INFECTION PREVENTION

# Antimicrobial Stewardship

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Many home care and hospice patients take antibiotics, but taking them directly contributes to the development of antimicrobial resistance. Antimicrobial resistance develops when antibiotics are taken unnecessarily and the sensitive bacteria are eliminated and resistant microorganisms proliferate, often becoming more virulent. Patients with resistant infections have significantly longer hospital lengths of stay, delayed recuperation, long-term disability, and are more likely to die as a result of the infection or from other conditions that were complicated by an antibiotic-resistant infection. Each year in the United States, at least 2 million people become infected with bacteria that are resistant to antibiotics and at least 23,000 people die as a direct result of these infections.

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Infections caused by *Clostridium difficile* are an example of a secondary infection that is directly related to antibiotic use. Each year, there are an estimated 250,000 patients who develop an infection caused by *C. difficile*, with an estimated 14,000 deaths. Ninety percent of these deaths are in patients over the age of 65 years. Antimicrobial resistance occurs as part of a natural evolution process and can be significantly slowed, but not stopped. Fewer antibiotics are being developed, resulting in fewer treatment options. As a result, antimicrobial resistance is one of our most serious health threats in healthcare (Centers for Disease Control and Prevention [CDC], 2013).

An antimicrobial stewardship program promotes the appropriate use of antimicrobials, including antibiotics. One of the antibiotic stewardship complexities when providing care in the home is that the prescriber is not on-site to evaluate the patient, and laboratories are often not in close proximity to the patient. For those reasons, antibiotics are prescribed "empirically" (that is, based on the patient's signs and symptoms and without a culture being collected). Lack of culture data was a factor considered when developing the APIC-HICPAC Surveillance Definitions for Home Health Care and Home Hospice Infections. Antimicrobial stewardship is often not considered something that directly involves home care and hospice nurses, but we can make a difference by helping reduce the amount of antibiotics that are used by patients. Tables 1, 2, and 3 contain specific actions

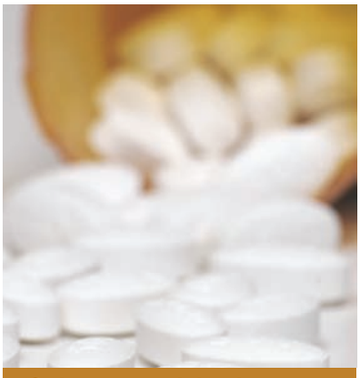
## Table 1. Five Steps to Take When a Patient Is Exhibiting Signs and Symptoms of an Infection

**When a patient is exhibiting signs and symptoms of an infection, the nurse should:**

1. Accurately assess the patient to identify signs and symptoms that may indicate an infection.
2. Use the SBAR (situation, background, assessment, recommendations) approach to communicate with the prescriber to assist him or her in accurately making a clinical decision about a potential infection and the need for an antibiotic.
3. Do not ask the physician to prescribe antibiotics for the patient. When someone takes an antibiotic that he or she does not need, that person is needlessly exposed to (a) the drug's adverse effects (e.g., nausea, vomiting, and diarrhea); (b) the potential for developing an allergic reaction; and (c) a secondary infection, with no benefit from taking the antibiotic.
4. Request a culture and obtain the culture specimen *before* the patient starts an antibiotic. Keep extra specimen collection supplies in the nursing bag and monitor their expiration dates monthly.
5. Request an order for a *C. difficile* test (preferably a nucleic acid amplification test) if the patient has had three or more unformed stools (watery diarrhea) within a 24-hour period. Other clinical symptoms of *C. difficile* can include fever, loss of appetite, nausea, and abdominal pain and tenderness. The sooner a *C. difficile* infection can be identified, the sooner the spores can be contained in the patient's home (McGoldrick, 2014a).

that can be taken to optimize the use of antimicrobials.

Data support that as much as 50% of the time, antibiotics are prescribed when they are not needed or they are misused (CDC, 2013). Before patient surveillance activities transitioned from total surveillance to targeted surveillance activities, "antibiotic logs" were typically completed to document when patients were started on antibiotics to identify new infections. Most organizations disbanded this data collection practice once they moved toward targeted surveillance activities. Consideration should be given to: (1) educating the clinicians on when antibiotics are not needed; and (2) reinstating a modified version of this log to monitor and evaluate the appropriateness of antibiotics started after the start of care as a performance improvement activity.



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Other strategies that can be implemented to prevent and control the spread of resistant bacteria include implementing standard and transmission-based precautions, performing hand hygiene when indicated using the correct technique, cleaning and disinfecting all equipment and supplies used in patient care, preventing the transmission of organisms on the nursing bag, educating the patient about immunizations, and practicing safe food handling. It is through all of these actions *in combination* that we can reduce the incidence of infection, which prevents the need for antibiotics in the first place. ⌂

### Table 2. Actions to Take When a New Antibiotic Is Ordered

**Instruct the patient to:**

- Take the antibiotic exactly as ordered by the physician.
- Complete the entire prescribed course of treatment, unless there are significant adverse effects.
- Not stop taking the antibiotics, even if he or she is feeling better, and not save them for another illness.
- Inform the nurse or physician if he or she develops diarrhea within a few months of starting an antibiotic.
- Reassess the patient 48–72 hours after starting an antibiotic and take an "antibiotic timeout." Document the patient's response to the antibiotic in the medical record.
- Communicate the patient's clinical response to the antibiotic to prescriber who ordered the antibiotic and to the infusion pharmacy if a compounded medication was dispensed. Document this communication in the medical record (McGoldrick, 2014b).

*Source*: McGoldrick, M. (2014b). Patient education: Preventing the spread of antibiotic-resistant organisms—patient care practices. *Home Care Infection Prevention and Control Program* (pp. 30-31). Saint Simons Island, GA: Home Health Systems, Inc.

### Table 3. Medication Reconciliation and Medication Monitoring Activities

**On admission and throughout the course of care when performing medication reconciliation and medication monitoring activities the nurse should:**

- Observe for leftover antibiotics prescription bottles from previous prescriptions that were never completed. Instruct the patient not to use them, share them, and dispose of them.
- Observe for missed doses of antibiotics in a mediplanner. Instruct the patient to set alarms or other triggers to assure that doses are not skipped or not administered at the prescribed time interval.
- Ensure that all new orders are complete and the medication profile is updated to include the antibiotic dose, duration, and indication (McGoldrick, 2014b).

*Source*: McGoldrick, M. (2014b). Patient education: Preventing the spread of antibiotic-resistant organisms—patient care practices. *Home Care Infection Prevention and Control Program* (pp. 30-31). Saint Simons Island, GA: Home Health Systems, Inc.

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