



2017

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Brief Report

Antimicrobial stewardship practices in Virginia



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Key Words:

Antibiotic resistance
Antimicrobial stewardship program
Centers for Medicare & Medicaid Services
Hospital epidemiology
Stewardship Interest Group of Virginia

The Society of Healthcare Epidemiology of America, the Centers for Disease Control and Prevention, and the President's Council of Advisors on Science and Technology recognize the need to combat antimicrobial resistance through the promotion of antimicrobial stewardship programs. Health care facilities in Virginia were surveyed using a 23-item survey focused on facility characteristics and antimicrobial stewardship strategies. Antimicrobial stewardship activities were highly variable and many are missing key personnel and resources.

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The Society of Healthcare Epidemiology of America and the Centers for Disease Control and Prevention (CDC) have recognized the need to combat antimicrobial resistance through the promotion of appropriate antimicrobial use.¹ More recently, the President's Council of Advisors on Science and Technology issued the National Action Plan for Combating Antibiotic-Resistant Bacteria.² Antimicrobial stewardship programs (ASPs) rely on physicians, pharmacists, and other members of the health care team to optimize the use of antimicrobial agents in an effort to decrease the development of multidrug-resistant organisms, prevent adverse effects such as developing infection with *Clostridium difficile*, and promote cost savings. The Centers for Medicare and Medicaid Services (CMS) plan to mandate conditions for participation to improve adherence to the CDC's core elements of hospital antibiotic stewardship programs. A rule proposed on June 16, 2016, by the CMS stated that an ASP be established as a condition of participation by January 1, 2017.³ As a result, health care facilities will be required to implement or intensify stewardship services.

ASPs in Virginia function at many different levels. During 2012, the Stewardship Interest Group of Virginia (SIGoVA) was formed to foster collaboration at the state level.

The primary objectives of this study were to identify the landscape of antimicrobial stewardship activities across facilities within institutions that are members of SIGoVA.

METHODS

SIGoVA began recruiting members by using the American Society of Health System Pharmacists list of accredited residency program directors in Virginia. An introductory e-mail was sent to directors inviting them to either join the group or to forward the invitation to someone who participates in antimicrobial stewardship at their facility. Those who expressed interest were invited to join a Google Groups listserv (Google Inc, Menlo Park, CA). A 23-item survey was developed focused on facility characteristics and antimicrobial stewardship activities for facilities who joined SIGoVA. SurveyMonkey (Palto Alto, CA) was used to disseminate the survey to the 51 participating facilities in the SIGoVA network. Descriptive statistics were used to analyze the survey data using SAS 9.4 (SAS Institute Inc, Cary, NC).

RESULTS

Twenty-four of 51 facilities (47%) responded to the survey. Twenty of the 24 respondents (83%) answered that they had an ASP. **Table 1** summarizes the types of facilities that responded to the survey. Participants were asked what kind of reports or alerts are generated for their daily ASP activities. The participants were given the following options: bug/drug mismatch, broad spectrum antibiotic used more than a designated number of days, infection with no antibiotic, duplicate therapy, culture and sensitivity, intravenous versus oral administration, and other. The amount of types of these reports generated is shown in **Table 1**. **Table 2** summarizes the composition of ASP participants from responding programs. Half of the facilities (12 out of 24; 50%) did not use a software platform to facilitate stewardship activities.

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Conflicts of interest: None to report.

Table 1
Responding facilities and their antimicrobial stewardship program (ASP) reports

Variable	Frequency of response	%
Type of facility		
Community hospital	18	75
Academic facility	3	13
Veterans Affairs	2	8
Long-term-care facility	1	4
Virginia region		
Central	13	54
Southwest	6	25
Northern	3	13
Southeast	2	8
Age of ASP		
<1 y	5	21
1-3 y	9	37
>3 y	6	25
ASP not present	4	17
Different types of ASP reports/alerts generated		
1	5	21
2	4	17
3	3	12.5
4	1	4
5	6	25
6	2	8
No response	3	12.5

Table 2
Key antimicrobial stewardship program participants in responding facilities

Participant	Frequency of response	Percentage of programs with key member(s)
Physician		
Total	17	71
Infectious disease trained	15	63
Pharmacist		
Total	19	79
Infectious disease trained	6	25
Both pharmacist and physician		
Total	15	63
Both infectious disease trained	4	17
Infection control nurse	15	63
Microbiologist	10	42

DISCUSSION

This survey provides a snapshot of antimicrobial stewardship activities in facilities participating in a regional antimicrobial stewardship interest group. Most of the facilities (83%) that responded to the survey had formal programs. Recently, findings from the 2014 National Healthcare Safety Network Annual Hospital Survey showed that 39% of U.S. acute care hospitals report implementing all of the CDC's 7 core elements for hospital ASPs.⁴

The results of this survey are somewhat concerning considering the proposed CMS conditions of participation regarding antimicrobial stewardship. These include verbiage that a physician and pharmacist leader be identified who are qualified through education, training, or experience in infectious diseases and/or antibiotic stewardship.^{3,5} Only 71% of programs had a physician involved with their program, with only 63% having a physician with formal infectious disease training. Only 79% of facilities had a pharmacist involved in their program. Of these, only 32% had formal infectious disease training. Half of the programs surveyed did not utilize a software platform to facilitate postantibiotic order review.

Limitations of our project include only inclusion of survey respondents from within the SIGoVA network; it is possible that findings may not be generalizable to all facilities throughout the state.

CONCLUSIONS

Because there are approximately 107 acute care facilities in Virginia, our results provide valuable insight into antimicrobial stewardship activities in the state, especially for community hospitals because these comprised 75% of survey respondents.⁶ Antimicrobial stewardship activities were highly variable in the programs surveyed and many are missing key personnel and program resources. In light of the forthcoming ASP mandates, facilities will need to invest resources in optimizing ASPs in the state.

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