Supplementary data

Laboratory aspects of susceptibility testing of MRSA from a blood culture

1. Which antibiotic susceptibilities are routinely tested in your laboratory for a MRSA blood culture?
   i. Cefoxitin, Chloramphenicol, Ciprofloxacin, Co-trimoxazole, Daptomycin, Erythromycin, Fusidic acid, Gentamicin, Linezolid, Mupirocin, Rifampicin, Synercid, Teicoplanin, Tetracycline, Tigecycline, Vancomycin, Other (please specify)

2. Which laboratory method do you use for initial susceptibility testing?
   i. BSAC disc testing, NCCLS disc testing, Automated (e.g. VITEK), Other (please specify)

3. Do you routinely measure the MIC?
   i. Yes
   ii. No

4. If YES, by which methodology?
   i. E-test, Serial broth dilution, Reference laboratory referral, Other (please specify)

5. If you routinely perform MIC measurements, which antibiotic(s) do you test?
   i. Daptomycin, Linezolid, Synercid, Teicoplanin, Tigecycline, Vancomycin

6. If MICs are measured, when is this done? (tick all/any that apply)
i. Daptomycin, Linezolid, Synercid, Teicoplanin, Tigecycline, Vancomycin

7. If MICs are measured, when is this done? (tick all/any that apply)
Routinely, on clinical request only, if the patient response is unsatisfactory, if the patient relapses, depending on the source of infection

8. Do you store MRSA blood culture isolates (on beads, slopes etc):
   i. Routinely, Exceptionally, Never

9. Do you send the isolates to the reference laboratory:
   i. For: phage Typing, PFGE, Identification, Susceptibility
   ii. When: routinely, exceptionally, never

Laboratory aspects of therapeutic drug monitoring in confirmed MRSA bacteraemias

1. Do you measure vancomycin serum trough levels?
   i. Yes, No

2. What is your reference range? (mg/L)
   i. Lower limit
   ii. Upper limit

3. Do you measure vancomycin serum peak levels?
   i. Yes, No

4. What is your reference range? (mg/L)
5. Who reports these results to the clinicians?
   i. Medical Microbiologist
   ii. Biomedical Scientist
   iii. Pharmacists
   iv. No-one: the clinicians check results themselves

6. Do you measure teicoplanin serum trough levels?
   i. Yes, No

7. If YES, what is your reference range? (mg/L)
   i. Lower limit
   ii. Upper limit

8. Do you measure teicoplanin serum peak levels?
   i. Yes, No

9. If YES, what is your reference range? (mg/L)
   i. Lower Limit
   ii. Upper Limit

10. Who reports these results to the clinicians?
    i. Medical Microbiologists
ii. Biomedical Scientists

iii. Pharmacists

iv. No-one: the clinicians check results themselves

11. For the treatment of MRSA bacteraemias, do you perform any other antibiotic assays in your laboratory?

Antibiotic treatment of MRSA bacteraemias

1. What is your empirical choice of treatment of MRSA bacteraemia arising from each of the following foci?
   i. Antibiotic: Vancomycin, Vancomycin and rifampicin, Daptomycin, Linezolid, Tigecycline
   ii. Source: Unknown source, skin and soft tissue source, bone or joint source, respiratory source, endocarditis or pacing wire infection, neurological source, vascular catheter source, non-removable source

2. What is your second line choice of treatment of MRSA bacteraemia arising from each of the following foci?
   iii. Antibiotic: Vancomycin, Vancomycin and rifampicin, Daptomycin, Linezolid, Tigecycline
   iv. Source: Unknown source, skin and soft tissue source, bone or joint source, respiratory source, endocarditis or pacing wire infection, neurological source, vascular catheter source, non-removable source
The role of MIC data

Given the following scenarios, where a patient has been started on vancomycin for the treatment of an MRSA bacteraemia, please indicate if and how the availability of the MIC data would change your management.

1. If the patient's clinical response is satisfactory:
   i. MIC: Vancomycin MIC=1.0, Vancomycin MIC=2.0, Vancomycin MIC=4.0, Vancomycin MIC>4.0
   ii. Clinical Outcome: Continue unchanged, add in rifampicin, add in an aminoglycoside, change to daptomycin, change to linezolid, change to tigecycline

2. If the patient's clinical response is not satisfactory:
   iii. MIC: Vancomycin MIC=1.0, Vancomycin MIC=2.0, Vancomycin MIC=4.0, Vancomycin MIC>4.0
   iv. Clinical Outcome: Continue unchanged, add in rifampicin, add in an aminoglycoside, change to daptomycin, change to linezolid, change to tigecycline

Duration of therapy

1. For how long would you give antibiotic treatment for an MRSA bacteraemia secondary to a removable source (e.g. vascular catheter associated infection)?
   i. Number of days
2. For how long would you give antibiotic treatment for an MRSA bacteraemia secondary to a non-removable source?
   i. Number of days

3. In your Trust, is the availability of any of the following antibiotics restricted, subject to microbiology/ID approval?
   i. Vancomycin, Rifampicin, Daptomycin, Tigecycline, Linezolid

4. In your Trust, do courses of antibiotics longer than 7 days duration require microbiologist/ID approval?
   i. Yes, No

**Treatment supervision**

1. Is the progress of all patients with MRSA bacteraemia reviewed by:
   i. An infection control nurse, a medical microbiologist, an infectious diseases physician

2. Who leads/is involved in writing the MRSA bacteraemia root cause analysis report?
   i. Infection control nurse, medical microbiologist, infectious diseases physician, modern matron, clinical governance lead, consultant in charge
   ii. Leads RCA, Involved in RCA, Not involved in RCA