# INFECTION CONTROL POLICY

## MULTI-RESISTANT BACTERIA: CONTROL AND PREVENTION  
(including ESBL, CPE and GRE/VRE)

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1.0 Introduction
Some bacteria are naturally resistant to certain types of antibiotic whilst others develop or acquire resistance. If an antibiotic is given to treat an infection, it kills the sensitive bacteria, but any resistant ones can survive and multiply. Infections caused by resistant microorganisms fail to respond to conventional treatment, resulting in prolonged illness and greater risk of death. This is especially pertinent if there are delays recognising multidrug-resistant infections or treatment of severe infections with inappropriate (wrong) antibiotic(s). Therefore, prevention of infection and control of these multi-resistant bacteria is essential.

This policy makes provision for:
- identification of high-risk groups and screening;
- isolation and prevention of cross-infection;
- prophylaxis for surgical and invasive procedures; and
- surveillance of identified patients at risk

2.0 Purpose
This policy clarifies responsibilities in relation to control and prevention of multi-resistant bacteria including: glycopeptide-resistant Enterococci (GRE) which is sometimes known as vancomycin-resistant Enterococci or VRE, extended-spectrum β-lactamase producers (ESBL’s), carbapenemase-producing Enterobacteriaceae (CPE), and other antibiotic-resistant bacteria.
3.0 Scope
This policy applies to all staff within the Trust having any contact with patients, visitors or the clinical environment. It clarifies individual responsibilities and practices pertaining to prevention of infection and control of multi-resistant bacteria within CCC. The policy does not include requirements for environmental sampling; or details of requirements for management and prevention of Meticillin resistant Staphylococcus aureus (MRSA) and Multi-drug resistant Tuberculosis (MDR-TB) as separate guidance or policies exist.

4.0 Responsibilities
It is the responsibility of every member of staff within The Clatterbridge Cancer Centre NHS Foundation Trust (CCC) to make themselves familiar with this policy and comply with its contents. Mandatory infection prevention and control training is provided for all staff groups at Trust Induction and thereafter according to agreed timescales explicit within Learning and Development policy and guidance.

4.1 All staff
Before entering a single room or an isolation area all staff must ensure that they are aware of the appropriate infection control precautions required. All clinical staff must undertake risk assessments when assessing the requirement for transmission based precautions and select and use appropriate personal protective equipment (PPE) according to said risk. Non clinical staff must use PPE as directed by clinical staff in charge of the patients care.

All staff must also:
- Act as a role model for good practice.
- Report to line managers any deficits in knowledge in relation to infection control precautions and/or facilities/equipment or incidents that may have resulted in cross-contamination or cross-infection.
- Apply standard infection control precautions and (when necessary) the transmission based precautions described in this policy.
- Maintain rigorous hand hygiene between contacts with patients or their environment according to the 5 Moments for hand hygiene.
4.2 Managers must:

- Ensure that all staff have attended mandatory training and follow up, via the disciplinary route (if necessary), all staff failing to attend.
- Arrange for specific education and training where gaps in knowledge, skills or practice have been identified.
- Ensure that adequate resources are in place to allow for the recommended infection control measures to be implemented.
- Undertake a risk assessment to optimise patient/client and staff safety, consulting expert infection control guidance as required.
- Support staff in any corrective action or interventions if an infection control related incident occurs.
- Use audit and surveillance results (if appropriate) to monitor progress e.g. ensure hand hygiene audits and High Impact Intervention audits are being completed as required. Ensure that action plans are written as required.
- Ensure that incident forms are completed, investigations undertaken and any action plans monitored where failings in isolation or management of patients with multi-resistant bacteria have occurred.
- Refer to Occupational Health, any staff who may have become ill due to occupational exposure or those with health concerns.
- Ensure that estates/facilities management provide a safe environment to allow infection prevention and control precautions to be applied.
- Reinforce this policy for all staff working in their area of responsibility.
4.3 The Consultant looking after the patient must:

- Liaise with the ward manager to ensure that this policy is implemented for patients in their care.
- Participate in the investigation process for patients acquiring multi-resistant Gram-negative organisms.
- Obtain advice from a consultant medical microbiologist if necessary.
- Issue an appropriate warning to the infection control nurses when the death of a patient is associated with multi-resistant organisms.
- Ensure that statutory reporting requirements are fulfilled.

4.4 All Medical / Prescribing staff must:

- Recognise and take early action in suspected multi-resistant organisms and inform others of the patient’s status prior to initiating requests for investigations or transfer of care.
- Take note of existing medical alerts and previous microbiological findings, institute and maintain prudent antibiotic prescribing; documenting deviations from antibiotic formulary in the patients case notes.
- If unsure of any aspects of the management of multi-resistant Gram-negative organisms, staff should contact the Infection Control Team or request advice on medical management from a Medical Microbiologist.

4.5 Triage staff must:

- Access the medical alert during assessment, to see whether the patient has been diagnosed with an alert organism during a previous admission and highlight pertinent medical alerts to those prescribing antibiotics.
- Obtain all appropriate screening samples as soon as the decision to admit has been made. Screening must not compromise patient care or delay admission and where it is not possible to obtain the screen, Triage staff must inform nursing staff on the receiving ward during handover of patient care.

4.6 Ward nursing staff must:

- Access the medical alert during assessment, to see whether the patient has been diagnosed with an alert organism during a previous admission.
- Initiate and complete all appropriate care pathways via Maxims and institute appropriate and timely isolation if necessary.

- Document when precautions according to the policy cannot be implemented for clinical or other relevant reasons and report incidents to their line manager.

- Advise the patient/client, carers or visitors and other staff of any infection prevention and control requirements such as hand hygiene and respiratory/cough etiquette.

- Ensure that signage that does not breach confidentiality is displayed to alert others to the transmission based precautions required.

4.7 Infection Prevention and Control Team must:

- Provide mandatory training and education sessions to all staff groups and additional education and training where gaps in knowledge have been identified.

- Act as an expert resource on infection prevention and control and provide guidance and support when infection control precautions are required.

- Provide advice on individual risk assessments, e.g. patient placement decisions.

- Notify staff on wards, of newly-identified cases of multi-resistant organisms (as informed by Infection Control System or laboratory staff) and advise appropriate infection prevention and control precautions.

- Monitor appropriate and timely isolation of infected patients and audit isolation practices and monitor side room occupancy at least weekly.

