

State Strategies to Address Antimicrobial Resistance – Survey Results

Antibiotic resistance is one of the world's most pressing public health problems, responsible for over two million illnesses and 23,000 deaths annually.¹ A successful campaign to address this problem will require efforts at all levels of the public and private health care enterprise. ASTHO conducted a survey to better understand current state health department strategies to address antimicrobial resistance.

State health agency roles in addressing antimicrobial resistance include preventing infections and protecting patients across the healthcare system, tracking resistance (surveillance), and improving antimicrobial prescribing and use (stewardship). Surveillance data reveal where infections are occurring and where antimicrobial resistance is growing. Antimicrobial stewardship programs (ASPs) can ensure judicious use to improve individual patient outcomes, prevent death from resistant infections, slow resistance, and reduce healthcare costs.

To better understand states' and territories' work on and different approaches to antimicrobial resistance and stewardship, ASTHO conducted a survey of healthcare-associated infections (HAI) coordinators from the states, DC, and Puerto Rico in July 2013, with a response rate of 69 percent (36/52). The survey's purpose was to identify (1) what activities and policies the health agencies are using to promote antimicrobial stewardship; (2) what incentives and tools the health agencies need; and (3) promising practices to share with other states and territories. For the purposes of this survey, antimicrobial stewardship was defined as "efforts to improve antimicrobial prescribing and use in any setting."

Over half of respondents reported their state health agency collects surveillance data related to antimicrobial resistance. Twenty-five states (69%) reported conducting antimicrobial stewardship activities, including education/training, surveys, communications, collaboratives, demonstration projects, and other activities. Eleven states (32%) have considered policy on antimicrobial stewardship, and in 5 of those the policy has been developed/implemented. Some suggested incentives that would motivate implementation of antimicrobial stewardship activities include: trainings, certification, awards, physician leadership, demonstration of benefits, and public reporting.

Additional results in the areas of antimicrobial resistance activities, antimicrobial stewardship activities, antimicrobial stewardship policy, incentives and tools, and state examples are presented below. The survey also included three questions on agricultural antibiotic use. Responses to these three questions indicated that not enough research and regulatory activity is being done in this area, though many respondents qualified their answers with a desire for more information on the topic.

¹ CDC. "Antibiotic resistance threats in the United States, 2013." Available at <http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf>. Accessed 3-6-2014.

Survey Results

Antimicrobial Resistance: Current State Approaches

More than half of respondents (56%, 19 of 34) reported that their health agencies collect surveillance data related to antimicrobial resistance. However, only 12 percent (4 of 34) currently receive state funding for work on this issue, and 24 percent (8 of 34) have received state funding in the past. To guide their work, states and territories can have advisory committees or formal plans to address resistance.

Advisory Committee

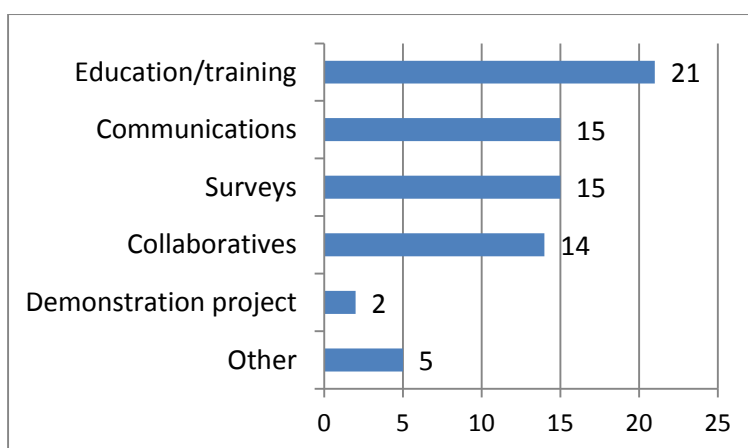
Eighteen states reported having advisory committees. Types of members included health department representatives, physicians, infection preventionists, pharmacists, laboratorians, hospital association representatives, nursing home association representatives, and a variety of others. Topics range from HAIs broadly to a focus on antimicrobial stewardship.

Formal Plan

Two states reported having a formal plan to address resistance. One is comprised of formal recommendations regarding MRSA for acute care hospitals, and the other has a logic model and written plan to implement antibiotic stewardship.

Antimicrobial Stewardship: Activities

Twenty-five states (69% of respondents) reported conducting antimicrobial stewardship activities, including education or training, communications, surveys, collaboratives, demonstration projects, and other activities.



Education/Training

Several states held day-long conferences, one-time live trainings, or webinars. Several held webinar series or conference calls. Almost half provided printed materials.

- **Audience:** States mainly targeted healthcare providers in acute care hospitals and long-term care facilities. In several states, training was directed at facilities in a collaborative. Most trainings were directed at physicians (in some cases, infectious disease physicians were specified), pharmacists, and infection preventionists. Some states also included nurses, administrators, and quality staff.

Issue Brief



- **Topics:** Education or training often covered an overview of stewardship, suggestions or considerations for implementing stewardship activities or ASPs, or targeted stewardship topics (e.g., the Institute for Healthcare Improvement Antibiotic Stewardship Driver Diagram). A few states also provided educational materials for the general public.

