**Joint Policy for Cumbria Partnership Foundation Trust & North Cumbria University Hospital NHS Trust**

# Carbapenemase-Producing Enterobacteriaceae (CPE), Early Detection & Control Policy

| | |
|---|---|
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| **Policy Author** | Infection Prevention and Control Support Nurse |

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# Policy On A Page

## SUMMARY & AIM

This policy outlines the measures that all North Cumbria University Hospitals Trust (NCUH) and Cumbria Partnership NHS Foundation Trust (CPFT) staff will adhere to in order to prevent and control the spread of Carbapenemase-producing Enterobacteriaceae (CPE) within our hospitals.

## TARGET AUDIENCE:

Nurses, Midwives, Consultants, GP's working in community inpatient wards, Clinical Directors, Matrons, FY1 & FY2 Doctors, Registrars, GP's working in Community inpatient wards, Divisional Associate Medical Directors, Associate Chief Operating Officer, General Managers, Business Managers, Departmental and Corporate Managers, Executive, Non-executive Directors.

## TRAINING:

There are no mandatory training requirements for this specific policy; all staff are responsible for accessing infection prevention and control policies on the intranet.

## KEY REQUIREMENTS

1. All admissions to NCUH/CPFT hospitals are assessed for CPE in line with this policy.
2. All patients who require screening for CPE will have a temporary alert placed on the patient electronic record.
3. All admissions to NCUH/CPFT who meet the screening criteria will be screened for CPE in line with this policy.
4. Appropriate control measures are implemented for both suspected and confirmed cases of CPE.
5. Patients with a confirmed CPE will have a permanent alert placed on the electronic patient record.
6. Treatment of a CPE infection must be guided by a Consultant Microbiologist.
7. Effective communication is key to minimising the risk of transmission of CPE.

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## 1. INTRODUCTION

It is a requirement of The Health and Social Care Act 2008 that the Trust has a policy outlining those Infection Prevention and Control (IPC) measures required to minimise the transmission of antibiotic resistant bacteria.

Carbapenemase-producing Enterobacteriaceae (CPE) infections are viewed as a major threat to public health. Enterobacteriaceae are a large family of Gram-negative bacteria that live harmlessly in the gut of all humans and animals. Although harmless in the gut Enterobacteriaceae species such as *Escherichia coli, Klebsiella Spp* and *Enterobacter Spp* are opportunistic pathogens frequently responsible for urinary tract, intra-abdominal and bloodstream infections.

Carbapenems are a valuable family of broad-spectrum antibiotics normally reserved for serious infections caused by drug resistant Gram-negative bacteria. They include Meropenem, Ertapenem, Imipenem and Doripenem.

Carbapenemase-producing Enterobacteriaceae are bacteria that are resistant to carbapenem antibiotics. These bacteria carry a gene for a carbapenemase enzyme that breaks down carbapenem antibiotics. There are different types of carbapenemases, of which KPC, OXA-48, NDM and VIM enzymes are currently the most common.

Infections caused by CPE are associated with high rates of morbidity and mortality and can have severe clinical consequences. Treatment of these infections is increasingly difficult as these organisms are often resistant to many and sometimes **all** available antibiotics.

In 2013 Public Health England (PHE) produced a toolkit in order to improve the detection, management and control of CPE in acute settings. This was followed in 2015 by a toolkit for non-acute and community settings.

It should be noted that robust whole-healthcare economy communications is key to a successful concerted effort to prevent and control spread of CPE.

## 2. PURPOSE

The purpose of the policy is to facilitate best practice in detecting and managing CPE; the aim is to minimise transmission of CPE within our Trust.

The policy applies to all NCUH/CPFT staff involved in the care and management of patients who are at risk of or have a CPE.

Certain patient groups are more susceptible to infection/colonisation with drug resistant organisms; the patient groups are:

- Nephrology
- Hepatology
- Haematology
- Oncology
- Transplant

- Intensive care units

Staff caring for these patient groups must be made aware of this policy.

## 3. POLICY

### 3.1 Early recognition of individuals who may be colonised/have a CPE infection

The admission flow chart Appendix 1 must be followed as part of the admission procedure to identify possible cases of colonisation or infection with CPE.

- Each admission must be risk assessed to identify possible cases of colonisation or infection. Section 3.2.

- **In the last 12 months has the patient:**

  - Been an inpatient in a hospital abroad?
    **or**
  - Been an inpatient in a UK hospital with known ongoing CPE transmission (other than NCUH/CPFT).
    **or**
  - Previously been colonised or had an infection with CPE
    **or**
  - Been a close contact with a person who has had CPE.

If **any** of the above applies the patient must be managed as a potential case of CPE. Section 3.3.

**N.B Renal Dialysis patients:** CPE screening to be performed if the patient has been dialysed in **any** hospital in the UK or abroad in the previous 12 months.

### 3.2 Risk Criteria for CPE

A patient must be considered at risk of colonisation or infection if they have met **any** of the criteria for a suspected case. Section 3.1.

Patients who have been admitted to any UK hospital **except** hospitals within the Newcastle upon Tyne NHS Foundation Trust, Northumbria Healthcare NHS Foundation Trust and Dumfries and Galloway Hospitals must be screened for CPE.

**IPCT will advise and publish any changes to this list.**

All patients with clinically significant Gram-negative bacilli must be screened for CPE. This process is established within the laboratory

## 3.3 Management of cases.

The identification of a single case within the healthcare setting will initiate an immediate risk assessment to understand the likely source. This will be done by the IPCT. Further guidance on investigation of cases is given in Appendix 2.

