AMS) interventions recommended by the Infectious Diseases Society of America (IDSA) in 4 DASON community hospitals in North Carolina.¹

This study was a prospective, non-randomized clinical trial with crossover design in 4 DASON community hospitals, and it's the first multicenter study to assess the feasibility of implementing recommended AMS interventions in community hospitals. The study design is shown in Figure 1.

Figure 1. Study Design



The core stewardship strategies were: 1) antimicrobial restriction/preauthorization (PA), in which the provider obtained approval before the first dose; and 2) post-prescription review (PPR), in which antibiotic appropriateness after 72 hours of therapy was reviewed with intervention and feedback to the prescribing clinician. The primary outcome was the feasibility of implementing the 2 core stewardship interventions. Secondary outcomes included antimicrobial days of therapy and length of hospitalization as compared with baseline (stage 1).

Summary of Study Results

1. Post-prescription review (PPR) and a modified preauthorization (PA) strategy were feasible pharmacist-led interventions in community hospitals involved in the study.
2. Strict PA was not feasible at study hospitals due to perceptions that clinicians would not want to have prescriptions restricted without constant availability of infectious disease trained clinicians.
3. PPR recommendations were more likely related to de-escalation of therapy, while PA recommendations were more likely related to dose adjustment. In this study, PPR decreased antimicrobial use, by a mean of 40 days of therapy per 1000 patient-days and identified more inappropriate antimicrobial therapy. This strategy led to more direct interactions with clinicians and resulted in more antimicrobial de-escalation than the modified PA strategy.
4. Implementation of this program took a median of 95 days for institutional approval processes, a mean of 2.7 hours of training per pharmacist, and between 5-19 hours per week of median pharmacist time dedicated to stewardship interventions. Increasing dedicated stewardship resources is likely to improve the sustainability and success of stewardship programs in community hospitals.

Comment

In the United States, community hospitals provide the majority of healthcare and also have the highest rates of antibiotic use, thus are ideally positioned to significantly reduce the rapid spread of antimicrobial resistance.² Antibiotic use is directly associated with the development and survival of multi-drug resistant pathogens.³ Through reducing inappropriate antibiotic use, AMS programs have the potential to cause large downstream effects through reducing antibiotic-related side effects, *C. difficile* infection rates, hospital costs, as well as colonization and subsequent infections with

antimicrobial resistant pathogens in the individual and the broader community.⁴ In an era of increasing antimicrobial resistance, the need to improve AMS across all hospitals cannot be overstated. Nevertheless, the challenges and practical aspects of implementing AMS in a variety of settings, such as community hospitals, has not been well studied.

This study found that a tailored approach to antimicrobial stewardship in community hospitals can be successfully performed. Through a modified PA approach and PPR, community hospitals involved in this study were able to reduce inappropriate antimicrobial therapy, de-escalate broad-spectrum therapy, and reduce overall antimicrobial use. AMS strategies proven to succeed in large academic health systems, such as strict PA, may not be well-suited for community hospitals. However, through the collaborative hard work of the DASON hospitals, we are gaining a better understanding of which core strategies are most feasible and the practical aspects of implementation in different hospital settings. Every DASON community hospital has unique challenges and strengths, and we value the strong partnership and dedication to improving AMS together. We applaud the efforts of the 4 DASON community hospitals in this study. Due to their efforts and dedication to the study, we are able to better understand the feasibility of implementing recommended AMS interventions in community hospitals.

References

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3. Bell B, Schellevis F, Stobberingh E, Goossens H, Pringle M. A systematic review and meta-analysis of the effects of antibiotic consumption on antibiotic resistance. *BMC Infectious Diseases*. 2014;14(13):25.
4. Baur D, Gladstone BP, Burkert F, et al. Effect of antibiotic stewardship on the incidence of infection and colonisation with antibiotic-resistant bacteria and *Clostridium difficile* infection: a systematic review and meta-analysis. *The Lancet Infectious Diseases*. 2017;17(9):990-1001.

News Flash

This study predicates a new **Condition of Participation (CoP) for Hospitals and Critical Access Hospitals** who participate in Medicaid or Medicare that must be implemented 6 months after the publication date of September 30th, 2019.

The new rule from CMS updates hospital-wide requirements for infection prevention and control programs and adds a **requirement for hospital-wide antibiotic stewardship programs**. To meet the requirement, stewardship programs must demonstrate coordination among all components of the hospital responsible for antibiotic use and resistance and reflect the scope and complexity of hospital services. The new rule necessitates the appointment of a leader who is qualified “through education, training or experience in infectious diseases and/or antibiotic stewardship”, and is selected by recommendations of medical staff and pharmacy leadership. This leader is responsible for overseeing stewardship activities that promotes the evidence-based use of antibiotics in all departments including tracking and documenting improvements in proper antibiotic use through implementation of nationally recognized guidelines.

The study described in this newsletter proves what we already know in DASON: community hospitals of differing strengths and opportunities do have the ability to implement successful antimicrobial stewardship programs and will be able to meet this new CoP for Antimicrobial Stewardship Programs. DASON sites are already well prepared for this new requirement. If you have any specific questions regarding the new CoP and your hospital, please reach out to your DASON liaison.

<https://federalregister.gov/d/2019-20736>