- Support managers in writing their action plans (if requested).

- Alert the DIPC and HPA of outbreaks, organise outbreak meetings and escalate any other concerns.

- Work with the Design Team to identify ways of providing adequate isolation facilities within the Trust.

- Use surveillance to monitor progress against targets and publish information relating to the number of patients identified with Healthcare Associated Infection (HCAI) on a quarterly basis for Hospital Infection Control Committee members and the Director of Infection Prevention and Control (DIPC) and Trust Board.
4.8 Consultant Medical Microbiologist must:

- Support and monitor prudent antibiotic prescribing and advise medical staff on appropriate diagnostic investigations and clinical management of the patient (if requested).
- Advise whether it is appropriate for an infection to be included on a death certificate (if requested).

4.9 Pharmacist/Antimicrobial pharmacist must:

- Support and monitor prudent antibiotic prescribing by regular review of antimicrobial prescribing across the Trust and request the review of any inappropriate therapy.
- Feed back antibiotic prescribing trends and discuss methods to improve practice with prescribers and medical teams where appropriate.
- Review the Trust’s Antimicrobial Guidelines on an ongoing basis in consultation with Consultant Medical Microbiologists.
- Deliver core training to medical staff in prudent antibiotic prescribing.

4.10 Hotel Services Management must:

- Provide cleaning and domestic services as agreed including:
  - Institute an Infection Control Clean of the environment when alerted by the Infection Control Team.
  - Provide extra cleaning in all areas where there are cases of infection and undertake terminal cleaning of isolation rooms, once a patient has been discharged.

4.11 Estates/Design Team must:

- Identify ways of providing adequate isolation facilities within the Trust, in accordance with current guidance from the Department of Health.
- Include recommendations by the infection prevention and control team (IPCT), in the design phase.
- Ensure that hand wash basins that do not comply with national recommendations are replaced during planned renovations.
- Inform the IPCT, in advance of any building works, planned renovations or planned interruption to the water supply or waste decontamination/disposal systems (macerator).

4.12 Risk Management Team must:
- Collect and provide summary information on infection related incident reports, including reported failures in control methods, such as ability to isolate a patient and report all multi-resistant Gram-negative organism outbreaks as Serious Untoward Incidents.

4.13 Biomedical Scientists/Laboratory Staff must:
- Analyse screening samples as requested and report positive results via Infection Control System and/or by telephone.
- Undertake testing for multi-resistant organisms on clinically relevant samples, in line with HPA/national guidelines for testing and report abnormal results in a timely manner via the Infection Control System or by telephone.

5.0 Laws and Regulations

Relevant legislation includes:
- Health and Safety at Work etc Act 1974
- The Management of Health and Safety at Work Regulations 1992
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985
- The Health and Safety (Dangerous Pathogens) Regulations 1981

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) (as amended) relate to biological agents (micro-organisms/infection risks) and chemicals (disinfectants), providing a framework of actions designed to control the risk to health from a wide range of substances.

The Health and Social Care Act 2008 and associated code of practice contain guidance on control and prevention of healthcare associated infections including requirements for policies pertaining to: isolation, control of multi-resistant organisms, hand hygiene, cleaning, maintenance and decontamination.
Medical Devices Regulations 2002 states essential requirements that the device should be clean and, where appropriate, sterilised at the end of the decontamination process and maintained in a clinically satisfactory condition up to the point of use.

### 6.0 Definitions

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<th>Term</th>
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<tr>
<td>antibiotics</td>
<td>Substances that kill or interfere with the growth of microorganisms, especially bacteria.</td>
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<td>antimicrobial resistance</td>
<td>Antimicrobial resistance is resistance of a microorganism to an antimicrobial medicine to which it was previously sensitive.</td>
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<tr>
<td>Beta-lactamase (β-lactamase)</td>
<td>The β-lactam ring is a structure in several families of antibiotics including penicillins and cephalosporins. β-lactamase is an enzyme produced by some bacteria to inactivate and destroy this structure, thus making the bacteria resistant to the antibiotic.</td>
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<tr>
<td>colonisation</td>
<td>When micro-organisms, such as bacteria, begin to grow and multiply in or on their new host (who then becomes a “carrier” of the microbe).</td>
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<tr>
<td>Carbapenem</td>
<td>Carbapenems are antibiotics (such as imipenem, meropenem, ertapenem).</td>
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<tr>
<td>Carbapenemase</td>
<td>Carbapenemases are enzymes produced by certain bacteria to inactivate and destroy carbapenem antibiotics creating a ‘resistant strain’ of the bacteria. There are different types of carbapenemase, including KPC, OXA-48, NDM and VIM enzymes.</td>
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<td>contamination</td>
<td>The presence of an unwanted entity in a specified location e.g. multi-resistant bacteria in the hospital environment. This could result in colonisation with the organism, which, is a necessary stage before infection.</td>
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<td>cross-contamination</td>
<td>The means whereby a contaminant is moved from a source to another location e.g. multi-resistant Gram-negative organisms bacteria are transferred from a colonised patient to a non-colonised patient.</td>
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<tr>
<td>cross-infection</td>
<td>Older term which only considered the spread of infection from one patient to another. Did not consider the much more common failure to prevent transfer of germs from one person to another, particularly when the source was a “silent” carrier of the organism.</td>
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<td>Extended spectrum β- lactamase (ESBL)</td>
<td>β-lactamase is an enzyme produced by some bacteria to inactivate and destroy several families of antibiotics including penicillins and cephalosporins, making the bacteria resistant to the antibiotic. Organisms producing extended-spectrum β-lactamase (ESBLs) are able to destroy a wider range of antibiotics making the infections much more difficult to treat.</td>
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<tr>
<td>Glycopeptide</td>
<td>Glycopeptides are a class of narrow spectrum antibiotics including vancomycin and teicoplanin which may be used to treat infections caused by enterococci.</td>
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<tr>
<td>screening</td>
<td>Obtaining samples from wounds and clinical devices to determine whether multi-resistant organisms are present at those sites.</td>
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7.0 Main Body of Policy
Multi-resistant bacteria present significant clinical, and infection prevention and control challenges in health-care settings but rapid identification and appropriate actions may enable us to prevent or delay their becoming endemic within our Trust.

