

Antibiotic Therapy: When Are Shorter Courses Better?

Shorter antibiotic courses often work just as well, and may be preferred to longer courses.¹ However, not all infections (e.g., endocarditis, tuberculosis), nor all patients, are appropriate for shorter antibiotic courses. When determining if a shorter duration may be appropriate, there are many factors (infection type, source control, and severity; antibiotic choice; symptom resolution; potential for relapse; comorbidities; and immune status) to consider.^{2,39} See our toolbox, [Antimicrobial Stewardship](#), for information about using antibiotics effectively. The FAQ below provides guidance on when shorter antibiotic courses may be appropriate, based on the infection and patient-specific factors.

Question	Considerations/Pertinent Information
What are the benefits of shorter courses of antibiotics?	<ul style="list-style-type: none"> • Minimized risk of antibiotic resistance.² <ul style="list-style-type: none"> ○ Longer antibiotic courses are more likely to be associated with an increased risk of resistance by increasing normal flora’s exposure to antibiotic therapy.^{2,21,22} • Reduced adverse effects (with less antibiotic exposure) such as:³⁹ <ul style="list-style-type: none"> ○ side effects from medication. ○ superinfections from eliminating normal flora (e.g., <i>Clostridioides difficile</i>). • Lower cost and improved adherence with fewer antibiotic doses.³⁹
What duration of therapy is appropriate for acute sinusitis ?	<ul style="list-style-type: none"> • Antibiotics are not usually necessary for acute sinusitis, as many cases are viral or self-limiting bacterial infections.^{18,48} • Duration of antibiotic therapy recommended by the Infectious Diseases Society of America and in Canadian guidelines range from five to ten days for acute bacterial sinusitis.^{18,19,20,48} <ul style="list-style-type: none"> ○ Recommend five to seven days of antibiotic therapy for adults with uncomplicated acute bacterial sinusitis.^{18,48} ○ Five days of antibiotic therapy is as effective as ten days for most adult patients with acute bacterial sinusitis, [Evidence level A-2].⁸ ○ Longer durations (e.g., ten to 14 days) of therapy may be necessary for more complicated infections and in children.^{18,48}
What duration of therapy is appropriate for acute bronchitis ?	<ul style="list-style-type: none"> • Antibiotics are not routinely recommended for acute uncomplicated bronchitis, regardless of cough duration.³⁷ <ul style="list-style-type: none"> ○ See our chart, Managing Cough and Cold Symptoms, for tips to address a cough without using antibiotics. • Consider antibiotic therapy for patients with suspected pneumonia³⁸ (see row titled “What duration of therapy is appropriate for CAP?” below) or in acute exacerbations of chronic bronchitis and chronic obstructive pulmonary disease (COPD) with at least two of the following: increased dyspnea, increased sputum volume or purulence, or severe airflow obstruction.⁵² <ul style="list-style-type: none"> ○ For mild to moderate exacerbations, recommend ≤5 days of antibiotics, instead of longer courses [Evidence level A-2].³²

