Title: The Impact of Antibiotic Stewardship Program Resources on Infection Prevention Programs

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Summary:

Physician time allocation is needed for infection prevention similar to antimicrobial stewardship. Regulatory advocacy of infection prevention structure will highlight the need to expand workforce in IP as well as ASP. Structured IP curriculum is needed in ID fellowship training.
Abstract

Doernberg and colleagues describe the role and resourcing of the Infectious Disease (ID) physician for an effective hospital-based antibiotic stewardship program (ASP) (1). There are similar resource requirements for the ID physician leader in an effective Infection Prevention (IP) program. This ID physician partnership is supported by professional organizations and predates the imperative of ID physician leadership in ASP. There are regulatory requirements for established IP programs, but don’t specify leadership structure to the same degree as ASP regulations. The Centers for Medicare and Medicaid (CMS) and The Joint Commission (TJC) have specified the inclusion an ID trained physician leader in ASP, and this has led to the development of curriculum to train more ASP physicians (2). More robust advocacy may ensure a similar regulatory mandate supporting the participation of ID trained physicians in IP programs. This may encourage the development of a curriculum to meet the workforce
Viewpoint

Doernberg and colleagues report a survey and analysis of essential resources for antibiotic stewardship programs (ASP) and emphasize an association between specific resources (ID physician and pharmacist) and the efficacy of the ASP (1). The survey analysis also concludes that resource constraints are often encountered by ID physicians relative to ASP, and therefore recommend a staffing ratio relative to bed number. The survey did not address the additional ID physician resources needed for participating in a hospital Infection Prevention (IP) program. In many large hospitals/healthcare organizations, an ID physician’s time is commonly divided among three programs: clinical ID practice and consults, ASP, and IP (as the Infection Prevention Committee Chairperson). This results in competing priorities, and often insufficient time allocated for each program. In an era of physician productivity measured in Relative Value Units (RVU), clinical activity often takes precedence over both the ASP and the IP program. Hospital-based IP programs have struggled to ensure trained ID physician participation/leadership, and the more recent focus on ASP further constrains ID physician time. Given the scope of ID physician responsibility for these three vital programs, regulatory endorsement of a recommended staffing ratio and compensation would be of tremendous value in ensuring the success of not only ASP but IP programs as well. These would be complementary components of the ID physician role, as IP programs also support successful ASPs, primarily by tracking of multidrug resistant organisms, *Clostridium difficile* infection, and prevention of healthcare associated infections (HAIs), thereby eliminating the antibiotics required to treat them. In addition, adequate financial resources to demonstrate RVU for
administrative time allows practices and institutions to add more clinical staff to support the protected time for these valuable programs.

Although there is a long history of written consensus and commentary by The Centers for Disease Control and Prevention (CDC), the Society for Healthcare Epidemiology of America (SHEA), Association for Professionals in Infection Control and Epidemiology (APIC) and Infectious Disease Society of America (IDSA) regarding the importance of the physician role in IP programs, there has been no regulatory requirement to support this (3–8). Consequently, there is a similarly long history of an absence or limitation of trained ID physician participation/leadership in IP programs. This is despite evidence that in locations where ID physician participation in IP programs is robust, it has been shown that patient outcomes improve (9). In contrast, for ASP there have been regulatory directives imposed by the Centers for Medicare and Medicaid (CMS) and The Joint Commission (TJC) requiring physician leadership. Granted, this mandate has not yet produced a pool of trained ID physicians sufficient to support every ASP. The ASP training programs developed by SHEA/IDSA have, and will, continue to provide valuable support. In addition, a resourcing standard for the ID physician to fulfill both clinical and ASP responsibilities has been proposed by IDSA and SHEA, however, it does not include time for IP program leadership, is not uniformly applied nor is it mandated by regulation (1,3). Consequently, there remains a significant shortage of physicians adequately engaged in IP programs in the United States (US).

There is ample formal acknowledgement and evidence of the importance of the physician role in IP programs, but this had not led to the same mandates of program structure. This began in 1970 when the CDC recommended that hospitals establish positions for an
infection control nurse and a hospital epidemiologist (physician) (5) This was followed by the Study on the Efficacy of Nosocomial Infection Control (SENIC) in the 1980’s, which reported on the benefit of an physician partner for IP programs concluding that “hospitals with IP programs headed by physicians with specialized training in infection prevention and control are more effective and have lower healthcare–associated infection (HAI) rates” (7). A decade after the SENIC study in 1998, SHEA created a consensus panel to help define the evolving infrastructure and activities of hospital epidemiology and infection control programs. The resulting infrastructure report noted that most hospital epidemiologists (dedicated physician partner for IP programs) were physicians with training in infectious diseases, and that they were increasingly pursuing additional training in healthcare epidemiology and infection prevention, for example via the SHEA/CDC training course (8,10).

Another decade later in 2008, SHEA and the IDSA Standards and Practice Guidelines Committee assembled a task force to create a compendium of evidence-based recommendations for the prevention of the most common HAIs, which emphasized the importance of physician hospital epidemiologists (HE) in IP programs (3). Kaye and colleagues described the critical nature of the role and noted the lack of a clear and comprehensive position description, formal certification or credentialing in the role.

The following year in 2016, Bryant and colleagues published a white paper which noted the unmet need for HE support in many hospitals, and offered a call to action to establish this partnership with IP programs in order to best support patient safety (4). The authors offered an informed staffing recommendation for this physician partner of IP programs similar to Doernberg’s ASP recommendations.
Despite the above evidence and recommendations, ensuring that every hospital-based IP program is supported by a dedicated ID physician, who has obtained training and has protected time to support the program remains a gap and a challenge. Significant attention has recently been directed at the development of core ASP curriculum integration into fellowship training to increase the ASP trained physician pipeline, however, this has not addressed the dearth of IP trained physicians (11). Fellowship training in ASP and IP has traditionally been more cursory and does not provide a comprehensive curriculum. There are certifications, workshops, and text available for both ASP and IP sponsored by SHEA and endorsed by IDSA and APIC (10,11). However, a more comprehensive fellowship curriculum that integrates critical IP skills with AS skills is needed. Nori and colleagues implemented a similar curriculum and found 95% of ID fellows desired additional ASP and IP training (12).

Today, there is an abundance of emphasis placed on the importance of infection prevention and control programs including by legislative mandates, industry, accrediting agencies, value-based payment programs, professional societies, and consumer advocacy groups. This attention should be leveraged in a similar fashion to ASPs, to advocate for the partnership and co-leadership of an ID trained physician to ensure a successful IP program. An ID physician can champion the value and worth of an effective IP program to other executive leaders and decision makers, and provide support of initiatives at a peer level with other physicians. In short, this partnership with the IP program is as critical to patient safety as the physician partnership with the ASP. The multifaceted role of the ID physician in the clinical practice of infectious disease, as well as ASP and the IP program creates a need for more ID trained physicians. The inclusion of IP with ASP legislative advocacy for time allocation and
compensation models should be encouraged by all associated professional and regulatory organizations including IDSA, SHEA, APIC, TJC, and CMS to help build the infectious disease physician workforce with the goal of improving patient care.

**Disclosures:**

The authors have no conflicts of interest related to this manuscript.
References


