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APIC MegaSurvey: State of the IP Profession - Analysis from the APIC Research Committee

Infection prevention workforce: Potential benefits to educational diversity

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Background: Nurses have historically occupied the infection preventionist (IP) role. As the knowledge and skills needed to advance the field expand, professionals from public health and the laboratory sciences have become IPs. Our study describes the characteristics of current IPs and assesses for relationships between background, certification, experience, and type of work performed.

Methods: The data were drawn from an existing dataset collected in the conduct of the Association for Professionals in Infection Control and Epidemiology (APIC) MegaSurvey. Descriptive statistics were computed. Associations were calculated using χ^2 or Cochran-Mantel-Haenszel tests. Characteristics of IPs were stratified by work-related activities to allow for comparisons between groups.

Results: Of the 13,050 active APIC members, 4,079 participated in the survey (31% response rate). The primary job activity for nurses (97.9%; n = 2,434) was preventing and controlling the transmission of infectious agents or health care–associated infections, for laboratory scientists (97.5%; n = 307) it was the interpretation of surveillance data, and for public health professionals (96.1%; n = 136) it was management and communication: feedback.

Conclusions: Infection control departments would benefit from hiring IPs with diverse education and training to address the expanding roles and responsibilities of IPs. This may facilitate the implementation of novel and innovative processes that will impact patient care.

BACKGROUND

Health care professionals with a nursing background have historically occupied the infection preventionist (IP) role.[1] The current scope of practice for an IP has expanded beyond the role of data collector and educator to interventionists, quality improvement champions, and crucial leaders in patient safety initiatives and outbreak investigations.[2] The core competencies outlined by the Association for Professionals in Infection Control and Epidemiology's (APIC) competency model for the IP were created to reflect current practice and serve as a guide on which an IP or an organization can assess the knowledge and skills needed to successfully practice in the field of infection prevention.[3] The competency model does not dictate a specific professional background or academic degree that is required to practice. This is because of the reality that the domains of infection prevention and control are included, in part, in the core competency guidelines of not only nurses and physicians, but public health professionals,[4] microbiologists,[5] medical laboratory practitioners,[6] and foreign medical graduates.[7]

As the knowledge and skills needed to advance the field of infection prevention expand, and the roles and responsibilities of IPs broaden,[2] health care organizations could look to professionals from complimentary health care fields, such as public health and the laboratory sciences, to broaden the worldview of infection prevention departments. This may facilitate the implementation of novel and innovative processes and practices that will impact infection prevention and ultimately patient outcomes.

Previous research on the staffing and structure of infection prevention departments by Stone et al,[1] and a practice analysis by Feltovich and Fabrey,[8] has described the educational background for professionals in the IP role. These 2 studies included 3 categories: physician, registered nurse, or nonnurse. Our study will expand on these findings to describe the educational background and academic degrees of current IPs and investigate the relationship between professional training and the type of work currently being performed in the clinical setting. The ability to examine the educational

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background of practicing IPs is an important contribution to the field and will facilitate recruitment and hiring recommendations to cater to the evolving needs of our profession.

METHODS

Sample

The data for this analysis were drawn from an existing dataset collected in the conduct of the APIC MegaSurvey. The APIC MegaSurvey study purpose, design, and methods have been previously described.[9] Deidentified survey response data were available to members of the APIC Research Committee for secondary data analyses after the execution of a data sharing agreement. The survey responses were securely transferred to the authors for analysis.

Questions and responses

IP personal and professional characteristics and work-related practices were assessed through survey items that queried a respondents primary background or discipline prior to becoming an IP (eg, nurse, medical technician, microbiologist, laboratory scientist, public health, other), their level of position in organization (eg, senior management, director, manager, coordinator or practitioner), if they had achieved certification in infection control [CIC], their years of experience in health care before becoming an IP, the facility setting (eg, urban, suburban, rural), the organizational type (eg, single facility, multiple facilities), and their role in IP work-related activities (eg, identification of infectious disease processes, design of surveillance plans or system, collection and compilation of surveillance data, interpretation of surveillance data, outbreak investigation, preventing or controlling the transmission of infectious agents or health care–associated infections [HAIs], employee or occupational health, management and communication: planning, communication, and feedback, quality and performance improvement and patient safety, education, research, environment of care, and cleaning, sterilization, disinfection, and asepsis).