7.1 Antimicrobial Resistance
New resistance may spontaneously arise by means of chance mutations but some resistance mechanisms can be passed from one bacterium to another, spreading resistance between species. There are several mechanisms of resistance: for example some bacteria prevent the antibiotic getting into their cells; some get the antibiotic out of their cells before it can harm them; others destroy the antibiotic by producing enzymes against it.

7.1.1 Spread of Antimicrobial resistance
The World Health Organisation highlights that whilst antibiotics do not cause resistance, inappropriate and irrational use of these medicines provides favourable conditions for resistant microorganisms to emerge, spread and persist. Many resistant strains develop overseas in countries where there is less judicious use of broad-spectrum antibiotics. However, this has implications for antibiotic resistance in the UK as international travel enables spread of resistant organisms from one country to another. The resistant bacteria then spread in the same way that other sensitive strains are spread; through direct contact with a colonised or infected person or contaminated environment or equipment.

The risk of cross infection from multi-resistant bacteria can only be addressed effectively if appropriate infection prevention and control practices are rigorously implemented and measures are taken to manage potential sources.

7.2 Glycopeptide-resistant Enterococci
Enterococci are bacteria normally found colonising the bowel of healthy individuals but these Gram-positive organisms also have the ability to cause a range of infections including bacteraemia, urinary tract infections and wound infections especially in vulnerable
populations. During the 1980s Enterococci with resistance to the glycopeptide antibiotics vancomycin and teicoplanin emerged; and are known as glycopeptide-resistant enterococcus (GRE) or vancomycin-resistant Enterococcus (VRE), the majority of which are Enterococcus faecium.

7.2.1 Risk Factors for colonisation with GRE/VRE
Risk Factors include:
- Patients with admissions to oncology, haematology, renal, neonatal and/or intensive care units
- Prior and prolonged antibiotic use
- Widespread use of broad spectrum antibiotics, especially cephalosporins
- Significant immuno-suppression
- Prolonged or multiple hospital admissions especially to hospitals with a high rate of GRE/VRE.

7.2.2 Screening for GRE/VRE
Routine screening at CCC should be undertaken of all inter-hospital transfers and of patients with known previous colonisation with GRE/VRE or recent admission to a hospital known to have a high prevalence of GRE/VRE.

Screening should be performed on the day of admission but where this is not possible, screening must be completed within 24 hours of admission.

Screening specimens include:
- a rectal swab (to detect bowel carriage), there should be visible faecal material on the swab and
- a swab from any wounds and indwelling medical devices

The same swab(s) may be used to screen patients for carbapenemase producing Enterobacteriacea (CPE) but tests must be requested correctly and specimens labeled. Requesting via OCS has been simplified and the ‘Nursing Folder’ contains a test named ‘Inter-hospital transfer’ (next to MRSA screening option). If this option is selected the sample will be automatically tested for CPE and GRE/VRE - only one request form and label is required for each sample. Screening tests may be also requested separately but if
this option is used to request tests on a single sample, separate OCS request forms must accompany the sample and samples must be labeled with the all stickers specific to all tests requested.

If GRE/VRE is isolated from a clinical specimen, it may indicate colonisation only but if patients are showing signs of infection, it is essential to discuss antimicrobial management with a consultant microbiologist.

7.2.3 Transmission of GRE/VRE
GRE/VRE can colonise the bowel for extended periods of time (months or years). The organism may contaminate the environment around a patient and is able survive for extended periods of time; several days to several months (Hota et al 2004, Kramer et al 2006).

The organism appears to be mainly transmitted via hands after contact with infected or colonised patients, fomites or medical devices. Studies attempting to culture GRE/VRE from the environment have produced conflicting results but contaminated medical equipment including specialist beds and electronic thermometers have been implicated in outbreaks.

7.2.4 Control of GRE/VRE
No generally accepted decolonisation regimen exists and attempts to decolonise patients are generally unsuccessful. The most important measures to control the spread of this organism are appropriate, isolation of the patient, hand hygiene; high standards of environmental hygiene and effective decontamination of medical equipment.

It is routine practice within the Trust to isolate all patients with diarrhoea in a single room with en suite facilities to reduce the risk of cross-infection. This is particularly important for patients colonised with GRE/VRE as there is an increased risk of environmental contamination when individuals have diarrhoea.

The isolation policy gives more explicit details of the precautions required and staff must follow the guidance for 'Contact Precautions' which should remain in place until the
patients discharge or until diarrhoea has resolved and the patient has 3 consecutive negative screening swabs.

7.3 **Extended-spectrum β-lactamase producers (ESBL’s)**

The β-lactam ring is part of the structure of several antibiotic families including penicillin and cephalosporins. Some bacteria produce an enzyme (β-lactamase) to inactivate and destroy these types of antibiotic, thus conferring resistance, enabling the bacteria to survive. Organisms producing extended-spectrum β-lactamase (ESBLs) are able to destroy a wider range of antibiotics making the infections much more difficult to treat.

Public Health England (formerly The Health Protection Agency) highlight that ESBLs are not a new phenomenon having been first described in the mid-1980s. Previously ESBLs were mostly found in Klebsiella species especially *Klebsiella pneumonia*; mostly identified in hospitals (especially intensive care units). More recently, a new class of ESBL (called CTX-M enzymes) has emerged and been widely detected among *Escherichia coli* (E. coli) bacteria. Surveillance has identified that ESBL-producing E. coli isolates are increasing in frequency in hospitals and in the community and are able to resist penicillins and cephalosporins.

Klebsiella and E. coli can cause many different types of infections, including pneumonia, bacteraemia, wound or surgical site infections, and meningitis. ESBL producing strains have an apparently world-wide distribution and occur in similar patterns to sensitive strains of the organisms. ESBLs have been isolated from abscesses, chronic wounds such as pressure sores, blood, intravenous devices, lung tissue, peritoneal fluid, sputum, and throat cultures. The organisms are particularly associated with healthcare-associated infections including urinary tract infections in catheterised patients and pneumonia in ventilated patients.

7.3.1 **Risk Factors for Colonisation/Infection with ESBL**

Known risk factors for colonisation and/or infection with ESBL producing organisms include:

- Prior and prolonged antibiotic use especially extended-spectrum beta-lactam antibiotics. Use of these antibiotics exerts a selective pressure for emergence of
ESBL producing strains. The resistance can then be transferred to other bacteria including other species.

- Prolonged or multiple hospital admissions especially to hospitals with a high rate of ESBLs
- Admission to critical care unit especially ventilator use
- Presence of indwelling medical devices especially urinary catheters.

