

Antimicrobial Resistance

Many once manageable diseases caused by bacteria are becoming increasingly resistant to the drugs that were designed to kill them. Inappropriate and widespread antibiotic use in healthcare settings and in agriculture has contributed to the development of this resistance. Some microbes have become resistant to many, or even all classes of antibiotics currently on the market. This increase in resistance highlights the need for an ongoing public health commitment to halt the progression of antibiotic resistance and for the development of new pharmaceutical countermeasures to combat these dangerous microbes.

Increasing numbers of patients infected with resistant microbes (including both healthcare-associated and community-associated infections) result in increased morbidity, mortality, and overall health care costs. Of the estimated 90,000 annual deaths from hospital-acquired bacterial infections, approximately 70% are from infections resistant to at least one drug.¹ In the community, people who “attend or work at child-care centers” and who “recently used antimicrobial agents” are at highest risk of contracting drug-resistant *Streptococcus pneumoniae*.² Approximately half of invasive cases of *S. pneumoniae* identified each year are found to be drug resistant. Additionally, 14% of those hospitalized with invasive pneumococcal disease die.² Invasive Methicillin-resistant *Staphylococcus aureus* (MRSA) infections occur in healthcare facilities³ and in the community. CDC estimates that 94,000 people developed an invasive MRSA infection in 2004; 85% of which were associated with healthcare settings (including non-hospital facilities), while 14% could not be associated with any form of healthcare exposure (i.e., community-associated).³

Aggressive measures are needed to address this growing public health threat, including sound surveillance methods; effective education of physicians, other healthcare workers, and the public regarding antibiotic resistance and appropriate use of antibiotics; and stable funding streams for federal, state, and local health agencies. To that end, ASTHO supports the following:

Surveillance

- Surveillance for antibiotic-resistant organisms while concurrently monitoring antibiotic use to identify the proportion of prescriptions that are appropriately or inappropriately prescribed (i.e., in the absence of laboratory confirmation, determining whether standard prescribing guidelines on appropriate use were followed)..
- Routine laboratory-based testing and monitoring for resistance in clinically and epidemiologically important organisms in healthcare settings and in the community-at-large to identify emerging resistance patterns as they occur. ASTHO also supports collecting and publishing antibiograms (i.e., antibiotic sensitivity reports) from hospital catchment areas to help inform clinical decision-making, especially with respect to practical-use antibiotic prescribing activities (those not guided by scientific evidence).
- Consistency in state reporting policies for clinically and epidemiologically significant infections (i.e., those associated with a greater risk of complications/death or those that disproportionately affect select groups), including assurance that surveillance information and prescribing guidelines are readily available to clinicians.
- Reinforcing state health agency involvement in reporting activities between federal, local, and healthcare agencies to strengthen the relationship between epidemiology and patient safety.
- Electronic laboratory reporting to promote real time exchange of surveillance data between federal, state, and hospital laboratories, and with local, state, and federal public health agencies.
- Monitoring patterns of antibiotic use in agriculture and enhancing collaboration between state health departments (specifically public health veterinarians) and agricultural agencies to support appropriate antibiotic use in agriculture.

* Healthcare centers include, but are not limited to, hospitals, outpatient medical centers, ambulatory care centers, residential centers, and doctors' offices.

Prevention and Control

A holistic approach to infection control, including the following:

- Coordination among federal, state, tribal, and local governments and private industry to promote effective infection control measures within the community-at-large.
- Promotion of infection control protocols across the healthcare spectrum, to include: data-sharing among healthcare settings; increasing capacity of healthcare facilities (especially outpatient settings) and likelihood of compliance with accepted infection control recommendations (e.g., through regulation or accreditation); ensuring ready access to the expertise of infection control practitioners; and maintaining infection prevention and control resources at the state health department to provide statewide technical assistance.
- Educational programs directed to:
 - Increase patient adherence to prescribed antibiotics.
 - Decrease patient demand for antibiotics for when they have illnesses for which antibiotics are not indicated.
 - Promote judicious use of antibiotics among prescribers via medical school, residency, and other healthcare professional training programs. Education should include: guidance on restricting pharmaceutical “detailing” practices; guidelines for use of broad-spectrum and narrow-spectrum antibiotics; and best practices for appropriate prophylactic use.
 - Continue education for the public and healthcare providers on the benefits of hand hygiene, immunization, and other individual health behaviors that reduce one’s risk of infection.
 - Increase awareness within, and target prevention efforts to, groups at higher risk of acquiring antibiotic-resistant infections or developing complications from such infections (e.g., clusters of methicillin-resistant *Staphylococcus aureus* have occurred in athletes, military recruits, children, Pacific Islanders, Alaskan Natives, Native Americans, prisoners, and men who have sex with men⁴).
- Use of surveillance data to guide prescribing practices.

Research

- Identifying and defining best practices for antibiotic resistance control programs. Best practices should address the most appropriate and effective method to screen and isolate patients and when such screening and isolation should be performed.
- Developing evidence-based stewardship policies based on best practices for hospitals to develop infection control programs. These policies should provide condensed, practical information for practitioners that emphasize coordinated efforts of care.
- Investigating the most effective treatment regimens, diagnostics, and interventions for managing antibiotic-resistant infections.
- Assessing the impact of existing vaccines on antibiotic-resistant infections and the impact of developing new vaccines targeted against these infections.
- Examining the role of incentives to promote the development of new antibiotics and vaccines and examining the regulatory barriers that prohibit this development.

Product Development

- Developing rapid diagnostic and susceptibility tests as well as state-of-the-art laboratory techniques to effectively identify infections to ensure the patient is given appropriate treatment.
- Increasing funding for development of novel classes of antibiotics given that resistant microbial strains exist to all currently known antibiotics⁵.
- Creating systems that would augment the capacity of laboratories and public health agencies to monitor antibiotic resistance.

Approval History

ASTHO Position Statements relate to specific issues that are time sensitive, narrowly defined, or are a further development or interpretation of ASTHO policy. Statements are developed and reviewed by appropriate Policy Committees and approved by the ASTHO Executive Committee. Position Statements are not voted on by the full ASTHO membership.

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For further information about this Position Statement, please contact ASTHO Infectious Disease Policy staff at infectious@astho.org. For ASTHO policies and additional publications related to the Position Statement, please visit www.astho.org.

Related ASTHO Publications

- ASTHO General Policy Statement
- Infectious Disease Policy Statement
- Immunization Policy Statement
- HIV/AIDS Policy Statement
- Healthcare-Associated Infections Position Statement
- Pharmaceuticals in Drinking Water Position Statement

¹ <http://www.cdc.gov/drugresistance/healthcare/problem.htm>

² http://www.cdc.gov/ncidod/dbmd/diseaseinfo/drugresisstreppneum_t.htm

³ http://www.cdc.gov/ncidod/dhqp/ar_mrsa_invasive_FS.html

⁴ http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca_clinicians.html

⁵ <http://www.hhs.gov/asl/testify/2008/06/t20080624e.html>