If the patient meets the risk criteria in section 3.1 then:

- Explain to the patient they meet the criteria for CPE screening.
- Immediately isolate (en-suite facilities preferable or dedicated commode if not).
- Instigate strict IPC standard precautions.
- Ensure IPC signage is in place – door closed (complete risk assessment if unable to close).
- Obtain a rectal swab using a plain charcoal swab; faeces must be visible on the swab (preferred and quickest method of obtaining a sample).
  **OR**
  Collect a stool sample if rectal swab is not possible.
- Send specimen to laboratory immediately using the ICE request system.
- Inform all relevant staff that a suspected or known previously positive case has been identified.
- Rapid promotion of adherence to IPC measures for suspected/confirmed cases must take place, section 3.3.2. Ward/Department managers are responsible for this.
- Inform the IPCT as soon as possible (IPCT will add a temporary alert to the patients acute hospital electronic record; clinical teams in the community to add temporary alert to the electronic system).
- Provide the patient with the suspected case information leaflet Appendix 3 and advise about the importance of hand hygiene in preventing transmission.

**N.B** If the patient has been in hospital abroad or in a UK hospital that has been identified as having CPE transmission include samples from any wounds and device related sites.

**Rectal swabs must be taken 48 hours apart i.e. day 0 (initial sample), day 2 and day 4.**

### 3.3.1 Positive result

Clinical teams are responsible for checking and acting on laboratory results.
Clinicians are responsible for informing the patient of their screening results.

If the patient screen is found to be **POSITIVE** for CPE (or they are known to have been previously positive) they must be isolated throughout their stay regardless of any subsequent negative screen. This is important as a previously positive patient with subsequent negative screens can revert to a positive state.

- Advise the patient of the positive result.
- Provide the patient with the CPE information card Appendix 4
  Provide the patient and family (if appropriate) with the Appendix 5
- Alert all relevant staff that that the patient has a confirmed CPE colonisation/infection.

- IPCT will add a permanent alert to the patients' acute hospital electronic record and tag the patients' paper medical records. Clinical teams in the community hospitals will add permanent alert to the patients' electronic record.
- IPCT will notify the patients' General Practitioner Appendix 6

### 3.3.2 Negative result

Clinical teams are responsible for checking and acting on laboratory results. Clinicians are responsible for informing the patient of their screening results.

If the patient is found to be **NEGATIVE** on initial screen they should remain in isolation until a further two consecutive samples test negative and the IPCT have advised the patient can be de-isolated.

The IPCT and/or Consultant Microbiologists may risk assess (on a case by case basis) and advise whether the patient can be de-isolated prior to having further two consecutive screens test negative. However, the patient will still require 3 consecutive screens.

- IPCT will remove the temporary alert from the patients' acute hospital electronic record (unless known previous positive) when 3 consecutive samples have tested NEGATIVE.
- Clinical teams in the community are responsible for removing the temporary alert when 3 consecutive samples have tested NEGATIVE (unless known previous positive).

### 3.3.3 IPC measures for suspected/confirmed cases.

There are **no** differences in approach to IPC measures whether the patient is colonised or infected.

**KEY MEASURES TO MINIMISE TRANSMISSION:**

| | |
|---|---|
| **Isolation** | Isolate in single room with en-suite facilities (dedicated commode if en-suite not available).<br>-Door to be closed and IPC signage in place. (If the patient is unable to have door closed e.g. high falls risk, ward staff must complete a risk assessment identifying alternative measures in place).<br>-Maintain isolation until advised otherwise by a member of the IPCT. |
| **Hand hygiene** | All staff must strictly adhere to the local hand hygiene policy.<br>Advise/support patients and visitors on performing good hand hygiene. |

| | |
|---|---|
| **Personal Protective Equipment** | Gloves and aprons must be worn; put on immediately prior to attending to the patient and removed prior to leaving the room unless carrying blood, bodily fluid, secretions or excretions.<br>Long sleeved fluid repellant gown must be worn if there is a risk of extensive splashing of blood, body fluids, secretions or excretions.<br>Face mask/eye protection if risk of splashing face/eyes.<br><br>Visitors are not required to wear PPE unless involved in the patient's personal care. |
| **Linen** | To be managed as infectious linen as per local policy. Must be bagged before removal from isolation room. |
| **Waste** | To be managed as infectious waste as per local policy. |
| **Care Environment** | Ensure isolation room is free from non-essential items and equipment. |
| **Dedicated Equipment** | Dedicated single patient use **blood pressure cuff, tourniquet, stethoscope and commode.**<br>Non-dedicated reusable non-invasive equipment must be thoroughly cleaned with a chlorine dioxide based disinfectant. |
| **IPC practices when using patient devices and equipment** | Aseptic non-touch technique (ANTT) is essential for the management of medical devices such as IV lines, central venous catheters, renal dialysis lines, urinary catheters, enteral feeding equipment, wound drains, colostomies or ileostomies. Refer to local policies.<br><br>**Promptly remove any devices no longer needed.** |
| **Cleaning** | Scrupulous **routine** and **terminal** clean must be implemented with a chlorine dioxide based disinfectant. Particular attention must be given to high touch areas. Refer to local policies. |
| **Antibiotic management** | Antibiotic treatment is **not** required for colonisation. Treatment of CPE infection must be discussed with Consultant Microbiologist. |
| **Clinic/departmental visits for further diagnostic purposes.** | Other departments must be notified of patients' status and the necessary precautions.<br>Patients should be last on the list <u>unless</u> clinical need is a priority. |

| | |
|---|---|
| **Discharge communication** | Ensure the patient understands:<br>• Their current status e.g. infection cleared but may still be a carrier.<br>• Should a **close contact** be admitted to hospital they must inform healthcare staff of their exposure.<br><br>The discharge summary must clearly identify the patients CPE status.<br><br>When discharging to another Trust or care facility, care providers (including Ambulance personnel) must be informed of:<br>• Patients CPE status.<br>• IPC precautions required.<br><br>There is no reason for discharges to be delayed once the infection has been treated, even if the patient remains colonised.<br><br>Good communication will prevent unnecessary anxiety, misunderstandings and confusion for the family or healthcare team/facility receiving the patient. |
| **Communal areas:**<br><br>****<u>Community Hospitals only</u>**** | Communal areas can be used by **colonised** patients if assessed as low/medium risk.<br>**Low risk** = Independent and self-caring.<br>**Medium risk** = requires assistance with hygiene, mobility<br>and rehabilitation.<br><br>There must be no immediate risk of affecting others **and** standard precautions; strict hand hygiene and effective environmental cleaning **must** be maintained.<br><br>**High Risk patients** e.g. confusion/dementia, diarrhoea, discharging wounds and medical devices must remain isolated.<br>Discuss any concerns re mental and physical well being with a member of the IPCT who will assist in a risk assessment.<br><br>**N.B** Patients who are **<u>infected</u>** must remain isolated; this can be reviewed once the infection has been treated. |

