Major Article

Health care system leaders' perspectives on infection preventionist and registered nurse engagement in antibiotic stewardship

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Background: Infection preventionists (IPs) and registered nurses (RNs) have an important role to play in antibiotic stewardship programs (ASPs). Recent articles highlight their potential roles in practice, research, education, and policy; however, little is known about their actual ASP engagement. Leaders often have early knowledge of emerging trends and evolving health care worker roles.

Methods: A survey was developed using the Centers for Disease Control and Prevention's Core Elements of Hospital Antibiotic Stewardship Programs to assess health care system infection prevention and control leaders' perceptions of IP and RN engagement in hospital ASPs.

Results: Thirty-five leaders representing all regions of the United States completed the survey. Their organizations tended to have significant ASP leadership support, but lacked ASP policies indicating IP and RN roles and responsibilities. IPs were more likely than RNs to be members of the ASP team and have greater ASP knowledge. Neither discipline was conducting patient education related to proper use of antibiotics, but this was identified as a future ASP role. The 2017 Joint Commission Antimicrobial Stewardship Standard was accelerating ASP implementation.

Conclusions: IPs and RNs are well-positioned to assume greater roles in ASPs, especially in educating patients about the safe and proper use of antibiotics. However, their roles must be clearly identified, defined, and quantified. In so doing, knowledge and skill gaps can be identified and specific educational programs developed to advance their successful engagement in ASPs.

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Antibiotic resistance is recognized as one of the most significant public health problems facing the United States and the world today.[1] In response, the White House released the "National Action Plan for Combating Antibiotic-Resistant Bacteria" and convened the Forum on Antibiotic Stewardship in 2015.[2,3] The national action plan calls for the implementation of antibiotic stewardship programs (ASPs) in all acute care hospitals by 2020; however, in 2014, <40% of >4,000 hospitals reported having programs that implemented all the ASP core elements outlined by the Centers for Disease Control and Prevention (CDC).[4,5] Antibiotic stewardship—defined by the Infectious Disease Society of America (IDSA) and the Society for Healthcare Epidemiology of America, Inc (SHEA) as coordinated interventions designed to improve and measure the appropriate use of antibiotics by promoting the selection of the optimal antibiotic drug regimen including dosing, duration of therapy, and route of administration—has an important role in slowing the development of antibiotic resistance and improving clinical outcomes.[6] Although The Joint Commission (TJC) Antibiotic Stewardship Standard (Medication Management MM.09.01.01) describes stewardship as a multidisciplinary endeavor,[7] most ASP research and improvement strategies (eg, preauthorization, prospective audit and feedback, formulary restriction) have focused almost exclusively on physician prescribing practices. However, the literature indicates that infection preventionists (IPs) and bedside registered nurses (RNs) also have an important role to play in hospital ASPs.[8-15] In fact, the recent American Nurses Association/CDC white paper identifies multiple bedside RN roles.[13] However, to date, little is known about direct care and bedside RN or IP actual engagement in such programs. Hospital-based infection prevention and control (IPC) leaders often have firsthand knowledge of emerging IPC trends and evolving IP roles. The aim of this study is to describe the engagement of IPs and bedside RNs in ASPs in acute care hospitals in the United States from the perspective of IPC leaders. For this study, IPC leaders are defined

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as health care system or corporate IPC managers, directors, and administrators.

METHODS

This cross-sectional study used survey methodology to collect data from a convenience sample of members of the Corporate IPC Network. The network was founded in 2013 and is a self-organized, independent group of 72 IPC leaders (managers, directors, and administrators) at the corporate or system level of multihospital systems in the United States. Their primary responsibility is to facilitate the standardization of IPC surveillance systems, policies, practices, products, and processes among and across facilities.[14] The anonymous, online survey was conducted from March 27-April 21, 2017. The study was determined exempt human subjects research by the Thomas Jefferson University Institutional Review Board.