Communications

Most states have communicated about antimicrobial resistance via email. A few mailed materials or posted them to their websites.

- **Audience:** Some states targeted groups (e.g., HAI or infection control listservs, collaborative members). Others disseminated materials aimed at healthcare providers in all facilities (hospitals and long-term care).
- **Topics:** A range of materials have been distributed to providers and facilities, including educational packets, CDC “Get Smart” materials, toolkits, and other print materials.

Surveys

Data gathered from surveys was used to inform state stewardship activities.

- **Audience:** Most states that administered surveys had done so to acute care hospitals, though some also mentioned long-term care facilities. Most targeted infection preventionists; some were directed at pharmacists; and a few were sent to infectious disease physicians or laboratorians.
- **Topics:** Most surveys were conducted to ascertain if facilities had implemented an ASP or what stewardship practices were in place. A few determined barriers to ASPs or assessed the facilities’ need to implement activities.

Collaboratives

State health agencies worked with groups of facilities and other partners to share information and learn from common experiences. Specific activities undertaken by collaboratives included surveys, webinars, workshops, and conference calls.

- **Audience:** Collaborative members included a range of partners, such as state health agencies, acute care hospitals, long-term care facilities, long-term acute care facilities, hospital associations, quality improvement organizations, local health departments, and infection prevention associations.
- **Topics:** Most collaboratives focused on a range of antimicrobial resistance and stewardship issues. A few focused on *C. difficile* infections.

Demonstration Projects

Two states completed demonstration projects to explore ASP needs and effects.

- **Audience:** The two demonstration projects occurred in long-term care facilities.
- **Topics:** One found that the facilities did not have the infrastructure needed to support a stewardship program; lessons learned will be shared with other long-term care facilities in the state. The other project found that ASPs can encourage appropriate diagnostic testing prior to antibiotic administration and appropriate antibiotic use for urinary tract infections.

Other Activities

Other state or territorial stewardship activities include providing individual consultations to hospitals to help overcome specific barriers to implementing ASPs; meeting with a local infectious disease fellow to

Issue Brief



coordinate hospital education; supporting an antibiotic stewardship committee; developing a statewide strategic plan; and conducting medical record reviews at facilities. To reach the public, two state health agencies placed “[Dr. Hippo](#)” books, which explain appropriate antibiotic use, in local libraries.

Healthcare Setting Types

Although hospitals and long-term care facilities were the more frequently cited targets for stewardship activities, stewardship activities have been aimed across healthcare settings, as indicated by the table below.

Hospitals	20 (83%)
Long-term care/nursing homes	16 (67%)
Office-based practice	10 (42%)
Outpatient settings	7 (29%)
Other	2 (8%)

Other: One state targeted correctional facilities; another provided education open to all settings.

Resources

The table below indicates the resources mentioned most frequently by respondents as being used in developing the activities (some respondents mentioned more than one resource). The most frequently mentioned resources were CDC “Get Smart” materials, but a range of resources were used to inform state activities.

Resources	No. of Respondents
CDC “Get Smart”	16
Other CDC resources, including consultation with CDC subject matter experts, the CDC website, and the antibiotic use form	9
The Infectious Diseases Society of America/Society for Healthcare Epidemiology of America	10
The Institute for Healthcare Improvement Antibiotic Stewardship Driver Diagram	4
The American Society of Health System Pharmacists	3
Literature review	4

Other organizations or entities mentioned included: the Agency for Healthcare Research and Quality, Association for Professionals in Infection Control and Epidemiology (APIC), Healthcare Infection Control Practices Advisory Committee, the Alliance for Prudent Use of Antibiotics, the Society of Infectious Disease Pharmacists, and state infectious disease associations. Respondents also reported using resources from other states’ antimicrobial stewardship activities or other health department programs in their own state.

Antimicrobial Stewardship: Policy

Eleven states (32%) reported having considered policies on antimicrobial stewardship, and policies have been developed or implemented in five of those states. For this survey, “policy” was defined broadly and

referred to any type of strategy, activity, or rule or regulation implemented by the state health department, or to a legislative provision.

Developed or Implemented Policies

Respondents from five states described policies that have been developed or implemented in their jurisdictions. These included a law that hospitals evaluate judicious use of antibiotics, regulations that expanded the reporting of antimicrobial-resistant organisms and cumulative antibiotic susceptibility test results, a policy regarding consultation for multidrug-resistant tuberculosis, working with community partners to adopt ASPs and promote a recognition program, and working with long-term care on *C. difficile* and the appropriate use of antibiotics.

Considered Policies

Six respondents reported that their states had considered policies on stewardship, but they had not been developed or implemented. Respondents from three states described such policies, which included surveillance and investigation for multi-drug resistant organisms (MDROs), regulations requiring the use of the MDRO/*C. difficile* module in CDC's National Healthcare Safety Network (NHSN) for state hospitals, and planning stewardship policy generally. Barriers to implementing considered policies included IT issues and additional staff burden, NHSN requirements, still being early in the process of planning policy, or policy not being needed at that time.