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| **Community teams:**<br><br>**Looking after an individual with CPE in their own home:** | Plan the visit at the end of the day's list (if the patient is clinically stable and it is safe to do so).<br>Keep equipment stored in the home to a minimum; essential items only.<br>Educate patient/family re hand hygiene.<br>Strict adherence to:<br>• Local standard precautions policy.<br>• Local hand hygiene policy.<br>• Local waste management policy. |

### 3.3.4 Case Contacts.

Active, targeted screening for CPE colonisation in epidemiologically linked contacts will assist in early identification and management of colonised individuals and lead to a clear understanding of the scale of the problem. This, in turn, will direct appropriate infection prevention and control measures including decisions relating to the need for patient cohorting and ward closure.

The IPCT will draw up a case contact list if a patient is found to be positive for CPE and there is felt to be a risk to other patients within the same environment Appendix 7

Screening will be directed by the IPCT. Patients who are identified for screening must be provided with the contact of a colonised/infected person leaflet Appendix 8

All patients who require screening for CPE will have a temporary alert placed on the patients' electronic record.

Cohorting of CPE patients must be guided by the IPCT; patients with a different strain of CPE must be isolated separately.

### 3.3.5 Increased Incidence/Outbreak

If further cases are detected that are linked to a ward/department the local Outbreak Control Policy must be followed.

If there is significant concern about transmission within the Trust consideration may be given, in discussion with the local Public Health England Centre (PHEC) to screen non-epidemiologically-linked cases in high-risk units such as critical care.

## 4 TRAINING AND SUPPORT

1. This policy will be available on the Intranet for all staff.
2. IPCT will deliver the key messages within this policy, at ward meetings, senior nurse meetings and weekly HCAI meetings.
3. CPE is included within the Acute Hospitals IP mandatory training.
4. CPE risk assessment is included in the Acute Hospitals admission assessment for all elective and emergency admissions.

5. Informatics team send IPCT daily information on inter-hospital transfers to the Acute Trust.

## 5. PROCESS FOR MONITORING COMPLIANCE

The process for monitoring compliance with the effectiveness of this policy is as follows:

| Aspect being monitored | Monitoring Methodology | Reporting | | |
|---|---|---|---|---|
| | | Presented By | Committee | Frequency |
| Screen patients | Informatics list of patient transfers to Acute hospitals sent daily to IPCT; IPCT cross check patients with ward areas to ensure screening and actions completed. | IPCT & patient admission areas. | HCAI | Weekly |
| Infection Prevention Team: Positive cases | IPCT to report any CPE positive cases that have arisen within the week. | IPCT | HCAI | Weekly |
| Infection Prevention Report | IPCT will review all cases of CPE and provide summary report. | DIPC | IPCC | Monthly |

<u>Wherever the above monitoring has identified deficiencies, the following must be in place:</u>

- Action plan
- Progress of action plan monitored by the appropriate committee (minutes)
- Risks will be considered for inclusion in the appropriate risk registers

## 6. REFERENCES:

The Health and Social Care Act 2008: Code of Practice on the Prevention of Infections and Related Guidance. Department of Health, London.

Health Protection Agency (HPA) (2009) Health Protection Report. National Resistance Alert on Carbapenemase-producing Enterobacteriaceae. Health Protection Agency, London.

(PHE) 2013 Acute Trust toolkit for the early detection, management and control of Carbapenemase-producing Enterobacteriaceae.

(PHE) 2015 Toolkit for managing Carbapenemase-producing Enterobacteriaceae in non-acute and community settings.

European Centre for Disease Progression and Control (2013) Carbapenemase-producing bacteria in Europe [online] Available at: http://ecdc.europa.eu/en/publications/Publications/antimicrobial-resistance-carbapenemase- producing-bacteria-europe.pdf [Accessed 17/06/19].

Health Protection Scotland (2019) Toolkit for the early detection, management and control of Carbapenemase-producing Enterobacteriaceae in Scottish acute settings.

## 7. ASSOCIATED DOCUMENTATION:

http://nww.staffweb.cumbria.nhs.uk/policies/categories/infection-prevention/hand-hygiene.pdf

http://cptportal.cumbria.nhs.uk/SiteDirectory/InfectionPrevention/Pages1/Policy%20Chapters%202017/Hand%20Hygiene.pdf

http://nww.staffweb.cumbria.nhs.uk/policies/categories/infection-prevention/infection-prevention-and-control-standard-precautions-policy.pdf

http://cptportal.cumbria.nhs.uk/SiteDirectory/InfectionPrevention/Pages1/Policy%20Chapters%202017/A%20Infection%20prevention%20and%20control%20precautions.pdf

http://nww.staffweb.cumbria.nhs.uk/policies/categories/infection-prevention/linen-policy.pdf

http://nww.staffweb.cumbria.nhs.uk/policies/categories/estates-and-facilities/waste-management-policy.pdf

https://cdn.cumbriapartnership.nhs.uk/uploads/policy-documents/Waste_Policy_POL-002-055.pdf

http://nww.staffweb.cumbria.nhs.uk/policies/categories/infection-prevention/cleaning-and-decontamination-of-healthcare-equipment.pdf

https://cdn.cumbriapartnership.nhs.uk/uploads/policy-documents/Cleaning_Policy_%28Joint%29_POL-EST-003_V1.0.pdf

http://nww.staffweb.cumbria.nhs.uk/policies/categories/infection-prevention/outbreak-policy.pdf

http://cptportal.cumbria.nhs.uk/SiteDirectory/InfectionPrevention/Pages1/Policy%20Chapters%202017/C-%20Outbreaks%20of%20Communicable%20Infections.pdf

## 8. DUTIES (ROLES & RESPONSIBILITIES):

### 8.1 Chief Executive / Trust Board Responsibilities:

The Chief Executive and Trust Board jointly have overall responsibility for the strategic and operational management of the Trust, including ensuring that Trust policies comply with all legal, statutory and good practice requirements.

