

Antibiotics

Jan 12, 2015 | 0  | [General medicine](#), [geriatrics](#), [infectious diseases](#), [onthepods](#)

James talks to Dr Rebecca Davis about the use of antibiotics to prevent or treat infections on the wards.

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About Dr Rebecca Davis

Rebecca is a Staff Specialist in [Infectious Diseases](#) and Microbiology at [Royal Prince Alfred Hospital](#). She has an interest in infections in immunocompromised patients and has been involved in teaching about rational use of antibiotics over many years.

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With Dr Rebecca Davis, Infectious Diseases and Microbiology Consultant at Royal Prince Alfred Hospital, New South Wales, Australia.

Antibiotics are typically prescribed in one of two different scenarios:

To prevent infection.

To treat suspected or confirmed infection.

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1. Antibiotics have an impact on individuals and communities

- Individuals may suffer side effects.
- Antibiotic use will affect an individual's future bacterial flora, and may increase their risk of infection with multi-resistant organisms or clostridium difficile.
- Antibiotic use will affect others in the community, and may increase their risk of infection with multi-resistant organisms.
- The use of broad-spectrum antibiotics is more likely to lead to antibiotic resistance than the use of targeted narrow-spectrum antibiotics.

To prevent infection, prophylactic antibiotics should target the most likely micro-organisms that pose risk to the patient, and for the shortest duration possible.

To treat suspected or confirmed infection, you should first try to find a focus (e.g. respiratory, urinary) and consider the severity of infection.

- If the infection is mild to moderate, you have time to confirm the source of infection, and to consider if it is more likely to be bacterial or viral.

- In the setting of severe sepsis, treatment should be commenced early, with broad spectrum intravenous antibiotics that will act quickly.

2. Consider the individual

- Have they have been colonised with specific bacteria in the past, e.g. MRSA, pseudomonas?
- What were these bacteria sensitive to?
- Do they have any allergies?
 - How severe is the allergy?
 - If anaphylaxis to penicillin, avoid penicillins and cephalosporins.
- Consider co-morbidities, age, renal function, pregnancy and other medications that may interact.

3. Tips on prescribing specific antibiotics

- Vancomycin:
 - Aim for a trough level of 15-20.
 - In an individual with normal renal function and standard BD dosing:
 - Check the trough level just before the 4th dose.
 - Adjust the 5th dose.
 - E.g. If level is 25, reduce the 5th dosage by ~25% i.e. 1 gram BD to 750 mg BD.
 - If there is an acute deterioration in creatinine clearance, check the level earlier!
- Gentamicin:
 - Toxicity is more closely related to duration of use rather than dosage.
 - For initial dosage, consider renal function and age and refer to eTG.
 - In otherwise healthy and young individuals, consider 6 mg/kg.
 - In older and sicker individuals, consider 4-5 mg/kg.
 - Generally used short-term e.g. 2-3 doses (at one dose per day).
 - If only used for 2-3 doses, no need for level.
 - If >3 doses, check trough level before 3rd dose and adjust 4th dosage.



Resources

- [Electronic Therapeutic Guidelines.](#)
- [Infectious diseases physicians and microbiologists on call.](#)

Related Blog

- [Prescribing for interns by Dr Sally Bath](#)

Related Podcasts

- [Antibiotic allergy](#)
- [Febrile neutropaenia](#)
- [Gentamicin Prescribing](#)
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