MULTI RESISTANT ORGANISMS

Patient Information Leaflet
Multi-resistant Organisms

Including Glycopeptide Resistant Enterococci (GRE), Multi-resistant Acinetobacter (MRAB), Carbapenemase producers and Extended Spectrum beta-lactamases (ESBL) but excludes MRSA

1. INTRODUCTION/PURPOSE OF THE DOCUMENT
To provide a clear guidance on the management of patients colonised/infected with multi-resistant organisms including GRE, MRAB and ESBL’s (excluding MRSA) in order to reduce their transmission within the acute and healthcare setting.

2. STATEMENT OF INTENT / SCOPE OF THE DOCUMENT
This policy applies to all those working in the Trust or Community, in whatever capacity. A failure to follow the requirements of the policy may result in investigation and management action being taken as considered appropriate. This may include formal action in line with the Trust’s disciplinary or capability procedures for Trust employees; and other action in relation to other workers, which may result in the termination of an assignment, placement, secondment or honorary arrangement.

3. SUMMARY OF THE DOCUMENT
- This policy provides information on infection practice for multi-resistant organisms including:
  - Glycopeptide resistant enterococci (GRE)
  - Extended spectrum beta-lactamases (ESBL) producing Enterobacteriaceae e.g. E-coli and Klebsiella
  - Multi-resistant Acinetobacter (MRAB)
  - Carbapenemase Producers

4. DEFINITIONS
- **Antibiotic Resistance**- is the ability of an organism to survive in the presence of an antibiotic
- **Colonisation**- is the presence and multiplication of micro-organisms at the body site without tissue invasion or host response i.e. no signs of infection
- **Carbapenemase Producers**- are enzymes produced by bacteria and capable of destroying the carbapenem antibiotics.
- **ESBL’s**- (Extended Spectrum Beta-Lactamase) certain strains of bacteria produce enzymes known as beta lactamases, the production of this enzyme means that the bacteria are resistant to many antibiotics and infections can be difficult to treat.
- **GRE**- these are organisms that have developed resistance to the glycopeptide antibiotics e.g. Vancomycin or Teicoplanin
- **Infection**- is generally used to refer to the deposition and multiplication of bacteria and other microorganisms in tissues of the body with an associated host response
- **Multi-resistant Acinetobacter**- these are bacteria that may have multiple antibiotic resistances including resistance to aminoglycosides (e.g. Gentamicin) and to any third generation cephalosporin (e.g. ceftazidime, cefotaxime)
- **PPE (Personal Protective Equipment)** – Equipment used to protect the wearer or patient from the risk of infection i.e. gloves, aprons, masks etc.
5. ROLES & RESPONSIBILITIES

5.1 The Board of Directors: Have the overall responsibility and accountability for Infection Prevention

5.2 The Chief Executive: Has overall responsibility for the implementation of this policy. The Chief Executive delegates this responsibility to the Medical Director as the Director for Infection Prevention.

5.3 The Medical Director: As Director of Infection Prevention has the responsibility for the management of Infection Prevention within the Trust in partnership with the Director of Nursing and Midwifery

5.4 The Director of Nursing and Midwifery: As the nominated Executive Director of the Trust with responsibility for the Nursing management of Infection Prevention and in partnership with the Medical Director has responsibility for the management of Infection Prevention

5.5 Consultant Microbiologist
To provide advice to clinicians, in relation to the clinical management of the patient and any appropriate treatments, if required.

