# Multi-Resistant Organisms Procedure

| | | | |
|---|---|---|---|
| **Statement of Intent** | To provide clear guidance on the management of patients colonised/infected with multi-resistant organisms including GRE, MRAB, and ESBL producing organisms (excludes MRSA) in order to reduce their transmission within the healthcare setting. | | |
| **Document number** | IPC14 | **Issue number** | 3 |
| **Author** | Infection Prevention and Control Lead | | |
| **Owner** | Principal Officer for Health and Well-Being | | |
| **Approved by** | SBC Quality meeting | **Date approved** | December 2016 |
| **Ratified by** | CSMT | **Date ratified** | December 2016 |
| **Review date** | 10/01/2018 | **Expiry date** | 31/03/2018 |
| **Related documents** | Infection Prevention & Control Policy and all associated procedures | | |
| **Applies to** | SBC Children, Families and Community Health staff | | |
| **Care Quality Commission Regulation** | Regulation 12: Cleanliness and Infection Control | | |
| **Equality & Diversity** | SBC is committed to promoting equality in all its responsibilities – as a provider of services, as a partner in the local economy and as an employer. This policy will contribute to ensuring that all clients, potential clients and employees are treated fairly and respectfully with regard to the protected characteristics of age, disability, gender reassignment, marriage or civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation. | | |

## Table of Contents

## 1.0 GLOSSARY/DEFINITIONS

The following abbreviations are used within the document

MRAB - Multi-resistant Acinetobacter spp.
ESBL - Extended Spectrum beta lactamase
IP&CT - Infection Prevention and Control Team
HCW - Healthcare worker
UTI - Urinary tract infection
GRE - Glycopeptide resistant Enterococci
HPA - Health Protection Agency

These guidelines deal with infection control practice for multi resistant organisms (excluding MRSA).
This includes:

- Extended spectrum beta-lactamases (ESBL) producing Enterobacteriacae e.g. E.coli and Klebsiella spp.
- Multi-resistant Acinetobacter spp. (MRAB)
- Glycopeptide resistant enterococci (GRE)

## 1.1 EXTENDED SPECTRUM BETA LACTAMASE (ESBL) PRODUCING ENTEROBACTERIACAE

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 eg 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 service users 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 that produce a particular type of ESBL, the CTX-M type, which is able to break down a wider range of antibiotics have been detected. 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 service users, mostly in specialised care.

## 1.2 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 are defined as 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.

## 1.3 GLYCOPEPTIDE RESISTANT ENTEROCOCCI (GRE)

Enterococci are a group of bacteria that are present in the gut and can also be found 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 a cause of both community and nosocomial infections such as urinary tract infections, pelvic infections, endocarditis and bacteraemia. Of the dozen or more species of enterococci, *Enterococcus faecalis* and *Enterococcus faecium* are the most commonly reported.

Risk factors for hospital infection with GRE include prior antibiotic therapy (especially with glycopeptides or cephalosporins), prolonged hospital stay, and admission to intensive care, renal, haematology or liver units.

Treating enterococcal infections is becoming a problem since some of these organisms are intrinsically resistant to a large number of antimicrobial agents. Of fundamental concern is the increase in the incidence of colonisation and infection by enterococci resistant to glcopeptides (vancomycin and teicoplanin) and the potential for the vancomycin-resistant genes to be transferred and expressed in *Staphylococcus aureus*.

## 2.0 MODE OF TRANSMISSION

Multi-resistant organisms are usually spread by contact transmission, either by service users, Health workers or the environment. MRAB can survive in dust.

## 3.0 INFECTION CONTROL PRECAUTIONS

**Service users colonised or infected with multi-resistant organisms require standard isolation.** The following points reiterate some of the more important aspects of the standard isolation policy and/or are recommended in addition to the policy to prevent service user to service user transmission of these organisms.

**Isolation**
Where a single service user is found to be colonised or infected with a multi-resistant organism, then ideally they should be contact isolated in a side-room (i.e. standard isolation) with en suite or designated toilet/washing facilities. A risk assessment needs to be carried out if an isolation room is not available. Non-mobile service user must be allocated their own commode, urinal etc. Adequate hand washing facilities must also be offered to these patients e.g. hand wipes offer a simple practical solution.

**Hand Hygiene**
Hands must be thoroughly decontaminated before and after any service user 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 then dried.

**Protective Clothing**
Disposable aprons and gloves must be put on when entering the service user's room. These must be discarded as clinical waste after each single use before leaving the patient's room.

**Decontamination of Equipment**
Instruments or equipment (e.g. writing materials, sphygmomanometers, stethoscopes, lifting slings, and resuscitator bags) should be designated for affected service users. If possible, single patient use items are to be preferred. Alternatively such items should be decontaminated suitably after use as per manufacturers' instructions. Special attention should be paid to ventilator circuits, suction catheters and humidifiers.

**Environmental Cleaning**
The room must be thoroughly cleaned at least daily to ensure that the risk of environmental contamination has been adequately reduced. Housekeeping procedures must be in accordance with the standard isolation policy.

