

Questions from Learning Session Four:

Antibiotic Stewardship and C. difficile Management

These questions were asked during the August 2017 webinars for Learning Session Four.¹ We are happy to provide answers, which have been reviewed by Christopher J. Crnich, MD, PhD, UW School of Medicine and Public Health, and Jane Pederson, MD, MS, chief medical quality officer, Stratis Health.

1. Is the administration of antibiotics recommended to prevent certain infections?

Prophylactic prescribing of antibiotics occurs when there is no active infection but a supposed risk of infection. This could be considered an overuse of antibiotics. However, it depends on the individual resident's history, current circumstances, and the practitioner's best judgment. Evidence-based diagnostic criteria and treatment recommendations are available for practitioners. "Watchful waiting" is a Centers for Disease Control and Prevention (CDC) recommended action, when appropriate, to prevent antibiotic resistance. The CDC warns that the misuse and overuse of antibiotics has led to antibiotic resistant strains of bacteria. When an antibiotic is administered, it will destroy bacteria that are susceptible to the antibiotic and has the potential of creating antibiotic resistant strains of other bacteria.

2. Are prophylactic doses of antibiotics recommended prior to dental work?

The American Dental Association states on their website:

"With the exception of the AHA/ACC guidelines regarding prevention of infective endocarditis, there is no general guidance or recommendation to provide antibiotics as a prophylactic measure prior to dental procedures except for specific individuals with extenuating circumstances, where the determination and prescription is made by the patient's surgeon or other treating physician. However, there are a myriad of other conditions that either patients, physicians, or dentists may think that antibiotic prophylaxis prior to dental treatment might be warranted to prevention development of infections at remote locations by bacteria normally associated with the oral flora."

"The ADA has received queries from members for guidance concerning the evidence for antibiotic prophylaxis in patients who have undergone a variety of surgical interventions. The guidance has been that antibiotic prophylaxis is unwarranted unless the person is predisposed, for some reason, to infection, in which case, it may be appropriate for the treating physician to prescribe the antibiotic."²

¹ Learning Session Four webinars, slide handouts, and other materials are available on the Lake Superior Quality Innovation Network website: <https://www.lsqin.org/initiatives/nursing-home-quality/ls4/>.

² Antibiotic Stewardship. American Dental Association. <http://www.ada.org/en/member-center/oral-health-topics/antibiotic-prophylaxis>. Accessed October 5, 2017.

3. Is it better to start an antibiotic while waiting for a urine culture and sensitivity to return or wait until the proper antibiotic can be chosen?

What you are considering in this question is whether or not to empirically treat before reaching a definitive diagnosis. This depends on the person's severity of illness and co-morbid conditions. The Agency for Healthcare Research and Quality (AHRQ) Nursing Home Antimicrobial Stewardship Guide states:

“Urine cultures should be used to identify the most appropriate antibiotic. For residents with acute dysuria, it may be appropriate to initiate empirical antibiotic therapy; but for all other symptoms, wait for a urine culture.”³

Best practice is to wait until culture and sensitivity results are back, then choose therapy tailored to those results. If a prescriber insists on starting an antibiotic before culture and sensitivity testing, encourage use of a narrow-spectrum antibiotic. It is better to wait, unless the condition is critical and time is a factor in treatment. Regardless, once an antibiotic is prescribed, an antibiotic time-out is a useful practice to evaluate whether the treatment is effective and still necessary.

4. What is an antibiotic time-out?

An antibiotic time-out is a policy which implements a review of the necessity of antibiotic treatment by the clinical team two to three days after antibiotics are initiated. This allows a review of the treatment plan once more data is available, such as culture results or more clinical and lab data.

The time-out is used to answer four questions:

1. Does this resident have a bacterial infection that will respond to antibiotics?
2. If so, is the resident on the most appropriate antibiotic, dose, and route of administration?
3. Can the spectrum of the antibiotic be narrowed or the duration of therapy shortened?
4. Would the resident benefit from additional infectious disease/antibiotic expertise to ensure optimal treatment of the suspected or confirmed infection?

