

COMMENTARY

The Essential Role of Pharmacists in Antimicrobial Stewardship

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The rapid increase in antibiotic resistance in conjunction with a decline in discovery and development of new antibiotics and widespread misuse of antibiotics is considered a global crisis.¹ In response to this escalating problem, President Obama implemented the National Strategy on Combating Antibiotic-Resistant Bacteria² through Executive Order 13676. Within 3 years, the plan mandates that the Centers for Medicare and Medicaid Services (CMS) will issue new Conditions of Participation (CoP) to advance compliance with the Centers for Disease Control and Prevention (CDC)'s *Core Elements of Hospital Antibiotic Stewardship Programs*.^{2,3} Because the preservation of antibiotics is a significant public health imperative, the Society of Infectious Diseases Pharmacists (SIDP) and the American Society of Health-System Pharmacists (ASHP), support the inclusion of antimicrobial stewardship as a condition of participation for CMS.

This position paper highlights the critical importance of pharmacists with training in antimicrobial stewardship in an effective antimicrobial stewardship program. As outlined in the CDC's *Core Elements* document, successful stewardship programs must have not only physician leadership and accountability but also drug expertise from a pharmacist leader.³ This stance is further supported by the ASHP's *Statement on the Pharmacist's Role in Antimicrobial Stewardship and Infection Prevention*, which advocates that pharmacists take prominent roles in antimicrobial stewardship programs due to their unique expertise, understanding of, and influence over antimicrobial use within an organization.⁴

Accrediting bodies, regulatory agencies, and quality-assurance organizations have recognized the threat of antimicrobial resistance and the need for healthcare organizations to take proactive measures. Most medium-to-large hospitals have antimicrobial stewardship programs,⁵ but special efforts are needed in smaller hospitals and non-acute settings such as ambulatory and long-term care. Stewardship efforts are just as important in these settings and require new models to include the expertise of infectious disease (ID) physicians and pharmacists.

While antimicrobial stewardship is the responsibility of every pharmacist regardless of practice setting, the importance of pharmacists with specialized training in infectious diseases and stewardship to provide leadership to an antimicrobial stewardship program cannot be overstated. The Infectious Diseases Society of America (IDSA) and the Society for Healthcare Epidemiology of America (SHEA) guidelines for the development of institutional antimicrobial stewardship programs highlight that a pharmacist with ID training should be a core member of the antimicrobial stewardship team.⁶

Ideally, every stewardship program would employ an ID pharmacist with formal ID training gained through completion of an accredited post-graduate year 2 (PGY2) residency or fellowship in ID, combined with board certification and relevant practice experience.⁷ Furthermore, pharmacists should maintain their ID skills through continuing education and continuing professional development. ASHP and SIDP provide structured goals, objectives, and targeted educational outcomes for PGY2 residencies in ID to ensure that all graduates of these programs have a solid foundation in the principles of antimicrobial stewardship.⁸

In the United States, there are more than 5,000 registered hospitals but only ~400 pharmacists with formal post-graduate ID training. Currently, only 70 ASHP-accredited PGY2 ID programs exist, making the reality of having an ID-trained pharmacist at every hospital a significant challenge. To meet the growing demand for ID-trained pharmacists to build stewardship programs across the country, more PGY2 ID programs need to be developed. To accomplish this, however, significant federal funding and incentives are needed.

In the short term and for small/rural hospitals where it may not be feasible or fiscally responsible to have ID-trained pharmacy specialists on staff, options for training in antimicrobial stewardship outside of formal post-graduate training programs do exist. Certificate programs or traineeships in ID concepts and antimicrobial stewardship are highly encouraged if completion of more robust structured training programs is not possible. These resources allow pharmacists access to more

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specialized training, and health-system leadership should provide funding support to department of pharmacy staff for this type of training. For healthcare systems or regions without resources to provide dedicated ID clinical pharmacy specialists at each site, an ID team and/or ID pharmacist who can provide oversight on a consultative basis is recommended. This can be done through a variety of mechanisms, including telemedicine networks, which can provide valuable support for pharmacists that may not have extensive ID training or who need assistance with more complicated ID patient cases. Every effort should be made to accelerate the timeline of increasing the number of ID-trained pharmacists in stewardship programs nationwide, but in the short term, alternative means of stewardship training should be supported.

In summary, the Society of Infectious Disease Pharmacists (SIDP) and the American Society of Health-System Pharmacists (ASHP) endorse the following mandates:

- An institution starting a stewardship program should optimally seek physicians and pharmacists with formal training in infectious diseases to run the program.
 - If an institution is unable to identify a physician or pharmacist with such training, they should seek at a minimum physicians and pharmacists with formal training in stewardship (eg, completion of an antimicrobial stewardship certificate program) or provide the resources to train current practitioners.
- All accrediting, regulatory, and quality assurance organizations should acknowledge that and set standards in which pharmacists with training in stewardship are essential to the function of antimicrobial stewardship.
- A significant deficit in pharmacists trained in infectious diseases and antimicrobial stewardship exists, necessitating federal support and funding for the development of more PGY2 ID pharmacy residency training programs.

All healthcare professionals, patients, and consumers have a stake in the fight against antimicrobial resistance and in maintaining an active antimicrobial armamentarium. The White House and the CDC have recently highlighted the need for a collaborative effort by CMS, The Joint Commission, and other stakeholders to promote guidance, leadership, and best practices related to appropriate antimicrobial prescribing and dose optimization from an individual patient and public health perspective. Pharmacists play an essential role in decreasing antimicrobial resistance and saving lives, and healthcare organizations should effectively use their unique knowledge to make antimicrobial stewardship programs successful. Finally, ID pharmacy specialists should be engaged and available for consultation to provide the utmost quality and knowledge whenever possible, and the number of pharmacists practicing in this area needs to be greatly expanded to meet current demands.

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