# Multi-Drug Resistant Organism Policy

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- Standard Infection Control Procedures and Policy incl Hand Hygiene
- Source Isolation Policy and Procedures for Hospital Patients
- Decontamination Policy and Procedures
- Antimicrobial Policy

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1. INTRODUCTION

1.1 This policy focuses on multidrug resistant gram negative bacteria which are resistant to three or more groups of antibiotics. However, other potential pathogens, such as fungi, can be resistant to multiple antimicrobials and the principles of this policy also apply to such organisms. Multidrug resistant organisms (MDROs) are clinically significant because:

- They are resistant to many antibiotics commonly used in hospitals
- Treatment may require second line antibiotics which may be less effective or have more side effects
- Delays in identifying the causative organism as a MDRO result in significant morbidity
- Depending on the species they may colonise the environment for long periods of time.
- They may colonize patients and eradication may not be possible

1.2 Recently, organisms have been identified in the UK which are resistant to carbapenem antibiotics in addition to many other groups of antibiotics. These strains, called carbapenemase producers, are especially difficult to treat.

N.B. There is a separate clinical guideline for Tuberculosis and Multi-drug resistant Tuberculosis.

1.3 Failure to comply with this policy could result in disciplinary action.

2. PURPOSE

2.1 To set out clear guidance regarding patients infected or colonised with Extended spectrum beta lactamases (ESBL), AmpC beta lactamases, Carbapenamase producing Enterobacteriaceae (CPE), Multi-Drug resistant Acinetobacter baumannii (MDRAB), Candida auris or other multi-drug resistant organisms to ensure appropriate management of the patient and prevent spread within the hospital. Furthermore, to set out clear guidance about the management of patients who have been hospitalised in areas which experience high levels of CPE or outbreaks of C. auris, to prevent potential spread within the hospital.

3. DEFINITIONS

3.1 Extended spectrum beta lactamases (ESBL) and AmpC betalactamases -
ESBLs and AmpC betalactamases are enzymes produced by certain Gram negative bacteria that confer resistance to third generation or “extended spectrum” cephalosporins e.g. ceftazidime and cefotaxime. They also confer resistance to penicillins and are often linked with resistance mechanisms to other classes of antimicrobials thus limiting the range of available treatment options. ESBL-producing microbes are not new, having first been recognised in the 1980s. The new strains produce a particular type 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 (UTIs) in hospital patients as well as those treated in the community. Infections with ESBL-producing E. coli are occurring in both community and hospital patients.
3.2 **Carbapenemases** - are enzymes produced by some Gram negative bacteria which confer resistance to carbapenems, e.g. meropenem. Carbapenem antibiotics are currently the only class of β-lactam antibiotics reliably active against Enterobacteriaceae with ESBL or AmpC activity. They are more common in the Mediterranean region (e.g. Italy, Malta, Greece, Cyprus, Turkey, Israel, Egypt), Asia including the Indian Subcontinent, Japan and the United States of America (USA). There have, however, been outbreaks in the UK as a result of introduction of organisms that produce carbapenamase, and their subsequent person-to-person spread within high risk settings such as ITUs. Carbapenemase producing Enterobacteriaceae, a group of clinically important β-lactamases that efficiently hydrolyse most β-lactam antibiotics including the carbapenems, have emerged and spread worldwide among the Enterobacteriaceae family of bacteria. Although still rare in South West England, these organisms are endemic in other areas of the world and in pockets of the UK, including London and Manchester, and there is a risk of introduction to healthcare settings, and subsequent person-to-person spread in health care settings.

3.3 **Multi-Drug resistant Acinetobacter baumannii (MDRAB)** – Acinetobacter baumannii are Gram-negative bacteria which can cause hospital acquired infection. A. baumannii can be found on the skin, in the GI and respiratory tract. Transmission can occur by hands of healthcare workers and also from contaminated surfaces as the bacteria are difficult to remove from surfaces, even with disinfection. A. baumannii already have intrinsic resistance and further resistance can be acquired leading to a MDR A. baumannii (MDRAB). Outbreaks of MDRAB have been seen, possibly due to the difficulty in removing A. baumannii from the environment even with disinfection.

3.4 **Candida auris**

C. auris is a species of fungus which can cause hospital acquired infection and is unusual as cross transmission between hospital patients has occurred leading to hospital outbreaks in the UK and globally. C. auris has been associated with bloodstream infections, wound infections and otitis. It is also difficult to identify on microscopy as it is indistinguishable from other Candida species. C. auris is resistant to first line antifungals and can develop resistance to other antifungal drugs.

3.5 **Other Multi-Drug resistant organisms (MDROs)** - Other multi-drug resistant Gram-negative bacteria and, indeed other organisms such as resistant fungi, exist with a range of resistance mechanisms. The extent of the resistance will influence the control measures required to prevent spread and the treatment options available in the event of infection.

4. **DUTIES AND RESPONSIBILITIES OF STAFF**

4.1 **Board of Directors**

4.1.1 The Board of Directors, through the Chief Executive and the Medical Director, will delegate to the Joint Directors of Infection Prevention and Control responsibility for supporting and encouraging compliance by:

- Regarding lapses in compliance with this policy as a serious issue
- Supporting education at induction for all staff and appropriate updates for staff involved in direct patient contact
- Ensuring that appropriate facilities are provided for the management of patients with MDROs
- Involving the Infection Prevention and Control Team in the planning process for new construction and refurbishment work so that advice can be given on
appropriate isolation facilities as emphasised by “Infection Control in the Built Environment” (Department of Health, 2013) and the Health and Social Care Act 2008 - Code of Practice on the prevention and control of infections and related guidance (Department of Health, 2015)

4.2 Infection Control and Decontamination Assurance Group (ICDAG)

4.2.1 ICDAG is responsible for:

- Reviewing the MDRO policy every five years and making any necessary revisions in light of local surveillance and national evidence based guidance
- Ratifying the MDRO policy
- Escalating issues and concerns about MDRO performance to the Safety and Risk Committee

4.3 Divisional Directors, Associate Medical Directors and Assistant Directors of Nursing

4.3.1 Each divisional management team is responsible for:

- Ensuring that there is process in place for all relevant staff, including junior medical staff, to complete infection control training and annual updates
- Providing facilities and equipment for appropriate placement of patients with MDROs.

