



ANTIBIOTICS AND INFECTION PREVENTION

HOW MUCH DO YOU KNOW?

TRY OUR QUIZ FOR PHARMACY AND MICROBIOLOGY STAFF

Are the following statements true or false?

- | | | |
|----|---|--------------|
| 1 | Gentamicin dosing is based on actual body weight so obese patients will need a significantly higher dose than lean patients. | True / False |
| 2 | Intravenous (IV) flucloxacillin plus IV vancomycin is a useful combination to treat a patient with methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) bacteraemia. | True / False |
| 3 | On a microbiology lab report, if bacteria are isolated and identified, but susceptibilities not given, then you should treat the patient based on the usual susceptibilities for that organism. | True / False |
| 4 | If a patient has an infection caused by a fluoroquinolone-resistant <i>Pseudomonas aeruginosa</i> infection, then parenteral alternative treatment is the only option. | True / False |
| 5 | 90% of the penicillin allergy labels are incorrect. | True / False |
| 6 | Infections caused by carbapenemase-producing Enterobacterales (CPE) can usually be effectively treated with carbapenem antibiotics such as meropenem. | True / False |
| 7 | Trimethoprim is associated with a drug interaction that could be life threatening. | True / False |
| 8 | A patient who is clinically improving on IV antibiotics should always complete the planned IV course before switching to oral antibiotics. | True / False |
| 9 | A concentration-dependent kill is associated with penicillin. | True / False |
| 10 | Outpatient parenteral antibiotic therapy (OPAT) using IV teicoplanin could be useful for the treatment of some cases of osteomyelitis. | True / False |

SEE OVERLEAF FOR THE ANSWERS – NO PEEKING!



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PHARMACY AND MICROBIOLOGY STAFF QUIZ – ANSWERS

- 1 Gentamicin dosing is based on actual body weight so obese patients will need a significantly higher dose than lean patients.
False – gentamicin has limited distribution into adipose tissue, so dosing solely according to actual body weight in patients with obesity may result in excessive dosing. An appropriate dosing weight should be determined according to the recommended dosing protocol/local guidance.
- 2 Intravenous (IV) flucloxacillin plus IV vancomycin is a useful combination to treat a patient with methicillin-resistant *Staphylococcus aureus* (MRSA) bacteraemia.
False – MRSA is resistant to flucloxacillin due to an altered penicillin-binding protein (PBP2a), usually encoded by *mecA*. Flucloxacillin would therefore not be effective and may increase the risk of adverse effects.
- 3 On a microbiology lab report, if bacteria are isolated and identified, but susceptibilities not given, then you should treat the patient based on the usual susceptibilities for that organism.
False – first consider whether the organism represents infection or colonisation, as colonisation is unlikely to require treatment. If treatment is required, contact the laboratory to check for suppressed susceptibility results. Individual cases should be discussed with a microbiologist.
- 4 If a patient has an infection caused by a fluoroquinolone-resistant *Pseudomonas aeruginosa* infection, then parenteral alternative treatment is the only option.
True – all other groups of antibiotics with activity against *Pseudomonas* species are only available parenterally. However, patients may become colonised with *Pseudomonas*, so treatment should only be initiated if there are clear signs of infection. Since January 2024, systemic fluoroquinolones must only be prescribed when other commonly recommended antibiotics are inappropriate. Patients should be counselled about serious adverse effects with the Medicines and Healthcare products Regulatory Agency's Fluoroquinolone antibiotics patient information sheet.
- 5 90% of the penicillin allergy labels are incorrect.
True - around 10% of patients in the UK report a penicillin allergy, yet studies show that over 90% of these labels are incorrect. Healthcare staff should ensure the patient allergy record is accurate, in line with NICE guidance. An allergy history should include the drug name, date of reaction, nature of reaction and whether the patient was hospitalised or required intensive care admission. Find out more about what you can do and key messages.



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- 6 Infections caused by carbapenemase-producing Enterobacterales (CPE) can usually be effectively treated with carbapenem antibiotics such as meropenem.
False – CPE produce enzymes called carbapenemases that can break down carbapenem antibiotics, including meropenem, making them ineffective. Treatment, if required, should be guided by antimicrobial susceptibility results and specialist microbiology/infectious diseases advice.
- 7 Trimethoprim is associated with a drug interaction that could be life threatening.
True – concomitant use of trimethoprim or co-trimoxazole (which contains trimethoprim) with methotrexate should be avoided because of the increased risk of severe, potentially life-threatening bone marrow suppression.
- 8 A patient who is clinically improving on IV antibiotics should always complete the planned IV course before switching to oral antibiotics.
False - intravenous to oral switch (IVOS) should be considered within 48 hours of the first dose of IV antimicrobial being administered and daily thereafter. Switch should be considered where clinical signs and infection markers are improving, the enteral route is suitable, and an appropriate oral option is available unless there are clearly documented exemptions. See [IVOS decision aid](#) for guidance.
- 9 A concentration dependent kill is associated with penicillin.
False – penicillin is a time-dependent antibiotic and exerts optimal bactericidal effect when drug concentrations are maintained above the minimum inhibitory concentration (MIC) of the organism. An example of concentration dependent killing antibiotic is gentamicin.
- 10 Out-patient parenteral antibiotic therapy (OPAT) using IV teicoplanin could be useful for the treatment of some cases of osteomyelitis.
True – where the organism is susceptible to teicoplanin, it is useful for OPAT as it can be given once daily (or even 3 times a week).

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