5.6 Infection Prevention Team:
- To liaise with wards when positive resistant organism result
- To provide education to all staff on these infections
- To support the wards with patient information and advice
- To liaise with the Community Team if a positive result is received after discharge
- Review all surveillance to monitor trends and facilitate appropriate measures
- Provide education and training on the correct use and disposal of PPE

5.7 Associate Directors:
Oversee the application of this policy and associated procedures into their service.

5.8 Clinical Directors:
Oversee the application of this policy and associated procedures into their service

5.9 Heads of Nursing:
To ensure patients receive the appropriate management and treatment if required
To ensure that the contents of this policy are followed by all members of staff (permanent and temporary)

5.10 Ward and department Managers:
Ensure that staff follow the contents of this policy

6. THE POLICY

6.1 Glycopeptide resistant enterococci (GRE)
Enterococci are a group of bacteria that are present in the gut and can also be found around the perineum (e.g. in the vagina and the urethral meatus). Traditionally, enterococci have been thought to be of low pathogenicity. However, they can cause significant infection in those patients who are already immunocompromised. They are recognised as an important cause of both community and hospital infections, and are a cause of infections associated with several sites (e.g. biliary tract, pelvis, endocarditis and bacteraemia). Of the dozen or more species of enterococci, Enterococcus faecalis and Enterococcus faecium are the most commonly reported.
Risk factors for infection with GRE include prior antibiotic therapy (especially with Glycopeptides or Cephalosporin), prolonged hospital stay, and admission to intensive care, renal, haematology or liver units.

Treating enterococcal infections has become a major concern since some of these organisms are intrinsically resistant to a large number of antimicrobial agents (e.g. they are naturally resistant to all cephalosporins). Of fundamental concern is the increase in the incidence of colonisation and infection by enterococci resistant to glycopeptides (Vancomycin and Teicoplanin) and the potential for the Vancomycin resistant genes to be transferred and expressed in *Staphylococcus aureus*.

### 6.2 Extended Spectrum beta lactamase (ESBL) producing Enterobacteriaceae

ESBLs are enzymes that have been found in a wide range of gram-negative bacteria from all parts of the world. However the majority are found in Enterobacteriaceae e.g. E.coli and Klebsiella. These enzymes make the organisms resistant to the penicillin type antibiotics and Cephalosporins. The Enterobacteriaceae may also be resistant to Fluoroquinolones e.g. Ciprofloxacin, Trimethoprim, and tetracycline due to other mechanisms. This makes them difficult to treat, as only a very limited group of antibiotics remain effective. The enterobacteriaceae usually colonise patients and reside in the bowel without causing signs of infection. However, they are capable of causing infections locally e.g. UTI, wounds or systemically e.g. bacteraemia/septicaemia.

ESBL producing organisms are not new, having first been recognised in the 1980s but more recently E.coli has been detected as a new class of ESBL, the CTX-M type, which is able to break down a wider range of antibiotics. These strains were unrecorded in the UK prior to 2000. They have spread rapidly since 2003, causing infections such as urinary tract infections in hospital patients as well as those treated in the community. Other ESBLs (not CTX-M) have been identified in another bacterium Klebsiella and are almost exclusively associated with hospitalised patients, mostly in specialised care.

### 6.3 Multi-resistant Acinetobacter (MRAB)

Acinetobacter is a type of bacterium that normally lives in the environment. It can sometimes be found on the skin of healthy people, who carry it harmlessly. However, Acinetobacter can cause infections in hospital patients who are unwell and at risk of healthcare associated infection. MRAB isolates may be resistant to any aminoglycoside (e.g. Gentamicin) AND to any third generation cephalosporin (e.g. ceftazidime, cefotaxime). Some isolates may also be resistant to Imipenem and/or Meropenem, which means there are limited antibiotics to treat with.

### 6.4 Carbapenemase Producers

Carbapenemases are enzymes produced by bacteria and capable of destroying the carbapenem antibiotics. There are several types of carbapenemases that can be carried on plasmids and spread among strains of the same species of bacteria as well as between different species of bacteria. Carbapenemases are broad spectrum antibiotics used for the treatment of infections due to multi-resistant bacteria including those with ESBLs. The carbapenem group of antibiotics include imipenem, meropenem, ertapenem and doripenem

### 6.5 Mode of Transmission

Multi-resistant organisms are usually spread by contact transmission, either by patients, Health Care Workers or the environment. MRAB can survive in dust. Enterococci are relatively heat resistant and need higher temperatures to kill them than many bacteria.