4.4 Infection Prevention and Control Team (IPCT)

4.4.1 The IPCT is responsible for:

- Providing advice on appropriate placement of patients with MDROs
- Producing timely feedback on surveillance of MDRO acquisition for wards/units, directorates and Trust
- Ensuring that patients with first time isolates of MDROs have an Infection Control (IC) alert placed on the Patient Administration System (PAS).
- Investigating suspected incidents of cross infection
- Advising on screening of patients with regards to MDROs.

4.5 Antimicrobial stewardship group (ASG)

4.5.1 The ASG is responsible for

- Ensuring that the hospital has access to an appropriate antimicrobial formulary
- Providing evidence based guidance for prescribing antimicrobial drugs
- Monitoring antimicrobial use to ensure it is appropriate and proportionate

4.6 Microbiology Department

4.6.1 The microbiology laboratory and medical microbiologists are responsible for:

- Ensuring that appropriate tests are available for identification of MDROs
- Ensuring that results are communicated promptly to clinical teams
- Providing timely advice to clinicians regarding appropriate treatment, where relevant
- Communicating new CPEs or MDRABs or C. auris isolates or other MRDOs to the IPCT promptly.
- Monitoring the use of antimicrobial agents within the Trust and feedback on areas for improvement through the Antimicrobial Stewardship Lead.
• Reporting suspected CPE producers to Public Health England, and referring the relevant isolates
• Reporting suspected *C. auris* isolates to Public Health England, and referring relevant isolates

4.7 **Matrons and Other Registered Nurses**

4.7.1 Matrons and other registered nurses are responsible for:

• Ensuring that relevant patients are screened for MDROs on admission or pre admission to hospital
• Ensuring that arrangements are in place to check for an IC alert on PAS/Whiteboard to identify patients with a history of MRDO carriage/infection
• Ensuring the infection control risk assessment is completed on admission.
• Ensuring that patients are provided with adequate information, including provision of a relevant information leaflet.
• Administering prescribed treatment for infection
• Ensuring that bed spaces/rooms vacated and associated equipment used by patients with MDROs are terminally cleaned and disinfected, after consulting with the IPCT on the type of clean required, prior to new admission
• Communicating infection control information to others who will provide care on other hospitals or in the community setting

4.8 **Consultant and Other Medical Staff**

4.8.1 Consultants and other medical staff are responsible for:

• Prescribing antimicrobial agents prudently
• Complying with *Trust Antimicrobial Policy* and guidelines taking into consideration MDRO history
• Commencing treatment of patients with MDROs in accordance with this policy or microbiology advice

4.9 **Site Management Team**

4.9.1 The site management team is responsible for:

• Assisting ward staff to identify single room accommodation for patients with suspected or confirmed MDROs where risk assessment has shown that this is appropriate.

4.10 **Housekeepers and Domestic Services**

4.10.1 Housekeepers and domestic service assistants are responsible for:

• Routinely maintaining a clean environment to reduce level of environmental contamination with MDROs
• Providing terminal cleaning/disinfection of vacated bed spaces/isolation rooms on discharge/transfer of patients with MDROs using products advised by the Infection Prevention and Control Team
4.11 **All Staff**

4.11.1 All staff have a personal and corporate obligation to comply with best practice in the prevention of infection and comply with this and all other related policies.

5. **ESBL/AMP C PRODUCING ORGANISMS**

5.1 **Identification of Colonisation or Infection**
Microbiology will annotate reports of all organisms found to carry the ESBL or AmpC resistance mechanism with a comment drawing attention to the isolate and its resistance mechanism. Antimicrobial treatment is not indicated unless the patient has a symptomatic infection.

5.2 **Significance**
These organisms are found in very high numbers colonising the large intestine and are most commonly implicated in infections of the gastrointestinal, hepato-biliary and genito-urinary systems. The majority of ESBL and AmpC related infections are of the urinary tract. However, as the organisms concerned make up normal bowel flora, carriage may be asymptomatic. Asymptomatic bacteriuria with these organisms is also seen and is especially common in the elderly. Treatment is not indicated without symptoms or signs of infection.

5.3 **Screening**
Stool screening for patients known to be carriers of ESBL or AmpC producing organisms is not necessary. Carriage is assumed to be prolonged.

5.4 **Treatment**
Clinical judgement is required as to whether the ESBL or AmpC producing organism is causing infection. In many instances antibiotic therapy is not required. Where treatment is indicated, options may be limited. Advice can be obtained from the local duty medical microbiologist via 01392 (40) 2977 or via switchboard out of hours.

5.5 **Patient Risk Group**
Patients who are most at risk from infections due to ESBL and AmpC producing organisms are those who are neutropenic, have undergone organ transplantation, premature neonates and older persons. Others at risk include those who have received prolonged and extensive antibiotic therapy, those who have undergone gastrointestinal surgery and those with urinary catheters.

5.6 **Transmission and Prevention**
These organisms are part of the faecal flora and, as such, are of particular risk to people with indwelling urinary catheters and in areas where faecally contaminated items are handled. Transmission occurs due to poor hand hygiene and following contact with contaminated items in the clinical setting. Hand hygiene is of paramount importance and alcohol hand gel is very effective against ESBL and AmpC producing organisms except, of course, when hands are contaminated with body products when soap and water must be used for hand hygiene. Adherence to standard infection control procedures regarding urinary catheter care and personal hygiene are vital.

