



Healthcare

# ALERTBULLETIN®

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## Antibiotic Overuse: A Stewardship Program Can Help Reduce Risk

The Centers for Disease Control and Prevention (CDC) describes antibiotic resistance as “one of the biggest public health challenges of our time,” noting that there are approximately 2 million antibiotic-resistant infections each year in the U.S., which result in at least 23,000 deaths. Elderly individuals in aging services facilities are especially vulnerable, with more than a quarter of residents harboring antibiotic-resistant bacteria.

Reasons for the proliferation of hard-to-treat pathogens range from communal living arrangements and compromised immunity to prolonged exposure to sometimes unnecessary and counter-productive antibiotics. Overuse of antibiotics in a susceptible elderly population promotes the spread of drug-resistant microbes, leading to potentially life-threatening infections among residents and consequent liability exposure for providers and organizations. (See “Antibiotic Misuse Scenario: A Deadly Cascade of Events” on page 2.)

As drug resistance in senior residential communities and elsewhere increases, the Centers for Medicare & Medicaid Services (CMS) is making an effort to curb harmful prescribing practices. New and revised infection control regulations issued by CMS require aging services settings to institute an antibiotic stewardship program, among other measures. (See “Infection Control F-Tag Requirements” at right.) The CDC followed suit, issuing guidelines designed to help facilities and providers launch or expand antibiotic stewardship efforts and curtail misuse.<sup>1</sup>

Achieving substantive change in this area requires updating of policies and procedures, as well as new thought processes in regard to antibiotic usage and risks. This *AlertBulletin*® offers strategies designed to prevent antibiotic overuse, emphasizing training of prescribers and caregivers, education of residents, implementation of prescription safeguards, and ongoing collection and monitoring of antibiotic usage and resistance data. By establishing a formal stewardship program, aging services facilities can help enhance resident outcomes, minimize liability and address the growing nationwide problem of microbial resistance.

### Infection Control F-Tag Requirements

Tag Number	Title
<u>F-880</u> (formerly F-441)	Infection Prevention and Control Program
<u>F-881</u> (new)	Antibiotic Stewardship Program
<u>F-882</u> (new)	Infection Preventionist
<u>F-883</u> (formerly F-334)	Influenza and Pneumococcal Immunizations

<sup>1</sup> While it is too soon to know whether stewardship programs and other interventions will lead to widespread reduction in antibiotic overuse, early indications are promising. In one case study of a 90-bed skilled care facility that altered its prescribing philosophy, the rate of inappropriate antibiotic prescriptions for respiratory conditions dropped to 6.9 percent, in contrast to the CDC-reported rate of 50 percent. (Scroll down to page 7)

## Staff Training

Providers and staff may tend to believe that resident falls, increased wandering or decreased alertness invariably signal an underlying infectious process. In fact, such changes in resident behavior or condition may reflect a range of factors. By offering evidence-based training sessions to both providers and staff, organizations can inculcate a more balanced treatment approach and increase awareness of the risks associated with antibiotic resistance and overuse in aging services settings.

Sessions should focus on the following topics, among others:

- **The nature of antibiotic resistance** and the extent of the problem.
- **How antibiotic resistance develops** and spreads over time.
- **Infection control and prevention measures**, such as hand washing and environmental hygiene.
- **The process of screening residents for current antibiotic use** upon admission and following transfer from outside facilities.
- **Key antibiotic-resistant organisms found in aging services and other healthcare settings**, including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus*, drug-resistant *Streptococcus pneumoniae* and multidrug-resistant gram-negative bacteria.
- **Clinical situations in which systemic antibiotics are indicated**, as well as scenarios where they may not be appropriate. (See Khandelwal, C., Lathren, C., Sloane, P. "Ten Clinical Situations in Long-term Care for Which Antibiotics Are Often Prescribed but Rarely Necessary." *Annals of Long-Term Care*, April 2012, volume 20:4, pages 23-29.)
- **Strategies to decrease the development and spread of antibiotic resistance.** (See the "Prescription Safeguards" section on page 3.).

Document the initial training of providers and caregivers, as well as annual updates and other in-service training.

