### Clinical Management of Antimicrobial Resistant Organisms: Standard Operating Procedure

#### Document Control Summary

<table>
<thead>
<tr>
<th>Status:</th>
<th>Replacement.</th>
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<tbody>
<tr>
<td></td>
<td>Replaces: Policy for the Management of Antibiotic Resistant Strains of Enterococci and Gram Negative Bacilli</td>
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<tr>
<td>Version:</td>
<td>v1.0</td>
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<tr>
<td>Author/Title: Owner/Title:</td>
<td>Judy Carr - Lead Infection Prevention and Control Nurse Kenny Laing - Deputy Director of Nursing</td>
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<td>Approved by:</td>
<td>Policy and Procedures Committee</td>
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<td>Policy and Procedures Committee</td>
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<tr>
<td>Related Trust Strategy and/or Strategic Aims</td>
<td>Provide high quality services, built on best known practice and evaluated through clear process and outcome measures</td>
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<tr>
<td>Implementation Date:</td>
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<tr>
<td>Key Words:</td>
<td>Glycopeptide resistant enterococci (GRE), sometimes referred to as Vancomycin resistant enterococci (VRE) Extended spectrum beta-lactamase producers Ampicillin C producers Multi-resistant Acinetobacter species Multi-resistant Pseudomonas species Penicillin resistant Pneumococci (PRP) Multi antibiotic resistant organisms</td>
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<tr>
<td>Associated Policy or Standard Operating Procedures</td>
<td>• Infection Prevention Control and Decontamination Policy • Hand decontamination SOP • Isolation SOP • Standard precautions and personal equipment SOP • Movement of patients between wards, departments and transfer/discharge to other care organisations incorporating the inter –healthcare transfer form SOP • Waste management SOP</td>
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</table>
1. Introduction

Resistance to anti-microbial agents is a natural evolutionary response of microbes to anti-microbial exposure. The principle of anti-microbial resistance has been described as 'survival of the fittest'. Where anti-bacterial agents kill susceptible bacteria, resistant organisms survive and multiply and may infect/colonise other patients. Resistance can arise via mutation, gene transfer or by the development of inherently resistant species. The importance of these processes varies with the organism, the anti-microbial agent and the clinical setting.
Antimicrobial resistant organisms (ARO) include

- Glycopeptide resistant enterococci (GRE), sometimes referred to as Vancomycin resistant enterococci (VRE)
- Extended spectrum beta-lactamase producers
- Ampicillin C producers
- Multi-resistant Acinetobacter species
- Multi-resistant Pseudomonas species
- Penicillin resistant Pneumococci (PRP)

2. Purpose

The aim of this SOP is to provide guidance on the management of patients with ARO other than MRSA. These organisms have become increasingly resistant to the more commonly prescribed antibiotics.

3. Scope

This document applies to all employees of the South Staffordshire and Shropshire Foundation Trust SSSFT (SSSFT) and all those visiting SSSFT premises such as contractors, agency/bank/locum staff, students and volunteers.

4. Definitions

Colonisation and Infection

Colonisation describes the presence of microbes on or in the body which continue to multiply but do not cause illness or symptoms requiring treatment.

Infection describes the presence of microbes on or in the body which are causing clinical features of infection e.g. pain, pyrexia, dysuria, presence of pus, purulent sputum and require treatment.

Vulnerable individuals can become infected or colonised with ARO through environmental contact. ARO can persist in the environment for long periods of time (up to 7 days). ARO colonising the bowel do not give rise to diarrhoea, however patients colonised with ARO may have diarrhoea as a consequence of an underlying pathology or treatment and the rooms of these patients are heavily contaminated with ARO.

Patients can acquire ARO in a number of ways:

- They may have acquired the ARO at an earlier point in the past and continue to be colonised at the time of admission.
- They may become colonised following direct/indirect contact transmission from other individuals or from the environment during their inpatient stay.
- ARO can also develop naturally in patients due to use of antibiotics in a number of ways:

AROs are seen more frequently in areas where patients are immuno-compromised e.g. Critical Care and Oncology Units and that have high usage of cephalosporins.
e.g. ceftazidime and cefotaxime.