Question	Considerations/Pertinent Information
What duration of therapy is appropriate for CAP?	<ul style="list-style-type: none">• Duration of antibiotic therapy recommended for treatment of CAP by the US and Canadian Infectious Diseases Society/Thoracic Society range from unspecified to a minimum of five days.^{15,16}• Recommend at least five days of antibiotics.^{15,20,49}<ul style="list-style-type: none">○ Feel comfortable stopping antibiotics after five days based on resolution of vital sign abnormalities (e.g., heart rate [≤ 100 beats per minute], respiratory rate [≤ 24 breaths per minute], temperature [afebrile]).¹⁵○ Five days of therapy is as effective as longer durations, even in most hospitalized CAP patients, with pneumonia severity index scores primarily ranging from I to IV, [Evidence level A-1].^{2,15} However, use seven days of therapy for CAP due to suspected or proven methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) or <i>Pseudomonas aeruginosa</i>.¹⁵• Longer courses may be necessary in some patients (e.g., previous antibiotic treatment, immunosuppressed, requiring chest tube placement, mechanical ventilation, severe sepsis, pneumonia severity index [PSI] score = V).²• For a more complete resource on CAP, see our toolbox, Preventing and Treating Community-Acquired Pneumonia.
What duration of therapy is appropriate for cellulitis?	<ul style="list-style-type: none">• Duration of antibiotic therapy recommended by the Infectious Diseases Society of America and British Columbia Centre for Disease Control range from five to ten days for cellulitis based on infection severity.^{9,17}<ul style="list-style-type: none">○ Recommend five days (five to seven in Canada) of antibiotic therapy for most patients with uncomplicated cellulitis (e.g., not related to trauma, without pus).^{9,17,20,29,49}<ul style="list-style-type: none">▪ Five days is as effective as ten days, if clinical improvement is seen within five days.²⁹○ More than five days may be needed if the infection is not improved within five days, or in more complicated cases (e.g., immunocompromised patients, deep soft tissue infections, cellulitis from animal bite wounds, or patients with vascular insufficiency).^{17,29}
What duration of therapy is appropriate for HAP and VAP?	<ul style="list-style-type: none">• Recommend a seven-day course of antibiotics for both HAP and VAP.¹¹<ul style="list-style-type: none">○ Seven-day courses demonstrate no difference compared to ten- or fifteen-day courses in duration of mechanical ventilation, length of stay, mortality, recurrent pneumonia, or treatment failure.¹¹○ Shorter courses (e.g., seven days) are associated with reduced antibiotic exposure and reduced recurrent pneumonia due to multidrug resistant organisms compared to longer courses (e.g., ten to 15 days).¹¹• Use clinical criteria (e.g., cultures, fever) and consider using procalcitonin (PCT) levels to determine when antibiotic therapy can be stopped.¹¹<ul style="list-style-type: none">○ Consider discontinuing within one day of negative quantitative bronchoscopy cultures [Evidence level B-3].³⁰• Avoid using Clinical Pulmonary Infection Score (CPIS) as a guide for antibiotic discontinuation.¹¹• Longer courses may be necessary in some patients (e.g., known <i>Pseudomonas</i> or <i>Acinetobacter</i>).¹¹• For a resource on HAP and VAP, see our chart, Hospital-Acquired and Ventilator-Associated Pneumonia FAQs.

Question	Considerations/Pertinent Information
<p>What duration of therapy is appropriate for intra-abdominal infections?</p>	<ul style="list-style-type: none"> • Duration of antibiotic therapy recommended by the Infectious Diseases Society of America, the Canadian practice guidelines, and the Surgical Infection Society range from four to seven days, as long as the source of the infection is controlled.^{13,14,46} • Recommend four to five days of antibiotic therapy if the infection source is controlled [Evidence level A-1].⁶ <ul style="list-style-type: none"> ○ Longer durations (e.g., longer than 7 days) of therapy are not associated with improved outcomes.^{13,14} ○ If the source of the infection is difficult to control, longer durations may be necessary.^{13,14} • Consider limiting antibiotic therapy to five to seven days in patients when source control procedures are not completed.⁴⁶ Source control should be considered in patients that do not clinically respond to antibiotics (e.g., temperature, white blood cell count) within five to seven days.⁴⁶
<p>What duration of therapy is appropriate for osteomyelitis?</p>	<ul style="list-style-type: none"> • Infectious Diseases Society of America guidelines endorse six weeks of antibiotic therapy for vertebral osteomyelitis based on a study showing no difference between six and 12 weeks of therapy [Evidence level A-1].³³⁻³⁵ • Generally recommend six weeks of antibiotic therapy for uncomplicated cases of osteomyelitis.³³⁻³⁶ <ul style="list-style-type: none"> ○ Though additional studies are needed, limited data suggest shorter courses may be used in some cases (e.g., post-debridement in patients with diabetic foot infections, in children with acute osteomyelitis).^{50,51} ○ Longer durations of therapy are often necessary in complicated cases (e.g., implants, prosthetic joints, or undrained abscesses).³⁴⁻³⁶ • See our chart, Oral Antibiotics for Acute Osteomyelitis in Adults, for more information on recommended antibiotics and dosing.
<p>What duration of therapy is appropriate for acute otitis media?</p>	<ul style="list-style-type: none"> • Antibiotics are not always necessary for acute otitis media, as many cases are viral or self-limiting bacterial infections.^{3,4,42} <ul style="list-style-type: none"> ○ Recommend pain relievers (e.g., acetaminophen, ibuprofen) for less severe cases (e.g., symptoms <48 hours, temperature <102.2°F [39°C], mild ear pain, no drainage from the ear) and observation or “watchful waiting” (not for bilateral AOM with ages 6 months to 23 months).^{3,4,42} • Duration of antibiotic therapy recommended by the American Academy of Pediatrics and Canadian Paediatric Society range from five to ten days for acute otitis media, depending on patient age and infection severity.^{3,4} <ul style="list-style-type: none"> ○ Recommend ten days of therapy for children younger than 2 years.^{3,4,20} <ul style="list-style-type: none"> ▪ This longer duration of therapy may also be necessary with recurrent otitis media or a ruptured eardrum.¹² ○ Recommend five to seven days of therapy for children 2 years and older.^{3,4,20} <ul style="list-style-type: none"> ▪ Consider ≤3 days of antibiotics (e.g., amoxicillin, azithromycin, ceftriaxone) for children 2 years and older with uncomplicated infections [Evidence level A-2].¹²

