

Improving Antimicrobial Stewardship Programs (ASPs): A National Survey of the IDSA's Emerging Infections Network

Susan E. Beekmann
 Department of Internal Medicine
 SW34-J GH; Iowa City, IA 52242
 T: 319-384-8622
 ein@uiowa.edu



Susan E. Beekmann, Birgir Johannsson, Adam Hersh, Philip M. Polgreen
 and the members of the Emerging Infections Network
 University of Iowa; University of California San Francisco



Abstract

Background: Antimicrobial stewardship programs (ASPs) promote optimal antimicrobial prescribing to improve patient safety/outcomes and to prevent development of antimicrobial resistance. In 2007, a guideline for developing ASPs was developed by IDSA and SHEA. The extent to which this guideline has been implemented is unknown, as are strategies that could improve the effectiveness of these programs.

Objectives: To determine how common inpatient ASPs are, and how they can be improved.

Methods: In September 2009, we surveyed 1044 members of the EIN, a North American network of ID consultants. Participants, all with adult practices, responded regarding whether their hospital had or planned to develop an ASP, its characteristics, barriers to an effective ASP, and data to improve program effectiveness.

Results: 522 physicians responded (50%). 61% of respondents reported that their institutions had an ASP; an additional 12% reported plans to start one. Type of hospital was significantly associated with whether an ASP was present: 79% of respondents from university hospitals, 65% from non-university teaching hospitals, 64% from VA/military hospitals, 57% from city/county hospitals, and 40% from community hospitals reported ASPs ($p < .0001$). Respondents reporting no ASP were significantly more likely to work in private practice in the East North Central region and in a community hospital with fewer than 200 beds. Lack of funding or personnel was reported as the primary barrier to an effective ASP, and 83% indicated that outcomes data showing a decrease in costs would be the most effective way to convince administrators to support ASPs. Conversely, members felt that the most effective outcomes data to convince clinicians to use ASP recommendations would be: reduced *C. difficile* (by 65%), reduced adverse drug events associated with inpatient antibiotics (by 67%), and a reduction in antimicrobial resistance (by 73%). Management support was reported as very high or good by 52% (by 44% from community hospitals and 58% from university hospitals).

Conclusions: Almost three-quarters of respondents reported having or planning to have an ASP. Funding issues were reported as the primary barrier to having ASPs by all respondents regardless of whether their institution had an ASP. Data associating ASPs with a decrease in costs were felt by almost all respondents to be most important in convincing administrators to support ASPs. Efforts to increase the adoption of ASPs and to enhance the extent to which recommendations are implemented require demonstration of both economic and clinical benefits.

Background

- Infections with antimicrobial-resistant organisms increase patient morbidity and mortality and the cost of care
- The strong association between antimicrobial use and the development of antimicrobial resistance led to publication of guidelines for developing an institutional antimicrobial stewardship program
- The purpose of an ASP is to optimize clinical outcomes while minimizing unintended consequences of antimicrobial use, including toxicity, the selection of pathogenic organisms and the emergence of resistance

Objectives

- To determine how common inpatient ASPs are
- To obtain data on barriers to these programs and suggestions for improvement