5.7 **Infection Control Measures**
In the acute and community hospital setting and in other care areas where high risk inpatient groups are found, patients should ideally be isolated in a single room with contact precautions, but if this is not possible, spatial isolation within a bay should be implemented with contact precautions. It is, however, important to avoid nursing other patients in high risk groups in the same area where possible (see section 5.5). This also includes patients who have indwelling urinary catheters as these increase
the risk of urinary tract infection. The use of gloves and disposable aprons is recommended for direct contact, when dealing with urine and faeces and when cleaning. In community care settings, i.e. own home or care homes, segregation from other people is not required and standard infection control procedures are adequate.

5.8 Terminal Cleaning
When a patient is discharged from hospital, the single room or bed space must receive a terminal clean using a chlorine releasing agent e.g. Chlor-clean or Chlorine dioxide e.g. Tristel (combined cleaning and disinfection products). Curtains must be changed.

5.9 Mobilisation/rehabilitation/visits to other departments
Infection control measures should not compromise the patient’s care and should not affect the patient’s freedom to be mobilised or attend other departments for healthcare-related visits.

5.10 Transferring of Patients
It is important to make the receiving clinical area aware that the patient has an ESBL or AmpC producing organism, with emphasis on the importance of good hand hygiene, urinary catheter or urinary tract management.

5.11 Transportation by Ambulance or Car
Patients with ESBL and AmpC carriage or infection can be transported with other patients in hospital cars and ambulances. Attention to hand hygiene must be maintained.

6. CARBAPENEMASE-PRODUCING ENTEROBACTERIACEAE (CPE)

6.1 Significance
There are very limited therapeutic options available to treat infections caused by CPE. In addition to this, there are few novel antimicrobial agents in development to provide therapeutic cover for the next 10-20 years. Infections with CPE are associated with poorer patient outcomes, increased morbidity, mortality and higher hospital costs.

6.2 Screening for identification of colonisation

6.2.1 Any patient who has received hospital care outside the British Isles is at risk of carrying CPE, therefore screening of any patient transferred across borders into a healthcare facility in the United Kingdom is advised. See information below & flow chart in Appendix 1

All patients meeting one or more of the following criteria are deemed at risk of having CPE and therefore should be screened promptly on admission and managed accordingly (as per Appendix 2)

• any patient who has been an inpatient in a hospital abroad within the last 12 months, including renal haemodialysis (both elective ‘holiday dialysis’ and emergency dialysis)
• been an inpatient in a UK hospital known to have had problems with spread of CPE (hospitals in London, Birmingham and the North West of England especially in Manchester). However, hospitals experiencing problems will continue to increase and in practice, staff admitting patients are unlikely to know whether another hospital has experienced spread of CPE. Therefore, a core practical
approach is to consider any hospital outside Devon, Cornwall and Somerset as an indication for screening

- Any patients previously colonised or had an infection with CPE
- Any patient who has had close contact with a patient who has had CPE, if known.

Screening may also be requested on patients who do not meet these criteria, at the discretion of the Infection Prevention and Control Team or the Medical Microbiologist.

6.2.2 For screening, the following samples should be taken:

- Stool sample - If it is not possible to obtain a stool sample within a few hours of admission, a rectal swab must be sent instead (standard bacteriological swab)
- Wound swab - any surgical wounds, leg ulcers, breaks in skin or other lesions
- Swabs from manipulated sites - lines, cannulae, tracheostomy, percutaneous endoscopic gastrostomy (PEG) and drain sites.

All specimens should be labelled on the form clearly as ‘possible CPE colonisation or infection’.

6.2.3 A sample can be confirmed negative in 48 hours however a positive sample can take 3-4 days.

6.2.4 If negative, a further two negative screens need to be obtained and a risk assessment undertaken before removing the patient from isolation. The screens should be taken 48 hours apart i.e. day 0 (the initial sample on day of admission, day 2 and day 4 for the further two samples).

6.2.5 A patient with a CPE will be electronically ‘flagged’ on the Trust Patient Administration System (PAS) by the Infection Prevention and Control Team (IPCT) with IC 6.

6.2.6 If there is evidence of spread in a clinical area, weekly and discharge screening of all patients on affected units / wards will be instigated. This will be undertaken under the direction of the IPCT/ Microbiology. Equally, if a patient found to be positive for CPE has spent time in an open ward or bay before the positive result was known, the other patients within that bay (or the whole ward if the patient has occupied more than one bay) should be screened on a weekly basis for a period of 4 weeks after the last case was detected.

6.2.7 If any contacts screen positive, they should be managed as a positive case.

6.2.8 In the event of an outbreak of CPE, the Trust’s Major Outbreak Plan should be implemented.

6.3 Treatment

6.3.1 Treatment options are limited and determined by sensitivity testing results. Any treatment, including surgical prophylaxis, should be discussed with a Medical Microbiologist.

6.4 Infection Control Measures

6.4.1 Patients who meet the at-risk criteria or who are found to be positive for CPE must be isolated in a single room with the door closed at all times. Also see flowchart in Appendix 1.
6.4.2 A patient who is found to be positive for CPE should remain in isolation for the duration of their stay in hospital even if they subsequently test negative, as the patient may continue to be positive at an undetected level. Wherever possible, the patient will be isolated on Torridge ward.

6.4.3 If a patient is found to be negative for CPE following 3 negative screens (and the only indication for isolation was increased risk) they should be removed from isolation and can be nursed in a bay using standard infection control precautions. No further screening is required.

6.4.4 Positive patients must have their own toilet and bathroom facility. Wherever possible, the patient will be isolated on Torridge ward. If this is not en-suite, a dedicated commode should be provided or toilet facilities should be allocated and must be located where the patient does not have to walk through other patient rooms/bays to gain access.

6.4.5 Patients with confirmed or suspected CPE should ideally have designated staff to care for them, but it is accepted that this may not be practicable and strict adherence to isolation precautions must be maintained. Staff such as Allied Health Professionals (AHP) should where practical see all other patients prior to those with confirmed or suspected CPE and adherence to source isolation precautions must be maintained.

