ASHP Statement on the Pharmacist's Role in Antimicrobial Stewardship and Infection Prevention and Control

Position

The American Society of Health-System Pharmacists (ASHP) believes that pharmacists have a responsibility to take prominent roles in antimicrobial stewardship programs and participate in the infection prevention and control programs of health systems. This responsibility arises, in part, from pharmacists' understanding of and influence over antimicrobial use within the health system. Further, ASHP believes that the pharmacist's ability to effectively participate in antimicrobial stewardship and infection prevention and control efforts can be realized through clinical endeavors focused on proper antimicrobial utilization and membership on multidisciplinary work groups and committees within the health system. These efforts should contribute to the appropriate use of antimicrobials, ultimately resulting in successful therapeutic outcomes for patients with infectious diseases, and reduce the risk of infections for other patients and health care workers.

Background

Antimicrobial stewardship is utilized in practice settings of health systems to improve patient outcomes while minimizing the unintended consequences of antimicrobial use. The goals of antimicrobial stewardship programs include attenuating or reversing antimicrobial resistance, preventing antimicrobial-related toxicity, and reducing the costs of inappropriate antimicrobial use and health care-associated infections. Guidelines published by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America and endorsed by ASHP and other organizations describe an evidence-based approach to antimicrobial stewardship in health systems and the important role pharmacists with infectious diseases training have in leading stewardship efforts.[1]

Identifying and reducing the risks of developing, acquiring, and transmitting infections among patients, health care workers, and others are an important part of improving patient outcomes. In order to maximize outcomes, antimicrobial stewardship should be used in combination with infection prevention and control practices.[1] Most health systems maintain an infection prevention and control program directed by a multidisciplinary committee. The specific program and responsibilities of the infection prevention and control committee (or its equivalent) may differ among health systems.

Typically, the infection prevention and control committee develops organizational policies and procedures addressing

1. The management and provision of patient care and employee health services regarding infection or infection prevention and control.
2. The education of staff, patients, family members, and other caregivers in the prevention and control of infections.
3. Surveillance systems to track the occurrence and transmission of infections.
4. Surveillance systems to track the use of antimicrobials and the development of antimicrobial resistance.
5. Promotion of evidence-based practices and interventions to prevent the development of infections.

Responsibilities of Pharmacists

Pharmacists' responsibilities for antimicrobial stewardship and infection prevention and control include promoting the optimal use of antimicrobial agents, reducing the transmission of infections, and educating health professionals, patients, and the public.

Promoting Optimal Use of Antimicrobial Agents. An important clinical responsibility of the pharmacist is to ensure the optimal use of antimicrobial agents throughout the health system. Functions related to this responsibility may include

1. Encouraging multidisciplinary collaboration within the health system to ensure that the prophylactic, empirical, and therapeutic uses of antimicrobial agents result in optimal patient outcomes. These activities may include antimicrobial-related patient care (e.g., aiding in appropriate selection, optimal dosing, rapid initiation, and proper monitoring and de-escalation of antimicrobial therapies) as well as the development of restricted antimicrobial-use procedures, therapeutic interchange, treatment guidelines, and clinical care plans.[2]
2. Working within the pharmacy and therapeutics committee (or equivalent) structure, which may include infectious disease-related subcommittees, to ensure that the number and types of antimicrobial agents available are appropriate for the patient population served. Such decisions should be based on the needs of special patient populations and microbiological trends within the health system. High priority should be given to developing antimicrobial-use policies that result in optimal therapeutic outcomes while minimizing the risk of the emergence of resistant strains of microorganisms.
3. Operating a multidisciplinary, concurrent antimicrobial stewardship program that uses patient outcomes to assess the effectiveness of antimicrobial-use policies throughout the health system.
4. Generating and analyzing quantitative data on antimicrobial drug use to perform clinical and economic outcome analyses.
5. Working with the microbiology laboratory personnel to ensure that appropriate microbial susceptibility tests are reported on individual patients in a timely manner, and collaborating with the laboratory, infectious diseases specialists, and infection preventionists in compiling susceptibility reports (at least annually) for

distribution to prescribers within the health system to guide empirical therapy.

6. Utilizing information technology to enhance antimicrobial stewardship through surveillance, utilization and outcome reporting, and the development of clinical decision-support tools.
7. Facilitating safe medication management practices for antimicrobial agents by utilizing efficient and effective systems to reduce potential errors and adverse drug events.

Reducing the Transmission of Infections. Pharmacists should participate in efforts to prevent or reduce the transmission of infections among patients, health care workers, and others within all of the health system's applicable practice settings. This may be accomplished through

1. Participating in the infection prevention and control committee (or its equivalent).
2. Establishing internal pharmacy policies, procedures, and quality-control programs to prevent contamination of drug products prepared in or dispensed by the pharmacy department. This is of paramount importance in the preparation and handling of sterile products.[3] Other considerations include (but are not limited to) provisions for cleaning pharmaceutical equipment (e.g., laminar-airflow hoods and bulk-compounding equipment) and establishment of appropriate personnel policies (e.g., limiting the activities of staff members who exhibit symptoms of a viral respiratory illness or other infectious condition).
3. Encouraging the use of single-dose packages of sterile drug products rather than multiple-dose containers, except in sterile environments.
4. Recommending proper labeling, dating, and storage of sterile products and multiple-dose sterile-product containers (if used).
5. Encouraging routine immunization (e.g., influenza vaccination) of hospital staff and others who impact the patient care environment, and promoting periodic screening for selected transmissible diseases (e.g., tuberculosis) in accordance with health-system policy and federal, state, or local regulations.
6. Promoting adherence to standard precautions by health care workers, patients, and others who impact the patient care environment.[4]
7. Collaborating in the development of guidelines for risk assessment, treatment, and monitoring of patients and health care workers who have been in contact with persons with a transmissible infectious disease.
8. Striving for zero tolerance of health care-associated infections, including surgical site infections, catheter-associated bloodstream infections, catheter-associated urinary tract infections, and ventilator-associated pneumonia.