### 6.6 Infection Prevention Precautions

The need for isolation depends on the organism and whether the patient has diarrhoea. The important aspect of Infection Prevention is contact precautions and isolation if the patient has diarrhoea. The following points reiterate some of the important aspects of the isolation policy along with recommendations to prevent patient to patient transmission these organisms.
6.7 Isolation (refer to SOP for Isolation)
Within an acute setting, isolate in a single room. In the event of an outbreak co-horting may be advised by the Infection Prevention Team.
Within a care home setting, these patients should be cared for in their own room with a designated toilet/washing facility. If these are not available then they MUST be allocated their own commode/urinal.
Within the patient’s own home, the patient must be advised to have access to their own personal hygiene equipment, and the toilet MUST be decontaminated after each use.

6.8 Hand Hygiene (refer to SOP for Hand Decontamination)
Hands MUST be thoroughly decontaminated before and after any patient contact.
Alcohol hand rub can be used as a sole agent for decontamination providing that hands are not visibly soiled or potentially grossly contaminated with dirt or organic material. If this is the case then hands must be washed with soap and water.

6.9 PPE (refer to SOP for PPE)
Within any setting, disposable aprons and gloves MUST be used when performing any personal hygiene tasks for the patient. These MUST be discarded as clinical waste after each single use before leaving the patients room.

6.10 Decontamination of Equipment (refer to SOP for Equipment Decontamination)
All instruments or equipment (e.g. sphygmomanometers, slings, stethoscopes) where possible should be designated for that patient.
After each use these items should be decontaminated as per manufacturer’s instructions and SOP.

6.11 Environmental Cleaning (refer to Cleaning Policy)
Within any setting, the room MUST be thoroughly cleaned daily to ensure that the risk of environmental contamination has been adequately reduced.
On transfer or discharge the room MUST be cleaned as per barrier clean procedure, including curtain change and blinds.
Following a patient transfer or discharge, all disposable items such as packets of wipes, gloves etc. even if unopened should be discarded. It is recommended to keep these items to a minimum so that wastage is minimised.

6.12 Screening
Where required patients and environment screening strategies will be advised by the Health protection unit via either the Trust or Community Infection Prevention Team.

6.13 Treatment
Choice of antibiotic where appropriate, will normally be decided in consultation with the Consultant Microbiologist on duty.
Decolonisation therapy is not usually recommended as it may lead to the development of further microbial resistance.

6.14 Transfer
If patients are being transferred to another hospital or care setting, staff MUST ensure that the receiving area is aware of the patients’ status.
If the patient is being transferred into hospital then the Hospital Infection Prevention Team should be notified prior to admission/transfer, out of hours on site cover need to be notified.

6.15 Visiting other Departments
Patient can undergo investigations in all departments, provided the department have been informed in advance.
Staff within the department should practice Infection Prevention precautions as per policies.
Equipment should be decontaminated in accordance with the SOP for equipment decontamination.
6.16 Transporting by Ambulance or Care
Patients can be transported in an ambulance with other patients as long as open wounds are covered, they are continent of urine and faeces and the ambulance crew maintain standards of Infection Prevention precautions.
Outpatients can be transported in cars without concern for the driver or subsequent passengers, as long as the patient is continent of urine and faeces and any open wounds are covered.

6.17 Surveillance and Typing
Data is collected on the following:
- Number of GRE bacteraemia
- Number of E.Coli bacteraemia

7. IMPLEMENTATION
This policy will be placed on the Infection Prevention Microsite
This policy will be launched at the Heads of Nursing meet Infection Prevention for cascade
This policy will be presented at the Infection Prevention Committee meeting

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Patient and Customer Services, Poplar Suite, Stepping Hill Hospital. Tel: 0161 419 5678.
Email: PCS@stockport.nhs.uk.

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