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Review Lead: Lead Infection, Prevention and Control Nurse

Calderdale and Huddersfield
NHS Foundation Trust

Section Q - Management of Patients with Carbapenemase-Producing Enterobacteriaceae (CPE)

Version 1

Important: This document can only be considered valid when viewed on the Trust's Intranet. If this document has been printed or saved to another location, you must check that the version number on your copy matches that of the document online.

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1. Introduction

The identification and management of patients who are colonised with or have an infection caused by a multi-resistant organism:

- Carbapenemase-Producing Enterobacteriaceae (CPE)

1.1 Key Points

- What these organisms are
- Who, when and how to screen for these organisms
- Treatment and management

2. Purpose

Public Health England (PHE, 2015) acknowledges antimicrobial resistance as an increasing concern in the UK, with a rapid increase in the incidence of infection and colonisation by multi-drug resistant Carbapenemase-Producing organisms. It is also considered there is a high risk of this problem becoming widespread unless there is early and decisive action taken by trusts (PHE 2014, 2017). As part of the response to this problem, the English Surveillance Programme for Antimicrobial Utilisation and Resistance (ESPAUR) is developing and improving surveillance systems to measure antibiotic use and antibiotic resistance as well as measuring the impact of resistance of the safety of patients and the general public (PHE 2014).

The purpose of this policy is to ensure staff have access to information, consistent with national guidance regarding the screening, surveillance and management of patients.

3. Scope

This policy applies to all health care workers working within the Trust and should be used in conjunction with other relevant policies and guidelines, including the following policies from **'Infection Control Policies & Guidelines'**.

- Standard precautions: Section C
- Decontamination and Disinfection policy: Section F
- Hand hygiene policy: Section H
- Isolation policy: Section K
- Specimen policy: Section R
- Bed management and movement of patients policy: Section W
- Antibiotic guidelines: **Medicines Code**

4. Duties (Roles and Responsibilities)

Chief Executive:
Has overall responsibility for ensuring there are effective arrangements for Infection Prevention and Control (IPC) within the Trust to meet all statutory requirements.

Director of Infection Prevention & Control (DIPC):
Will provide assurance to the Board of Directors that effective systems are in place to manage the stated multi-resistant organisms.

The Infection Prevention & Control Team (IPCT):
Is responsible for undertaking surveillance of multi-resistant organisms and will provide expert advice on relevant infection prevention and control (IPC) measures; the Microbiologists will advise regarding the clinical management of cases.

The Infection Control Doctor (ICD)/DIPC:
Will initiate an outbreak meeting in the event of an outbreak or cluster of cases.

The microbiology laboratory:
Will ensure screening and isolation of these multi-resistant organisms is in accordance with National Standard methods.

All Staff:
All staff that have patient contact are required to adhere to this Policy.

5. Definitions:

Carbapenemase-producing Enterobacteriaceae (CPE): enterobacteriaceae that produce a carbapenemase enzyme rendering them resistant to carbapenem antibiotics. CPE are usually also resistant to most other classes of antibiotics e.g. β-lactams, ciprofloxacin and gentamicin.

Close contact: a person living in the same house, sharing the same sleeping space (room or hospital bay), or a sexual partner.

Colonisation: the presence of micro-organisms living harmlessly on the skin or within the bowel and causing no signs or symptoms of infection.

Enterobacteriaceae: a family of Gram negative bacteria commonly found in the human gastrointestinal tract. Sometimes, these bacteria can spread outside the gut and have the potential to cause serious infections such as urinary tract infections, bloodstream infections, wound infections and pneumonia. They include *E. coli* and *Klebsiella* spp. They are often referred to as coliforms.

Source isolation is the physical separation of one patient from another in order to prevent spread of infection.

6. Carbapenemase-Producing Enterobacteriaceae (CPE)

What are CPE

Enterobacteriaceae are a large family of Gram negative bacteria that usually live harmlessly in the gut of all humans and animals. However, these organisms are also some of the most common causes of opportunistic urinary tract infections, intra-abdominal and bloodstream infections. They include species commonly referred to as coliforms and include *Escherichia coli*, *Klebsiella* spp. and *Enterobacter* spp.

Carbapenems are a valuable family of antibiotics normally reserved for serious infections caused by drug resistant Gram negative bacteria (including Enterobacteriaceae). They include:

- Meropenem
- Ertapenem
- Imipenem
- Doripenem.