Educational Activities. The pharmacist's role includes providing education and information about antimicrobial stewardship and infection prevention and control to health professionals, patients, and members of the public who come in contact with the health system's practice settings. Incorporating active intervention techniques, such as formulary restriction and preauthorization, enhances the effectiveness of educational activities in the patient care setting.[1] Specific activities may include

1. Providing clinical conferences, newsletters, and other types of educational forums for health professionals on topics such as antimicrobial use and resistance, decontaminating agents (disinfectants, antiseptics, and sterilants), aseptic technique and procedures, and sterilization methods.
2. Educating and counseling inpatients, ambulatory care patients, home care patients, and their families and caregivers in the following areas: adherence to prescribed directions for antimicrobial use, storage and handling of medications and administration devices, and other infection prevention and control procedures (e.g., medical waste disposal).
3. Participating in public health education and awareness programs aimed at controlling the spread of infectious diseases by
   a. Promoting prudent use of antimicrobials,
   b. Providing immunization access for children and adults, an
   c. Promoting appropriate infection prevention and control measures (e.g., proper hand hygiene techniques).
4. Providing exposure to antimicrobial stewardship and infection prevention and control practices through experiential and didactic training for practicing health-system pharmacists, students, residents, and research fellows.

Education and Training of Pharmacists

ASHP recognizes that the current shortage of pharmacists with advanced training in infectious diseases and the limited number of training opportunities may require pharmacists without such training to assume some of the responsibilities described above. ASHP supports the expansion of pharmacy education and postgraduate residency training on infectious diseases in order to develop an adequate supply of pharmacists trained to deliver these essential services.

Conclusion

ASHP believes that pharmacists have a responsibility to take prominent roles in antimicrobial stewardship and infection prevention and control programs in health systems. Pharmacists should participate in antimicrobial stewardship and infection prevention and control efforts through clinical endeavors focused on proper antimicrobial utilization and membership on relevant multidisciplinary work groups and committees within the health system.

References

1. Dellit TH, Owens RC, McGowen JE, et al. Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America guidelines for developing an institutional program to enhance antimicrobial stewardship. *Clin Infect Dis.* 2007; 44:159–77.

2. American Society of Health-System Pharmacists. ASHP guidelines on the pharmacist's role in the development, implementation, and assessment of critical pathways. *Am J Health-Syst Pharm.* 2004; 61:939–45.
3. American Society of Health-System Pharmacists. ASHP guidelines on quality assurance for pharmacy-prepared sterile products. *Am J Health-Syst Pharm.* 2000; 57:1150–69.
4. Siegel JD, Rhinehart E, Jackson M, et al. 2007 guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings, June 2007. www.cdc.gov/ncidod/dhqp/pdf/guidelines/Isolation2007.pdf (accessed 2009 Feb 18).

Suggested Readings

Centers for Disease Control and Prevention. Guideline for disinfection and sterilization in healthcare facilities, 2008. Accessed 15 December 2008. www.cdc.gov/ncidod/dhqp/pdf/guidelines/Disinfection_Nov_2008.pdf.

Centers for Disease Control and Prevention [CDC]. Guidelines for environmental infection control in health-care facilities: recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). *MMWR.* 2003; 52(No. RR-10):1–48.

Diekema DJ, Doebbeling BN. Employee health and infection control. *Infect Control Hosp Epidemiol.* 1995; 16:292–301.

Gardner P, Schaffner W. Immunization of adults. *N Engl J Med.* 1993; 328:1252–8.

Goldmann DA, Weinstein RA, Wenzel RP, et al. Strategies to prevent and control the emergence and spread of antimicrobial-resistant microorganisms in hospitals. A challenge to hospital leadership. *JAMA.* 1996; 275: 234–40.

Kollef M, Shapiro S, Fraser V, et al. A randomized trial of ventilator circuit changes. *Ann Intern Med.* 1995; 123: 168–74.

MacDougall C, Polk RE. Antimicrobial stewardship programs in health care systems. *Clin Microbiol Rev.* 2005 Oct; 18(4):638–56.

Sepkowitz KA. Occupationally acquired infections in health care workers. *Ann Intern Med.* 1996; 125:826–34,917–28.

Shlaes DM, Gerding DN, John JF Jr., et al. SHEA and IDSA Joint Committee on the Prevention of Antimicrobial Resistance: guidelines for the prevention of antimicrobial resistance in hospitals. *Clin Infect Dis.* 1997; 25:584–99.

This statement was reviewed in 2013 by the Council on Pharmacy Practice and by the Board of Directors and was found to still be appropriate.

Approved by the ASHP Board of Directors on April 17, 2009, and by the ASHP House of Delegates on June 16, 2009. Developed through the ASHP Council on Pharmacy Practice. This statement supersedes the ASHP Statement on the Pharmacist's Role in Infection Control dated June 3, 1998.

Curtis D. Collins, Pharm.D., M.S., is gratefully acknowledged for drafting this statement.

The bibliographic citation for this document is as follows: ASHP Statement on the Pharmacist's Role in Antimicrobial Stewardship and Infection Prevention and Control. *Am J Health-Syst Pharm.* 2010; 67:575–7.