### 8.2 Director of Infection Prevention and Control (DIPC) Responsibilities:

The DIPC is the designated Director of all infection prevention policies. It is their responsibility to be involved in the development and sign off of the policies ensuring that statutory legislation and guidance are met. They must ensure policies are kept up to date by the relevant author and approved at the appropriate committee. In addition:

- Ensure all cases of CPE are monitored and managed within the Trust as per Appendix 9
- Provide reports to the TRUST Board regarding CPE (from IPCC)

### 8.3 Managers Responsibilities:

Line managers have a managerial responsibility to ensure that all of their staff follow and comply with this policy.

Managers must ensure that all staff involved in the care of patients and management of CPE read and understand this policy and know how to access the latest version via the staff intranet.

### 8.4 Staff Responsibilities:

It is the individual responsibility of all Trust staff to read, understand and comply with this policy. As part of on-going professional development all staff are expected to keep themselves up to date regarding infection prevention and control (IPC).

### 8.5 Infection Prevention and Control Committee:

The Chair of the approving committee will ensure the policy approval is documented in the final section of the Checklist for Policy Changes. The committee will agree the approval of the final draft of the policy.

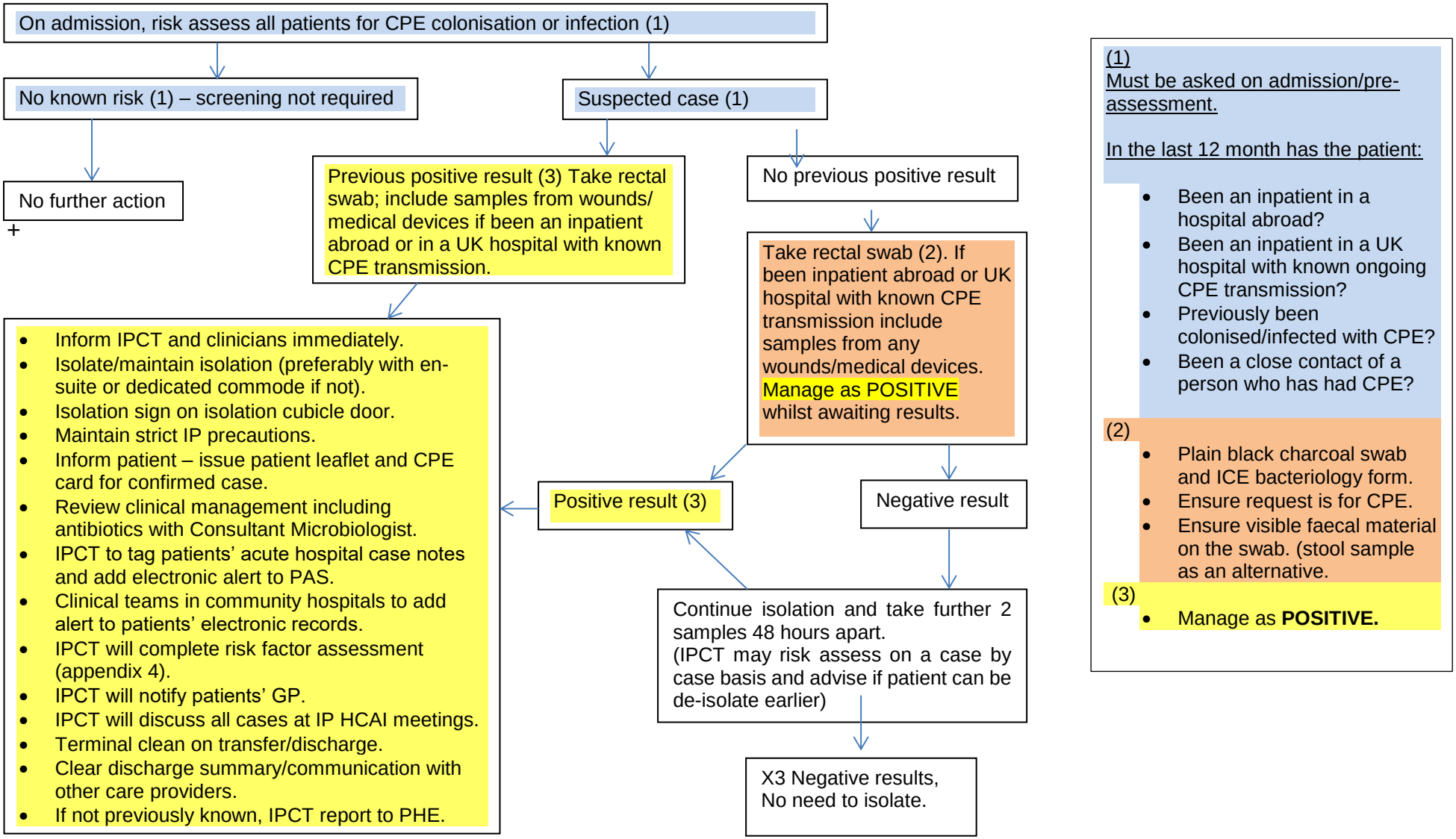
## 9. ABBREVIATIONS / DEFINITION OF TERMS USED

| ABBREVIATION | DEFINITION |
|---|---|
| CPE | Carbapenemase-Producing Enterobacteriaceae |
| CPFT | Cumbria Partnership Foundation Trust. |
| DIPC | Director of Infection Prevention and Control |
| HCAI | Health care associated infection. |
| IPCC | Infection Prevention and Control Committee |

| | |
|---|---|
| IPC | Infection Prevention and Control |
| NCUH | North Cumbria University Hospitals. |
| NDM | New Delhi Metallo- beta lactamase |
| OXA-48 | Gene type for some carbapenemase isolate |
| PHE | Public Health England |
| PHEC | Public Health England Centre |
| Spp | Species |
| UK | United Kingdom |
| VIM | Verona integron-encoded metallo-beta-lactamase |

| **TERM USED** | **DEFINITION** |
|---|---|
| Colonisation | The presence of micro-organisms living harmlessly on the skin or within the bowel; causing no signs or symptoms of infection. |
| Case contact | A patient who has shared a hospital room with a CPE positive patient. |
| Close contact | A person living in the same house; sharing the same sleeping space or a sexual partner. |