Carbapenemases are enzymes that destroy these carbapenem antibiotics, conferring antibiotic resistance.

See Appendix 1 for countries and regions with reported high prevalence of healthcare associated CPE.

7. Initial Risk Assessment for CPE:

All emergency and elective admissions to CHFT should have a risk assessment carried out in order to determine CPE status as part of the admission process.

Initial Admission Risk Assessment for Carbapenemase-Producing Enterobacteriaceae (CPE)

Risk assess each patient on admission, re-admission or on transfer from another healthcare facility

NOTE: If the patient has a history of a laboratory confirmed CPE any time, bypass the screening questions and follow the actions described below.

Ask 3 Screening Questions

1 In the last 12 months has the patient been an inpatient in a hospital abroad or been dialysed abroad?

YES / NO

2 In the last 12 months has the patient been an in-patient in a Manchester or London hospital?

YES / NO

3 Has the patient ever previously been colonised with or had an infection caused by CPE or been a close contact with a person who has?

YES / NO

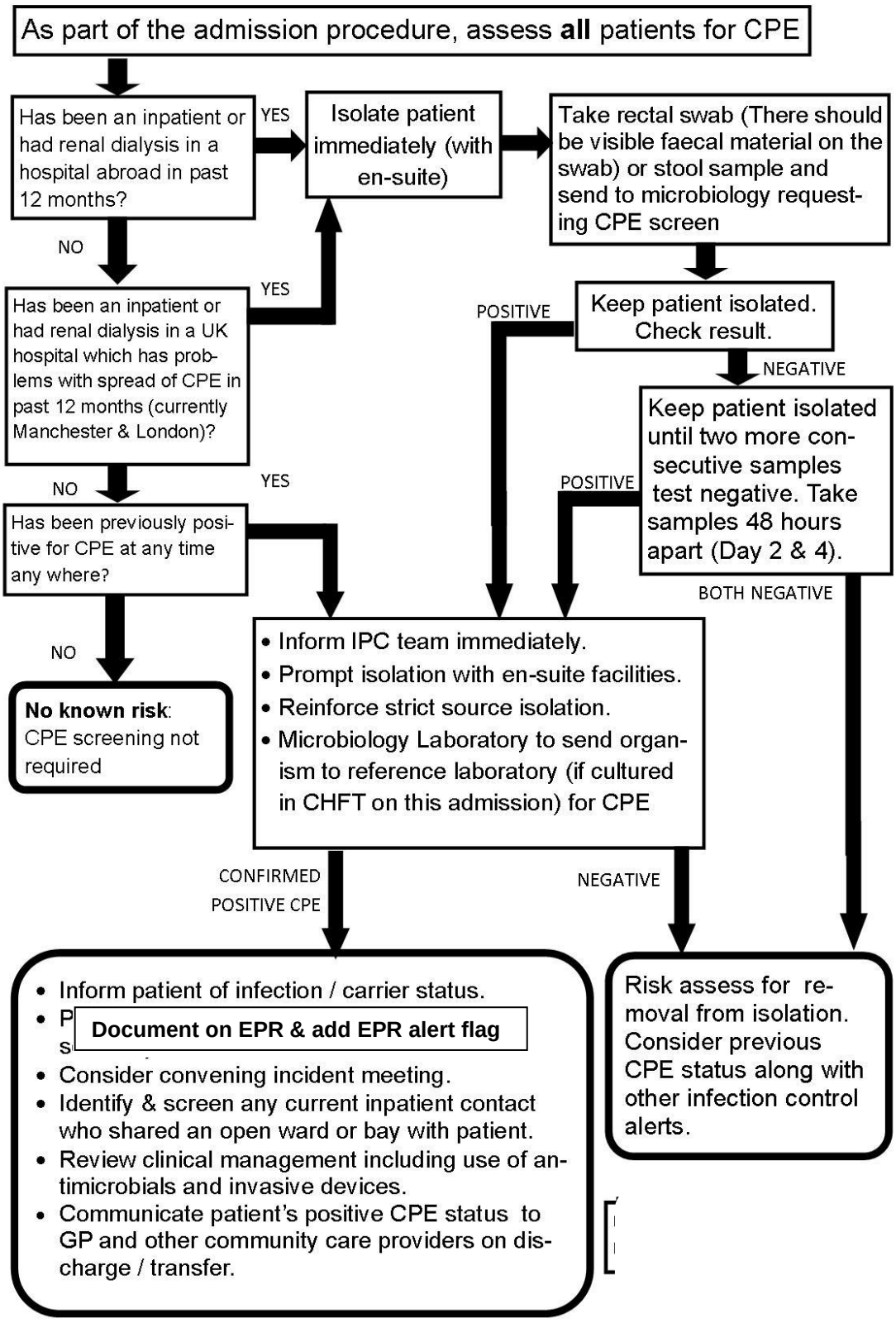
If one or more of above applies then:

