

Shorter courses of antibiotics

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1 Antimicrobial resistance (AMR) is an urgent public health threat

In Canada, an estimated 5400 deaths attributable to AMR occurred in 2018.¹ By 2050, 40% of infections will be resistant to first-line antimicrobials.¹ The pan-Canadian action plan on AMR has outlined priority actions to respond to this threat in Canada, including antimicrobial stewardship.²

2 Longer antibiotic courses do not prevent AMR; they increase the likelihood of adverse effects and AMR

Antibiotic treatment duration has historically been fixed, arbitrarily matching the number of days in a week without evidence or consideration of clinical improvement. A common misconception is that patients should “finish the course” even if they feel better, to prevent resistance. However, the results of an umbrella review of randomized controlled trials (RCTs) found that each excess day of antibiotic use was associated with an increase in AMR and a 4% increased odds of antibiotic adverse effects, including rash, diarrhea, and superinfections.³

3 Most acute community-acquired infections can be treated with 5–7 days of antibiotics

More than 130 RCTs across 22 infectious conditions have shown that shorter courses of antibiotics are equivalent, or noninferior, to longer courses. Among these are studies showing a course of 5–6 days is equivalent to 10 days for cellulitis, 3–5 days is equivalent to 5–14 days for pneumonia in children and adults, 5 days is equivalent to 7 days for acute exacerbations of chronic obstructive pulmonary disease, and 7 days is equivalent to 10–14 days for pyelonephritis in adults.⁴

4 The rule that “shorter is better” has some exceptions

In children younger than 2 years with acute otitis media, a 5-day course of antibiotics is less effective than a 10-day course.⁵ Culture eradication rates for *Streptococcus pyogenes* pharyngitis are higher with a 10-day course; however, clinical cure is similar with a 5-day course.⁴ The evidence for shorter durations is applicable to patients who have clinically improved at the end of therapy and have source control of the infection (e.g., no osteomyelitis, empyema, and *Staphylococcus aureus* bacteremia).

5 The shortest effective duration of antibiotic therapy is best for patients and society

Prescribers should focus on individualized evidence-based antibiotic durations, aiming for the shortest effective course that results in clinical improvement. Adapted durations will facilitate patient adherence to treatment, slow AMR, and reduce antibiotic-related adverse effects.³ Choosing Wisely Canada has a good resource with evidence-based recommended durations for adults and children with common respiratory infections.

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