Numerous antibiotic stewardship-related resources are available to augment training efforts, including the following:

- "[Core Elements of Hospital Antibiotic Stewardship Programs.](#)" CDC, May 7, 2015.
- "[Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America.](#)" *Clinical Infectious Diseases*, May 15, 2016, volume 62:10, pages e51–e77.
- "[Nursing Home Antimicrobial Stewardship Guide.](#)" Agency for Healthcare Research and Quality (AHRQ), October 2016.

## Antibiotic Misuse Scenario: A Deadly Cascade of Events

The following hypothetical case history demonstrates how failure to obtain a correct diagnosis before initiating antibiotic treatment potentially can set in motion a sequence of serious and even fatal complications:

### 1. History of Antibiotic Overuse

**A 78-year-old female resident with diabetes, peripheral vascular disease and dementia receives multiple rounds of antibiotic treatment** for recurrent urinary tract infections (UTIs) over the course of a five-year stay at a skilled care facility.

### 2. Infection Misdiagnosis

**The resident is assessed for increased falls, confusion, decreased oral intake and cloudy urine.** A subsequent urine culture is positive for a gram-negative enteric pathogen. Based on her clinical history, a diagnosis of UTI is hastily reached.

### 3. Inappropriate Antibiotic Use

**The resident is again treated empirically with a seven-day antibiotic course** despite the absence of localizing genitourinary symptoms, including new or increased dysuria, frequent urination, incontinence, urgency or suprapubic pain.

### 4. Opportunistic Infection

**On the morning of day three, the resident reports that she feels ill and confused, and has developed profuse and watery diarrhea.** By nightfall, she reports increased abdominal pain and nausea, and staff note her very frequent bowel movements. Vital signs include heart rate of 145 beats/minute, temperature of 103 degrees, oxygen saturation of 82 percent and blood pressure of 70/45 mm Hg.

### 5. Sepsis

**The resident is urgently transferred by emergency medical services to a local emergency room.** She is diaphoretic and has a tender and distended abdomen, decreased level of consciousness and signs of systemic illness. She is immediately resuscitated, including intubation and aggressive fluid and inotropic drug support.

### 6. Death

**The resident is admitted to an intensive care unit with a diagnosis of *Clostridium difficile* infection.** Cycles of various antibiotics are administered to treat the infection, but to no avail, as the resident eventually succumbs to widespread sepsis.

### Resident Education

In addition to training staff, organizations must inform residents and families of the dangers of antibiotic misuse. Facilities can convey the risks of drug-resistant infections and explain how they may be prevented by affixing the following downloadable CDC posters to walls and bulletin boards:

- [“Top 10 Infection Prevention Questions to Ask a Nursing Home’s Leaders.”](#)
- [“What to Ask Your Healthcare Provider About Antibiotics.”](#)
- [“What You Need to Know About Antibiotics in a Nursing Home.”](#)

Upon admission, some facilities offer residents and families a pamphlet explaining the risks associated with prescribing antibiotics when they are not indicated. A [sample antibiotic awareness brochure](#) is available from the CDC.

### Prescription Safeguards

According to the CDC, up to 70 percent of nursing home residents are treated with antibiotics over the course of a year, with as much as 75 percent of these drugs prescribed incorrectly.<sup>2</sup> In facilities with high antibiotic usage rates, *all* residents are put at risk by the spread of drug-resistant bacteria. Altering detrimental prescribing habits requires an organization-wide effort to standardize diagnostic and treatment decision-making processes, especially for common urinary, respiratory, skin and gastrointestinal infections.

The following general strategies can help improve prescribing practices and related documentation, thereby limiting liability exposure associated with misdiagnosis of infections and consequent development of antibiotic-resistant illness:

- **Utilize an [infection risk assessment tool](#)** to evaluate resident susceptibility to common infections and improve the overall accuracy of prescription practices.
- **Require that staff use a standardized form to convey infection-related signs and symptoms** to physicians or other prescribers. One example is the AHRQ’s [“Suspected UTI SBAR Toolkit.”](#)
- **Utilize the [Loeb minimum criteria](#) prior to administering antibiotics to residents.** A convenient [pocket reference card](#) listing the criteria is available from the Minnesota Department of Health.
- **Document dose and duration of antibiotics in the resident care information record**, as well as a clear statement of the indication (i.e., the source of infection) and rationale (i.e., prophylactic vs. therapeutic) for the antibiotic’s use.