ARO can cause urinary tract infections, pneumonia, surgical site infections and meningitis.

5. Identification of ARO

Identification of a client colonised or infected with a resistant organism is confirmed through examination of specimens such as wound swabs, urine or sputum that have been sent to the pathology lab. The result will state if it is an antibiotic resistant strain.

If a patient has an ARO inform the Infection Prevention and Control team.

Identifying patients
Risk factors for colonisation or infection will depend upon the organism but general risk factors that should be considered are:

- Previous colonisation or infection with an antibiotic resistant organism:
- Check previous microbiology results
- Review previous medical records
- Ask patient and GP who may be aware of previous colonisation
- Recent contact with a patient colonised or infected with an ARO
- Recent hospitalisation, particularly overseas
- Admission from a residential or nursing home
- Recent invasive procedures e.g. urinary catheterisation, gastrointestinal endoscopy
- Exposure to multiple antibiotics

Screening swabs from the patient(s) may be required and will be requested by the Infection Prevention and Control Team.

Patients from acute hospitals may be more vulnerable to being colonised with ARO.

6. Patient Management

Hand Washing is the Single Most Important Procedure

The majority of patients in mental health settings are colonised with ARO rather than infected and do not become ill or require treatment.

Complete isolation is not always necessary
The management of a client from whom ARO has been isolated will be decided by risk assessment. This will be completed by staff caring for the client in discussion with the Infection Prevention and Control Team.

The following patients should have their own en suite room if this will not adversely affect their rehabilitation.

- Those with clinical signs of infection
- Those with leaking wounds
- Those who have an ARO positive in their urine and are incontinent.
Try wherever possible to have a dedicated toilet or commode for the patient. Where this is not possible, ensure the toilet/commode is cleaned with detergent and Actichlor or hypochlorites after use.

Clients with ARO may join other clients for social activities (e.g., mealtimes, outings etc.), provided that any wounds are covered with a dressing, preferably Impermeable.

Dressings or other nursing care should be carried out in their own room.

Cutlery, crockery should be washed in the usual way – no special precaution needed.

If the patient is bathed or showered in a shared facility, then it should, where possible, be at the end of a session. The bath/shower should be cleaned afterwards with detergent and Acticlor or hypochlorites.

Strict aseptic technique should be maintained when inserting invasive devices e.g. urinary catheter or when changing patient dressings.

In all settings the following standard precautions should be adhered to:

- hands should be washed before and after patient contact, the wearing of gloves and after contact with body fluids
- gloves should be worn where there is contact with body fluids
- aprons should be worn to protect uniforms/clothes where there is patient contact or during bed making
- linen/patient clothes should be placed in an infected linen bag or washed on a hot cycle in a domestic washing machine, tumble dried or ironed
- waste should be disposed of as Infectious waste

If the patient has a systemic infection i.e. bacteraemia, the patient should be transferred to the acute setting as soon as possible. The Infection Prevention and Control team should also be notified.

Equipment used on the patient must be one of the following:

Single use and then disposed of appropriately. Single use equipment must never be reused.

Reusable equipment e.g. stethoscope, blood pressure cuff should be dedicated for the sole use of the patient whilst in hospital. Such equipment must be cleaned daily and decontaminated in accordance with the manufacturer’s instructions before use on any other patients.

7. Personal hygiene

Ensure patient maintains own personal hygiene consider if the individual requires supervision.
8. Cleaning

Please inform Hotel Services if a patient has an Antimicrobial resistant organism. It is vital that areas are kept tidy and clutter free to enable effective cleaning as ARO can survive in dry, dusty environments.

All surfaces should be cleaned daily (e.g. doorknobs, countertops and bedrails) with detergent.

In the inpatient areas hotel services will ensure that appropriate cleaning is conducted for those patients who have positive samples and a terminal clean will be performed on discharge or when isolation precautions are discontinued.

In the patient’s own home normal domestic cleaning routines are sufficient to reduce the number of bacteria found in the environment. Daily cleaning of toilet and bathroom areas with detergent and water will suffice.

