

Antimicrobial Stewardship in Pediatrics: A Good Beginning But We Have a Long Way to Go

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It has been 7 years since publication of Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship.¹ Progress has been made in some areas but we continue to struggle in others.² Acknowledgment of the seriousness of emergence of antimicrobial resistance by both the academic community and, finally, the government raises hopes that relief from the dearth of new effective antimicrobial agents will be forthcoming.³ The President's Council of Advisors on Science and Technology Report on Combating Antimicrobial Resistance specifically supports establishment of antimicrobial stewardship programs (ASPs) in health care facilities.³ Public-private partnerships are emerging aimed at identifying new antimicrobial agents and new interest in development of new agents has appeared among some smaller pharmaceutical companies.² Infection control practices in infection surveillance and interventions to prevent spread of multi-drug-resistant organisms have emerged and a greater awareness on the part of health care workers regarding effective sanitation, especially with regard to hand hygiene, is evident.² However, progress is urgently needed in the areas of global leadership and coordination of antimicrobial use, economic incentives for new drug development, continued use of antibiotics to enhance food production, and inappropriate use of antibiotics in the treatment of viral infections and other non-infectious conditions.²

In this month's journal, Hersh and his colleagues report on a study of ASPs in

freestanding children's hospitals.⁴ They previously had surveyed 41 hospitals to determine which had established ASPs.⁵ All the hospitals participated in the Pediatric Health Information System, a robust pediatric administrative database that contains data on antimicrobial use. An ASP was defined as a comprehensive program that functions continuously to monitor antimicrobial use and that dedicates full-time equivalents (FTEs), a clinical pharmacist and/or a pediatric infectious disease specialist.^{4,5} They used Pediatric Health Information System data to identify and compile metrics related to antimicrobial use (ie, days of therapy). They found a secular trend of improvement in antimicrobial use among most hospitals but a more pronounced improvement in hospitals with a formalized ASP (ASP+). Because the ASP+ hospitals by definition had supported FTEs to run the program, the authors attributed at least part of the enhanced improvement to the financial support. They state in the discussion that, "It is likely, however, that some of the individual ASP negative (ASP-) hospitals [hospitals without formalized ASPs] are indeed performing antimicrobial stewardship as effectively as those with formalized programs." Because we do not know details of performance of all hospitals and which ones might be performing as well as ASP+ hospitals, it is difficult to be sure if financial support explains the difference in performance between the ASP+ and the ASP- ones.

The study does raise several issues regarding ASPs in general and pediatric

hospitals. First, although there are few data to support the assertion that financially supported FTEs improve performance of ASPs, the practice has been often recommended.^{1,6} It has been suggested that in approaching hospital administration for support of an ASP, the request should be accompanied by a business plan or similar financial justification.^{7,8} Second, the authors of this study recognize, as do other experts, the need for improved metrics to measure performance of ASPs. As noted in the study, measurement of days of therapy will not accurately measure switch to oral therapy or de-escalation of treatment. In addition, a recent study surveyed physicians and pharmacists to compare antimicrobial stewardship outcomes considered to be most important with those that were actually used in practice as metrics.⁹ Outcomes favored by infectious disease physicians were appropriate use of antimicrobial agents and infection-related mortality rate, whereas antimicrobial use and cost were the most commonly reported metrics. There is growing consensus that the focus of ASPs should be on optimizing clinical outcomes and patient safety and minimizing unintended consequences of the use of antimicrobial agents, for example, adverse events, selection of resistant bacteria, and *Clostridium difficile*

infections.¹⁰ Finally, in addition to refocusing metrics, there is great opportunity in looking more carefully at study design, especially with regard to sample size and power to demonstrate differences between groups.¹¹

Nevertheless, Hersh et al are to be congratulated on a fine study of the current status of antimicrobial stewardship in pediatric inpatient practice and for pointing the way to attaining better data on outcomes and approaches to the study of ASPs.

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