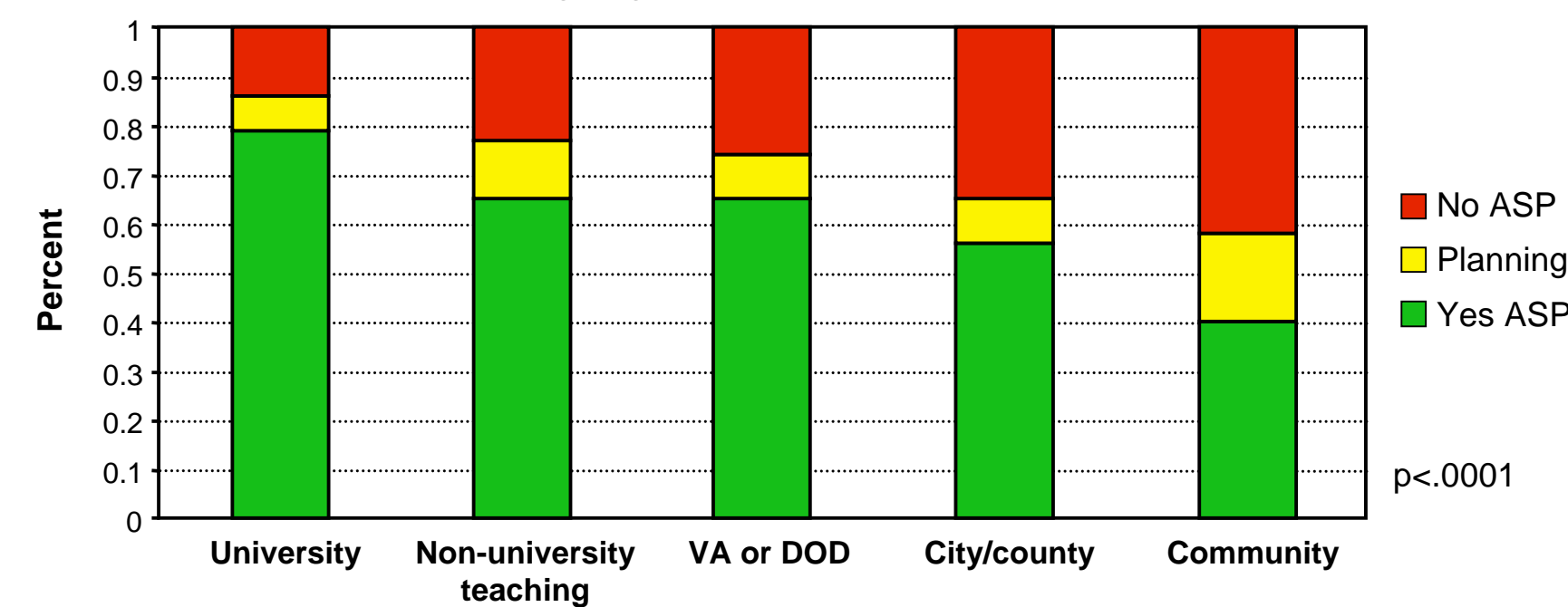
Methods

- The Infectious Diseases Society of America's Emerging Infections Network (EIN) is a CDC-funded sentinel network of infectious disease consultant physicians who regularly engage in clinical activity and who volunteer to participate
- The survey was sent in September 2009 to all 1044 EIN members reporting an adult or adult + pediatric infectious diseases practice
- Participants responded regarding whether their hospital had or planned to develop an ASP, its characteristics, barriers to an effective ASP, and data to improve program effectiveness

Results

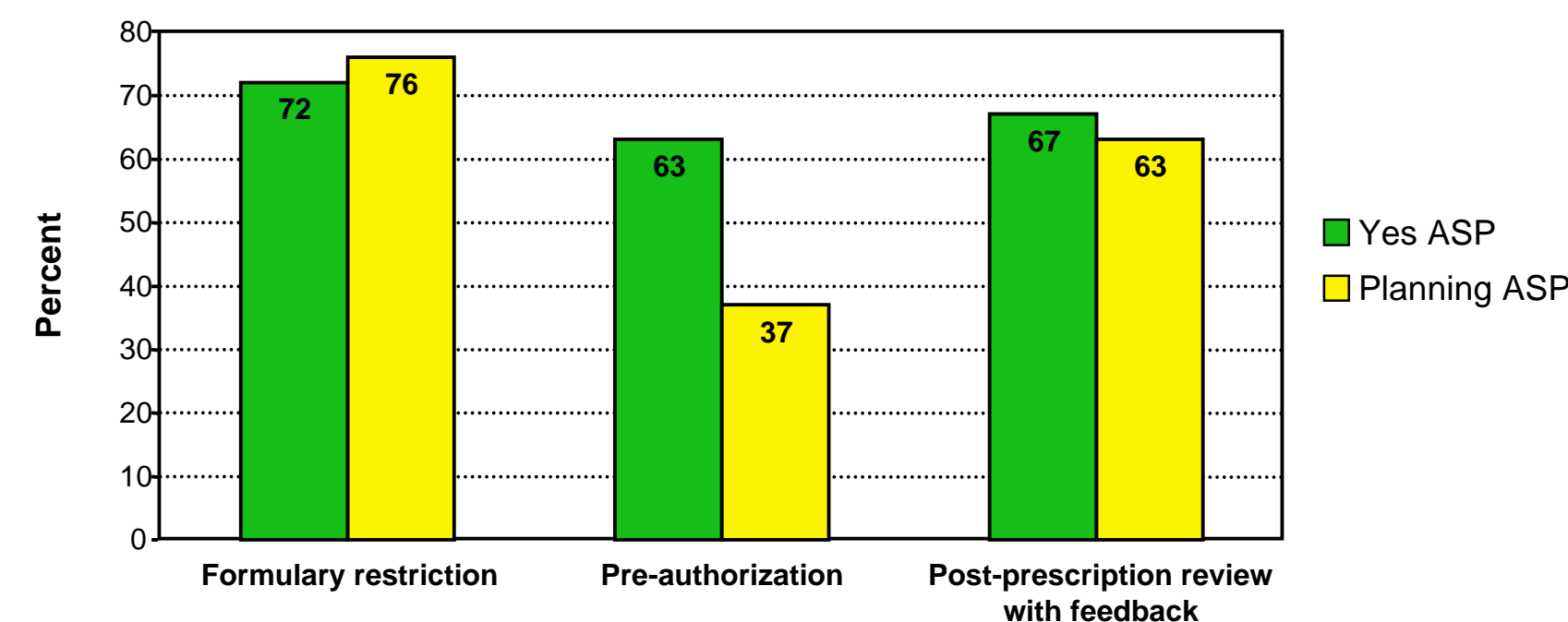
- Of the 522 (50%) physician respondents, 61% reported that their institution had an ASP and an additional 12% reported plans to start one

