Research Letter

Antimicrobial Stewardship Program Members' Perspectives on Program Goals and National Metrics

Jacob Van Parys, PharmD[1]; Michael P. Stevens, MD, MPH[2];
Leticia R. Moczygemba, PharmD, PhD[1]; and Amy L. Pakyz, PharmD, MS, PhD[1]

[1]Department of Pharmacotherapy and Outcomes Science, Virginia Commonwealth University School of Pharmacy, Richmond, Virginia; and [2]Division of Infectious Diseases, Department of Internal Medicine, Virginia Commonwealth University School of Medicine, Richmond, Virginia

ABSTRACT

Purpose: This study compares antimicrobial stewardship program (ASP)–stated goals and outcomes collected as well as opinions regarding national metric establishment.

Methods: Twenty-one ASP members underwent telephone interviews answering open-ended questions about ASP goals, outcomes collected, and opinions about national metrics. Content analysis was used to code responses into predefined ASP-metric categories.

Findings: The most common ASP goal was antimicrobial appropriateness (76%), outcomes tracked were use and microbial outcomes (both 71%), and desired national metric was use (67%).

Implications: Stated-goals, outcomes tracked, and opinions regarding national metric establishment did not fully align. With ASP-related regulations looming, it is important that alignment is increased. (*Clin Ther.* 2016;38:1914–1919) © 2016 Elsevier HS Journals, Inc. All rights reserved.

Key words: antimicrobials, antimicrobial stewardship program goals, national metrics.

INTRODUCTION

To address the problem of antimicrobial resistance, antimicrobial stewardship programs (ASPs) have been active in many hospitals. Although there is evidence that indicates the effect of ASPs,[1,2] questions remain pertaining to which metrics best indicate their benefit. As the Centers for Medicare & Medicaid Services (CMS) considers adopting ASPs in the acute care setting as a Medicare Condition of Participation[3] and the Joint Commission prepares to adopt ASP-accreditation standards,[4] optimization of metrics becomes increasingly important. This communication provides information regarding the metrics that ASPs are collecting and the metrics that ASPs deem ought to be collected on a national level, specified ASP-program goals, and ASP facets that members consider worth keeping as opposed to features that they wish could be changed.

METHODS

Data collected from a sequential mixed-methods project were used for this study.[5] A survey was completed in 2013 by 44 ASP members located in University HealthSystem Consortium academic medical centers regarding ASP practices. The ASP members were asked about structural aspects and resources of their ASPs, such as ASP duration, the number and type (eg, pharmacist, physician, microbiologist) of full-time equivalents, availability of antimicrobial surveillance software, and the strategies used, including prior authorization, audit, and feedback.[6] For the qualitative portion of the project, purposive sampling, a sampling method used to acquire a diverse representation of key attributes among participants, was used to select 15 pharmacist and 6 physician ASP members who reported involvement in a variety of stewardship practices of varying duration to undergo telephone interviews addressing questions related to the barriers and facilitators in regard to ASP implementation strategies. Approximately 30% of ASPs

were active for ≤6 years, whereas the remaining were active for at least 9 years. A total of 90% used prior authorization strategies, 86% used audit and feedback strategies, and 76% used both strategies. The mean size of the hospitals represented was 640 beds (interquartile range, 418-812 beds), the mean case mix index was 1.92 (interquartile range, 1.86-2.02), and the mean length of stay was 5.93 days (interquartile range, 5.70-6.25 days). A total of 42% of hospitals were located in the Northeast, 29% in the South, 19% in the West, and 10% in the Midwest.

Of 18 open-ended questions asked, a total of 4 pertained to ASP goals, metrics, and most useful ASP aspects, including (1) "What are the goals of your program?"; (2) "What specific measures/outcomes are tracked to see if goals are being accomplished?"; (3) "If national metrics were established for stewardship programs, what metrics would you like to see as required ones reported by all programs, and how would you measure each metric?"; and (4) "If you could keep one aspect of your program the same, what would it be, and if you could change one aspect, what would it be?"

A content analysis was performed on the 4 questions for the interview respondents.[7] For the 3 questions related to ASP goals, outcomes, and national metrics were established a priori based on a review of ASP metric literature.[8–12] Responses were categorized into 8 categories: antimicrobial use, microbial outcomes, *Clostridium difficile*, appropriateness, clinical outcomes, benchmarking, process measures, and cost. The specific phrases used in defining each category are listed in Table I. For the question concerning national metric establishment, an extra category labeled *concerns* was added to capture responses related to concerns about establishing national metrics. The numbers of responses under each category were tallied and percentages calculated. The responses for the fourth question concerning aspects of the ASP that respondents would like to keep the same as opposed to change were also reviewed and grouped into previously established categories related to ASP implementation factors.[5] These included culture aspects; resources, including information technology; and strategies (Table II). The Virginia Commonwealth University institutional review board approved this study.

RESULTS
Results of the interview questions concerning ASP goals, outcomes tracked, and what national metrics they would like established are given in Table I. The most commonly stated goals related to antimicrobial appropriateness (76%), whereas the most common outcomes tracked and national metrics to be established were related to antimicrobial use (71% and 67%, respectively) and microbial outcomes (71% and 57%, respectively).

For the national metric establishment question, 29% of respondents gave responses that fell under concerns. Most pointed out difficulties in establishing metrics that could apply to all hospitals. One respondent stated, "Hospitals are all different, hard to find something that will fit all … having a stewardship program by itself does not mean much. Not sure what metrics would allow fair comparison." Other concerns addressed flaws in the metrics themselves: "Resistance, *C difficile* rates, and length of stay are not useful." Another expounded on this view, explaining that "mortality is affected by so many things." Another ASP member expressed concerns relating to nationally mandated metrics and workflow, stating that they would not want to shift efforts to focus on something just because it is required. One respondent dismissed the idea altogether, stating that they "would not like any national metrics because I do not believe that any can be measured that are meaningful."

The results of the content analysis and representative quotations for the fourth question are presented in Table II. All respondents mentioned only 1 aspect they would like to keep, and these aspects were commonly related to strategies (42%), followed by personnel (21%). Several respondents listed >1 aspect that they would want to change regarding their ASP for a total of 27 suggested changes among 19 total respondents for this question. The change suggestions were most commonly related to resources, personnel (42%), and information technology (32%).

DISCUSSION
Our analyses reveal that ASP goals, outcomes tracked, and national metrics that ASPs would like to see established did not fully align. Most track antimicrobial use and resistance, yet appropriate use is the most commonly stated goal. The ASPs proposed that national metrics align more closely with the outcomes that ASPs track, with use and microbial outcomes as most commonly cited metrics and outcomes tracked. Respondents wanted to keep aspects of their ASPs