Practice Guidelines

Antibiotic Courses for Common Infections: Recommendations From the ACP

Key Points for Practice

- In patients with COPD exacerbations, antibiotic courses should be limited to five days.
- In patients with community-acquired pneumonia, the initial antibiotic course should be limited to five days with follow-up before completion of the course.
- For women with uncomplicated bacterial cystitis, taking nitrofurantoin for five days, trimethoprim/sulfamethoxazole for three days, or a single dose of fosfomycin is effective.
- In patients with uncomplicated pyelonephritis, taking a fluoroquinolone for five to seven days is the most effective empiric treatment.

From the *AFP* Editors

Antimicrobial overuse leads to more than 2.6 million illnesses and 35,900 deaths annually. Of the more than 250 million courses of antibiotics prescribed in the United States in 2014, at least 30% were considered unnecessary. There is no evidence that longer courses of antibiotics reduce antibiotic resistance in bacterial illness. Instead, longer courses appear to increase antibiotic resistance through natural selection. After reviewing clinical guidelines, systematic reviews, and individual studies, the American College of Physicians (ACP) has released recommendations for common antibiotic prescribing situations in primary care.

COPD Exacerbations

In chronic obstructive pulmonary disease (COPD) exacerbations, antibiotic courses should be limited to five days.

In patients with acute bronchitis, defined as respiratory symptoms with normal chest radiography, antibiotics are indicated only when the patient has COPD and is suspected to have a bacterial cause as indicated by increased sputum purulence and dyspnea or increased sputum volume. In COPD exacerbations, oral treatment with amoxicillin/clavulanate (Augmentin), a macrolide, or a tetracycline has been proven effective and covers the likely pathogens *Haemophilus influenzae*, *Streptococcus pneumoniae*, and *Moraxella catarrhalis*.

Antibiotic courses of five days are as effective as longer courses based on a meta-analysis of studies enrolling more than 10,000 patients. This is the lower course recommendation of the Global Initiative for Chronic Obstructive Lung Disease, which recommends five to seven days.

Community-Acquired Pneumonia

In patients with community-acquired pneumonia, initial antibiotic courses should be limited to five days with monitoring for signs of improvement. Antibiotic therapy should be extended for ongoing vital sign abnormalities, inability to eat, or concerns with mentation. This recommendation does not apply to patients who are immunocompromised.

In a meta-analysis of 21 studies, an antibiotic course of six days or less is as effective as a longer course while still reducing mortality and serious adverse events. Recommended antibiotics for healthy adults include amoxicillin, doxycycline, and azithromycin (Zithromax), which target the common pathogens *S. pneumoniae*, *H. influenzae*, *Mycoplasma pneumoniae*, *Staphylococcus aureus*, and atypical pathogens such as *Legionella* species. Broader spectrum antibiotics such as a beta lactam with a macrolide or a respiratory fluoroquinolone should be reserved for adults with comorbidities.

Uncomplicated Cystitis and Pyelonephritis

In nonpregnant patients with uncomplicated bacterial cystitis, taking nitrofurantoin for five

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This series is coordinated by Michael J. Arnold, MD, contributing editor.

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days, trimethoprim/sulfamethoxazole for three days, or a single dose of fosfomycin (Monurol) should be considered; all three medications are similarly effective. These antibiotics are highly effective against *Escherichia coli*, which accounts for 75% of all bacterial cystitis. Fluoroquinolones are not recommended for empiric treatment because of their higher adverse effect profile and growing resistance of Enterobacteriaceae.

In patients with uncomplicated pyelonephritis, five- to seven-day courses of fluoroquinolones are recommended. Shorter courses of fluoroquinolones are as effective as longer courses in women and men with pyelonephritis, so a five-day course works as well as a 10-day course. Trimethoprim/sulfamethoxazole should be avoided for empiric therapy in pyelonephritis because of resistance in nearly 20% of infections.

Cellulitis

In nonpurulent cellulitis, antibiotic courses should be limited to five to six days of a cephalosporin, penicillin, or clindamycin. These antibiotics are effective against streptococci, and courses of five or six days are as effective as longer treatments. For purulent lesions, incision and drainage is recommended without antibiotics. If methicillin-resistant *S. aureus* (MRSA) is suspected in patients with penetrating trauma, injection drug use, systemic inflammatory response syndrome, or previous evidence of MRSA infection or colonization, an antibiotic effective against MRSA should be added.

Editor's Note: It took three years, but the ACP now agrees with an overview of systematic reviews published in the journal *Family Practice* in 2017.[1] As noted in a POEM summarizing that review, nearly every time someone asks if a shorter course of antibiotics will work, the answer is yes (https://www.aafp.org/afp/2018/0701/p56.html). The systematic overview adds to this guideline by recommending shorter treatments for sinusitis, otitis media, and streptococcal pharyngitis. Compared with the ACP recommendations, the systematic overview noted similar outcomes and evidence of fewer adverse events with shorter courses of antibiotics. The ACP used a more recent meta-analysis for community-acquired pneumonia that now demonstrates decreased mortality even with shorter antibiotic courses. At least this will be an easier discussion to have with patients than why to avoid antibiotics in obvious viral illnesses.—Michael J. Arnold, MD, Contributing Editor

Reference

1. Dawson-Hahn EE, Mickan S, Onakpoya I, et al. Short-course versus long-course oral antibiotic treatment for infections treated in outpatient settings: a review of systematic reviews. *Fam Pract*. 2017;34(5):511-519.

Guideline source: *Annals of Internal Medicine*

Evidence rating system used? No

Systematic literature search described? Yes

Guideline developed by participants without relevant financial ties to industry? No

Recommendations based on patient-oriented outcomes? Yes

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MaryAnn Dakkak, MD, MSPH
Boston University Medical Center
Boston, Mass.
Email: maryann.dakkak@bmc.org

Mallika Sabharwal, MD
Boston University Medical Center
Boston, Mass. ■