## APPENDIX 1 – PATIENT ADMISSION FLOW CHART CPE



## APPENDIX 2 – SINGLE PATIENT RISK FACTOR ASSESSMENT FOR EXPOSURE TO CARBAPENEMASE - PRODUCING ENTEROBACTERIACEAE

| This form is to assist in the assessment of the likely source / transmission route and appropriate interventions. It should be used in conjunction with collaborative working between the healthcare provider and the PHE centre. | | |
|---|---|---|
| Name:<br><br>DOB: Referral date:<br><br>Address:<br><br><br>GP: | Hospital or healthcare setting where inpatient currently residing:<br><br>Date of admission:<br><br>Confirmatory laboratory<br><br>result Details: Result date: | |
| QUESTIONS *(if yes to any, please give details)* | Y / N | COMMENTS / NOTES |
| Does the patient have a history of previous Carbapenemase-producing Enterobacteriaceae colonisation or infection? If **yes,** include dates of positive results (if known) | | |
| Has the patient *(please give all relevant details)*: | | |
| Travelled abroad in the last 12 months?<br>If yes, whilst abroad did the patient: | | |
| 1. Visit friends and / or relatives - if so, where? | | |
| 2. Visit as a tourist - if so, where? | | |
| 3. Go abroad to work - if so, where? | | |
| 4. *Receive hospital treatment or medical care? If so, which town / city & country? | | |
| 5. Undergo direct *inter-healthcare* transfer from the hospital abroad to a UK hospital? | | |
| 6. Other? | | |
| Has the patient *(please give all relevant details)*: | | |
| **Been in a UK hospital that PHE is aware has a problem with spread of Carbapenemase-producing Enterobacteriaceae?<br>*If yes, state hospital name and dates of stay.* | | |
| Been in any other UK hospital?<br>If yes, state Hospital name and dates of stay. | | |
| Had any other known exposure? | | |
| Additional information | | |

***Abroad – hospitalised abroad in last 12 months.**

****UK Hospital – hospitalised in a UK hospital (with known transmission problems) in last 12 months.**

## APPENDIX 3 – PATIENT INFORMATION LEAFLET SUSPECTED CASE

### Carbapenemase-producing Enterobacteriaceae: I may be a carrier (or have an infection) – what does this mean?

What does ‘Carbapenemase-producing Enterobacteriaceae’ mean?

Enterobacteriaceae are bacteria that usually live harmlessly in the gut of humans. This is called ‘colonisation’ (a person is said to be a ‘carrier’). However, if the bacteria get into the wrong place, such as the bladder or bloodstream they can cause infection. Carbapenems are one of the most powerful types of antibiotics. Carbapenemases are enzymes (chemicals), made by some strains of these bacteria, which allow them to destroy carbapenem antibiotics and so the bacteria are said to be resistant to the antibiotics.

Why does Carbapenem resistance matter?

Carbapenem antibiotics can only be given in hospital directly into the bloodstream. Until now, doctors have relied on them to successfully treat certain ‘difficult’ infections when other antibiotics have failed to do so. Therefore, in a hospital, where there are many vulnerable patients, spread of these resistant bacteria can cause problems.

Does carriage of Carbapenemase-producing Enterobacteriaceae need to be treated?

If a person is a carrier of carbapenemase-producing Enterobacteriaceae (sometimes called CPE), they do not need to be treated. As mentioned, these bacteria can live harmlessly in the gut. However, if the bacteria have caused an infection then antibiotics will be required.

How will I know if I am at risk of being a carrier or having an infection?

Your doctor or nurse may suspect that you are a carrier if you have been in a hospital abroad, or in a UK hospital that has had patients carrying these bacteria, or if you have been in contact with a carrier elsewhere. If any of these reasons apply to you, screening will be arranged for you and you will be accommodated in a single room with your own toilet facilities at least until the results are known.

How will I be screened for Carbapenemase-producing Enterobacteriaceae?