9. Decolonisation

Decolonisation is rarely indicated or successful for AROs.

10. Clearance specimens / discontinuing isolation

Stool and urine carriage of AROs may persist for years, particularly in patients with invasive devices and the usefulness of clearance specimens is uncertain. If there is considered to be an indication for clearance specimens, this should be discussed with the microbiologist. Isolation should only be discontinued on the advice of the Infection Control team.

11. Discharge/Transfer to another Organisation or Department

If a patient is colonised with an Antimicrobial resistant organism then their discharge home or transfer to another organisation should not be delayed.

If a patient has ARO infection this should be resolved before discharge to their home setting.

If a patient is to be transferred to another healthcare organisation with an ARO all relevant clinical details should be included in a transfer letter and on the Inter-Healthcare Infection Control Transfer Form found in the Transfer of patients, Infection Prevention and Control, SOP.

The patient’s GP and the residential home, where relevant, should be informed of the patient’s status and management during their hospital stay.

If the patient is to be transferred to another organisation or department, they should be informed of the patient’s status and current management - use the inter-healthcare transfer form in the Infection Prevention and Control SOP for the movement of patients between wards, departments and transfer/discharge to other care organisations.

On discharge home, management of the ARO colonisation should be discussed with the patient and their carers.
12. Outbreaks of ARO

Outbreaks of Antimicrobial resistant organism are usually due to cross infection and should not occur if the above precautions are followed.

If an unusually high number of the same Antimicrobial resistant organism patients are identified on a ward the Infection Prevention and Control team will review the situation, in liaison with relevant organisations, and advise the ward accordingly.

The Infection Prevention and Control team will continue to monitor the situation until it is satisfactorily resolved.

13. Visitors

For a patient with an ARO there should be no restriction upon visits, i.e. friends and relatives.

Protective clothing is not necessary but visitors should be encouraged to wash their hands on leaving the care setting

14. Staff Issues

All staff should practice good hygiene at all times, this is important to prevent the spread of all infections not just Staff should cover cuts and grazes with a waterproof dressing before commencing work and should follow the infection control guidelines outlined above.

15. Monitoring and Compliance

This SOP will be reviewed three yearly or earlier in light of new national guidance or other significant change in circumstances.

Compliance with this policy will be monitored through the mechanisms detailed in the table below. Where compliance is deemed to be insufficient and the assurance provided is limited then remedial actions will be drawn together through an action plan. This progress against the action plan will be monitored at the specified committee/group. The results of the annual audit will be escalated to the appropriate committee/group where appropriate.

<table>
<thead>
<tr>
<th>Aspect of compliance or effectiveness being monitored</th>
<th>Monitoring method</th>
<th>Individual or department responsible for the monitoring</th>
<th>Frequency of the monitoring activity</th>
<th>Group/Committee/forum which will receive the findings/monitoring report</th>
<th>Committee/individual responsible for ensuring that the actions are completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate management of patients with resistant strains of Antimicrobial resistant organism</td>
<td>Audit of documentation</td>
<td>Audit department and Infection prevention and control team</td>
<td>Annual or as appropriate</td>
<td>Infection Prevention and Control committee</td>
<td>Matrons and Ward managers</td>
</tr>
<tr>
<td>Compliance with Infection Prevention and control policies and practices</td>
<td>Annual Infection Prevention and control audits</td>
<td>Clinical audit team</td>
<td>Annual</td>
<td>Infection Prevention and Control committee</td>
<td>Matrons and Ward managers</td>
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<tr>
<td>Organisation’s expectations in relation to staff training, as identified in the training needs analysis</td>
<td>Training Reports</td>
<td>Learning and Development Department</td>
<td>Monthly</td>
<td>HRODE Committee</td>
<td>HRODE Committee</td>
</tr>
</tbody>
</table>

### 16. References

Lincolnshire Care Pathway Partnership. March 2006.