MRAB can contaminate stock items stored in a patient's room. Following a patient's departure, any such items in a room should be decontaminated adequately or disposed of. All unused disposable items for example, open and unopened boxes of gloves, needles, must be discarded. Therefore, stocks of such items should be kept to the minimum needed for the care of that patient, so that wastage is minimised.

Curtain changes must be included as part of terminal cleans especially for patients infected/colonised with MRAB.

## 4.0 Screening

Service user and environmental screening strategies will be advised by the IP&CT. If screening is advised by IP&CT the following applies

**Screening – Service users**
Screening sites for multi-resistant organisms (including MRAB and ESBL) are nose, perineum and any wounds (including CVC-Peripheral cannula sites), and urine (if catheterised). Additional sites to be screened will be advised by the IP&CT.

For GRE colonisation/infection usually ONLY stool specimens and wound swabs should be sent for screening. Any additional sites will be advised by the IP&CT.

If required, IP&CT will advise if screening should be carried out. Screening should include all sites previously positive for the multi-resistant organism and should be performed weekly.

**Screening forms sent to the Microbiology dept should clearly state which multi-resistant organism is being screened for.**

In outbreaks, service users in close proximity to colonised/infected service users should be screened for asymptomatic carriage and should be screened weekly until the outbreak ends. This will be advised by the IP&C Team.

**Screening - Environment**
Routine environmental cultures are not usually warranted for ESBL producing organisms. However they may be considered as a component of an outbreak investigation.

However, Acinetobacter baumannii has a well-documented longer viability on inanimate surfaces and is one of the few microbes to demonstrate that a reduction in environmental contamination is associated with a reduction in healthcare associated infections. For MRAB infected/colonised service users environmental screening sites to be sampled will be advised by the IP&CT.

**Screening – Health Care Workers**
This will not usually be advised by the IP&CT unless there is epidemiological evidence of transmission from a suspected HCW source, and then screening of personnel may be warranted as part of the investigation.

**Screening on Readmission**
Service users that have previously been colonised with an ESBL producing organism in their urine should have a urine specimen sent on admission.

**Screening of high risk service users**
Some service users are more predisposed to acquiring infection/colonisation with multi-resistant organisms such as patients on haematology/oncology units, intensive care units, and renal units. It is not recommended that screening for multi-resistant organisms is carried out on admission to these units unless requested by the IP&C team in response to an outbreak.

## 5.0 Treatment

Choice of antibiotic will normally be governed by local information about trends in antibiotic resistance or a known sensitivity of the organism. Advice is available from the Consultant Microbiologist on duty.

Decolonisation therapy is not usually recommended as it may lead to the development of further microbial resistance.

If service users have previously or currently are colonised/infected with multi-resistant organism then empirical therapy for surgical prophylaxis may need to be modified to cover these pathogens. Advice is available from the Consultant Microbiologist on duty.

## 6.0 Outbreak investigation

All investigations should be undertaken in accordance with Risk Management policy. Assurance that any actions/recommendations from an investigation have been implemented will be obtained by re-audit.

Where there is more than one service user colonised/infected with multi-resistant organism on the same unit/ward an outbreak team should be convened and an investigation undertaken. Case definitions should be agreed, dates of admission and discharge, ward and bed locations of all infected and colonised service user documented, along with time line analysis of patient activity such as movement to and from theatre.

There should be regular outbreak meetings with all relevant health and social care workers and senior managers to feedback key information and review the success of interventions to prevent spread.

## 7.0 Transfers

For transfer to other departments please refer to the Standard Isolation Policy.

Where service users infected or colonised with multi-resistant organisms are being transferred to another hospital, clinical staff must ensure that the receiving area is aware of the service users status and the Infection Control team at that hospital should be informed. This needs to happen before the transfer takes place.

**Visitors**
Please refer to the Standard Isolation policy.

## 8.0 Audit

Audit of the policy will be carried out by IP&CT in conjunction with services as necessary when directed by the IP&CT.

## 9.0 Surveillance and typing

Data is collected on the following -

Number of GRE bacteraemias (produced for the Department of Health)

Number of specimens sent to the microbiology laboratory yielding MRAB and ESBL producing gram negative organisms (produced for IP&CT monthly surveillance reports)

Isolates of GRE from blood culture samples are referred to HPA Colindale, London for typing. Isolates of MRAB and ESBL producing gram negative organisms will be sent to HPA

Colindale, London if an outbreak or evidence of cross-infection occurs and considered of value by the IP&CT.
Isolates of other multi-resistant organisms will be sent for typing by the Consultant Microbiologist if appropriate.

## 10.0 Education and training

Education and training will be arranged by the IP&CT.

## 11.0 Role of the Infection Prevention and Control Team (IP&CT)

Following notification of new multi-resistant isolates the IP&CT members will instigate the following:

- Visit/contact and advise the relevant service.
- Advise on the implementation of the above policy.
- Liaise with the relevant service ward/department regarding the day to day management of the service user, providing additional infection control advice with regard to the identified risks present.