Procedures

Guided by the CDC's Core Elements of Hospital Antibiotic Stewardship Programs,[5] we developed a 4-section survey to collect data on (1) demographics and role (11 items); (2) ASP (23 items for respondent with responsibilities in a single facility, and 26 items for respondents from a multifacility system); (3) perceptions of leadership support, and IP and bedside RN engagement in ASP activities (21 items); and (4) open-ended questions soliciting perspectives on current and emerging IP and RN roles in ASPs, and facilitators and barriers (9 items). Prior to administration of the survey, 5 IPC leaders assessed the survey for relevant content, clarity, and ease of use. An invitation to participate in the survey was sent via e-mail to the 72 members of the IPC leadership group. Two follow-up invitations were sent to increase participation. The survey took an average of 20 minutes to complete and was available only in English.

Descriptive statistics including frequencies and percentages were computed to describe the respondents and the facilities they represented, and the characteristics of the ASP. The 21 items regarding perceptions of leadership support, and IP and bedside RN engagement in ASP activities were measured on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Means and SDs were computed to describe these items with higher scores representing a greater level of agreement. Content analysis of responses to open-ended questions enhanced contextual understanding of IP and RN engagement.

RESULTS

Characteristics of respondents and facilities

Thirty-nine respondents began the survey, and 35 of 72 completed it for a response rate of 49%. Respondents represented all regions of the United States, and most had corporate- or health care system–level IPC leadership responsibilities. Respondents were highly educated, with most (80%) holding a master's or doctoral degree, and highly experienced, with 94% having ≥11 years of health care experience, and 89% having ≥11 years of IPC experience. Almost all (97%) were IPC certified. Most (91%) had ≥6 IPs under their supervision.

ASPs

For this study, we defined an ASP as having at least 1 person in the facility or health care system that performs and documents antibiotic stewardship–related activities and interventions and contributes to the development of such policies and procedures as part of his or her job responsibilities. Table 1 presents the ASP char-

acteristics. Nearly all respondents reported that their facilities had a formal ASP (97%), written statements of support from leadership (86%), and a corporate champion for the overall stewardship program (93%). All reported having a designated ASP leader in each facility. The leader most often was a pharmacist (39%) or infectious diseases physician (29%). Only 1 respondent indicated having an IP as the ASP facility leader. About half of the ASPs resided within administration or quality improvement and patient safety departments, and less than half were within the divisions of infectious

Table 1
Characteristics of the ASP and IPC involvement

Characteristics	n (%)
Written statement of ASP support from leadership (n = 29)	
Yes	25 (86)
No	3 (10)
Do not know	1 (4)
Corporate champion for overall ASP (n = 28)	
Yes	26 (93)
No	2 (7)
Designated ASP leader in each facility (n = 29)	
Yes	29 (100)
No	0
Position of ASP leader (n = 28)	
Pharmacist	11 (39)
ID physician	8 (29)
Physician, other than ID	3 (11)
Infection preventionist	1 (4)
Other, or differs by facility	5 (17)
Where does the ASP reside? (n = 29)	
Administration	8 (27)
Quality improvement	6 (21)
Pharmacy or dyad of pharmacy and ID	6 (21)
ID division	5 (17)
Other	4 (14)
ASP policies consistent across facilities (n = 29)	
Yes	18 (62)
No	8 (28)
Do not know	3 (10)
IP on core ASP team (n = 28)	
Yes	27 (96)
No	1 (4)
RN on core ASP team (n = 28)	
Yes	15 (54)
No	6 (21)
Do not know	7 (25)
Average hours per month devoted to ASP by respondents (n = 29)	
1-5	19 (66)
6-10	5 (17)
11-15	1 (3)
None	4 (14)
ASP training received by respondents (check all that apply) (n = 29)	
SHEA training course	8 (28)
State or local training	12 (41)
Training given by facility	12 (41)
APIC conference sessions	24 (83)
No specific ASP training	3 (10)
Other	3 (10)
Average hours per month devoted to ASP by IPs reporting to respondents (n = 29)	
1-5	22 (76)
6-10	1 (3)
None	6 (21)
ASP training received by IPs (check all that apply) (n = 29)	
SHEA training course	2 (7)
State or local training	9 (31)
Training given by facility	12 (41)
APIC conference sessions	15 (52)
No specific ASP training	8 (28)
Other	3 (10)

APIC, Association for Professionals in Infection Control and Epidemiology; *ASP*, antibiotic stewardship program; *ID*, infectious diseases; *IP*, infection preventionist; *IPC*, infection prevention and control; *RN*, registered nurse; *SHEA*, Society for Healthcare Epidemiology of America, Inc.