

VIEWPOINT

Delayed Antibiotic Prescriptions in Ambulatory Care Reconsidering a Problematic Practice

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Delayed or backup antibiotic prescriptions are given to ambulatory patients with the expectation that the patient will pick up or fill the prescription if he or she is not improving within a few days. A 2017 Cochrane Collaboration systematic review found that delayed antibiotic prescriptions were associated with significantly decreased antibiotic use.¹ Delayed antibiotic prescriptions are now included in ambulatory antibiotic stewardship recommendations.^{2,3} However, the strategy of delayed antibiotic prescribing is likely flawed, does not improve patient outcomes, and unnecessarily exposes patients to harm.

The US Centers for Disease Control and Prevention program, Core Elements of Outpatient Antibiotic Stewardship, suggests using delayed antibiotic prescriptions for patients with "conditions that usually resolve without treatment but who can benefit from antibiotics if the conditions do not improve (eg, acute uncomplicated sinusitis or mild acute otitis media)."² The Core Elements program suggests giving the patient or parent a postdated antibiotic prescription or instructions for patients to call or return to collect a prescription if symptoms worsen or do not improve "after a predetermined time"; however, an exact duration is not specified. In England and Wales, guidelines³ from the National Institute for Health and Care Excellence suggest a delayed antibiotic prescribing strategy for acute otitis media and sinusitis, but also for several non-antibiotic-appropriate diagnoses including some cases

of acute sore throat, cough, and, implicitly, the common cold or other "self-limiting respiratory tract and ear infections." chitis can last up to 3 weeks. Delayed antibiotic prescriptions increase patients' perceptions of the effectiveness of antibiotics and likely increase care seeking in the future for self-limited conditions.¹ In encouraging care seeking, delayed antibiotic prescriptions likely lead to more antibiotic prescriptions and undermine antibiotic stewardship campaigns. In addition, delayed antibiotic prescriptions create confusion by sending a mixed message to patients and clinicians alike: "an antibiotic is not needed, but here is an antibiotic."

Perhaps the most important problem with prescribing delayed antibiotics is that delayed antibiotic prescriptions do not improve patient outcomes. In the Cochrane Collaboration systematic review¹ that compared delayed vs immediate antibiotic prescriptions, outcomes were no different for predominantly non-antibiotic-appropriate conditions, including acute cough, the common cold, and sore throat. Comparing delayed antibiotic prescriptions vs no antibiotic prescriptions, there were no differences in clinical outcomes for patients with sore throat, otitis media, and cough. For the conditions in which antibiotics would not be expected to help in the vast majority of patients, prescribing antibiotics immediately, delayed, or not at all does not improve patient outcomes. In addition, patients are exposed to medications that have risks, such as adverse drug events and *Clostridioides difficile* infection. The increasing use of antibiotics increases the prevalence of antibiotic-resistant bacteria.

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Several factors suggest that the delayed antibiotic prescribing strategy should be reconsidered. Microbiologically, the vast majority of viral infections do not develop bacterial complications.⁴ The guidelines are clear about which patients are likely to benefit from antibiotics.⁵ The short waiting time of 1 to 4 days recommended before using most delayed antibiotic prescriptions does not consider the natural history of most viral infections. On average, viral pharyngitis lasts for 5 days, the symptoms of the common cold can last for 2 weeks, and the cough associated with acute bron-

The counterargument in favor of delayed antibiotic prescribing is that the strategy reduces antibiotic use. However, the apparent benefit of delayed antibiotic prescribing is partially due to the high rates of inappropriate immediate prescribing. In randomized clinical trials that compared immediate vs delayed antibiotic prescribing, the rates of antibiotic use were 930 vs 348 prescriptions per 1000 patients, respectively.¹ Yet, delayed antibiotic prescriptions roughly double antibiotic use compared with no antibiotic prescriptions. In randomized clinical trials that compared delayed antibiotic prescribing vs no antibiotic prescribing, the rates of antibiotic use were 287 vs 137 prescriptions per 1000 patients, respectively.¹ The seeming benefit of delayed antibiotic prescribing in reducing antibiotic use occurs only because of inappropriate initial use of antibiotics.

These estimates of antibiotic use with different prescribing strategies suggest that the guidelines are recommending a strategy that decreases antibiotic use but exposes patients to unnecessary and potentially harmful medications and does not improve

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patient outcomes. If that is the case, what are delayed antibiotic prescriptions meant to address?

The delayed antibiotic prescribing strategy addresses clinician and patient uncertainty, convenience, and social discomfort. Guidelines might have specific recommendations, but decisions in actual clinical practice are not always clear. Clinicians may prescribe antibiotics in cases of diagnostic uncertainty.⁶ Some clinicians may be concerned about being perceived as not having treated patients aggressively enough if there are medical complications.⁷ Clinicians may feel compelled to prescribe antibiotics. Clinicians also overestimate the degree to which patients want antibiotics and want to avoid having a disappointed, unsatisfied, or upset patient. In addition, some clinicians find it challenging to manage the patient who returns or calls back when he or she is not better within several days. By prescribing delayed antibiotics, clinicians are not serving the best interest of patients and could be perceived as abdicating their professional responsibility to patients.

Another possible reason for antibiotic prescribing and delayed antibiotic prescribing in the US may be related to financial considerations. In some health care systems, clinicians are under pressure to generate income and relative value units in Medicare. Clinicians can bill a higher level of service when addressing a new problem that requires a prescription medication. Thus, clinicians can bill

a higher level of service when prescribing an antibiotic, even if the illness results from a viral infection and antibiotics are unnecessary.

What should clinicians use instead of delayed antibiotic prescriptions? Commitment posters, in which clinicians publicly commit to only prescribe antibiotics when they are necessary, and clinician-facing audit and feedback interventions significantly reduce inappropriate antibiotic prescribing in some cases to near zero.⁸ Other studies have shown that educating patients results in better self-care, more confidence, and less care seeking for viral illnesses.⁹ In addition, communication training for clinicians about how to discuss patients' illness, antibiotic prescribing, and contingency planning improves satisfaction and confidence for clinicians.¹⁰

Ultimately, delayed antibiotic prescriptions expose patients to unnecessary and potentially harmful medications and do not improve clinical outcomes. The appropriate course of action for most patients is providing reassurance that antibiotics are not indicated, providing clear instructions about symptomatic management, and communicating specific instructions for when patients should call or return if symptoms worsen or change. Health care professionals have a responsibility to do what is in the best interest of patients even if there are concerns that doing so will make some patients unhappy or unsatisfied. For patients with viral conditions, that responsibility means not prescribing immediate or delayed antibiotics.

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