1. Presence of an ASP by Type of Hospital



- Respondents reporting no ASP were significantly more likely to work in private practice in the East North Central region and in a community hospital with fewer than 200 beds

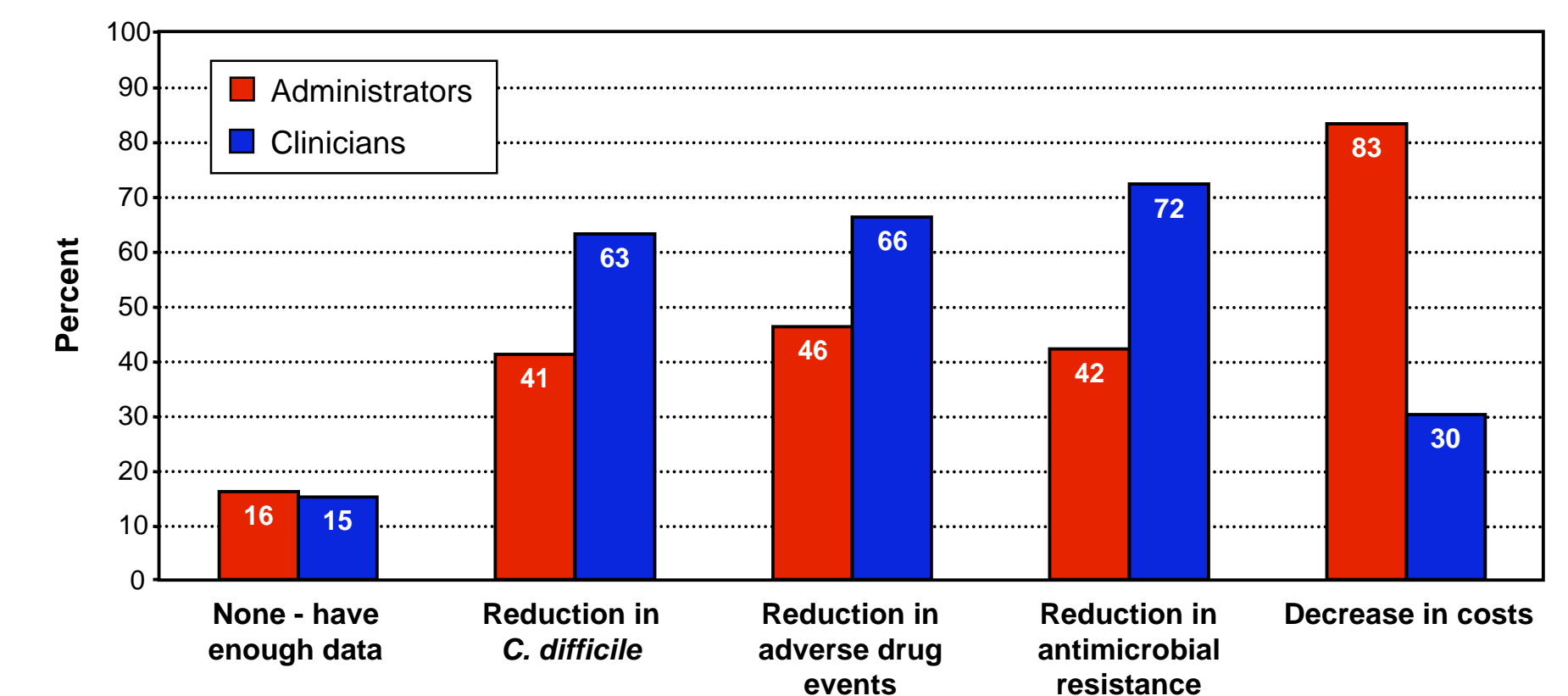
2. Primary Strategies Used as Part of Institutional ASPs



