ASCENSION

What Antimicrobial Stewardship Interventions Are We Focusing on? The Experience of a Large Healthcare System

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BACKGROUND

The Centers for Disease Control and Prevention (CDC) core elements of hospital antimicrobial stewardship (AS) programs include a recommendation that hospitals implement at least one intervention to improve antimicrobial use. However, the CDC also advises that programs should not try to implement too many interventions at the same time so that appropriate time and resources can be devoted to the chosen interventions to ensure success. AS interventions should be prioritized based on facility-specific needs, content expertise, and availability and alignment of resources. Those interventions should also take into account national guidelines and local antimicrobial susceptibility. Core components of any stewardship program include, but are not limited to, prior authorization and/or prospective audit and feedback, antibiotic "time outs," dose optimization, utilizing clinical decision support to improve prescribing for specific syndromes (community-acquired pneumonia, urinary tract infections, skin and soft tissue infections, empiric therapy for methicillin-resistant *Staphylococcus aureus* [MRSA] infections, *Clostridium difficile* infections), automatic alerts in situations where therapy may be unnecessary or duplicative, time-sensitive automatic stop orders, and automatic changes from intravenous to oral antibiotic therapy. We describe our experience with System-wide, focused AS interventions in the largest non-profit health system in the U.S.

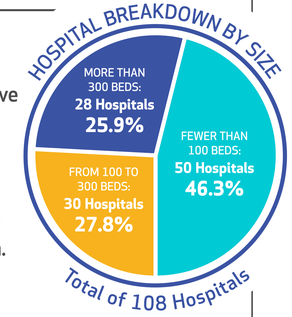
METHODS

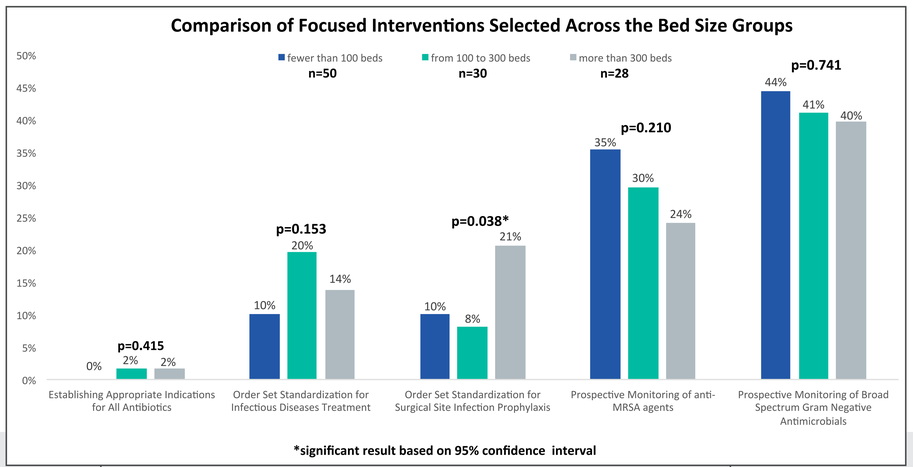
As part of our health system AS goals, all hospitals were asked to implement two interventions at their facility to improve antimicrobial use. The objective was to assess the impact of the focused interventions at each facility on improved antimicrobial use.

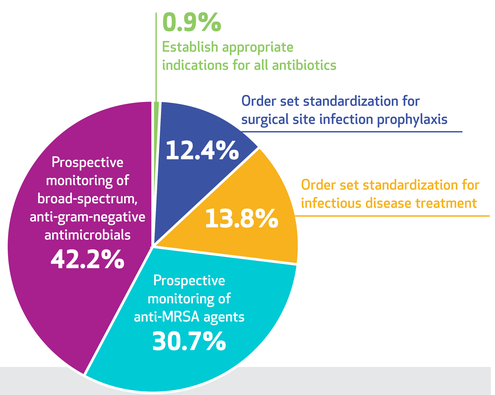
Each hospital AS team chose interventions based on perceived local needs and available resources and expertise. The interventions chosen by each hospital were reported to the Ascension Center of Excellence for Antimicrobial Stewardship and Infection Prevention. The interventions were then grouped into five categories: prospective monitoring of broad-spectrum, anti-gram-negative agents; prospective monitoring of anti-MRSA agents; order set standardization for infectious diseases treatment; order set standardization for surgical antimicrobial prophylaxis; and establishing appropriate indications for all antimicrobials. We compared the results for all facilities, as well as results based on hospital bed size (small <100 beds, medium 100-300 beds, large >300 beds).

RESULTS

Of 108 hospitals participating in the program, 50 (46.3%) were small, 30 (27.8%) were medium, and 28 (25.9%) were large. Prospective monitoring of broad-spectrum, anti-gram-negative agents was chosen as the predominant AS intervention in the vast majority of hospitals (n=92, 85%), followed by prospective monitoring of anti-MRSA agents (n= 67, 62%), order set standardization for infectious diseases treatment (n= 30, 28%), order set standardization for surgical site infection prophylaxis (n= 27, 25%), and establishing appropriate indications for all antimicrobials (n= 2, 2%). There was no significant difference between small, medium and large hospitals in terms of choosing prospective monitoring of broad-spectrum, anti-gram-negative agents and anti-MRSA agents as an AS intervention. A larger percentage of small hospitals focused on prospective monitoring of anti-gram-negative antimicrobials and anti-MRSA agents compared to medium- and large-sized hospitals; medium-sized hospitals were more likely than hospitals of other sizes to address order set standardization for infectious diseases treatment; large hospitals were more likely to evaluate antibiotics used for surgical prophylaxis.







DISCUSSION

Prospective audit and feedback improves antibiotic use and is considered a core component of any stewardship program. Broad-spectrum, anti-gram-negative agents and anti-MRSA agents comprise a major portion of total antibiotic use across each of our hospitals; thus, it is not surprising that the majority of facilities are placing renewed focus on these two classes of antibiotics. These interventions provide an opportunity to decrease antimicrobial resistance to antibiotics that are vital to treating life-threatening infections in our patients. As a next step, we will be asking our hospitals to share the process and/or outcome measures for their initiatives, as well as describe the actions that they have taken to achieve success and the challenges they have faced with the implementation. This information will allow us to recognize best practices across our System and provide targeted education to those hospitals that are continuing to have challenges in improving antibiotic prescribing.

CONCLUSION

The focused interventions chosen by hospitals to improve antimicrobial use varied slightly based on institutional size. Our findings indicate that prospective monitoring of antimicrobials covering broad-spectrum, gram-negative organisms and anti-MRSA agents are the highest priority initiatives for all hospitals regardless of size. With this renewed focus on prospective monitoring of antibiotics, we are driving our efforts to improve appropriate antimicrobial use across our health system. This optimization of use will lead to improved patient outcomes, decreased antimicrobial resistance and lower cost.

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