6.4.6 Gloves and long sleeve aprons or isolation gowns must be worn for all contact with a patient with confirmed CPE. Staff must change into scrubs prior to donning their Personal Protective Equipment (PPE) except in an emergency situation.

6.4.7 Equipment must be kept to an absolute minimum and designated for the sole use of the patient in isolation. This includes blood pressure monitoring equipment, thermometer, dressing trolley (if required) and commode. Equipment may only be used on other patients after it has received thorough decontamination with a chlorine releasing agent e.g. Chlor-clean or Chlorine dioxide e.g. Tristel, unless otherwise specified. When the patient has been discharged, equipment should be left in the isolation room and should be decontaminated using hydrogen peroxide vapour (where available), before being used on other patients.

6.4.8 Visitors will not usually need to wear protective clothing. Visitors should wash their hands immediately prior to leaving the isolation room and should not wander around the ward and visit other patients. Visitors should be limited, where possible, to household contacts

6.4.9 In community care settings, i.e. own home or care homes, segregation from other people is not usually required, and standard infection control precautions are adequate. Discussions with carers/care providers in these settings must take place prior to transfer and must involve the Infection Prevention and Control Team. Enhanced infection control precautions may be required if, for example, wound care will be undertaken.

6.5 Terminal Cleaning

6.5.1 When the patient who is CPE positive is discharged the housekeeping/domestic supervisor should be notified, and given early warning if possible, so that the room and associated equipment can be cleaned and then decontaminated using hydrogen peroxide vapour (where available). Prior to decontamination, the room must be inspected to ensure that walls and other surfaces are intact. If any surfaces are damaged they must be repaired prior to decontamination. The room will not be reused until inspected by an infection control nurse, a site practitioner or the domestic services manager/deputy domestic services manager.
6.5.2 When in-patients with risk factors for CPE carriage or contacts of a case of CPE are discharged before three negative screening results are known, the single room or bed space must receive a terminal clean and disinfection using a chlorine releasing agent e.g. Chlor-clean or Chlorine dioxide e.g. Tristel. Curtains must be changed.

6.6 Mobilisation/rehabilitation/visits to other departments

6.6.1 Infection control measures should not compromise the patient’s care and should not affect the patient’s freedom to be mobilised or attend other departments for healthcare-related visits, however, this does not mean that the patient can wander freely around the ward where close contact with other vulnerable patients is possible or that they can visit other non-healthcare related areas such as the Oasis Restaurant, or the shop. Any mobilisation outside the isolation room should be discussed with the IPCT first.

6.6.2 Patients can undergo investigations in other departments, provided the relevant department has been informed in advance. Staff in the department should practice source isolation infection control precautions. Equipment should be decontaminated with a chlorine releasing agent e.g. Chlor-clean or Chlorine dioxide e.g. Tristel, in accordance with the decontamination policy, before use on the next patient.

6.6.3 If a patient needs to be transferred urgently due to clinical reasons i.e. critical care, the receiving area should be fully aware of the patient’s diagnosis and required precautions.

6.7 Transportation by Ambulance or Car

6.7.1 Patients with CPE may be transported with other patients in hospital cars and ambulances as long as open wounds are covered and they are continent of urine and faeces and the ambulance crew maintain good infection control standards. Discuss with the Infection Prevention and Control Team, if concerned.

7. MULTI-DRUG RESISTANT ACINETOBACTER BAUMANNII (MDRAB)

7.1 Significance

7.1.1 There are very limited therapeutic options available to treat infections caused by MDRAB. As it is a skin commensal, transmission can occur via hands of healthcare workers or via contaminated surfaces. MDRAB can survive on contaminated surfaces for long periods of time and can be difficult to remove, even with disinfection. Infections with MDRAB are associated with poorer patient outcomes and increased hospital costs.

7.2 Screening

7.2.1 Screening will be undertaken in the context of an outbreak or if requested by the Medical Microbiologist or the IPCT. If screening is required, the following samples must be taken with a standard bacteriological swab:

- Nose, throat and perineum swab
- Wound swab - any surgical wounds, leg ulcers, breaks in skin or other lesions
- Swabs from manipulated sites - lines, cannulae, tracheostomy, percutaneous endoscopic gastrostomy (PEG) and drain sites.
- Sputum sample if patient is expectorating.
7.2.2 A patient with a MDRAB will be electronically ‘flagged’ on the Trust Patient Administration System (PAS) system by the Infection Prevention and Control Team (IPCT) with IC 8.

7.3 Treatment

7.3.1 Treatment options are limited and determined by sensitivity testing results. Any treatment, including surgical prophylaxis, should be discussed with a Medical Microbiologist.

7.4 Infection Control Measures

7.4.1 Patients who are found to be positive for MDRAB must be isolated in a single room with the door closed at all times.

7.4.2 Patients found to be positive for MDRAB should remain in isolation for the duration of their stay in hospital even if they subsequently test negative, as the patient may continue to be positive at an undetected level.

7.4.3 Positive patients must have their own toilet and bathroom facility. Ideally, positive patients will be admitted to a single room on Torridge ward. If this is not en-suite, a dedicated commode should be provided or toilet facilities should be allocated, and must be located where the patient does not have to walk through other patient rooms/bays to gain access.

7.4.4 Patients with confirmed or suspected MDRAB should have designated staff to care for them, but it is accepted that this may not be practicable, and strict adherence to source isolation precautions must be maintained. Staff such as Allied Health Professionals (AHP) should where practical see all other patients prior to those with confirmed or suspected MDRAB and adherence to source isolation precautions must be maintained.

7.4.5 Gloves and long sleeve aprons must be worn for all contact with a patient with confirmed MDRAB. Staff must change into scrubs prior to donning their PPE except in an emergency situation. In addition, surgical face masks must also be worn if undertaking aerosol generating procedures.