The educational background responses were grouped into a dichotomous variable, with high school, 1-year technical, associate, and Bachelor's degrees scored as Bachelor's degree or less, and Master's and doctorate degree responses categorized as advanced degrees. Level of position in the organization responses were grouped into a dichotomous variable, with senior management, director, and manager categorized as upper management, and coordinator or practitioner remaining as such. Years of health care experience were grouped into 3 categories: <6 years, 6-15 years, and ≥16 years. The role of activity responses was grouped into a dichotomous variable; if responses of "perform the task" or "supervise or train the work" were listed for ≥50% of the tasks, the respondent was grouped in the "yes" category. If the respondent performed <50% of the tasks, they were placed in the "no" category for that particular activity.

Statistical analysis

Frequency and descriptive statistics were calculated using SAS version 9.3 (SAS Institute, Cary, NC). When not all survey questions were answered, the question was still included in the dataset. The denominator for each question was the total number that answered that question. The professional background of survey respondents was stratified by the highest degree obtained, CIC attainment, position level, years of health care experience before becoming an IP, facility setting, organization type, and performance of IP activities. Associations between categorical variables were made using either the χ^2 test of association or, in cases where >2 levels of a variable were present, the Cochran-Mantel-Haenszel test.

RESULTS

Survey responses

Characteristics of survey respondents

Of the 13,050 active APIC members, 4,079 participated in the survey (31% response rate). Table 1 summarizes the characteristics of the respondents. Most (82.2%; n = 3,342) of the survey respondents reported nursing as their primary background, followed by laboratory science (eg, medical technologists, microbiologists, laboratory researchers) (9.9%, n = 403), public health (4.7%, n = 189), or other (3.3%, n = 132). In this sample, 60.5% (n = 2,224) of IPs held no supervisory or managerial role, whereas 39.5% (n = 1,601) reported a title of manager, director, or senior management. The sample was evenly distributed between urban hospitals (41.1%, n = 1672), suburban hospitals (31.7%, n = 1,287), and rural hospitals (27.2%, n = 1,105). Less than half of the sample had earned CIC (47.1%, n = 1,915). Most respondents had earned a Bachelor's degree or less (66.1%, n = 2,678), whereas 33.9% (n = 1,372) of respondents had earned a Master's or doctorate degree.

Professional background and education, certification, and years of experience

In this sample, 27.9% (n = 838) of nurses had earned a Master's or doctorate degree compared with 40.1% (n = 139) of laboratory scientists and 71.4% (n = 105) of public health professionals ($P < .01$) (Table 2). Additionally, 41.4% (n = 1,248) of nurses reported a CIC compared with 71.3% (n = 246) of laboratory scientists and 54.4% (n = 81) of public health professionals ($P \leq .01$). More than 50% of nurses (n = 1,580) had spent >15 years in health care prior to becoming an IP compared with 44.2% of laboratory scientists (n = 151) and 17.0% of public health professionals (n = 25) ($P < .01$).

Table 1
Characteristics of survey respondents

Characteristics	n (%)
Position level	
Senior management	162 (4.0)
Director	613 (15.1)
Manager	826 (20.4)
Infection preventionist	2,452 (60.5)
Certification in infection control	
Yes	1,915 (47.1)
No	2,150 (52.9)
Background	
Nurse	3,342 (82.2)
Laboratory scientist	403 (9.9)
Public health	189 (4.7)
Other	132 (3.3)
Hospital location	
Urban	1,672 (41.1)
Suburban	1,287 (31.7)
Rural	1,105 (27.2)
Health care experience, y	
<6	639 (15.8)
6-15	1,431 (35.4)
>15	1,977 (48.9)
Highest degree	
Bachelor's degree or less	2,678 (66.1)
Advanced degree (ie, Master's degree, doctorate degree)	1,372 (33.9)