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UNDER SECRETARY FOR HEALTH'S INFORMATION LETTER

ANTIMICROBIAL STEWARDSHIP

1. This Information Letter describes the importance of optimizing antimicrobial use through the process of antimicrobial stewardship and provides guidance for the development of antimicrobial stewardship programs (ASPs) in Veterans Health Administration (VHA) facilities.

2. **Background**

a. Misuse of antimicrobials is a nationwide problem in VHA and non-VHA facilities. Antimicrobial therapy accounts for upwards of 30 percent of hospital pharmacy budgets and up to 50 percent of antimicrobial use is estimated to be inappropriate. Examples of inappropriate use include: antimicrobials given when they are not needed and continued when they are no longer needed; antimicrobials given at the wrong dose or route; broad spectrum agents used to treat very susceptible bacteria; as well as an incorrect antimicrobial given to treat a particular infection.

b. Traditionally, ASPs have focused on inpatient settings. With increasing number of patients receiving outpatient intravenous antimicrobial therapy, as well as the considerable number of oral antimicrobials prescribed in the outpatient setting, the principles of ASP apply to this outpatient setting as well and need to be considered in developing ASP.

c. Inappropriate and unnecessary antimicrobial use leads to avoidable drug toxicity, increased selection of pathogenic organisms (e.g., *Clostridium difficile*), as well as increased prevalence of resistant organisms (e.g., carbapenem-resistant Enterobacteriaceae).

d. Development of infections with drug-resistant pathogens can negatively impact patient morbidity and mortality, as well as increase hospital length of stay and health care costs.

e. Implementation of an ASP at a facility that improves antimicrobial use can optimize patient outcomes, minimize unintended consequences of antimicrobial use, and enhance cost-effectiveness of antimicrobial treatment.

3. **Antimicrobial Stewardship Programs (ASPs)**

a. The most effective ASPs enlist a multi-disciplinary team, the core of which includes an infectious disease-trained physician and a pharmacist, preferably with infectious disease training.

Additional recommended members of this team may include, but are not limited to: an advanced practice nurse, a clinical microbiologist, an infection prevention and control professional, a hospital epidemiologist, and an information system specialist. To maximally impact antimicrobial use, the ASP team requires support and collaboration with essential hospital committees (such as the infection control committee and the pharmacy and therapeutics committee), hospital administration, medical staff leadership, and clinical care providers.

b. There are multiple strategies that ASPs can utilize to improve antimicrobial use. These include, but are not limited to:

- (1) Prospective audit of antimicrobial use with intervention and feedback;
- (2) Antimicrobial formulary restriction and prior authorization requirements;
- (3) Implementation of clinical practice guidelines and pathways;
- (4) Utilization of antimicrobial order forms;
- (5) Development of policies for intravenous to oral route conversion for antimicrobials;
- (6) Antimicrobial dose optimization for specific patient characteristics, as well as pharmacokinetic and pharmacodynamic characteristics of the drug;
- (7) Development of policies for de-escalation of therapy or discontinuation of certain unnecessary combinations of therapy;
- (8) Educational programs to influence prescribing practices;
- (9) Antimicrobial cycling procedures; and
- (10) Outpatient intravenous antimicrobial therapy policies or procedures.

c. To monitor the effectiveness of these strategies and their impact, it is recommended that ASPs establish process and outcome measures. Process measures can catalogue the number and type of recommendations made by the ASP as well as the acceptance or decline of those recommendations. Outcome measures may include, for example, assessments of: the amounts of antimicrobial used, antimicrobial utilization costs, antimicrobial resistance patterns in clinical isolates, the number of adverse drug events attributable to antimicrobial use, and unintended consequences of antimicrobial use such as rates of *C. difficile* associated diarrhea.

4. Resources for Developing Antimicrobial Stewardship Programs

a. The Infectious Disease Society of America and Society for Healthcare Epidemiology of America have published comprehensive guidelines for developing ASPs (see subpar. 5a). The Centers for Disease Control and Prevention (CDC) has launched the Get Smart for Healthcare campaign which focuses on improving antimicrobial use in inpatient health care facilities. The

CDC has also developed a Get Smart: Know When Antibiotics Work campaign to educate the public about appropriate antimicrobial use. Both resources are available at the following Web site: <http://www.cdc.gov/getsmart>.

b. VA has begun a national effort to improve antibiotic use and enhance patient safety at all medical centers through the Antimicrobial Stewardship Taskforce chartered in May 2011. This Taskforce has launched a series of educational events including conferences and webinars to serve as a resource for development and deployment of facility ASPs. The recorded webinars in addition to multiple other antimicrobial stewardship resources are available on the Taskforce's SharePoint site at:

<http://vaww.national.cmop.va.gov/pre/default/AntimicrobialMainPage/default.aspx>.

NOTE: This is an internal Web site and is not available to the public.

5. References

a. Dellit, T.H. *et al.* "Infectious Disease Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship." Clinical Infectious Diseases. 2007; 44:159-77.

b. Bantar, C. *et al.* "A Hospitalwide Intervention Program to Optimize the Quality of Antibiotic Use: Impact on Prescribing Practice, Antibiotic Consumption, Cost Savings, and Bacterial Resistance." Clinical Infectious Diseases. 2003; 37(2):180-186.

c. Owens, R.C. *et al.* "Antimicrobial Stewardship Programs as a Means to Optimize Antimicrobial Use." Pharmacotherapy. 2004; 24(7):896-908.

d. MacDougall, C. and Polk, R.E. "Antimicrobial Stewardship Programs in Health Care Systems." Clinical Microbiology Reviews. 2005; 18:638-656.

e. Centers for Disease Control and Prevention Get Smart Campaigns: "Get Smart for Healthcare" and "Know When Antibiotics Work" available at: <http://www.cdc.gov/getsmart>.

6. Inquiries. Clinical questions regarding this Information Letter may be addressed to the National Infectious Diseases Service at (513) 475-6398, and pharmaceutical questions regarding this Information Letter may be addressed to the Pharmacy Benefits Management Services at (708) 786-7862.

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