### 7.3.2 Screening for ESBLs

Screening is not currently undertaken routinely at CCC but may be undertaken at the request of the Infection Control Team. Normal culture and sensitivity testing on clinical samples will detect significant ESBLs.

If an ESBL is isolated from a clinical specimen, it may indicate colonisation or infection. If patients are showing signs of infection, guidance on antimicrobial management should be sought from a consultant microbiologist as many of the commonly used antibiotics will be ineffective.

### 7.3.3 Transmission of ESBLs

Microorganisms use genetic codes to confer resistance with ESBL enzymes and these genes also carry codes conferring resistance to several other antibiotics. Consequently, most ESBL isolates are also resistant to non-β-Lactam antibiotics including: aminoglycosides, fluoroquinolones, tetracyclines, chloramphenicol, and trimethoprim but not carbapenems.

The lower gastrointestinal tract of colonised patients is the main reservoir of these organisms and carriage can persist for months but the organisms can also survive in the hospital environment. Transmission of ESBL producing organisms occurs via the hands of hospital staff following contact with infected or colonised patients or contaminated fomites or environment.
7.3.4 Control of ESBLs

The most important measures to control the spread of ESBLs are appropriate hand hygiene and high standards of environmental hygiene and decontamination of medical equipment.

It is routine practice within the Trust to isolate all patients identified as colonised or infected with ESBL in a single room with en suite facilities to reduce the risk of cross-infection. The isolation policy gives more explicit details of the precautions required and staff must follow the guidance for ‘Contact Precautions’ which should remain in place until the patients discharge.

Medical management of wounds may include use of a topical antiseptic. The continued use of indwelling medical devices especially urinary catheters must be reviewed as infection may necessitate removal of the device. Routine decolonisation of the gastrointestinal tract (for ESBLs) is still a matter of some debate. Some centres have reported successful decolonisation but the rationale for suppressing gastrointestinal carriage is not universally accepted and it can lead to development of further resistance. No routine decolonisation regimen is recommended at CCC as there is currently general consensus that there is a low success rate. Decolonisation may be considered under exceptional circumstances for patients at high risk of developing infection but this should only be considered after discussion with a consultant medical microbiologist.

7.4 Carbapenemase-producing Enterobacteria (CPE)

Carbapenem antibiotics (imipenem, meropenem, ertapenem) are invaluable for the treatment of infections due to multi-resistant Gram-negative bacteria, including ESBLs. However carbapenem-resistant Gram-negative bacteria have emerged and are prevalent in most areas outside of northern Europe, USA/Canada, and Australia.

There are also rare but concerning reports of these highly resistant bacteria in UK hospitals including isolates from hospitals in the North West region.

The organisms of most concern include highly resistant strains of *Klebsiella pneumoniae* and *Escherichia coli*. Transmission characteristics and pathogenesis resemble those of
sensitive strains of the organisms but the infections are much more difficult to manage as there are limited treatment options. A few isolates have been identified with resistance to all known antibiotics but many remain susceptible to two antibiotics. These antibiotics are colistin, an old and rather toxic antibiotic and tigecycline, a newer antibiotic only suitable for some types of infection as therapeutic failures have occurred. Consequently, infection with these organisms is associated with high mortality rates and it is essential to discuss antimicrobial management with a consultant microbiologist. Medical management of wounds may include use of a topical antiseptic. The continued use of indwelling medical devices especially urinary catheters must be reviewed as infection may necessitate removal of the device.

If CPE is isolated from a clinical specimen, it may indicate colonisation only but all patients identified as colonised or infected with CPE must be isolated.

7.4.1 Risk Factors for Colonisation/Infection with CPE

Countries known to have an increased prevalence of CPE include: Central and South America, India, Pakistan, Mediterranean Europe, Greece, Turkey, Africa, Israel and parts of Asia. Cases of CPE may be imported into the United Kingdom as a result of increased foreign travel and hospitalisation. Areas of the United Kingdom known to have a higher prevalence of CPE include the north-west of England.

CPE are prevalent primarily in ITU/HDU/renal environments. However, inter hospital transfer of oncology patients may present a risk due to frequent exposure to antimicrobials, contact with critical care environments and attendance at one or more hospitals in this region.

General risk factors for colonisation and/or infection with CPE are similar to those for the development of ESBL organisms and include:

- Prior and prolonged antibiotic use especially extended-spectrum beta-lactam antibiotics.
- Hospitalisation in countries where carbapenem resistance is prevalent, predominantly India, Pakistan and Greece.
- Prolonged or multiple hospital admissions (in any country) especially those with a high rate of CPE
- Admission to critical care unit especially ventilator use
- Recent surgery
- Presence of indwelling medical devices especially urinary catheters.

### 7.4.2 Screening for CPE

In line with Department of Health guidelines (Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection), patients who are considered to be high risk should be screened on admission to hospital (See Appendix A for summary of advice and Appendix B for patient placement guidance. High risk patients generally include previous positives or patients who have been hospitalised in countries where carbapenem resistance is prevalent, predominantly India, Pakistan and Greece and in the north west of England.

Routine screening at CCC should be undertaken of:
- all inter-hospital transfers
- patients with recent hospital admission especially overseas and/or in the northwest of England
- known previous colonisation with CPE.

Screening should be performed on the day of admission but where this is not possible, screening must be completed within 24 hours of admission (See Appendix C for algorithm of the screening process. Screening specimens include:
- a rectal swab (to detect bowel carriage), there should be visible faecal material on the swab and
- a swab from any wounds and indwelling medical devices.

The same swab may be used for MRSA screening and CPE/GRE screening but all tests must be requested and specimens must be labeled with both stickers.
7.4.3 Transmission of CPE
The lower gastrointestinal tract of colonised patients is the main reservoir of these organisms and carriage can persist for months but the organisms can also survive in the hospital environment. Patient to patient transmission of these organisms may occur via the hands of hospital staff following contact with infected or colonised patients or contaminated fomites or environment. Patient’s colonised with multiresistant bacteria and experiencing diarrhoea are at particularly high risk of transmitting the organisms to others and/or contaminating the environment.

