

Optimizing Duration of Therapy: Is Shorter Smarter?



Antibiotic treatments have traditionally been prescribed for recommended durations (e.g. 7, 10 or 14 days). The problem with these recommended durations, however, is that they are often arbitrarily defined and not supported by evidence. As more studies examining duration of therapy emerge, it is becoming evident that shorter durations of therapy are effective and reduce the risk of antibiotic-associated harm.

MYTH	FACT	TAKE AWAY
"You should always complete your course of antibiotics, even if you feel better"	This common misconception is linked to the unsupported belief that shorter courses of therapy are more likely to lead to resistance. Mounting evidence has in fact shown that the opposite is true. Longer durations of therapy drive resistance by increasing selection pressure.	Help fight antimicrobial resistance by dispelling this myth. Engage in discussions with prescribers and patients about the benefits of using a shorter-course of antibiotic therapy.
"There is no harm in taking an antimicrobial agent for a longer period of time"	Longer durations of therapy are associated with increased risk of side effects, resistance, secondary infections (<i>C. difficile</i> or fungal) and a greater cost.	Remember that each additional day of antimicrobial therapy carries potential risks. Consider a shorter duration of therapy when it is possible.
"It is alright to share my antibiotic with the people I know"	Taking an antibiotic that is unnecessary or taking the wrong dose/drug fuels resistance and could lead to serious patient harm (i.e. if drug is given to a child and the prescribed dose was for an adult).	Talk to patients about proper medication disposal and the importance of not saving or sharing unused antibiotics.

Evidence has demonstrated that a shorter duration therapy is effective in the treatment of the following common conditions:¹



Urinary Tract

- Uncomplicated cystitis can be treated in 1-7 day(s), depending on the antibiotic.
- For acute pyelonephritis, 7-10 days of therapy is associated with similar clinical and microbiological outcomes to longer therapy (14 days) in patients without urogenital abnormalities.



Respiratory Tract

- For uncomplicated community-acquired pneumonia (CAP), there is no difference in clinical cure rates between shorter (<7 days) and longer (≥7 days) durations of therapy in most outpatients. Durations of 5 days are typically appropriate for outpatients with uncomplicated CAP.



Skin and Soft Tissues

- There is a lack of evidence for duration of therapy past 5-7 days in most cases of uncomplicated cellulitis.

1. This list is composed of select common community conditions for which a shorter duration of therapy has been demonstrated to be effective; evidence is available for other infectious conditions not included here.



References

1. Lewelyn M, Fitzpatrick JM, Darwin E, et al. The antibiotic course has had its day. *BMJ*. 2017;358:3418. doi: <https://doi.org/10.1136/bmj.j3418>
2. Langford B, Morris A. Is it time to stop counselling patients to “finish the course of antibiotics”? *CPJ*. 2017;150(6): 349-350. <https://doi.org/10.1177/1715163517735549>
3. Milanaik R. Survey finds alarming percentage of families share leftover antibiotics. American Academy of Pediatrics. <https://www.aap.org/en/news-room/news-releases/pediatrics2/2018/survey-finds-alarming-percentage-of-families-share-leftover-antibiotics>. Published November 2, 2018. Accessed August 2023.
4. Owens RC, Donskey CJ, Gaynes RP, Loo VG, Muto CA. Antimicrobial-associated risk factors for *Clostridium difficile* infection, *Clin Infect Dis*. 2008;46(15):S19-S31. doi: <https://doi.org/10.1086/521859>
5. Milo G, Katchman EA, Paul M, Christiaens T, Baerheim A, Leivovici L. Duration of antibacterial treatment for uncomplicated urinary tract infection in women. *Cochrane Database Syst Rev*. 2005;18(2). <https://pubmed.ncbi.nlm.nih.gov/15846726/>
6. Fox MT, Melia MT, Same RG, Conley AT, Tamma PD. A Seven-day course of TMP-SMX may be as effective as a seven-day course of ciprofloxacin for the treatment of pyelonephritis. *Am J Med*. 2017;130(7):842-845.
7. Gupta K, Hooton TM, Naber KG, Wullt B, Colgan R, Miller LG, et al. International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: A 2010 update by the infectious diseases society of America and the European society for microbiology and infectious diseases. *Clin infect dis*. 2011;52(5):e103-e120. doi: <https://doi.org/10.1093/cid/ciq257>
8. Eliakim-Raz N, Yahav D, Paul M, Leibovici L. Duration of antibiotic treatment for acute pyelonephritis and septic urinary tract infection - 7 days or less versus longer treatment: systematic review and meta-analysis of randomized controlled trials. *J Antimicrob Chemoth*. 2013;68:2183-2191. <https://pubmed.ncbi.nlm.nih.gov/23696620/>
9. Public Health Ontario. Shorter is Smarter: Reducing duration of antibiotic treatment for common infections in long-term care. <https://www.publichealthontario.ca/-/media/documents/factsheet-duration-antibiotics-ltc-common-infections.pdf?la=en> Updated October 2, 2018. Accessed August 15, 2023.
10. Hepburn MJ, Dooley DP, Skidmore PJ. Comparison of short-course (5 days) and standard (10 days) treatment for uncomplicated cellulitis. *Arch Intern Med*. 2004;164(15):1669-1674. <https://pubmed.ncbi.nlm.nih.gov/15302637/>
11. Public Health Ontario. Duration of antibiotic treatment for uncomplicated cellulitis in long-term care residents. <https://www.publichealthontario.ca/-/media/documents/eb-duration-antibiotics-ltc-cellulitis.pdf?la=en> Updated October 2, 2018. Accessed August 15, 2023.
12. Stevens DL, Bisno AL, Chambers HF, Dellinger EP, Goldstein EJC, Gorbach SL, et al. Practice guidelines for the diagnosis and management of skin and soft tissue infections: 2014 update by the infectious diseases society of America. *Clin Infect Dis*. 2014;59(2):e10-352. doi: <https://doi.org/10.1093/cid/ciu296>
13. Spellberg B. The new antibiotic mantra - “Shorter is better”. *JAMA Intern Med*. 2016;176(9):1254-1255. <https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2536180>
14. Public Health Ontario. Duration of antibiotic treatment for pneumonia in long-term care residents. <https://www.publichealthontario.ca/-/media/documents/eb-duration-antibiotics-ltc-pneumonia.pdf?la=en> Updated October 2, 2018. Accessed August 15, 2023.

