



# Responsible use of antibiotics in general practice

## Key practice points for antimicrobial stewardship in primary care:

- Do not prescribe an antibiotic when it is not required, e.g. for a viral upper respiratory tract infection, sinusitis, self-limiting cases of otitis media and conjunctivitis (which is often viral), boils (unless co-morbidities) and most diarrhoeal illnesses
- Reserve antibiotic treatment for suspected bacterial respiratory tract infections to specific subsets of patients, such as:
  - Those with community acquired pneumonia
  - Where the potential for complications for that person are high
  - If the infection is not resolving within an expected timeframe
- When there is a range of antimicrobials which are indicated for treating a particular infection, choose the option with the narrowest spectrum, e.g. flucloxacillin for *Staphylococcus aureus* or *Streptococcus pyogenes* infection instead of amoxicillin clavulanate or cephalexin; or nitrofurantoin or trimethoprim for first-line treatment of urinary tract infection instead of ciprofloxacin or norfloxacin (unless contraindicated or testing shows infection is due to a resistant organism)
- Prescribe antibiotic treatment for no longer than the recommended duration; avoid prolonged or repeated courses without a strong clinical justification
- Prioritise consideration of antibiotic resistance over palatability and convenience for the patient when deciding which antibiotic to prescribe
- Educate patients: when an antibiotic is not indicated ensure that they understand why an antibiotic is not appropriate. When an antibiotic is prescribed, ensure patients understand what it is being prescribed for, what dose to take, how often and for how long.
- Encourage patients to return any unused antibiotic to the pharmacy and not to use it for a subsequent infection or share it with other family members


People in New Zealand use more antibiotics per head of population, than people in most similar developed countries. Increased antibiotic use exerts a selective pressure for the development of resistance by eliminating antibiotic-susceptible bacteria and leaving antibiotic-resistant bacteria to multiply. The aim of antibiotic stewardship is therefore to limit the use of antibiotics to situations where they are necessary and deliver the most clinical benefit, so that antimicrobial resistance is minimised and the benefits of effective antimicrobials can be sustained.

## Implementing antimicrobial stewardship in general practice: from “what’s good on paper” to “putting this into practice”

The June, 2015 edition of Best Practice Journal examined a number of different aspects of incorporating antimicrobial stewardship into practice. For example, although antibiotics should not be prescribed for viral upper respiratory tract infections, it is often difficult during an initial consultation to establish whether an infection is viral or bacterial in origin. In order to assist clinicians navigate this dilemma, we examined

whether performing C-reactive protein testing can help to differentiate between a viral or bacterial infection, the evidence behind delayed, “back pocket” prescriptions and a debate on prescribing antibiotics for respiratory tract infections including the viewpoints of primary care clinicians in New Zealand.

Key practice points are summarised below for articles covering whether patients may stop a course of antibiotics early if symptoms improve, the usefulness of delayed prescriptions and whether a topical antiseptic could be used in place of a topical antibiotic.

 For further information on these articles, and additional information about the use of antibiotics, see: BPJ 68 (Jun, 2015).

### Is it okay to stop antibiotics early, e.g. when symptoms resolve?

Traditionally, clinicians and health authorities advocate that patients should complete their full course of antibiotics as prescribed to prevent relapse of infection and the development of antibiotic resistance. Evidence around this advice is beginning to change. The debate around stopping antibiotics, however, is essentially about ensuring that they are commenced appropriately in the first place.

#### When prescribing antibiotics, clinicians and patients should agree on clear expectations about:

- Duration of treatment
- Adherence to a regimen
- Whether stopping a course early would be appropriate

**Dose and adherence may be more important than duration of antibiotic treatment.** Giving the right antibiotic at an adequate dose, along with good patient adherence with the daily regimen, i.e. taking the correct dose at the appropriate intervals, may be more important for treatment success than taking an antibiotic for a long period of time. New treatment guidelines for infections are increasingly recommending shorter courses of antibiotics than were advocated previously.

**Shorter courses of antibiotics do not increase bacterial resistance.** The association between antibiotic use and resistance is complex. Longer courses of antibiotics, however, have been associated with the greatest risk of antimicrobial resistance at both an individual and community level.<sup>1,2</sup>

There are many situations where a patient could stop taking antibiotics early, and this is not likely to lead to relapse or promote antimicrobial resistance (Table 1). However, the decision to stop an antibiotic should ideally take place only after a follow-up discussion between the treating clinician (or designated clinical staff member, e.g. practice nurse) and the patient, to ensure that clinical features of infection have actually resolved and that there are no misunderstandings about the role of the antibiotic.