### Treatment of Patients with Antimicrobial Resistant Organism

<table>
<thead>
<tr>
<th>Open Wounds, Leg Ulcers, Pressure Sores etc.</th>
<th>Urine or Sputum</th>
<th>Systemic Infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>The appropriate dressing should be used that will encourage wound healing.</td>
<td>If the patient has clinical signs of infection, the appropriate antibiotic therapy should be commenced, based on sensitivities and/or microbiologist advice.</td>
<td>If the patient has signs of bacteraemia (blood stream infection) an urgent medical review should be sought.</td>
</tr>
<tr>
<td>If the wound is clinically infected the relevant antibiotic therapy should be commenced, based on sensitivities or microbiologist advice.</td>
<td>If the patient has a urinary catheter, this should be reviewed. Where possible the catheter should be removed or changed to reduce the amount of Antimicrobial resistant organism colonisation and increase effectiveness of antibiotics where used</td>
<td>The patient should be admitted to an acute hospital as soon as possible.</td>
</tr>
<tr>
<td>The wound should be kept covered until healed to reduce the risk of cross infection.</td>
<td>Gloves and aprons should be worn when handling urine or sputum</td>
<td>The relevant intravenous antibiotic therapy should be commenced as soon as possible, based on sensitivities or microbiologist advice.</td>
</tr>
<tr>
<td>Gloves and aprons should be worn, aseptic technique maintained when dressing the wound. Hands to be washed before and after dressing wound.</td>
<td>Patient and staff should be encouraged to wash their hands following contact with urine or sputum.</td>
<td>The patient should be closely monitored for changes in condition i.e. blood pressure, pulse, temperature.</td>
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<td></td>
<td></td>
<td>The infection control team to be informed of bacteraemia and patient management decisions</td>
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</tbody>
</table>
This Pathway is for Patients with Antimicrobial Resistant Organism Colonisation or Infection.

### Isolation of Patients

Complete isolation is not always necessary. The following patients should have their own room if this will not adversely affect their rehabilitation:
- Those with clinical signs of infection
- Those with leaking wounds
- Those who are Antimicrobial resistant organism positive in their sputum and have a productive cough
- Those who are Antimicrobial resistant organism positive in their urine and are incontinent (urine is not contained in a pad)

<table>
<thead>
<tr>
<th>Does the patient fulfil any of the above criteria?</th>
<th>Yes</th>
<th>No</th>
<th>Date</th>
<th>Time</th>
<th>If variance has relevant form been completed</th>
</tr>
</thead>
</table>

- If yes, is the patient isolated in a side room?

- If a side room is unavailable or isolation would compromise patient safety, has the management of the patient been discussed with the infection control team?

### Infection Prevention and Control Precautions

<table>
<thead>
<tr>
<th>Is relevant equipment available i.e. gloves aprons?</th>
<th>Yes</th>
<th>No</th>
<th>Date</th>
<th>Time</th>
<th>If variance has relevant form been completed</th>
</tr>
</thead>
</table>

- Is the appropriate infection control precautions sign displayed near the patient’s bed space?

### Communications

<table>
<thead>
<tr>
<th>Infection control team informed</th>
<th>Yes</th>
<th>No</th>
<th>Date</th>
<th>Time</th>
<th>If variance has relevant form been completed</th>
</tr>
</thead>
</table>

- Clinician responsible for patient management informed of positive Antimicrobial resistant organism status

- Have the patient/relatives been informed of the infection control measures and the reasons why? e.g. hand hygiene before and after visiting

- Have the patient/relatives been given an information leaflet to support this explanation?

