# What's new in Antibiotic 16

## Some of the new information and major changes included in *Therapeutic Guidelines: Antibiotic*, version 16.

The Antibiotic Guidelines have been extensively revised and include more content than ever. They provide practical advice on managing a wide range of infections, from self-limiting infections usually managed in primary care (eg acute bronchitis, acute otitis media) to severe infections requiring treatment in hospital (eg meningitis, sepsis).

A selection of significant changes is described below.

In response to feedback, the guidelines have been reorganised to reintroduce an alphabetical table of contents. However, for ease of navigation, the table of contents groups some topics by subject area—to see the topics available within a subject area, simply click on the plus sign to expand the table of contents.

New resources have been included to support primary care practitioners seeking to reduce inappropriate antimicrobial use (eg prescribing broad-spectrum antibiotics for infections where narrower-spectrum antibiotics are effective; using antibiotics for viral or self-limiting infections). These include:

- templates for **shared decision making** (printable from *eTG complete*), which aid collaborative decisions between doctors and their patients about the management of common, self-limiting infections (ie acute bronchitis, acute otitis media, acute rhinosinusitis, exacerbations of chronic obstructive pulmonary disease, streptococcal pharyngitis or tonsillitis)
- tables or flowcharts to help differentiate bacterial from viral infection for conditions for which antibiotics are overprescribed (eg acute rhinosinusitis, sore throat, conjunctivitis)
- clear statements on investigations or treatments to avoid because they do not offer a benefit or may result in harm
- information on **antimicrobial stewardship** in the community setting, including strategies for general practice and residential aged-care facilities
- topics on acute bronchitis, acute laryngitis and protracted bacterial bronchitis.

The guidelines provide clear advice to help practitioners select the appropriate management for their patient when this depends on infection severity and patient-specific factors (eg antimicrobial hypersensitivity, likelihood of infection with a multidrug-resistant pathogen, social circumstances). The following common clinical questions are addressed:

- **When should initial oral therapy be used for hospitalised patients?**

  In some circumstances, it is appropriate to treat hospitalised patients with oral therapy initially. For example, children with moderate-severity community-acquired pneumonia, and adults with low-severity community-acquired pneumonia who have been admitted to hospital because of their social circumstances.

- **When is it appropriate to switch from intravenous to oral therapy?**

  The criteria that should be met before switching from intravenous to oral therapy are summarised in a new box. For some infections (eg cellulitis associated with systemic symptoms), one or two doses of intravenous therapy is sufficient when systemic symptoms resolve rapidly; oral therapy is appropriate for the remainder of the treatment course.

- **What is the appropriate duration of therapy?**

  The shortest possible duration of therapy should be used, consistent with the condition being treated and the patient's clinical response. Condition-specific advice is included in each topic.

- **Have treatment recommendations changed because of increased antimicrobial resistance?**

  The antimicrobial regimens recommended in these guidelines are informed by available resistance data. Increased rates of antimicrobial resistance have required changes to the empirical regimens recommended for some infections, including *Shigella* enteritis, *Neisseria meningitidis* meningitis and meningococcaemia, community-acquired pneumonia, and urinary tract infections. In some circumstances, dose, rather than antimicrobial choice, has been adjusted to address resistance.

- **How do I assess my patient's risk of infection with a resistant pathogen?**

  For some infections the empirical regimen should be adjusted if the patient is at risk of infection with a resistant pathogen; however, it can be difficult to gauge an individual patient's risk. To help practitioners with their assessment, the most pertinent risk factors for infection with methicillin-resistant *Staphylococcus aureus* or multidrug-resistant Gram-negative bacteria have been summarised in user-friendly boxes.

- **Which antibiotics should I use if my patient is hypersensitive to penicillins?**

  Based on improved knowledge of beta-lactam cross-reactivity, the approach to managing patients with penicillin hypersensitivity has changed significantly, allowing increased cephalosporin use in some circumstances. Antibiotic recommendations for these patients are now based on the severity (nonsevere or severe) of the reaction, in addition to the timing of its onset (immediate or delayed). Details are provided in the 'Antimicrobial hypersensitivity' topic.

- **What changes do I need to make if my patient is critically ill?**

  Treatment recommendations for common sources of sepsis are included throughout these guidelines.

  Modified dosing regimens are now routinely recommended for patients with septic shock or requiring intensive care support treated with drugs whose pharmacokinetics are altered in critically ill patients (eg ceftriaxone, gentamicin, vancomycin).