7.4.6 Equipment must be kept to an absolute minimum and designated for the sole use of the patient in isolation. This includes blood pressure monitoring equipment, thermometer, dressing trolley (if required) and commode. Equipment may only be used on other patients after it has received thorough decontamination with a chlorine releasing agent e.g. Chlor-clean or Chlorine dioxide e.g. Tristel, unless otherwise specified. When the patient has been discharged, equipment should be left in the isolation room and should be decontaminated using hydrogen peroxide vapour (where available), before being used on other patients.

7.4.7 Visitors are not required to wear protective clothing. Visitors should wash their hands immediately prior to leaving the isolation room and should not wander around the ward and visit other patients.

7.4.8 In community care settings, i.e. own home or care homes, segregation from other people is not usually required and standard infection control precautions are adequate. Discussions with carers/care providers in these settings must take place prior to transfer and must involve the Infection Prevention and Control Team. Enhanced infection control precautions may be required if, for example, wound care will be undertaken.
7.5 Terminal Cleaning

7.5.1 When the patient is discharged the housekeeping/domestic supervisor should be notified, and given early warning if possible, so that the room and associated equipment can be cleaned and then decontaminated using hydrogen peroxide vapour (where available). Prior to decontamination, the room must be inspected to ensure that walls and other surfaces are intact. If any surfaces are damaged they must be repaired prior to decontamination. The room will not be reused until inspected by an infection control nurse, a site practitioner or the domestic services manager/deputy domestic services manager.

7.6 Mobilisation/rehabilitation/visits to other departments

7.6.1 Infection control measures should not compromise the patient’s care and should not affect the patient’s freedom to be mobilised or attend other departments for healthcare-related visits, however, this does not mean that the patient can wander freely around the ward where close contact with other vulnerable patients is possible or that they can visit other non-healthcare related areas such as the Oasis Restaurant or shop. Any mobilisation outside the isolation room should be discussed with the IPCT first.

7.6.2 Patient can undergo investigations in other departments, provided the relevant department has been informed in advance. Staff in the department should practice source isolation infection control precautions. Equipment and the environment should be decontaminated with a chlorine releasing agent e.g. Chlor-clean or Chlorine dioxide e.g. Tristel, in accordance with the decontamination policy, before use of the next patient.

7.6.3 If a patient needs to be transferred urgently due to clinical reasons i.e. critical care, the receiving area should be fully aware of the patient’s diagnosis and required precautions.

7.7 Transportation by Ambulance or Car

Patients with MDRAB can be transported with other patients in hospital cars and ambulances as long as open wounds are covered and they are continent of urine and faeces and the ambulance crew maintain good infection control standards.

8. CANDIDA AURIS (C. auris)

8.1 Significance

8.1.1 C. auris is a relatively new organism and there has been little research undertaken on the organism or modes of transmission within the environment, therefore mode of transmission is unknown. However, looking at hospital outbreaks, experience suggests that environments contaminate easily and cross transmission from the environment or fomites is a particular risk. It is also expected that cross transmission will occur on hands of healthcare workers. Infections with C. auris are associated with poorer patient outcomes and increased hospital costs.

8.2 Screening

8.2.1 Screening will be undertaken in the context of an outbreak, on admission of a patient who has had a hospital stay in a hospital known to have issues with C. auris, or if requested by the Medical Microbiologist or the IPCT. Currently hospital outbreaks have been reported from the United States, India, Pakistan, Venezuela, Columbia,
Israel, Oman, South Africa, Spain and the UK. If screening is required, the following samples must be taken with a standard bacteriological swab:

- Nose, throat, axilla, groin and perineum swab
- Urine sample
- Rectal swab or stool sample

If clinically indicated also swab:

- Wound swab - any surgical wounds, leg ulcers, breaks in skin or other lesions
- Cannula entry sites
- Sputum sample or endotracheal secretions
- Drain fluid (if drain insitu)
- Low vaginal swab

8.2.2 If repeat screening is required, a total of three screens should be taken every 48 hours.

8.2.3 A patient with *C. auris* will be electronically ‘flagged’ on the Trust Patient Administration System (PAS) system by the Infection Prevention and Control Team (IPCT) with IC 8.

8.3 Treatment

8.3.1 Treatment options are limited and determined by sensitivity testing results. Any treatment should be discussed with a Medical Microbiologist.

8.3.2 Discussion should take place with the IPCT or Medical Microbiologist about whether decolonisation of skin with Chlorhexidine is merited.

8.4 Infection Control Measures

8.4.1 Patients who are found to be positive for or have a high suspicion of being positive for *C. auris* must be isolated in a single room, ideally on Torridge, with the door closed at all times.

8.4.2 Patients found to be positive for *C. auris* should remain in isolation for the duration of their stay in hospital even if they subsequently test negative, as the patient may continue to be positive at an undetected level.

8.4.3 Positive patients must have their own toilet and bathroom facility. Ideally positive patients will be admitted to a single room on Torridge ward. If this is not en-suite, a dedicated commode should be provided or toilet facilities should be allocated and must be located where the patient does not have to walk through other patient rooms/bays to gain access.

8.4.4 Patients with confirmed or suspected *C. auris* should have designated staff to care for them, but it is accepted that this may not be practicable and strict adherence to source isolation precautions must be maintained. Staff such as Allied Health Professionals (AHP) should, where practical, see all other patients prior to those with confirmed or suspected *C. auris* and adherence to source isolation precautions must be maintained.

8.4.5 Gloves and long sleeve aprons/gowns must be worn for all contact with a patient with confirmed *C. auris*. Staff must change into scrubs prior to donning their PPE except in an emergency situation.
8.4.6 Equipment must be kept to an absolute minimum and designated for the sole use of the patient in isolation. This includes blood pressure monitoring equipment, thermometer, dressing trolley (if required) and commode. Equipment may only be used on other patients after it has received thorough decontamination with hydrogen peroxide vapour, unless otherwise specified. When the patient has been discharged, equipment should be left in the isolation room and should be decontaminated using hydrogen peroxide vapour (where available), before being used on other patients.