### Delayed antibiotic prescriptions for respiratory tract infections (RTIs): does the strategy work?

The goals of a delayed antibiotic prescription strategy are to minimise antibiotic use for conditions in which it is suspected that an antibiotic will have little or no benefit, but to do so without increasing symptom duration or rate of serious

**Table 1:** Factors which can influence the decision to stop antibiotics early

Scenarios where clinicians could consider stopping antibiotics early	Scenarios where antibiotics should be continued for the full course
<ul style="list-style-type: none"> <li>■ The patient is prescribed empiric antibiotics and subsequently judged unlikely to have a bacterial infection</li> <li>■ The patient has a self-limiting infection and symptoms resolve, such as patients with:               <ul style="list-style-type: none"> <li>– Moderate pneumonia</li> <li>– Sinusitis</li> <li>– Urinary tract infections</li> <li>– Cellulitis or other skin infections (where an antibiotic is indicated)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Infections where eradication of the bacteria is required even if symptoms resolve or are absent, e.g.:               <ul style="list-style-type: none"> <li>– Group A streptococcal (GAS) pharyngitis in patients at risk of rheumatic fever</li> <li>– Asymptomatic bacteriuria during pregnancy</li> <li>– Latent tuberculosis</li> <li>– Patients with severe or complex infections, e.g. osteomyelitis, endocarditis and tuberculosis</li> </ul> </li> <li>■ Patients with severe immune deficiency</li> <li>■ An antibiotic is prescribed for a clear indication and a minimum duration is supported by evidence-based guidance</li> </ul>

 For further information, see: “Is it ok to stop antibiotics when symptoms resolve?”, BPJ 68 (Jun, 2015)

complications. A number of studies have now evaluated delayed antibiotic strategies, finding that:

- Up to 50% of patients given a delayed prescription for an antibiotic will collect their prescription<sup>3</sup>
- Patients who do not receive an antibiotic for a RTI are just as satisfied as those who do, provided that the reasons for not prescribing an antibiotic are effectively explained<sup>4</sup>
- Patients who take an antibiotic for a RTI are unlikely to have a shorter duration of symptoms, but they may be less likely to experience suppurative complications; however, the development of complications in a patient with an acute RTI, regardless of antibiotic use, is relatively uncommon (approximately 2–3%)<sup>5,6</sup>

Taking all factors into consideration, evidence suggests that not prescribing the patient an antibiotic initially, explaining why this decision has been made and ensuring that patients understand to contact the practice if symptoms do not resolve and that a prescription will be made available to them if appropriate, is likely to reduce antibiotic use and result in similar clinical outcomes and patient satisfaction than using a delayed prescribing strategy. However, giving the patient a “back pocket” prescription to take with them “just in case”, may be considered for some patients.


**Delayed prescriptions may be considered for patients who do not need antibiotics at the time of consultation but may need them later** and may not be able or likely to return for a follow-up appointment. This strategy leads to far fewer prescriptions being dispensed compared with immediate prescription of antibiotics and only a few more being dispensed than for patients not initially offered a prescription.

Factors that contribute to the decision to offer a delayed prescription for a patient with a RTI include:

- Concerns about the potential for symptoms to worsen significantly in a patient with serious co-morbidities
- Previous history of complications with RTIs
- Socioeconomic factors such as the ability of the patient to return for a consultation if their condition deteriorates

Delayed prescribing can be a good approach for some patients when combined with careful history and examination, reassurance, symptom-control advice and clear instructions on when to fill the prescription. Giving a delayed prescription can have a positive effect on a patient’s future expectations for receiving an antibiotic for a RTI, especially if their symptoms resolve without filling the prescription. This may be a good strategy for enabling a patient to become familiar with the idea that they do not always need an antibiotic.

Clinicians should keep in mind that delayed prescription strategies will not suit all patients – some patients will require a face-to-face or telephone follow up.

 For further information, see:

“Delayed antibiotic prescriptions for respiratory tract infections: does the strategy work?“, BPJ 68 (Jun, 2015).

“Debate: Do you prescribe antibiotics for respiratory tract infections? An everyday conundrum in general practice“, BPJ 68 (Jun, 2015).