- **Which common antimicrobials are used differently in children than in adults?**

  The availability and tolerability of oral liquid antibiotic formulations has been considered when making recommendations.

  Updated safety advice on the use of quinolones and doxycycline has been included. Quinolones are not licensed for use in children on the basis of animal studies that showed an adverse effect on cartilage development with quinolone use; however, there are few data from human trials to support this finding. A quinolone can be used in children when it is the drug of choice. Doxycycline has not been associated with tooth discolouration, enamel hypoplasia or bone deposition, even in children younger than 8 years, so is increasingly used in this age group. However, use is limited by the lack of a suitable formulation. Practical doxycycline doses have been included for children 8 years or older.

Practice-changing revisions include:

- Prompt intervention, including administration of antibiotics, is crucial for patients with suspected **sepsis or septic shock**. New antibiotic recommendations are included for use by community-based practitioners when the patient's arrival at a hospital is likely to be delayed by 1 hour or more.
- Gentamicin-based regimens remain the treatment of choice for several serious infections (eg sepsis, intra-abdominal infections). Dosing is complex, so a table of calculated initial **gentamicin** doses for adults has been included to aid timely prescription of the appropriate dose.
- Guidance on the role of antibiotic prophylaxis to **prevent infective endocarditis** has been simplified. Prophylaxis is only recommended for patients with specific cardiac conditions who are undergoing a procedure associated with a high risk of a bacteraemia that is associated with endocarditis. These conditions and procedures are summarised in 2 boxes (printable from *eTG complete*).
- The '**Gastrointestinal protozoa**' topic discusses the controversial nature of *Blastocystis hominis* and *Dientamoeba fragilis* pathogenicity, with advice on how to manage a patient with a positive test.
- A positive microbiological test for *Chlamydia trachomatis*, *Mycoplasma genitalium* or *Neisseria gonorrhoeae* is not uncommon in asymptomatic sexual contacts of patients with known infection. Practitioners can now refer to the management advice for **asymptomatic sexually-transmitted infections** in three new topics.
- New recommendations are included for **HIV** pre-exposure prophylaxis (PrEP) and expanded recommendations are included for initial treatment of HIV infection (including regimens for patients with hepatitis B virus co-infection). A new table summarises antiretroviral choice for patients with suspected or confirmed exposure to HIV, based on the type of exposure and HIV status of the source.
- **Surgical antibiotic prophylaxis** is the most common indication for antibiotic use in hospitals. New, easy-to-use summary tables provide clear guidance on when prophylaxis is or is not indicated. The topic now includes recommendations for skin and soft tissue surgery, ear, nose and throat surgery, oral maxillofacial surgery and infertility diagnostic procedures.
- It is now recommended that **aspiration pneumonia** be managed initially as per community- or hospital-acquired pneumonia. Most cases of pneumonia develop due to aspiration of bacteria from the oropharynx, so empirical community- or hospital-acquired pneumonia regimens in these guidelines treat the relevant pathogens.
- Three-times-weekly therapy has a diminished role in the treatment of **tuberculosis**. Details are provided in the 'Tuberculosis' topic. For latent tuberculosis there are new options for drug therapy, and information on additional considerations in immunocompromised patients.
- The '**Community-based parenteral antimicrobial therapy**' topic has been extensively revised in response to feedback from users. While practice varies around Australia, this topic sets a standard of care that applies to all patients receiving community-based therapy, regardless of how it is delivered.
- Situations in which **antimicrobial desensitisation** is the preferred option for management are now highlighted throughout the guideline (eg for penicillin-hypersensitive patients with streptococcal endocarditis, because benzylpenicillin is the treatment of choice). There are new beta-lactam desensitisation protocols, including one for amoxicillin.

New content has also been included on:

- empirical therapy for neonates with early-onset or late, community-onset sepsis or septic shock when the source of infection is not known
- intramuscular administration of antimicrobials for neonates or children with sepsis or septic shock in whom intravenous access cannot be established
- acute mastoiditis
- prevention of invasive group A streptococcal infection
- prophylaxis for medicinal leech therapy
- retropharyngeal abscess
- pre-emptive treatment following a penetrating eye injury
- treatment of perinatal infections, including intra-amniotic infection (chorioamnionitis), postpartum endometritis and septic abortion
- the role of intravenous amoxicillin+clavulanate in pharyngeal infections, intra-abdominal infections, respiratory tract infections (including hospital-acquired pneumonia), skin and soft tissue infections, and wound infections
- directed therapy for *Streptococcus pneumoniae* sepsis or septic shock.