

## Chapter 4

### CASE STUDY 4.1 Multidrug-resistant organisms

- What would you suspect from the susceptibility pattern of the organism?

Multidrug resistant strain possible *AmpC* producer or more likely ESBL.

- How would you confirm this and what other tests would you perform and why?

Set up ESBL combination disk testing and identify the organism.

- What would be your conclusions and what antibiotics would you report as therapeutic options?

*E.coli* ESBL positive. Suggest Meropenem.

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### CASE STUDY 4.2 MRSA sepsis

- What would you suspect from these results?

MRSA sepsis and would query if the organism was or had developed vancomycin resistance.

- What susceptibility tests would you undertake to confirm this?

E-test or broth dilution test against vancomycin and teicoplanin. Perform other sensitivity tests in case of vancomycin resistance.

- What would be your conclusions?

Intermediate resistance to vancomycin.

- Would you send the isolate to a Specialist Laboratory for further testing and what test would you request?

Yes, send to reference laboratory to confirm intermediate resistance and typing.

- How would you report the susceptibility of the organism?

Most likely report as vancomycin resistant to ensure clinicians did not continue therapy with vancomycin as clinically this was having little effect.

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### CASE STUDY 4.3 Problem susceptibility testing

- What would you suspect from these results?

MDR strain – possible *Acinetobacter* or *Stenotrophomonas maltophilia*.

- What susceptibility test(s) would you undertake?

Full range of Gram-negative sensitivity tests including Colistin, Tigecycline and Trimethoprim/Sulphamethoxazole.

- How would you identify the organism?

Ideally by MALDI-TOF. If not, then commercial kit such as API 20NE.

- Which antibiotics can be reported as resistant without further testing?

Quinolones, B-lactams and aminoglycosides.

- How would you report the susceptibility of the organism?

Trimethoprim/sulphamethoxazole susceptible. Suggest synergy testing if possible.

- Would there be any control of infection implications?

Yes – need to determine the source of the organism. Possible screening respiratory secretions on other patients in the unit. Possible barrier nursing and isolation.

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### CASE STUDY 4.4 Difficult to grow organisms

- What would you suspect from these results?

Probable *P.aeruginosa*.

- How would you undertake susceptibility testing and what media would you use?

Standard AST susceptibility media such as MH agar.

- How would you identify the organism?

MALDI-TOF although it could be difficult to get enough actual organism for testing if highly mucoid.

- What further testing would you undertake?

Try broth dilution testing but inoculum could be the problem. Consider synergy testing.

- How would you report the susceptibility of the organism?

To whatever antibiotic or combination worked. Colistin would be a good choice of therapy if AST testing proved problematic.

- Would you send the isolate to a Reference Laboratory for further testing?

Yes, for Colistin MIC and combination testing.

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