- Do the patient/relatives have any questions/concerns?
<table>
<thead>
<tr>
<th>Have these been addressed?</th>
<th></th>
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<tbody>
<tr>
<td>When care pathway discontinued – this is discussed with the patient</td>
<td></td>
</tr>
<tr>
<td>On discharge or transfer to another organisation – GP or organisation informed of Antimicrobial Resistant Organism status and current management</td>
<td></td>
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<thead>
<tr>
<th>Cleaning</th>
<th>Yes Initials</th>
<th>No Initials</th>
<th>Date</th>
<th>Time</th>
<th>If variance has relevant form been completed</th>
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<tr>
<td>Has Hotel Services been informed of the isolation and the need to undertake daily barrier precaution clean?</td>
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<td>Once isolation discontinued has Hotel Services been informed of need for terminal clean of area</td>
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<thead>
<tr>
<th>Treatment, where relevant</th>
<th>Yes Initials</th>
<th>No Initials</th>
<th>Date</th>
<th>Time</th>
<th>If variance has relevant form been completed</th>
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<tr>
<td>Medications have been prescribed via: Clinician</td>
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<td>Has a stop date been provided for prescribed antibiotic therapy?</td>
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<tr>
<td>If not, has the relevant prescriber addressed this?</td>
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**This pathway is discontinued when:**
- the patient is discharged from hospital setting
- clinical signs of infection are no longer present (where applicable)
- the wound has healed completely (where applicable)

Pathway discontinued
### GRE/ESBL Care Pathway Variance Sheet

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of Variance</th>
<th>Reason for Variance</th>
<th>Alternative Action Taken</th>
<th>Signature</th>
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Information about Antimicrobial Resistant Organisms, for Service Users, Relatives and Carers

What are Antimicrobial Resistant Organisms?

They are micro-organisms which have become resistant to the antibiotics that would be commonly used to treat infections that they may cause.

Antimicrobial resistant organisms usually colonise individuals and live in the body without causing infection. However, they are capable of causing infections, locally e.g. urinary tract, chest and wound infections or systemically e.g. septicaemia (blood poisoning).

What is Colonisation?

When micro–organisms are present, grow and multiply, but the person is well and experiencing no symptoms.

What is Infection?

When the presence of micro-organisms result in a response that lead to signs of infection (fever, swelling, pain, redness, discharge).

How is it Diagnosed?

A specimen of urine or other body fluid will have been sent to the laboratory.

How are Antimicrobial Resistant Organisms transmitted?

Some individuals may carry GRE/ESBLs asymptomatically; these may be easily transferred to others via a number of routes:

- From person to person via hands
- Contamination of equipment
- Contamination of the environment

Why you may be at risk?

Patients/clients with the following factors are at increased risk:

- In dwelling devices for example a catheter
- Multiple courses of antibiotics
- Prolonged hospitalisation or intensive care admission
- Prolonged illness or complex medical conditions
- Gastrointestinal colonisation
- Resident in a care home
- Gastrostomy or jejunostomy
- Indwelling urinary catheter
How can we prevent the spread of Antimicrobial Resistant Organisms?

*The simplest but most effective measure in preventing the spread of infection is thorough hand hygiene.*

What is the Treatment?

You will only need treatment if your clinician feels that you have an infection with an Antimicrobial resistant organism. In this case you will be prescribed antibiotics – it is important that you take the complete course even if you feel that the infection has gone. Patients who are colonised with no signs of infection **do not** require any antibiotic treatment or isolation.

Patients who develop signs of infection will require treatment with an antibiotic dependent upon the laboratory results. For specific advice staff will liaise with the Consultant Microbiologist.

What can my visitors and I do to help?

There are some simple things that you and your visitors can do during your stay which will help reduce the risk of you ‘picking up’ any infection, these include:

- Always washing and drying your hands after visiting the toilet and before you eat
- Not touching or fiddling with your wound or any device that is in your arm/leg/bladder or other body cavity – for example a drip or catheter
- Not exposing your wound to show your visitors
- Keeping the space around you tidy and uncluttered so that the cleaning staff can access all surfaces to remove dust easily – your visitors or relatives could help you to do this
- Washing and drying your hands before and after helping other patients

Transfer/ discharge

The presence of an Antimicrobial resistant organism should not prevent discharge home or transfer to another care location. Managers should ensure that safe systems of working are in place within the organisation and the staff understand and apply standard precautions at all times.

What happens if I am going home?

The organism will not affect your family or friends when you are at home. Usual personal hygiene and household cleaning is sufficient, nothing extra is required. Restriction of activities or visitors at home is not necessary.