See AHRQ's Antibiotic Time Out Tool for more information.⁴

5. Are homes still using McGeer criteria?

Yes, Nursing homes are still using the revised McGeer criteria. In 1991, McGeer and colleagues proposed the first set of infection surveillance definitions specifically for use by long-term care facilities (LTCFs). Their intent was to provide standardized guidance for infection surveillance activities and research studies in nursing homes and similar institutions. The McGeer criteria was updated in 2012 by Dr. Nimalie Stone (current CDC head) and fellow researchers and is still used today.

³ Agency for Healthcare Research and Quality. Nursing Home Antimicrobial Stewardship Guide. <http://nhguide.airprojects.org/tool3>. Accessed October 5, 2017.

⁴ Agency for Healthcare Research and Quality. Antibiotic Time Out Tool. <https://safetyprogram4antibioticstewardship.org/project/Resources/docs/AntibioticTimeOutTool.pdf>. Accessed October 5, 2017.

Table 1: Revised McGeer Criteria⁵

Revised McGeer Criteria
For residents without an indwelling catheter (both criteria 1 and 2 must be present)
1. At least 1 of the following sign or symptom subcriteria
a. Acute dysuria or acute pain, swelling or tenderness of the testes, epididymis or prostate.
b. Fever or leukocytosis (see Constitutional Criteria in Residents of Long Term Care Facilities) and at least 1 of the following urinary tract subcriteria
i. Acute costovertebral angle pain or tenderness
ii. Suprapubic pain
iii. Gross hematuria
iv. New or marked increase in incontinence
v. New or marked increase in urgency
vi. New or marked increase in frequency
c. In the absence of fever or leukocytosis, then 2 or more of the following localizing urinary tract subcriteria
i. Suprapubic pain
ii. Gross hematuria
iii. New or marked increase in incontinence
iv. New or marked increase in urgency
v. New or marked increase in frequency
2. One of the following microbiologic subcriteria
a. At least 10 ⁵ cfu/mL of no more than 2 species of microorganisms in a voided urine sample
b. At least 10 ² cfu/mL of any number of organisms in a specimen collected by in-and-out catheter
For residents with an indwelling catheter (both criteria 1 and 2 must be present)
1. At least 1 of the following sign or symptom subcriteria
a. Fever, rigors, or new-onset hypotension, with no alternate site of infection
b. Either acute change in mental status or acute functional decline, with no alternate diagnosis and leukocytosis
c. New-onset suprapubic pain or costovertebral angle pain or tenderness
d. Purulent discharge from around the catheter or acute pain, swelling, or tenderness of the testes, epididymis, or prostate
2. Urinary catheter specimen culture with at least 10⁵ cfu/mL of any organism(s)

⁵ Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria. Infect Control Hosp Epidemiol. 2012 Oct; 33(10): 965–977 doi: [10.1086/667743](https://doi.org/10.1086/667743). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3538836/>. Accessed October 5, 2017.

6. What type of statement should be in job descriptions for various staff related to antibiotic stewardship?

The statement in a job description will vary according to the role of each staff member. Depending on the employee's role, whether clinical or non-clinical, a statement can be added to their job description stating how that position will promote antibiotic stewardship in the facility.