8.4.7 Visitors are not required to wear protective clothing. Visitors should wash their hands immediately prior to leaving the isolation room and should not wander around the ward and visit other patients.

8.4.8 In community care settings, i.e. own home or care homes, segregation from other people is not usually required and standard infection control precautions are adequate. Discussions with carers/care providers in these settings must take place prior to transfer and must involve the Infection Prevention and Control Team. Enhanced infection control precautions may be required if, for example, wound care will be undertaken.

8.4.9 If a patient with *C. auris* dies and the cause of death is attributable to *C. auris*, this must be documented on the death certificate, and the National Incident Team (contact details in PHE Candida auris guidance in References) must be notified.

8.5 Terminal Cleaning

8.5.1 When the patient is discharged the housekeeping/domestic supervisor should be notified, and given early warning if possible, so that the room and associated equipment can be cleaned and then decontaminated using hydrogen peroxide vapour (in the Wonford site) or Tristel (in Community Hospitals). Prior to decontamination, the room must be inspected to ensure that walls and other surfaces are intact. If any surfaces are damaged they must be repaired prior to decontamination. The room will not be reused until inspected by an infection control nurse, a site practitioner or the domestic services manager/deputy domestic services manager.

8.6 Mobilisation/rehabilitation/visits to other departments

8.6.1 Infection control measures should not compromise the patient’s care and should not affect the patient’s freedom to be mobilised or attend other departments for healthcare-related visits, however, this does not mean that the patient can wander freely around the ward where close contact with other vulnerable patients is possible, or that they can visit other non-healthcare related areas, such as the Oasis Restaurant, or shop. Any mobilisation outside the isolation room should be discussed with the IPCT first.

8.6.2 Patient can undergo investigations in other departments, provided the relevant department has been informed in advance. Staff in the department should practice source isolation infection control precautions. Equipment and the environment should be decontaminated with a chlorine releasing agent e.g. Chlor-clean or Chlorine dioxide e.g. Tristel or hydrogen peroxide vapour, in accordance with the decontamination policy, before use of the next patient.

8.6.3 If a patient needs to be transferred urgently due to clinical reasons i.e. critical care, the receiving area should be fully aware of the patient’s diagnosis and required precautions.
8.7 **Transportation by Ambulance or Car**
Patients with *C. auris* can be transported with other patients in hospital cars and ambulances as long as open wounds are covered and they are continent of urine and faeces and the ambulance crew maintain good infection control standards.

9. **OTHER MULTI-DRUG RESISTANT ORGANISMS (MDROs)**

9.1 **Significance**
The significance of other MDROs will depend on the organism and the level of antimicrobial resistance.

9.2 **Treatment**
Treatment options may be limited and will be determined by sensitivity testing results. Any treatment, including surgical prophylaxis, should be discussed with a Medical Microbiologist.

9.3 **Infection Control Precautions**

9.3.1 The level of source isolation precautions required, including whether a single room is required and what PPE is required, will be dependent on the organism and the level of resistance. The IPCT and/or Medical Microbiologist must be contacted for advice. A patient with an MDRO will be electronically 'flagged' on the Trust Patient Administration System (PAS) system by the Infection Prevention and Control Team (IPCT) with IC 8.

9.3.2 Visitors are not required to wear protective clothing unless involved in the patient’s personnel care, when an apron should be worn. Visitors should wash their hands immediately prior to leaving the isolation room (if the patient is isolated) and should not visit other patients.

9.4 **Terminal Cleaning**

9.4.1 The level of terminal cleaning required when a patient with an MDRO is discharged is dependent on the organism and the level of resistance. The IPCT must be contacted for advice.

9.5 **Mobilisation/rehabilitation/visits to other departments**

9.5.1 Infection control measures should not compromise the patient’s care and should not affect the patient’s freedom to be mobilised or attend other departments for healthcare-related visits, however, this does not mean that the patient can wander freely around the ward where close contact with other vulnerable patients is possible or that they can visit the Oasis Restaurant.

9.5.2 Patients can undergo investigations in other departments, provided the relevant department has been informed in advance. Staff in the department should practice source isolation infection control precautions. Equipment should be decontaminated, in accordance with the decontamination policy, before use of the next patient.

9.5.3 If a patient needs to be transferred urgently due to clinical reasons i.e. critical care, the receiving area should be fully aware of the patient’s diagnosis and required precautions.

9.6 **Transportation by Ambulance or Car**
9.6.1 Patients with an MDRO can be transported with other patients in hospital cars and ambulances as long as open wounds are covered and they are continent of urine and faeces and the ambulance crew maintain good infection control standards.

10. ARCHIVING ARRANGEMENTS
The original of this policy, will remain with the Infection Prevention and Control Nurse Specialist. An electronic copy will be maintained on the Trust Intranet, (A-Z) P – Policies (Trust-wide) – M - Multi-Drug resistant Organism Policy. Archived electronic copies will be stored on the Trust’s “archived policies” shared drive, and will be held indefinitely. A paper copy (where one exists) will be retained for 10 years.

11. PROCESS FOR MONITORING COMPLIANCE WITH AND EFFECTIVENESS OF THE POLICY/ STRATEGY

11.1 To monitor compliance with this policy, the auditable standards will be monitored as follows:

<table>
<thead>
<tr>
<th>No</th>
<th>Minimum Requirements</th>
<th>Evidenced by</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patients are appropriately placed on wards so as to minimise the risk of infection to others</td>
<td>Annual audit of patient placement</td>
</tr>
</tbody>
</table>

11.2 Frequency
In each financial year, the Infection Prevention and Control Nurse Specialist will audit patient placement to ensure that this policy has been adhered to and a formal report will be written and presented at the Infection Control and Decontamination Assurance Group.

11.3 Undertaken by
Monitoring will be undertaken by the Infection Prevention and Control Team

11.4 Dissemination of Results
At the Infection Control and Decontamination Assurance Group which is held quarterly.

11.5 Recommendations/ Action Plans
Implementation of the recommendations and action plan will be monitored by the Infection Control and Decontamination Assurance Group, which meets quarterly.