7.4.4 Control of CPE
Decolonisation regimen for CPE is still a matter of some debate. Some centres have reported successful decolonisation of gastrointestinal carriage but there is more general consensus that there is a low success rate. The rationale for suppressing gastrointestinal carriage is not universally accepted and it can lead to development of further resistance. No routine decolonisation regimen is recommended at CCC but it may be considered, following discussion with a Consultant Medical Microbiologist for patients at high risk of developing infection.

The most important measures to control the spread of these organisms are rapid identification of patients colonised or infected with the organisms followed by isolation, appropriate hand decontamination, high standards of environmental hygiene and effective decontamination of medical equipment.

It is routine practice within the Trust to isolate all patients identified as colonised or infected with CPE in a single room with en suite facilities to reduce the risk of cross-infection. The isolation policy gives more explicit details of the precautions required and staff must follow the guidance for ‘Contact Precautions’ which should remain in place until the patients discharge. Patients transferred from areas known to be affected by CPE, or patients with a past history of colonisation or infection with CPE must be isolated whilst awaiting screening results. Contact the ICNs for further advice if side room capacity is limited or use the algorithm in Appendix B.
7.5 Other Multi-Resistant Gram-negative Bacteria

The organisms most often associated with multi-resistance are, but not limited to, species of Acinetobacter, Enterobacter, Klebsiella, Pseudomonas and Escherichia coli.

7.5.1 Acinetobacter

Acinetobacter is a Gram-negative bacterium that is readily found throughout the environment including drinking and surface waters, soil, sewage and various types of foods. Acinetobacter is also commonly found as a harmless coloniser on the skin and usually poses very few risks to healthy people in the community as strains are sensitive to antibiotics. However, a few species, particularly Acinetobacter baumannii, can cause serious infections usually in very ill hospitalised patients. ‘Hospital strains’ may be increasingly resistant and more difficult to treat; being resistant to both an aminoglycoside (e.g. gentamicin) and a third generation cephalosporin (e.g. ceftazidime); some may be also combined with resistance to carbapenems (e.g. meropenem).

The most common Acinetobacter infections include pneumonia, bacteraemia (blood stream infection), wound infections, and urinary tract infections.

7.5.2 Pseudomonas aeruginosa

*Pseudomonas aeruginosa* is commonly found in soil and ground water. It rarely affects healthy people and most community-acquired infections are associated with prolonged contact with contaminated water. In hospitals, *Pseudomonas aeruginosa* is a common cause of healthcare-associated infections and is increasingly resistant to many antibiotics. The organism acts mainly as an opportunistic pathogen particularly among immunocompromised patients or those with severe burns, diabetes or cystic fibrosis.

Infections due to pseudomonas can occur in almost every body site but the organism prefers moist/wet reservoirs such as respiratory equipment and indwelling catheters. Infections in the bloodstream (bacteraemia) can be particularly serious. Recent outbreaks in neonatal units may have been associated with contaminated hand hygiene facilities, particularly taps.
Most infections with *Pseudomonas aeruginosa* are susceptible to third generation cephalosporins (ceftazidime), carbapenems (imipenem and meropenem), aminoglycosides (gentamicin and tobramycin) and colistin. Serious infections are usually treated with a combination of suitable antibiotics (e.g. piperacillin/ tazobactam and gentamicin).

Multi-resistant strains are resistant to varying combinations of antipseudomonal antibiotics: ceftazidime, piperacillin/tazobactam, aminoglycoside, ciprofloxacin and carbapenems.

### 7.6. Screening Samples and Specimen Collection

Successful laboratory diagnosis depends on the collection of specimens at the appropriate time, using the correct technique and equipment; ensuring they are transported to the microbiology laboratory safely and without delay. Clinical samples must include all relevant clinical details on the request form and specimens must be labelled, prepared and transported promptly to the laboratory according to the guidance contained in the Specimen Policy under S in the Policies A-Z on the intranet.

Each specimen must be clearly labelled with:
- The specimen site - to allow application of result to corresponding sites.
- The date and approximate time of specimen collection.
- The patient’s full name and 2 other identifiable pieces of patient information e.g. date of birth and NHS number - to allow reporting on the correct patient.

It is **essential** that the microbiology laboratory knows when a specimen was taken as delayed or poor quality specimens can yield unhelpful or misleading results and may not be processed. If patients are given a request form and asked to provide a specimen they should be asked to ensure that the date on which the specimen was collected is written on the container and the form.

#### 7.6.1 Screening Sites

Screening swabs must be collected from all appropriate sites using the guidance in section 7.6.2. Appropriate sites may include a rectal swab, and swabs from any skin lesions or
wounds and any accessible medical devices (including urinary meatus for catheterised patients).

7.6.2 Screening Specimen Collection Procedures

<table>
<thead>
<tr>
<th>Perianal/ Rectal Swab</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>Moisten the swab with sterile water or the accompanying sterile transport medium.</td>
<td>For patient comfort &amp; to improve collection of any micro-organisms present.</td>
</tr>
<tr>
<td>Wipe firmly around the anal margin and replace in the transport container.</td>
<td>To swab the correct site and to obtain the required sample.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wound/Skin Lesion Swab/ Medical Device</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td></td>
</tr>
<tr>
<td>Take any screening swabs required before cleaning procedure begins.</td>
<td>To optimise detection of organisms and to prevent contamination of a swab with therapeutic agents (antisepsics) that may be employed in the dressing procedure.</td>
</tr>
<tr>
<td>Moisten the swab with sterile water if the wound is dry.</td>
<td>For patient comfort &amp; to improve collection of any micro-organisms present</td>
</tr>
<tr>
<td>Zig-zag &amp; rotate the swab across the skin surface to be sampled.</td>
<td>To swab the correct site and to obtain the required sample.</td>
</tr>
</tbody>
</table>

**IMPORTANT POINTS TO REMEMBER**

- Include a representative selection of all wound sites – any area of broken skin or exfoliative skin conditions e.g. eczema psoriasis and medical device entry sites e.g. catheters, cannulae, tracheostomy, PEG, central lines etc.
- Wound/line dressings should not be removed solely to obtain screening swabs; collection of specimens for screening should be co-ordinated with routine dressing changes or wound assessment (within 24-48 hours of admission) to ensure that these sites are not missed.
- Screening swabs will only ‘look for’ and detect the organism requested. If any wound/ device site, sputum or urine displays infective markers, specimens must also be sent for Culture and Sensitivity (C&S) **NOT** solely as part of a screen. If a wound infection is suspected, it is important to detect both resistant organisms and any other potential pathogens. Cleaning the wound with saline after collecting the screening swab and before collection of an additional swab for culture and sensitivity will remove as much of the superficial flora as possible, leaving only those organisms likely to be causing infection. Do not take swabs for culture and sensitivity from slough or necrotic tissue as this is unlikely to yield meaningful culture and sensitivity results.
Environmental sampling will be undertaken on the advice of the Infection Control Team according to agreed protocols.