- Example: Staff are required to be familiar with facility policies and procedures regarding antibiotic stewardship and reduction of antibiotic resistance.
- Example: The nurse will educate residents seeking antibiotics for a certain condition as to why antibiotics should or should not be used.
- Example: The physician will explain to residents why the facility will not necessarily dispense antibiotics upon request.
- Example: The medical director will participate in setting standards for antibiotic prescribing practices for all clinical providers credentialed to deliver care in the facility and will be accountable for overseeing adherence, or will review antibiotic use data and ensure best practices are followed in medical care of residents in the facility.⁶

7. Do we need to keep track of all staff infections? What about the privacy of our staff?

According to the Revision to State Operations Manual Appendix PP for Phase 2:

“Infection Control §483.80(a) - Infection prevention and control program. The facility must establish an infection prevention and control program (IPCP) that must include, at a minimum, the following elements: (1) A system for preventing, identifying, reporting, investigating, and controlling infections and communicable diseases for all residents, staff, volunteers, visitors, and other individuals providing services under a contractual arrangement based upon the facility assessment conducted according to §483.70(e) and following accepted national standards.”

This does not require a violation of staff privacy. However, it does require that all staff be educated in signs and symptoms of potentially transmissible illnesses, and policies are in place in your facility to ensure staff are not working while they might be an exposure risk to residents or other staff. Hand hygiene and appropriate personal protective equipment (PPE) should be continually enforced for all staff to prevent transmission of infection.⁷

8. Does bacitracin ointment used as a standing house order need to be tracked in an antibiotic stewardship program?

Topical antibiotics do not count as antibiotic starts, and so don't need to be counted in an antibiotic stewardship program. Only IV, IM, oral, and inhaled antibiotics are counted as antibiotic starts.

9. Do anti-infectives (for chronic UTIs, etc., long-term or short-term) count as antibiotic treatment – do they need to be tracked?

Any antibiotic that is administered to a resident should be tracked, whether the antibiotic is used to prevent an infection or treat a current infection.

⁶ Centers for Disease Control & Prevention. Core Elements of Antibiotic Stewardship for Nursing Homes. <https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html>. Accessed October 5, 2017.

⁷ Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities Federal Register / Vol. 81, No. 192 / Tuesday, October 4, 2016 / Rules and Regulations.

10. Antibiotics that are ordered and not necessarily given – do we still track those?

This decision will depend on the facility and the goal of tracking. If you would like to determine the financial burden of antibiotics in a facility, for example, tracking the number of antibiotics purchased following an order would be effective. However, tracking the number of residents on antibiotics will exclude those that were not given and provide different information for the facility.

11. How is Days of Therapy (DOT) measured?

Days of therapy is measured as one day for each day one prescription is administered. For example, if a resident is prescribed a 7-day course of amoxicillin, that course equals 7 antibiotic days. However, if a resident is prescribed a 7-day course of ceftriaxone plus azithromycin, then that course equals 14 days of therapy.

12. Is there a certain rate of antibiotic use/days of therapy that we should be striving for?

Antibiotic use and days of therapy rates vary by facility and patient population. Start by gathering data on your facility's rates and review them with your Infection Preventionist, antibiotic stewardship team, medical director, or QAPI committee to look for areas of improvement and develop a target rate for your facility and patients. The AHRQ guidelines can help you develop facility policies and guidelines based on published, evidence-based criteria.⁸

13. Is it true that the Infection Preventionist will now need to be a certified RN?

There is no requirement at this time that the Infection Preventionist must be a certified RN. However, by 11/28/2019 the facility must designate one or more individual(s) as the infection preventionist(s) who are responsible for the facility's infection prevention and control program.

The Infection Preventionist must:

- Have primary professional training in nursing, medical technology, microbiology, epidemiology, or other related field
- Be qualified by education, training, experience, or certification
- Work at least part-time at the facility; and
- Have completed specialized training in infection prevention and control.

14. How many hours per week should be dedicated to this program for the infection preventionist?

The amount of time required for antibiotic stewardship will vary based on the facility staff, activities, and needs. There is nothing in the regulations that specifies hours per week spent on antibiotic stewardship.

⁸ Agency for Healthcare Research and Quality. Toolkit for Reduction of Clostridium difficile Infections Through Antimicrobial Stewardship. <https://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-resources/resources/cdiffitoolkit/cdiffit2tools4b.html>. Accessed October 5, 2017.