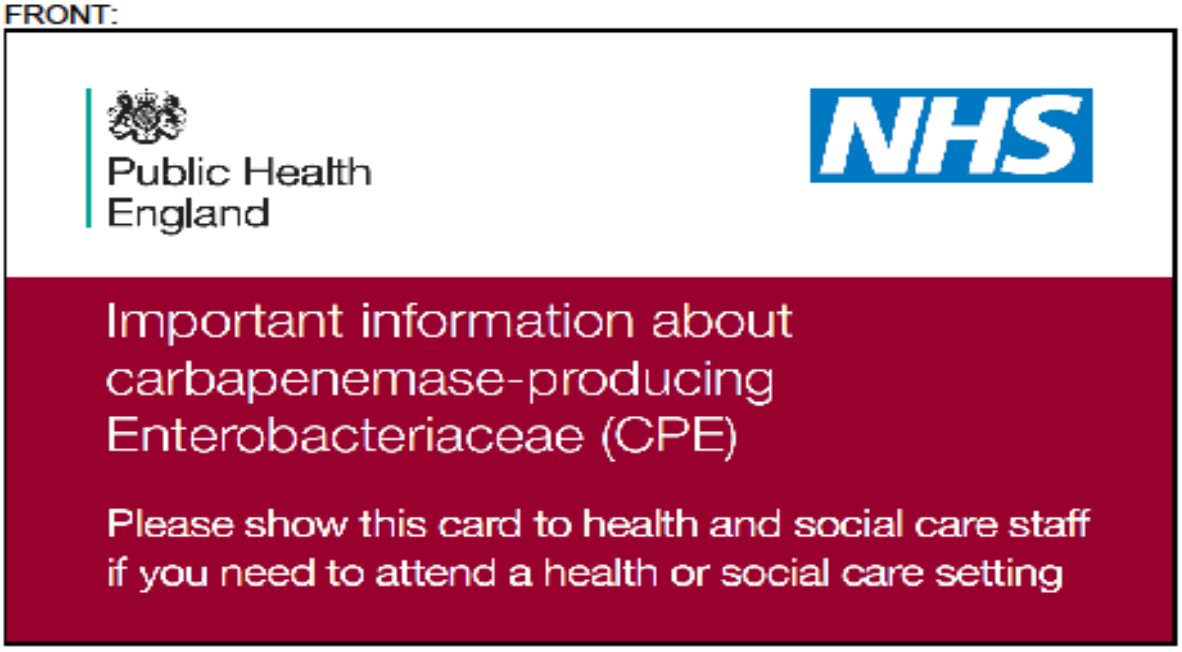
Screening usually entails taking a rectal swab by inserting it just inside your rectum (bottom). Alternatively, you may be asked to provide a sample of faeces. The swab / sample will be sent to the laboratory and you will normally be informed of the result within two to three days. If the result is negative, the doctors or nurses may wish to check that a further two samples are negative before you can be accommodated on the main ward. These measures will not hinder your care in any way. If all results are negative no further actions are required.

## APPENDIX 4 – PATIENT CPE INFORMATION CARD

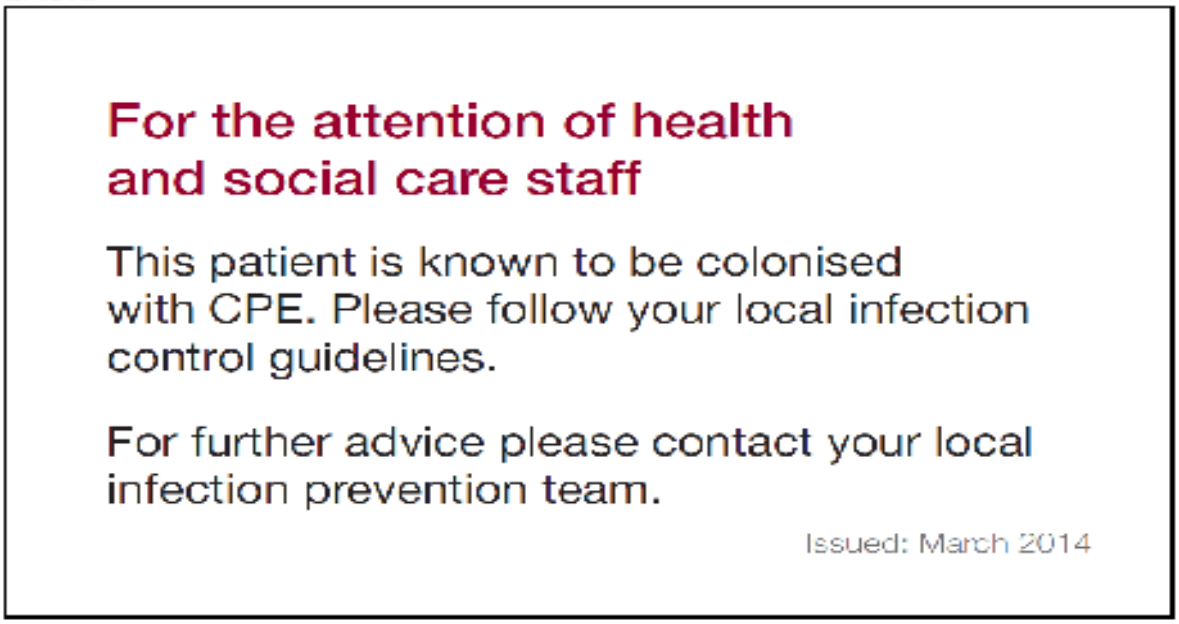
Public Health England

**Patient held card – North West, April 2014**

FRONT:




BACK:



## APPENDIX 5 – PATIENT INFORMATION LEAFLET CONFIRMED CASE

Advice for patients who have a positive result

What happens if the result is positive?

If the result is positive, do ask your doctor or nurse to explain this to you in more detail. You will continue to be accommodated in a single room whilst in hospital. If you have an infection, you will need to have antibiotics. However, if there are no signs of infection and you are simply 'carrying' the bacteria, no treatment is required.

How can the spread of carbapenemase-producing Enterobacteriaceae be prevented?

Accommodating you in a single room, if the result is positive, helps to prevent spread of the bacteria. Healthcare workers should wash their hands regularly. They will use gloves and aprons when caring for you. The most important measure for you to take is to wash your hands well with soap and water, especially after going to the toilet. You should avoid touching medical devices (if you have any) such as your urinary catheter tube and your intravenous drip, particularly at the point where it is inserted into the body or skin. Visitors will be asked to wash their hands on entering and leaving the room and may be asked to wear an apron.

What about when I go home?

Whilst there is a chance that you may still be a carrier when you go home, quite often this will go away with time. No special measures or treatment are required; any infection will have been treated prior to your discharge. You should carry on as normal, maintaining good hand hygiene. If you have any concerns you may wish to contact your GP for advice.

Before you leave hospital, ask the doctor or nurse to give you a letter or card advising that you have had an infection or been colonised with carbapenemase-producing Enterobacteriaceae. This will be useful for the future and it is important that you make health care staff aware of it. Should you or a member of your household be admitted to hospital, you should let the hospital staff know that you are, or have been, a carrier and show them the letter / card.

Where can I find more information?