7.6.3 Interpreting Results
Microbiology samples sent for screening will detect only the organism requested for screening whereas samples sent for culture and sensitivity will detect known pathogens present in sufficient quantities to cause infection.

Samples sent for screening will be reported as name of organism detected (positive result) or not detected (negative result). Staff should contact the ICNs in the first instance regarding advice (if required).

Samples sent for culture and sensitivity will report if pathogens are isolated and will give an indication of the level of microorganisms present (light, moderate or heavy growth). Medical staff should contact the Consultant Medical Microbiologist for advice on managing infections due to multi-resistant organisms (if required) especially as antimicrobial sensitivities may not be reported and immunocompromised patients may require complex antimicrobial therapies.

7.7 Antibiotic Management
Before prescribing antibiotics, medical staff should always take note of the patient’s previous microbiological history (particularly previous history of multi-resistant organisms) and may need to consider the use of an antibiotic active against the multi-resistant organism. In any event, medical staff must select appropriate antibiotics whilst following advice contained within the current edition of the CCC Antibiotic Formulary. Deviations from the Antibiotic Formulary and associated rationale must be documented in the patient’s case notes.

If surgical antibiotic prophylaxis is required for a patient known to be, or to have been recently colonised with a multi-resistant organism in the recent past, a prophylaxis regimen which incorporates cover against the organism must be used. If infection caused by multi-resistant organisms is suspected, an antibiotic/combination of antibiotics known to include activity against the organism must be used.
All antibiotic prescriptions must state an approximate course length in the form of a stop/review date. Senior Medical Staff should discuss with the Consultant Microbiologist if advice is required.

7.8 Maxims Documentation
A variety of Maxims functions are available to assist clinical staff in the management of individuals with known multidrug resistant organisms including: Medical Alert, ICN documentation, and Care Plans.

7.8.1 Maxims Medical Alert
The ICNs will place a medical alert on the Maxims system for all patients known to be colonised with positive. A positive medical alert is denoted by an exclamation mark symbol visible from the main patient details page and a blue circle i-symbol visible from the ward list page.

A medical alert will not be removed from the patient’s record following a negative screen as patients can remain colonised or become positive during subsequent admissions or whilst at home. Clinical staff should inform the ICNs when they feel that an Alert is required but is not present e.g. known colonised patients transferred from other organisations.

7.8.2 Referral to ICN
Staff members can contact the ICNs or refer a patient using:
- Via telephone/bleep
- In person via verbal request

7.8.3 ICN Documentation on Maxims
The ICN will document any advice given or actions taken using the nursing documentation and can be selected by filtering for Infection Control Nurse. ICN entries on outpatients and those individuals with no corresponding inpatient episode at the time of documentation can be found in the Outpatient section of records.
7.9 Isolation of patients

Standard Precautions are to be used for the care of all patients by all staff all of the time but when a patient is identified as colonised or infected with a multi resistant organism, they should be isolated, to reduce the risk of transmission to others. ‘Contact Precautions’ are required in addition to Standard Precautions to prevent spread of microorganisms by direct or indirect contact. A summary of Contact Precautions is contained in this section of the policy but formal Trust expectations and more detailed guidance is included in the Isolation Policy available via the Trust Intranet.

7.9.1 Patient Placement

Risk Assess - move into a side room until diagnosis has been excluded or patient is no longer considered to be infectious. If it is not possible to isolate those patients at greatest risk of spreading infection in a single room; it is not acceptable to care for them in the same area as those most vulnerable to infection.

- Nursing staff caring for the patient must ensure that an appropriate, approved instructional sign is placed at the entrance to the isolation area and all staff and visitors are informed.
- Limit the movement and transport of the patient from the isolation room to essential clinical purposes only. Inform other department/hospital in advance so appropriate precautions can be arranged.
- Patients in isolation must not be held in communal waiting areas and overall waiting time must be minimised.

7.9.2 Personal Protective Equipment (PPE)

PPE required for isolation must be used appropriately and effectively to maintain the safety of patients, staff and visitors to the Trust. Such PPE is usually designated as single use or single patient use and must be removed and disposed of after each appropriate use, sooner if it becomes heavily contaminated or damaged.

- Required PPE should be readily available in an area of safety – usually near the doorway but outside the isolation area/room.
- In addition to wearing PPE as outlined under Standard Precautions:
  - Wear clean, non sterile disposable gloves when providing any hands on care for a patient or if having significant contact with the patient’s environment.
o Wear a disposable plastic apron when entering the room if you anticipate that your clothing will have contact with the patient, environmental surfaces, or items in the patient's room.

- Remove PPE before leaving the patient’s room unless carrying contaminated items e.g. bedpan. It is not necessary to wear PPE when transferring a patient through the hospital but is required if assisting a patient to transfer between a bed/chair and or trolley.

### 7.9.3 Hand Hygiene

Staff must decontaminate hands according to 5 Moments using an appropriate product. For example hand hygiene rubs are not appropriate when hands are soiled but are acceptable before donning PPE.

- Decontaminate hands immediately before putting on gloves and after removing contaminated PPE. After glove removal and hand hygiene, ensure that hands do not touch potentially contaminated surfaces or items in the patient’s room.

Patients should be encouraged and assisted where necessary, to wash their hands before meals and after using the toilet.

### 7.9.4 Equipment

Dedicate the use of patient-care equipment (commodes, blood pressure cuffs etc.) to a single patient, to avoid the sharing of equipment between patients. Wherever possible such items must remain within the isolation area for use for the infected/colonised patient only and should be cleaned routinely on a daily basis.

- Use single-use disposable equipment in isolation areas wherever possible.
- If the use of common equipment or items is unavoidable, then these must be adequately decontaminated according to manufacturer’s instructions before use for another patient (even if the equipment is used between patients in a cohort area).
- Any items of medical equipment (including beds) that require repair or servicing must be decontaminated before being sent for repair and a certificate of decontamination attached.
• The use of Fans or other equipment likely to create air currents should be avoided if possible in isolation rooms and must not be used where patients with resistant organisms are cared for in a main bay.