Question	Considerations/Pertinent Information
What duration of therapy is appropriate for pediatric UTIs ?	<ul style="list-style-type: none"> • Recommend seven to 14 days of antibiotics for most children with an UTI.^{20,28} • Consider a shorter course of antibiotics (e.g., two to four days) for older, school-aged children without fever.^{20,26,27,31} • Avoid single-dose UTI treatment in children, due to reduced efficacy.^{25,27}
What duration of therapy is appropriate for uncomplicated adult UTIs ?	<ul style="list-style-type: none"> • Recommend short courses of antibiotics for uncomplicated UTI. Duration of therapy will depend on the antibiotic used (e.g., three days with trimethoprim/sulfamethoxazole, five days with nitrofurantoin).^{10,20,49} <ul style="list-style-type: none"> ○ Three days of antibiotics is just as effective as five to ten days for uncomplicated UTIs in females.⁴⁰ • Longer durations of therapy are necessary for complicated UTIs, during pregnancy, and in older patients.^{10,20,24} • See our chart, Urinary Tract Infections in Adults, for more treatment details.
What duration of therapy is appropriate for pyelonephritis ?	<ul style="list-style-type: none"> • Recommend a short course of a fluoroquinolone (e.g., levofloxacin for five days; ciprofloxacin for seven days) for uncomplicated pyelonephritis, not requiring hospitalization.⁷ <ul style="list-style-type: none"> ○ Consider a short course (e.g., seven days) with a fluoroquinolone for hospitalized patients [Evidence level A-2].⁵ ○ Longer courses may be necessary if treating with trimethoprim/sulfamethoxazole (e.g., 14 days), some hospitalized patients such as those with bacteremia and hypotension (e.g., ten to 14 days), or those with urogenital abnormalities.^{7,10} ○ Limited data suggest seven days of TMP/SMX may be adequate for patients who are responding well and are closely followed [Evidence level B-3].⁴⁷ • For an overview of managing UTIs in adult patients, see our chart, Urinary Tract Infections in Adults.
What duration of therapy is appropriate for bacteremia ?	<ul style="list-style-type: none"> • Treating gram-negative (e.g., <i>Escherichia coli</i>, <i>Klebsiella</i>) bacteremia with antibiotics for ≤10 days does not lead to inferior clinical outcomes compared to treating with >10 days of antibiotics [Evidence level B-2].⁴⁵ • Recommend seven days of antibiotics for most patients with uncomplicated gram-negative bacteremia (i.e., no underlying endovascular, bone, joint, or central nervous system [CNS] infection; no uncontrolled source of infection; no major immunocompromising conditions; clinical improvement seen within 48 to 72 hours of starting treatment) [Evidence level A-1].^{43,44}
What duration of therapy is appropriate for confirmed strep throat ?	<ul style="list-style-type: none"> • Treat strep throat with an effective antibiotic, at an appropriate dose and duration (usually ten days) for eradication from the pharynx and to prevent complications (e.g., rheumatic fever).²³ • Recommend ten days of amoxicillin or penicillin for most patients with acute group A streptococcal pharyngitis.^{20,23,41} <ul style="list-style-type: none"> ○ Consider a one-time intramuscular injection of benzathine penicillin G for patients unlikely to complete ten days of oral amoxicillin or penicillin.²³ • If the patient has a non-anaphylactic allergy to penicillin, recommend a first-generation cephalosporin (e.g., cephalexin) for ten days.^{23,41} • If the patient has an anaphylactic allergy to penicillin, recommend a macrolide (azithromycin for three to five days; clarithromycin or erythromycin for ten days) or clindamycin for ten days.^{23,41}