11.6 Any barriers to implementation will be risk-assessed and added to the risk register.

11.7 Any changes in practice needed will be highlighted to Trust staff via the Governance Managers’ cascade system.

12. REFERENCES


Multi-Drug Resistant Organism Policy
Ratified by: Infection Control & Decontamination Assurance Group: 30th October 2017
Review date: August 2022


APPENDIX 1: PATIENT FLOWCHART FOR INFECTION PREVENTION AND CONTROL OF CPE

CPE identified in a routine clinical sample - either on admission or during admission

No known risk¹: screening not required.

No further action

Recent laboratory confirmation i.e. during this admission episode or confirmed at the transferring healthcare facility, treat as positive case (See boxes 1 & 2)

Yes

Patient is suspected case of colonisation or infection

Take stool sample or rectal swab² & isolate patient (ideally with en-suite). Apply strict source isolation precautions³

Take stool sample or rectal swab² & isolate patient (ideally with en-suite). Apply strict source isolation precautions³

Result: presumptive

Laboratory: Save isolate and send to AMRHAI reference laboratory⁴

Confirms positive?

Yes

Can be removed from isolation (unless another reason for continuing isolation). No further action required

Note: previously positive individuals with subsequent negative screen can revert to a positive state, especially after a course of antibiotics - careful risk assessment by the IPCT is required if removing from isolation

No

All samples negative but previously ‘known’ positive

Yes

Box 1

- Inform IPC team & clinicians immediately.
- Isolate on Torridge/maintain isolation (with en-suite facilities).
- Reinforce strict source isolation precautions

Box 2

- Inform patient of infection/carrier status
- Flag patient notes with result, add PAS IC alert
- Consider convening incident/outbreak control team
- Identify & screen as indicated⁵
- Review clinical management including use of antimicrobials and devices (whether latter required)
- Maintain robust communications
- Communicate patient's positive status to GP and other community care providers on discharge/transfer


(1.) A suspected case is defined as a patient who, in the last 12 months, has been (a) an inpatient in a hospital abroad (including receiving dialysis) or (b) an inpatient in a UK hospital outside of Devon, Somerset or Cornwall

(2.) There should be visible faecal material on the swab. Alternative is stool sample.

(3.) See section 6 for IP&C measures.

(4.) Except if it is a repeat isolate of same species with same antibiogram.

(5.) Should any sample test positive, treat as positive.

(6.) Screen any current inpatient contacts who shared an open ward / bay with non-isolated.
## APPENDIX 2: TABLE OF MDROs AND APPROPRIATE PRECAUTIONS

<table>
<thead>
<tr>
<th>Organism</th>
<th>Mode of Transmission from person to person in healthcare setting</th>
<th>Single room in hospital</th>
<th>PPE required in hospital</th>
<th>Environmental cleaning in hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESBL/AmpC producing organism</td>
<td><strong>Indirect contact</strong> by hands of healthcare workers and contaminated equipment/surfaces</td>
<td>Yes. Must be isolated in single room in Surgery, Orthopaedics, Maternity and Paediatrics. Single room preferred in Medicine but may not be achievable. Strict spatial isolation in bay if single room not available.</td>
<td>Gloves and Apron for direct contact, handling bodily fluids and cleaning.</td>
<td>Environment must be manually cleaned and disinfected with Chlor-clean or Tristel.</td>
</tr>
<tr>
<td>CPE</td>
<td><strong>Indirect contact</strong> by hands of healthcare workers and contaminated equipment/surfaces</td>
<td>Yes, on Torridge, unless requiring ITU. If Maternity or Paediatrics, contact IPCT for advice (must be in single room).</td>
<td>Gloves and long-sleeve aprons for all contact. Staff must change into scrubs before donning PPE.</td>
<td>Environment must be manually cleaned and then disinfected using Hydrogen Peroxide(HP) vapour (HP) or aerosolised HP. If patient visits other departments and misting is not suitable, Chlor-clean or Tristel must be used.</td>
</tr>
<tr>
<td>MDRAB</td>
<td><strong>Indirect contact</strong> by hands of healthcare workers and contaminated equipment/surfaces</td>
<td>Yes, on Torridge, unless requiring ITU. If Maternity or Paediatrics, contact IPCT for advice (must be in single room).</td>
<td>Gloves and long-sleeve aprons for all contact. Staff must change into scrubs before donning PPE.</td>
<td>Environment must undergo manual clean and then disinfected using aerosolised HP or HP vapour. If patient visits other departments and misting is not suitable, Chlor-clean or Tristel must be used.</td>
</tr>
<tr>
<td>C. auris</td>
<td><strong>Indirect contact</strong> by hands of healthcare workers and contaminated equipment/surfaces</td>
<td>Yes, on Torridge, unless requiring ITU. If Maternity or Paediatrics, contact IPCT for advice (must be in single room).</td>
<td>Gloves and long-sleeve aprons for all contact. Staff must change into scrubs before donning PPE.</td>
<td>Environment must be manually cleaned and then disinfected using Hydrogen Peroxide(HP) vapour (HP) or aerosolised HP. If patient visits other departments and misting is not suitable, Chlor-clean or Tristel must be used.</td>
</tr>
<tr>
<td>Other MDROs</td>
<td><strong>Indirect contact</strong> by hands of healthcare workers and contaminated equipment/surfaces</td>
<td>Usually, but dependant on organism type. Contact IPCT or Medical Microbiologist for advice.</td>
<td>Dependent on organism type. Contact IPCT or Medical Microbiologist for advice.</td>
<td>Dependant on organism type. May need aerosolised HP or HP vapour. Contact IPCT or Medical Microbiologist for advice.</td>
</tr>
</tbody>
</table>

### CPE contacts/Potential CPE cases

<table>
<thead>
<tr>
<th>CPE contact (IC alert 7)</th>
<th>Single room</th>
<th>PPE required</th>
<th>Environmental cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, contact IPCT if not achievable.</td>
<td>Standard precautions apply.</td>
<td>Environment must be manually cleaned and disinfected with Chlor-clean or Tristel (unless 3 negative screens achieved).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Healthcare outside Devon, Cornwall and Somerset.</th>
<th>Single room</th>
<th>PPE required</th>
<th>Environmental cleaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, contact IPCT if not achievable.</td>
<td>Gloves and apron for direct contact and cleaning.</td>
<td>Environment must be manually cleaned and disinfected with Chlor-clean or Tristel (unless 3 negative screens achieved or advised by IPCT).</td>
<td></td>
</tr>
</tbody>
</table>
### Communication Plan

The following action plan will be enacted once the document has gone live.