7.9.5 Environmental Cleaning and Disinfection
• Remove all unnecessary items from the isolation area to minimise clutter and facilitate adequate cleaning.
• Use appropriate PPE and follow guidance to clean all fixtures and fittings in the isolation area (at least) daily with an appropriate approved solution of a detergent and disinfectant.
• Follow local guidance on ‘Terminal cleaning’ and curtain changes of the isolation area when the patient is discharged or no longer requires isolation.
• Rooms previously occupied by patients with CPE or GRE/VRE should be fogged with hydrogen peroxide before use by another patient. If fogging is not available and use of the room necessary a full curtain change and terminal clean using disinfectant (‘actichlor clean’) must be carried out.

7.9.6 Management of Used Linen
Soiled textiles, including bedding, towels, and clothing may be contaminated with pathogenic microorganisms. However, the risk of transmitting infections is negligible if they are handled, transported, and laundered in a safe manner.

Key principles for handling soiled or contaminated laundry are:-
• not shaking the items or handling them in any way that may aerosolize infectious agents.
• avoiding contact of one’s body and personal clothing with the soiled items.
• containing soiled items in a laundry bag or hamper.

Patients should be encouraged to change their towels and clothing daily (or more frequently if required). Staff must change all bed linen daily (or more frequently if required) and avoid vigorous bed making.

Used linen is disposed of in the normal manner unless the linen is heavily soiled or the use of red heat soluble bags is advised by the Infection Control Team.
• Patients who do not have relatives/carers able to launder personal items should be encouraged (if appropriate) to use hospital clothing and towels.

• Plastic bags with a dissolving seam suitable for use in a domestic washing machine are available for patient clothing to be laundered at home by patient’s relatives/carers. Instructions are printed on the side of the laundry bag but relatives/carers may need to be instructed that the bag should be placed unopened into the washing machine and removed following the wash cycle. Hospital grade heat soluble ‘red alginate bags’ must not be used to hand patients own clothing to relatives/carers as this type of bag can block domestic washing machines.

7.9.7 Management of Waste

• Ensure appropriate waste disposal facilities (foot operated bins) are available within the isolation room to dispose of used PPE and other waste.

• Dispose of infected waste into orange bag and wear appropriate PPE when removing waste from the isolation area.

7.9.8 Additional guidance on Visitors

If additional infection control precautions are required, it is essential to advise others of the actions and precautions required but patient confidentiality must be maintained. It is generally not necessary for staff or visitors having social contact with the patient to wear gloves but an apron is advisable and all visitors should be encouraged to decontaminate their hands before and after visiting.

7.10 Outbreaks
An outbreak would be defined in relation to the area in which a hospital-acquired case had been identified. A single hospital-acquired infected patient at CCC will result in an investigation but two or more epidemiologically linked hospital acquired infections caused by the same organism will result in an escalation of actions in line with the Outbreak Policy.

The DIPC and The Infection Control Team will undertake investigations and determine the actions required to manage the outbreak; including ward or bay closures and informing the Health Protection Agency of events and actions undertaken.
Outbreak management and investigation may include environmental sampling and staff screening.

7.11 Staff Screening
Healthcare staff may require screening to detect multi-drug resistant organisms when:

- there is epidemiological evidence which suggests that certain members of staff may be associated with a number of patient cases.
- when a protracted outbreak is not controlled by strict attention to control measures aimed at the patients and their environment.

The Infection Control Team will determine whether any members of staff require screening and will liaise with Occupational Health staff to ensure that staff are managed confidentially and screening and decolonisation/management are coordinated.

A decision to redeploy staff or to send them off duty should be taken after a risk assessment that considers the area in which they are normally employed and the location and extent of their site(s) of carriage. Staff members working in “high risk” clinical areas may be offered redeployment in “low risk” areas such as an outpatient department. It is recommended that only staff members with colonised or infected hand lesions should be off work whilst receiving courses for decolonisation therapy but this decision should be based on the local risk assessment.

7.10 Incident Reporting and Investigation
Events resulting in failure to adopt infection control precautions and/or incidents which have resulted in cross-contamination must be reported as per incident reporting procedures. All related incidents will be accompanied by investigation and action planning as required. In addition:

- All outbreaks of Gram-negative organisms will be reported as Serious Untoward Incidents.
- All blood stream infections will be investigated to determine possible underlying causes.
8.0 Training

The contents of this document are supported by clarification of the Trusts expectations during main induction training for all staff and thereafter during mandatory training according to the frequency listed in the Education and Training Policies. The policy launch will be accompanied by additional training of all Infection Control Link Staff and staff working in clinical areas.

9.0 Audit

The contents of this policy will be audited routinely as part of the Infection control audit programme and will include visits to the ward by the infection control nurse to ensure that appropriate precautions are in place. Exceptions will be noted by incident reporting and all reports and audits followed up as per Infection Control Policy.

Examples include

- By outbreak reports, lessons learned and daily updates.
- By clinical Incident reporting systems relating to Infection Control.
- By routine clinical review of all patients requiring additional infection control precautions within the organisation.
- By daily monitoring of the placement of all patients requiring additional infection control precautions within the organisation.

Policy Monitoring

9.1 Actions to be taken following the screening results, including timescales

Lead: Infection Control Nurse

Monitoring committee: Infection Control Committee

In addition to individual patient centred monitoring, a retrospective care plan audit will be undertaken of all patients identified as positive in the previous 6 or 12 months. This will involve a review of the patient medical records to ensure the following processes were carried out:

- Infection Control Nurse informed of results by the Infection Control System or laboratory
• Infection Control Nurse discussed the result with nursing, secretarial or medical staff, documented the results on Maxims and added the alert to Maxims.
• The patient was isolated with contact precautions
• Details of the organism were included in discharge/transfer documentation

Where non-compliance is identified action plans will be developed by the lead assigned to each section and progress against the action plan will be presented to the identified monitoring committee at each meeting until the issue is resolved. The lead person responsible for monitoring compliance and developing and implementing action plans to rectify non-compliance with this policy is the Infection Control Lead Nurse.

9.2 Process for recording who is informed of the screening results

Lead: Infection Control Nurse
Monitoring committee: Infection Control Committee
See annual audit in 8.1 above.

9.3 Process for recording actions

Lead: Infection Control Nurse
Monitoring committee: Infection Control Committee
See annual audit in 8.1 above.