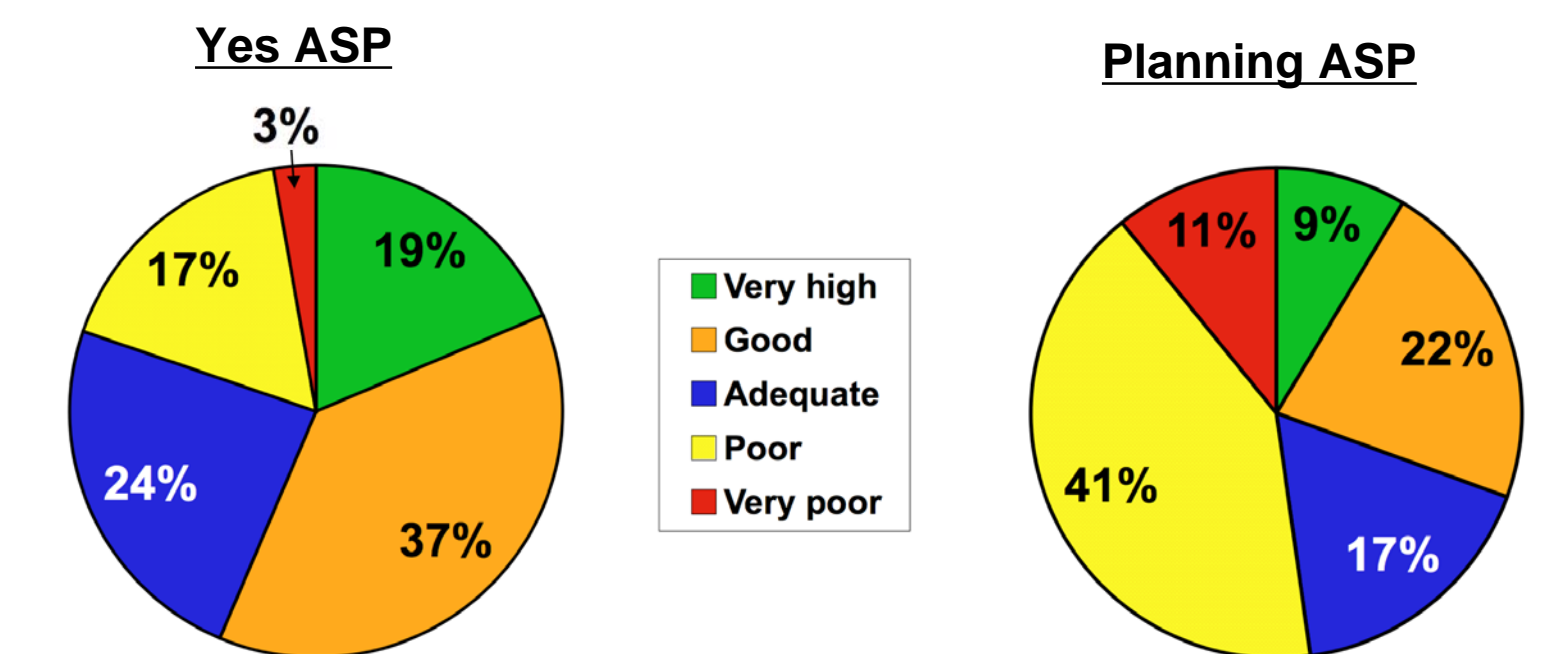
3. Rank Order of Main Barriers to an ASP - All Respondents

Barrier	Median rank	Mean	Std deviation
Lack of funding or personnel	1	2.1	1.6
Other higher priority clinical initiatives	3	3.1	1.6
Opposition from prescribers	3	3.4	1.8
Hospital administration not aware of the potential value	3	3.7	1.8
Unable to get data in timely fashion (need IT support)	4	4	1.9
Colleagues in other specialties antagonized by the ASP	4	4.1	1.7
Multiple ID groups	7	5.8	2

4. Outcomes Data Needed to Convince Administrators and Clinicians to Support ASPs (results shown for those reporting a current ASP)



5. Level of Support by Senior Hospital Management for the ASP



- Management support was reported as very high or good by 44% from community hospitals and 58% from university hospitals

Conclusions

- Almost three-fourths of respondents reported having or planning to have an ASP
- A shift in primary strategies for ASPs was observed with those planning ASPs less likely to use pre-authorization and instead focusing on post-prescription review with feedback
- Funding issues were the primary barrier to having an ASP for all respondents
- Data associating ASPs with a decrease in costs were most important in convincing administrators to support ASPs
- Increasing the number of ASPs in hospitals without them and improving the effectiveness of existing programs will require demonstration of both economic and clinical benefits