- **Appoint an infection preventionist** to review antibiotic orders for accuracy and conformity with recognized guidelines.
- **On a routine basis, perform antibiotic “timeouts”** designed to prompt ongoing reassessment of infection diagnoses and treatment decisions. The process involves asking and documenting responses to the following CDC-recommended questions two to three days after initiating antibiotic treatment:
  - **Does this resident have a bacterial infection** that is likely to respond to antibiotics?
  - **If so, is the resident on the most appropriate antibiotic(s)**, and do the dose and route of administration reflect established guidelines?
  - **Can the spectrum of the antibiotic be narrowed** or the duration of therapy shortened (i.e., can the treatment be safely de-escalated)?
  - **Would the resident benefit from additional infectious disease/antibiotic expertise** to ensure optimal treatment of the suspected or confirmed infection?

### Ongoing Monitoring

At a time of increasing microbial drug resistance, aging services organizations should develop and implement a formal program for monitoring antibiotic use and providing feedback to clinical staff. The following surveillance measures can help protect residents and enhance antibiotic stewardship:

- **Review antibiotic use whenever a resident is admitted to the facility**, returns from a hospital inpatient stay or is transferred from another facility. Document findings in the resident care information record.
- **Conduct documented medication regimen reviews.** The reviews should be performed on a monthly basis or more frequently, if requested by the quality assurance, performance improvement and/or infection control committee.
- **Provide written reports to prescribers regarding their antibiotic utilization activity** and compliance with facility antibiotic use protocols. Include information from the following sources, among others:
  - **Healthcare information record reviews**, to determine whether residents placed on antibiotics had signs or symptoms of a treatable infection.
  - **Laboratory test results**, to ascertain if the antibiotic is still indicated or if adjustments should be made, such as ordering a more narrow-spectrum drug.
  - **Prescription documentation**, including the indication for use, dosage and duration, as well as clinical justification for use of antibiotics beyond the initial period ordered.

<sup>2</sup> As cited in [“Creating a Culture to Improve Antibiotic Use in Nursing Homes.”](#)

- **Using pharmacy data, analyze and summarize facility-wide antibiotic use patterns**, such as rate of new starts, types of antibiotics prescribed and days of antibiotic treatment per thousand resident days.
- **Obtain laboratory-produced antibiograms**, which are aggregate reports identifying the organisms present in clinical specimens and their susceptibility to various antibiotics. Reports should be requested every 18 months, on average, and shared with providers in order to inform their prescribing decisions. (See [“The Nursing Home Antibiogram Program Toolkit: How To Develop and Implement an Antibiogram Program”](#) from the AHRQ.)
- **Track antibiotic-related outcome measures**, including incidence and prevalence of *Clostridium difficile*, MRSA and other opportunistic drug-resistant infections. (See [“The Core Elements of Antibiotic Stewardship for Nursing Homes, Appendix B: Measures of Antibiotic Prescribing, Use and Outcomes”](#) and [“Appendix C: Data Sources, Elements and Measures for Tracking Antibiotic Use in Nursing Homes,”](#) both from the CDC.)

Antibiotic overuse and consequent bacterial resistance pose a significant threat to older individuals in group living settings. To protect residents from potentially deadly drug-resistant infections, achieve compliance with CMS and CDC standards, and reduce liability exposure, aging services organizations must implement a multipronged antibiotic stewardship effort involving review of prescribing practices, ongoing training and education, and monitoring of provider performance and resident outcomes.

## Quick Links

- [“Antibiotic Use in the United States, 2017: Progress and Opportunities,”](#) from the Centers for Disease Control and Prevention (CDC).
- [“Be Antibiotics Aware: Smart Use, Best Care,”](#) an educational initiative from the CDC. Updated November 9, 2018.
- [“Checklist: The Core Elements of Antibiotic Stewardship in Nursing Homes,”](#) from the CDC.
- Reece, R., Chase, P., Ranucci, S. [“Antimicrobial Stewardship in Long-term Care Facilities.”](#) *Rhode Island Medical Journal*, June 2018.
- Zimmerman, S. et al. [“Advances in the Prevention and Control of HAIs: Strategies to Reduce Potentially Inappropriate Antibiotic Prescribing in Assisted Living and Nursing Homes.”](#) Agency for Healthcare Research and Quality, June 2014.

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