Barriers to Considering Policies

Twenty-one respondents reported that their states had not considered policies on stewardship. Fourteen respondents reported barriers that have prevented their states from considering policies, such as lack of adequate staffing, competing priorities, lack of interest and leadership support, and resource constraints. Respondents from five states reported no barriers.

Antimicrobial Stewardship: Incentives and Tools

Some suggested incentives that would motivate implementation of antimicrobial stewardship activities include:

- Trainings (e.g., free trainings, trainings with continuing education credits, offered to multiple disciplines, or with attendance certificates) (*multiple mentions*)
- Certification of individuals or facilities (*multiple mentions*).
- Statewide or national awards for facilities (*multiple mentions*).
- Time for infection preventionists to work on stewardship (*multiple mentions*).
- Demonstration of benefits, such as return on investment (*multiple mentions*).
- Inclusion in CMS requirements for participation, or reimbursement (*multiple mentions*).
- Free products (e.g., hand sanitizers, booklets, posters, etc.).
- Method of implementation that would not add to workload.
- Health department staff to assist facilities.
- Infectious disease pharmacist/physician consultations.
- Physician leadership.
- Public reporting.
- Work with hospital associations.

Respondents also mentioned the following would be useful to their states to promote antimicrobial stewardship activities:

- Toolkits or resources to share with facilities on how to implement an ASP (*multiple mentions*).
- Educational resources on appropriate prescribing (*multiple mentions*).
- Speaker's bureau or local subject matter experts (*multiple mentions*).
- Leadership support or champion (*multiple mentions*).
- Report on activities in other states.
- Demonstration of benefits, such as return on investment.
- Building informatics infrastructure.

Stewardship tools developed by state health agencies are available at the end of this document.

Antimicrobial Stewardship: State Examples

The **Kansas** Department of Health and Environment (KDHE), in collaboration with the Kansas Foundation for Medical Care (KFMC, the state's quality improvement organization), provided in-person training in December 2012 on antimicrobial stewardship to seven facilities in a *C. difficile* collaborative. The facilities were charged with either establishing a new ASP or strengthening their existing programs. Activities included KDHE/KFMC attendance at facility team meetings, monthly office hours with rotating topics, and ongoing support and feedback. A survey of all acute care and critical access hospitals in spring 2013 found that about 20 percent of facilities had existing antimicrobial stewardship activities, about half did not, and the remainder were considering or implementing a program.

Oregon conducted a survey in August 2012, finding that lack of support for programs was the main barrier to ASP implementation. A multi-hospital collaborative, run by the Oregon Patient Safety Commission under contract from the Oregon Health Authority, was initiated in November 2012. Along with hospitals, the collaborative also includes the Oregon Association of Hospitals and Health Systems and Acumentra, a quality improvement organization. Collaborative activities include learning sessions, site visits, monthly webinars and conference calls, and a website. Thirteen hospitals participated in three learning sessions, and 48 hospitals were invited to two learning sessions.

Issue Brief



Antimicrobial stewardship **tools** developed by state health agencies

- **California Antimicrobial Stewardship Program Initiative**
<http://www.cdph.ca.gov/programs/hai/Pages/AntimicrobialStewardshipProgramInitiative.aspx>
- **Indiana State Department of Health, Antibiotic Use and Antibiotic Resistance**
<http://www.in.gov/isdh/25507.htm>
- **Indiana Coalition for Antibiotics Resistance Education Strategies**
<http://www.icares.org/>
- **Iowa Department of Public Health**
http://www.idph.state.ia.us/adper/antibiotic_resistance.asp
- **Michigan Department of Community Health, Healthcare-Associated Infection Surveillance for Healthcare-Associated & Resistant Pathogens (SHARP)**
www.michigan.gov/hai
- **Michigan Antibiotic Resistance Reduction Coalition**
<http://mi-marr.org/>
- **Minnesota Guide to a Comprehensive Antimicrobial Stewardship Program**
- **Fact Sheet: Antibiotic resistance in Minnesota 2013**
<http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/>
- **North Dakota Department of Health Antibiotic Resistance Brochure**
<http://www.ndhealth.gov/disease/hai/Docs/Antibiotic-Resistance-Brochure.pdf>
- **North Dakota Department of Health Archive Trainings**
<http://www.ndhealth.gov/disease/hai/Training.htm>
- **Ohio Department of Health, Antibiotic Resistant Organisms**
<http://www.odh.ohio.gov/odhprograms/dis/orbitdis/hai/abresistance.aspx>
- **Oregon Health Authority, Alliance Working for Antibiotic Resistance Education (AWARE)**
<http://public.health.oregon.gov/preventionwellness/safeliving/antibioticresistance/pages/index.aspx>
- **Oregon Patient Safety Commission, Antimicrobial Stewardship Initiative**
<https://oregonpatientsafety.org/asp/>
- **VHQC/Virginia Department of Health *C. difficile* Infection Prevention Collaborative, Antibiotic Stewardship Resources**
<http://www.vhqc.org/docs/Antibiotic-Stewardship-Resources.pdf>