If you would like any further information please speak to a member of your care staff, who may also contact the Infection Prevention and Control Team for you. The Public Health England website is another source of information:
http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/CarbapenemResistance/

## APPENDIX 6 – LETTER TO GP

TRUST DETAILS
Date

General Practice

Dear Dr

**Carbapenemase- producing Enterobacteriaceae Infection or Colonisation**

*NAME*
*DoB*
*ADDRESS*
*NHS Number*
*(Sticker, automated data entry or by hand)*

The above patient had a Carbapenemase- producing Enterobacteriaceae (CPE) identified from a *screening /clinical [Delete as appropriate]* sample on [Date].

CPE are an emerging healthcare associated infection, and have caused a number of significant outbreaks across the North West. CPE are carried in the faeces and there is currently no treatment to eradicate carriage.

**Please list <u>Carbapenemase-producing Enterobacteriaceae infection/colonisation</u> as an active significant problem on your records for this patient so that it appears on any referral letter, especially for admission. We suggest using read code A3BA [Organism resistant to multiple antibiotics], and adding carbapenemase- producing Enterobacteriaceae in free text.**

**If this patient presents with an infection requiring antibiotics, please contact your local microbiologist to discuss sample collection and antibiotic choice.**

**In your surgery, standard infection control practices will minimise the spread of this faecal organism. Standard practice should be rigorously implemented but no additional infection control precautions are required.**

As part of a patient information package, this patient has been given a CPE card and they have been asked to show this card to staff when visiting any health or social care setting. A copy of the patient information leaflet is attached.

Further information on CPE is available on the Public Health England website,

If you or your team have any concerns or queries regarding infection control for CPE, please contact your local community infection, prevention and control team on *XXXX*

Yours sincerely

## APPENDIX 7 – CASE CONTACT SPREADSHEET

| | | |
|---|---|---|
| Date first case identified: | Trust / Hospital name and address: | Key Contact details: |

| Tally of cases (colonised or infected) as of_____/_____/_____(*insert date*) | | | | |
|---|---|---|---|---|
| Total number of presumptive (locally confirmed) cases | Total number of cases confirmed by reference laboratory | Total number of deaths | Total number (suspected and confirmed) remaining as inpatients | Comments |
| | | | | |

| Case Contact details | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Name | DOB | Sex | Ward | Status Alive (A) Died (D) | Criteria for suspected case (see key below) | Result *plus* Infection (I) Colonised (C) | Number of contacts screened | Number of contacts positive for same strain as case |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

**Case – history of being a confirmed case (colonised or infected) in last 12 months; Contact - contact with a known case (whether colonised or infected) in last 12 months**

## APPENDIX 8 – PATIENT INFORMATION LEAFLET, CONTACT OF A CARRIER / INFECTED PERSON

Carbapenemase-producing Enterobacteriaceae – I am a contact of someone who is a carrier or has an infection – what does this mean?

What does 'Carbapenemase-producing Enterobacteriaceae' mean?

Enterobacteriaceae are bacteria that usually live harmlessly in the gut of humans. This is called 'colonisation' (a person is said to be a 'carrier'). However, if the bacteria get into the wrong place, such as the bladder or bloodstream they can cause infection. Carbapenems are one of the most powerful types of antibiotics. Carbapenemases are enzymes (chemicals), made by some strains of these bacteria, which allow them to destroy Carbapenem antibiotics and so the bacteria are said to be resistant to the antibiotics.

Why does Carbapenem resistance matter?

Carbapenem antibiotics can only be given in hospital directly into the bloodstream. Until now, doctors have relied on them to successfully treat certain 'difficult' infections when other antibiotics have failed to do so. Therefore, in a hospital, where there are many vulnerable patients, spread of resistant bacteria can cause problems.

Does carriage of Carbapenemase-producing Enterobacteriaceae need to be treated?

If a person is a carrier of Carbapenemase-producing Enterobacteriaceae (sometimes called CPE), they do not need to be treated. As mentioned, these bacteria can live harmlessly in the gut. However, if the bacteria have caused an infection then antibiotics will be required.

How is Carbapenemase-producing Enterobacteriaceae spread?

If a patient in hospital is carrying this bacteria it can get into the ward environment and can also be passed on by direct contact with that particular patient. For that reason, the patient will normally be accommodated in a single room. Effective environmental cleaning and good hand hygiene by all, staff and patients, can reduce the risk of spread significantly.

Do I need to be screened?

Occasionally, it isn't immediately known that a patient is carrying this bacteria and so they may not be placed into a single room straight away. Screening will be offered if you have shared the same bay (or ward) with a patient who has been found to be carrying Carbapenemase- producing Enterobacteriaceae. This screening is offered as there is a *slight* chance that you could have picked up the bacteria and are carrying it too.

How will I be screened for Carbapenemase-producing Enterobacteriaceae?
Screening usually entails taking a rectal swab by inserting it just inside your rectum (bottom). Alternatively, you may be asked to provide a sample of faeces. The swab / sample will be sent to the laboratory and you will normally be informed of the result within

two to three days. If the result is negative nothing further is required unless you are staying in hospital for some time. In that case, you will probably be asked to provide a sample on a regular basis e.g. once a week, as a precautionary measure.

What if the result is positive?

If the result is positive do ask your doctor or nurse to explain this to you in more detail and to provide a leaflet relating to positive results. You will be given a single room until you leave hospital. No treatment is necessary unless you have an infection when antibiotics will be given.

Where can I find more information?

The Public Health England web site is another source of information.