Question	Considerations/Pertinent Information
What should patients be told about their antibiotic therapy?	<ul style="list-style-type: none">• Provide clear instructions to patients for the intended duration of therapy.• Emphasize the importance of taking the antibiotic properly.• Educate patients about what to do when symptoms resolve.<ul style="list-style-type: none">○ Should they contact the prescriber’s office to discuss?○ Should they complete the prescribed course, even if symptoms resolve?• For patients that are instructed to stop antibiotics early, provide instructions on proper medication disposal, so they dispose of any remaining antibiotics properly and avoid the temptation to self-treat in the future.<ul style="list-style-type: none">○ US: Disposal of Unused Medicines: What You Should Know (https://www.fda.gov/drugs/safe-disposal-medicines/disposal-unused-medicines-what-you-should-know#:~:text=How%20to%20Safely%20Dispose%20of,%2C%20location%2C%20or%20program%20immediately).○ Canada: Safe Disposal of Prescription Drugs (https://www.canada.ca/en/health-canada/services/safe-disposal-prescription-drugs.html)
Which infections require completion of the prescribed duration of antibiotics?	<ul style="list-style-type: none">• Patients should not stop antibiotics even if symptoms resolve for the following conditions:²⁰<ul style="list-style-type: none">○ active tuberculosis○ endocarditis○ osteomyelitis○ strep throat• Patients should complete the prescribed duration of therapy in the following potentially asymptomatic conditions:²⁰<ul style="list-style-type: none">○ asymptomatic bacteriuria during pregnancy○ latent tuberculosis
Which characteristics may NOT be appropriate for shorter antibiotic courses?	<ul style="list-style-type: none">• Shorter courses of antibiotics may NOT be appropriate for patients with:<ul style="list-style-type: none">○ immunosuppression.²⁰○ recurrent infections.¹²○ signs and symptoms of active infection (e.g., fever, elevated white blood cell [WBC] count, positive cultures).

Abbreviations: AOM = acute otitis media; CAP = community-acquired pneumonia; HAP = hospital-acquired pneumonia; UTI = urinary tract infection; VAP = ventilator-associated pneumonia.

Users of this resource are cautioned to use their own professional judgment and consult any other necessary or appropriate sources prior to making clinical judgments based on the content of this document. Our editors have researched the information with input from experts, government agencies, and national organizations. Information and internet links in this article were current as of the date of publication.

Levels of Evidence

In accordance with our goal of providing Evidence-Based information, we are citing the **LEVEL OF EVIDENCE** for the clinical recommendations we publish.

Level	Definition	Study Quality
A	Good-quality patient-oriented evidence.*	<ol style="list-style-type: none"> High-quality randomized controlled trial (RCT) Systematic review (SR)/Meta-analysis of RCTs with consistent findings All-or-none study
B	Inconsistent or limited-quality patient-oriented evidence.*	<ol style="list-style-type: none"> Lower-quality RCT SR/Meta-analysis with low-quality clinical trials or of studies with inconsistent findings Cohort study Case control study
C	Consensus; usual practice; expert opinion; disease-oriented evidence (e.g., physiologic or surrogate endpoints); case series for studies of diagnosis, treatment, prevention, or screening.	

***Outcomes that matter to patients** (e.g., morbidity, mortality, symptom improvement, quality of life).

[Adapted from Ebell MH, Siwek J, Weiss BD, et al. Strength of recommendation taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. *Am Fam Physician*. 2004 Feb 1;69(3):548-56.

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