### Should I prescribe a topical antiseptic cream instead of a topical antibiotic for minor skin infections?

There are increasing rates of resistance to fusidic acid in New Zealand. Combined with high rates of resistance to mupirocin in the 1990s and early 2000s, clinicians may wonder whether they can prescribe a topical antiseptic instead of a topical antibiotic.


Most topical antiseptic products are intended for use on intact skin, e.g. for hand hygiene or for skin preparation prior to a surgical procedure, or surface decontamination; their use in these situations is widely accepted. At present, however, **there is a shortage of quality evidence demonstrating any clear benefit for the use of topical antiseptics in minor skin infections.** Therefore, their role remains uncertain. A Cochrane review published in 2012 concluded that there was insufficient evidence to recommend the use of topical antiseptics in the treatment of impetigo; this has also been reiterated in more recent review articles.<sup>7,8</sup> For children in New Zealand, where antibiotic resistance rates are likely to differ from the countries covered by the Cochrane review, it is not clear whether a topical antiseptic is a feasible alternative to a topical antibiotic for the treatment of minor skin infections such as impetigo.<sup>9</sup>

It is important to keep in mind that **most healthy patients with minor skin infections do not require treatment with a topical antibiotic.** Therefore, the use of topical antibiotics can be reduced by following clinical practice recommendations as opposed to substituting with a topical antiseptic. Recommendations include:

- Skin infections such as furuncles and carbuncles are usually more appropriately managed by incision and drainage
- For children with infected eczema, expert opinion now suggests that topical fusidic acid should no longer be prescribed.<sup>9</sup> The preference is for oral antibiotic treatment, selected based on local resistance patterns, and with appropriate coverage for *Staphylococcus aureus* and *Streptococcus pyogenes* (Group A  $\beta$  haemolytic streptococcus).

- Fusidic acid may be considered for children with three or less localised areas of impetigo, an oral antibiotic, however, is likely to be more appropriate<sup>10</sup>

Topical antibiotics continue to have a role in patients requiring nasal decolonisation of *S. aureus*, and in these cases substitution with a topical antiseptic is not appropriate. The choice of topical antibiotic should be made according to culture results.<sup>11</sup>

 For further information, see: "Should I prescribe a topical antiseptic cream instead of a topical antibiotic for minor skin infections?", BPJ 68 (Jun, 2015).


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## Cellulitis: skin deep and spreading across New Zealand

Cellulitis is an acute, spreading infection of the lower dermis and subcutaneous tissue that is frequently caused by *Streptococcus pyogenes* and related streptococci or *Staphylococcus aureus*. Most cases can be diagnosed clinically, without investigation, by the presence of localised pain, swelling, erythema and heat. Furuncles (boils) and carbuncles (multiple-headed lesions) are easily misdiagnosed as cellulitis due to a tender rim of erythema surrounding the central infection. However, this is inflammatory change and not extension of the infection into the surrounding tissue. Patients with these focal staphylococcal infections should not be treated as if they have cellulitis, i.e. antibiotics are not usually required.


Patients with uncomplicated cellulitis can usually be managed in the community; a lower threshold for referral to hospital is appropriate for young children and frail older people or people with bite or puncture wounds.

 Red flags for hospital referral include:

- Features of systemic involvement or haemodynamic instability
- Progressing infection despite antibiotic treatment
- Severe pain suggestive of necrotising fasciitis

- Unstable co-morbidities
- Orbital involvement

All patients with cellulitis should rest and elevate any affected limb. Oral flucloxacillin is the first-line treatment for children and adults with mild to moderate cellulitis. Oral erythromycin is a second-line alternative. An increase in erythema and swelling within the first 48 hours of treatment may represent the natural progression of the infection, rather than a failure of treatment. A reduction in pain in the affected skin and an improvement in appetite and energy are clear signs that the infection is being controlled in most patients. Treatment adherence should be assessed in patients who are not responding as well as expected. Intravenous cefazolin with oral probenecid is the recommended community-based treatment for patients who have not responded to oral flucloxacillin or for patients with more widespread cellulitis. Oral co-trimoxazole is the preferred antibiotic for cellulitis caused by MRSA unless susceptibility testing indicates otherwise.

 For further information, see: "Cellulitis: skin deep and spreading across New Zealand", BPJ 68 (Jun, 2015).