## APPENDIX 9 – RISK PRIORITISATION OF IPC MEASURES

**ADDRESSING CARBAPENEMASE-PRODUCING ENTEROBACTERIACEAE – RISK PRIORITISATION OF INFECTION PREVENTION AND CONTROL (IP&C) MEASURES, SCREENING AND ISOLATION – ROLL-OUT PLAN (see note, page 2).**

**For use in conjunction with the Acute trust toolkit for the early detection, management and control of carbapenemase–producing Enterobacteriaceae[1]**

| THE PATIENT HISTORY → | | Known or recently confirmed case of carbapenemase-producing Enterobacteriaceae[2] | Direct medical transfer from or specialist / augmented care[3] in last 12 months in country or UK care setting with *known high prevalence*[1] | Medical tourist[4] from country with *known high prevalence*[1] | History of hospitalisation in last 12 months in country or UK care setting with *known high prevalence*[1] | Identified as contact of positive case (colonisation or infection) | Medical transfer from / history of hospitalisation in last 12 months in country *with no reported problems* | No risk factors identified on admission |
|---|---|---|---|---|---|---|---|---|
| THE CARE ENVIRONMENT ↓ | | HIGH | | | MEDIUM | | LOW | |
| Admission to or receiving care in specialist / augmented care unit[3] | HIGH | | | | | | | |
| Admission to or receiving care in acute general ward | MEDIUM | | | | | | | |
| Day care | MEDIUM | ** | ** | ** | ** | ** | | N/A |
| Outpatient clinic | LOW | ** | ** | ** | | | N/A | N/A |

[1] Refer to Acute Trust toolkit for the early detection, management and control of carbapenemase – producing Enterobacteriaceae found at: http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317140378646
[2] Screening not required for known or recently confirmed cases
[3] Examples of specialist / augmented care unit: intensive care, haematology, renal, liver, transplant, oncology, neonatal
[4] A medical tourist 'elects to travel across international borders to receive some form of medical treatment. This treatment may span the full range of medical services, but most commonly includes dental care, cosmetic surgery, elective surgery, and fertility treatment'. OECD 2010 (http://www.oecd.org/els/health-systems/48723982.pdf)

| KEY: | |
|---|---|
| High risk | Isolate immediately in a side room with en suite facilities (or dedicated commode) and retain in isolation as follows:<br>• Suspected case – isolate until 3 consecutive NEGATIVE screens (if still in hospital). *Should any sample screen positive treat as a confirmed case*<br>• Known case or case confirmed via clinical / screening sample (further screening not required) – *isolate throughout hospital stay* |
| Medium risk | Isolate in side room with en suite facilities (or dedicated commode) if possible (see increased transmission risks) until first screening result demonstrates NEGATIVE. If not possible to continue isolation (in line with toolkit[1]) then:<br>EITHER cohort patient in line with toolkit[1] and in discussion with your IP&C team<br>OR, if not possible to cohort, nurse with *strict emphasis* on maintaining compliance with standard precautions and optimal environmental cleaning (without fail)<br>AND submit further 2 samples to achieve 3 consecutive NEGATIVE screens if still in hospital. *Should any sample test positive treat as a confirmed case.*<br>**For outpatients and day cases *(note: this is supplementary advice to that provided in the toolkit to assist risk assessment):* provide appointment timed for end of clinic or list; consider caring for day case in single room depending on facilities and on degree of contact with body fluids (see below: increased transmission risks). Maintain compliance with standard precautions and optimal environmental cleaning (without fail). |
| Low risk | No action, other than be alert to change in risk-level in light of any further information relating to patient status.<br>Maintain compliance with standard precautions and optimal environmental cleaning (without fail). |
| Increased transmission risks: the following factors which increase transmission risk should be taken into account when prioritising side rooms, they are patients with: | |
| • Diarrhoea<br>• Incontinence (urine or faeces)<br>• Discharging wounds<br>• A high risk of wandering and unable to comply with good hygienic practices | • Medical devices in situ<br>• Ventilatory support requirements<br><br>Additionally, consider:<br>• Risks posed from inadequate decontamination of equipment where there is high contact with body fluids e.g. endoscopes |
| NOTE: This matrix is intended to inform preparation of a roll-out plan. The gold standard for any patient admitted who is a suspected case of carbapenemase-producing Enterobacteriaceae (infected and/or colonised) is to isolate immediately and manage in line with the *Acute trust toolkit*[1]. However, where risk prioritisation is required (due to competing priorities) the above matrix is intended as a guide to planning for this.<br>**It is advised that roll-out should commence in high risk care environment(s) (some trusts are already taking a more aggressive approach by screening all admissions to these areas). If transmission events occur or prevalence increases in your trust, it is strongly advised to expedite full implementation of the toolkit.** | |

[1] See Acute Trust toolkit for the early detection, management and control of carbapenemase –producing Enterobacteriaceae found at: http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1317140378646

## DOCUMENT CONTROL

| | |
|---|---|
| **Equality Impact Assessment Date** | 23/06/2009 |
| **Sub-Committee & Approval Date** | Infection Prevention and Control Committee - 23/07/19 |

**History of previous published versions of this document:**

| Trust | Version | Ratified Date | Review Date | Date Published |
|---|---|---|---|---|
| NCUH | IPC09 | 20/04/2017 | 30/04/2020 | 02/05/2017 |

**Statement of changes made from previous version**

| Version | Date | Section & Description of change |
|---|---|---|
| 0.1 | 14/06/19 | • Document transferred to joint policy template and version number changed to v0.1 as joint policy will be issued as v1.0.<br>• Minor editing. |
| 0.2 | 14/06/19 | • Policy on a page- added community staff and hospitals.<br>• Key requirements – added treatment must be guided by a Microbiologist and effective communication.<br>• Section 1- minor adjustments.<br>• Section 2 – minor adjustments.<br>• Section 3.1 – added guidance for renal patients.<br>• Section 3.2 –removed table of countries with reported high prevalence. Updated list of North West regions.<br>• Section 3.3 – minor adjustments.<br>• Section 3.3.1 new section; information broken down.<br>• Section 3.3.2 new section; information broken down.<br>• Section 3.3.3 Added table of key measures; additional IPC measures added and guidance for communal areas in community hospitals.<br>• Section 3.3.4 – minor adjustments.<br>• Section 4 – minor adjustments. |
| 0.3 | | • Section 3.3.1- Added clinical teams in Community hospitals are responsible for adding temporary alert.<br>• Section 3.3.2–Added clinical teams in Community Hospitals are responsible for removing temporary alert. |
| 0.4 | | • Section 3.2 Amendments made to UK hospitals listed.<br>• Section 3.3.3. Added information for Community teams looking after patient in own home. |
| 0.5 | 08/08/2019 | • Formatting and spelling amendments |

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