<table>
<thead>
<tr>
<th>Staff groups that need to have knowledge of the strategy/policy</th>
<th>All clinical staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>The key changes if a revised policy/strategy</td>
<td>The addition of information on <em>Candida auris</em> (section 8)</td>
</tr>
<tr>
<td>The key objectives</td>
<td>To set out clear guidance about patients infected or colonised with Extended spectrum beta lactamases (ESBL), AmpC, CPE, MDRAB, <em>C. auris</em> or other multi-drug resistant bacteria to ensure appropriate management of the patient and prevent spread within the hospital. Furthermore, to set out clear guidance about the management of patients who have been hospitalised in areas which experience high levels of CPE, to prevent potential spread within the hospital.</td>
</tr>
<tr>
<td>How new staff will be made aware of the policy and manager action</td>
<td>Induction and annual update process.</td>
</tr>
<tr>
<td>Specific Issues to be raised with staff</td>
<td>Clinical staff should be made aware of the policy.</td>
</tr>
<tr>
<td>Training available to staff</td>
<td>See above</td>
</tr>
<tr>
<td>Any other requirements</td>
<td>N/A</td>
</tr>
<tr>
<td>Issues following Equality Impact Assessment (if any)</td>
<td>N/A</td>
</tr>
<tr>
<td>Location of hard / electronic copy of the document etc.</td>
<td>Policy document on the Trust intranet</td>
</tr>
</tbody>
</table>
APPENDIX 4: EQUALITY IMPACT ASSESSMENT TOOL

<table>
<thead>
<tr>
<th>Name of document</th>
<th>Multi-Drug resistant Organisms Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division/Directorate and service area</td>
<td>Infection Prevention and Control</td>
</tr>
<tr>
<td>Name, job title and contact details of person completing the assessment</td>
<td>Nicola Colborne, Infection Prevention and Control Nurse Specialist.</td>
</tr>
<tr>
<td>Date completed:</td>
<td>24/03/16</td>
</tr>
</tbody>
</table>

The purpose of this tool is to:
- identify the equality issues related to a policy, procedure or strategy
- summarise the work done during the development of the document to reduce negative impacts or to maximise benefit
- highlight unresolved issues with the policy/procedure/strategy which cannot be removed but which will be monitored, and set out how this will be done.

1. **What is the main purpose of this document?**
   To set out clear guidance about patients infected or colonised with Extended spectrum beta lactamases (ESBL), AmpC, CPE, MDRAB or other multi-drug resistant bacteria to ensure appropriate management of the patient and prevent spread within the hospital. Furthermore, to set out clear guidance about the management of patients who have been hospitalised in areas which experience high levels of CPE, to prevent potential spread within the hospital.

2. **Who does it mainly affect? (Please insert an "x" as appropriate:)**
   - Carers ☐
   - Staff ☐
   - Patients ☒
   - Other (please specify)

3. **Who might the policy have a 'differential' effect on, considering the “protected characteristics” below? (By differential we mean, for example that a policy may have a noticeably more positive or negative impact on a particular group e.g. it may be more beneficial for women than for men)**
   Please insert an “x” in the appropriate box (x)

<table>
<thead>
<tr>
<th>Protected characteristic</th>
<th>Relevant</th>
<th>Not relevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Disability</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Sex - including: Transgender, and Pregnancy / Maternity</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Race</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Religion / belief</td>
<td>☐</td>
<td>☒</td>
</tr>
<tr>
<td>Sexual orientation – including: Marriage / Civil Partnership</td>
<td>☐</td>
<td>☒</td>
</tr>
</tbody>
</table>
4. Apart from those with protected characteristics, which other groups in society might this document be particularly relevant to… (e.g. those affected by homelessness, bariatric patients, end of life patients, those with carers etc.)?

N/A

5. Do you think the document meets our human rights obligations? ☒

Feel free to expand on any human rights considerations in question 6 below.

A quick guide to human rights:

- **Fairness** – how have you made sure it treat everyone justly?
- **Respect** – how have you made sure it respects everyone as a person?
- **Equality** – how does it give everyone an equal chance to get whatever it is offering?
- **Dignity** – have you made sure it treats everyone with dignity?
- **Autonomy** – Does it enable people to make decisions for themselves?

6. Looking back at questions 3, 4 and 5, can you summarise what has been done during the production of this document and your consultation process to support our equality / human rights / inclusion commitments?

1.) No concerns identified.

2.) Consulted Infection Prevention and Control colleagues and Medical Microbiologists in review of this document. Consulted Infection Control Operational Group for comments on this policy.

3.) All comments taken into consideration and included if benefiting the policy.

7. If you have noted any ‘missed opportunities’, or perhaps noted that there remains some concern about a potentially negative impact please note this below and how this will be monitored/addressed.

<table>
<thead>
<tr>
<th>“Protected characteristic”:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issue:</strong></td>
<td></td>
</tr>
<tr>
<td>How is this going to be monitored/ addressed in the future:</td>
<td></td>
</tr>
<tr>
<td>Group that will be responsible for ensuring this carried out:</td>
<td></td>
</tr>
</tbody>
</table>