10.0 References


Centers for Disease Control (CDC) (2009) Morbidity and Mortality Weekly Report Guidance for Control of Infections with Carbapenem-Resistant or Carbapenemase-Producing Enterobacteriaceae in Acute Care Facilities
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Health Protection Agency Resistance Alert 3: carbapenemase-producing Enterobacteriaceae in the UK: multifaceted emergence:
Health Protection Agency (2010) Antibiotic Resistance factsheet
http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1248854046470

Health Protection Agency (2008) Working party guidance on the control of multi-resistant Acinetobacter outbreaks
http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Acinetobacter/Guidelines/acuteGuidance/


Specialist Advisory Committee on Antimicrobial Resistance (SACAR) – UK Template for hospital antimicrobial guidelines. BSAC Available at: http://www.bsac.org.uk


11.0 Appendices

Appendix A – Screening protocol for Carbapenemase-producing organisms
Appendix B - Appendix B - Patient Placement Algorithm  Inter-hospital Transfer
Appendix C - CPE Screening Algorithm
Appendix A

Screening Protocol for Multi-resistant organisms

1. Patients to be screened
   • All patients transferred directly into the Trust (inpatient areas only) from other healthcare establishments (inter-hospital transfer).
   • Patients with previous history of colonisation/infection with a multi-resistant organism
   • Patients with recent admission (within 3 months) to overseas hospital or any hospital with a known problem of multi-resistant organisms

Screens/Samples to Request
Request and obtain MRSA screening samples as normal (Nose, groin, skin lesions, indwelling and accessible medical devices). At the same time request and obtain screening samples for carbapenemase-producing Enterobacteriacea (CPE) and glycopeptide-resistant Enterococci (GRE/VRE). The following sites are to be sampled for CPE and VRE:
   • a rectal swab (to detect bowel carriage), there should be visible faecal material on the swab and
   • a swab from any broken skin/entry sites: tracheostomy, line sites, urinary catheter sites etc.

If any of these sites are considered to be clinically infected, a sample for culture and sensitivity should also be sent. The clinical details should list relevant history e.g. “repatriated from overseas” OR “transfer from UK hospital possible resistant pathogens” OR known history of.........

2. Isolation
It is essential to ensure that any patients known to be carrying carbapenem-resistant and/or vancomycin-resistant organisms are the highest priority for isolation. High standards of infection prevention and control (appropriate hand hygiene and contact precautions) are required to prevent the spread. Patients awaiting screening results are to be isolated and must be managed with contact precautions until all relevant negative screening results have been obtained (approximately 48 – 72 hours).

Any patient identified as colonised or infected with a carbapenem-resistant and/or vancomycin-resistant organism must be isolated in a single room and managed with contact precautions until discharge if possible. On the advice of the Infection Control Team, isolation may be discontinued following 3 consecutive negative screens.

3. Results
The ICNs should be informed by the IC System of any concerning results and will document advice given and actions taken (see algorithm Appendix B). Clinicians should contact a clinical microbiologist and the infection control team for any advice regarding continuing isolation and further management.
Appendix B - Patient Placement Algorithm Inter-hospital Transfer

Test all patients according to current criteria - request inter-hospital transfer screen from nursing folder to ensure CPE and VRE tests done. Rectal swab (with visible faecal matter) + any wounds/medical devices.

**High Risk Patient** - symptoms of diarrhoea or exfoliative skin condition e.g. exczema or known previous MRSA, VRE, CPE or any admission to known high-risk hospital or patient is coughing and is known (or previous) resistant organism in sputum?

Yes

Other Known Risk Factors? - urinary catheter, tracheostomy, wounds, prolonged hospital admission, recent contact with ITU, HDU, renal, haematology, overseas hospital or travel to known high risk country.

Yes

Other Known Risk Factors?

No

Patient remains high/moderate risk.

Single Room required

Single Room available?

Yes

Isolate - contact precautions until at least 1 negative screen and no diarrhoea for at least 48 hours.

No

Risk Assess all single room occupants and transfer out into main bay anyone in lower risk group**. Examples of low risk patients include: Known previous MRSA but current screens negative Known previous Clostridium difficile but currently no diarrhoea and not on treatment likely to cause diarrhoea Other inter-hospital transfer patients assessed as lower risk with 1 negative screen this admission.

**Actichlor clean of vacated single room and all used equipment is required before admitting another patient. Terminal clean of room & equipment used by patient with CPE/VRE, C.diff should include routine fogging and curtain change before admitting another patient.

No

Patient is lower Risk but admit to single room if one is available and there is no competing pressure for single room.

**Actichlor clean of vacated single room and all used equipment is required before admitting another patient to the room. Curtain change and fogging are not routinely required unless patient confirmed CPE/VRE, C.diff.
Appendix C - CPE / VRE Screening Algorithm

Patient meets current criteria* for CPE/VRE Screening (Appendix A)

YES

Provide information and gain informed consent** (Screening information contained in Inpatient booklet).

YES

Use correct procedure to obtain rectal swab (with visible faecal matter) + any wounds/skin lesions & accessible medical devices. Complete request form, label samples correctly, package and send to Lab. Await results.

YES

Screening results positive

NB - ICN to document on Maxims all positive CPE/VRE (on receipt of results), add alert and advise CCC nursing/medical or secretarial staff.

Current Inpatient at CCC

YES

Ward Medical and Nursing staff to:
- Initiate and complete isolation Care Plans on Maxims (within 24 hours).
- Inform patient of results.
- Isolate with Contact Precautions.
- Review antibiotics, wounds/ invasive devices etc.
- Refer to ICN for further advice (if necessary).

NO

Medical staff to inform other healthcare professionals of CPE/VRE result. This must include as a minimum the patient’s GP and, in the case of transferred patients, relevant healthcare staff at the patients current location to decide whether and how the patient is informed of the result.

NO

At discharge or transfer of care - details of CPE/VRE must be included in letter to GP and other documentation. Room to be Terminally Cleaned and fogged with hydrogen peroxide prior to occupation by another patient.

NO

No further action required until patient meets criteria for screening*. Consider re-screen if high risk.

YES

Until patient meets criteria

Delay screening until patient meets criteria

* Screening criteria - all direct transfers, all patients with recent overseas hospital admission.
** If patient refuses CRE Screening - contact ICNs for further advice.