The patient is considered to meet the criteria for being a suspected carrier of CPE:
THE ACTIONS BELOW MUST BE TAKEN IMMEDIATELY

Actions

1. Isolate immediately in a side room with en-suite facilities.
2. Notify the Infection Prevention & Control Team.
3. Screen for CPE to assess current status (rectal swab, see section 9))
4. Antibiotic treatment if clinically indicated should be discussed with the on-call Microbiologist (via switchboard).
5. Refer to Patient Admission Flow Chart (see page 8) for further guidance.

8. Patient Flow Chart for Infection Prevention & Control of CPE



9. CPE Screening

A rectal swab is the best sample type to achieve speedy results. Where the patient refuses or there are clinical contra indications e.g. neutropenic or haematology patients, those at risk of bleeding, or if it is felt inappropriate e.g. children, a stool sample may be sent.

How to take the rectal swab
Insert the swab gently 3-4cm into the rectum, and rotate gently to ensure faecal material is sampled: there must be visible faecal material on the swab. Place the swab back into the transport medium and send to the Microbiology Laboratory, requesting "CPE Screen".

N.B In addition patients with wounds or lesions should have these swabbed using a bacteriology swab. If the patient is catheterised a CSU (catheter specimen of urine) is required. The request form should state 'CPE Screen. (Please note that separate samples are required for MRSA screening).

When to take the rectal swab - this should be taken using a routine bacteriology swab 48 hours apart at the following time intervals:

- On admission
- Day 2 after admission
- Day 4 after admission

A sample may be confirmed negative in 48 hours but a positive result may take 3 – 4 days. Screening is not required for patients where there is no known risk.

Maternity screening
CPE screening for maternity bookings – refer to appendix 2

Pre – Assessment Screening
CPE screening for Pre – Assessment – refer to appendix 3

9.1 Screening results

Screen Positive results – IPC and clinicians should be informed of results immediately. IPC to complete Yorkshire & Humber Enhanced Surveillance form of all suspected/confirmed CPE cases (appendix 2).
Screen negative: If the admission screen is negative for CPE, the patient must remain in isolation until all three rectal swabs have tested negative

NB. Please note that if all of the samples are negative but the patient has had a previous positive result, it is possible that patients can revert to a positive state, especially after a course of antibiotics. Isolation precautions **must not** be discontinued until a risk assessment has been carried out in conjunction with the IPCT. Whilst an in-patient, weekly screening samples are advised in order to maintain an understanding of the patient's current status.

9.2 Screening Contacts of POSITIVE cases

Screening of household contacts and healthcare staff is NOT routinely required unless there is an outbreak situation and such a decision has been taken at the outbreak meeting.

Repatriated patients – no need to screen contacts unless in a bay.

Inpatient contacts: Screen all patients in the bay (or ward, if patient has occupied more than one bay) on a weekly basis for a period of 4 weeks after the last case was detected (Appendix 2). Include wounds / catheters as part of the screen.

If patients discharged home before all screens complete, advise the patient that we will continue screening on readmission (if the patient is readmitted within a 4 week period the weekly screens continue, outside of the 4 weeks to complete 3 screens as per routine screening.

Patients being discharged to a care home; screening will continue post discharge, liaison / referral needs to be made to District Nurses and the care home; this must be completed by the discharging area.

Contacts already discharged – letter will be sent advising we will screen on admission.

It is not necessary to isolate contacts whilst awaiting screening results; contacts should be cohorted if possible. Strict hand hygiene must be adhered to by all patients and staff.

Screening should be restricted to patient contacts remaining in hospital, i.e. follow up of contacts who have already been discharged at this stage is not required.

If any contacts have a positive screening result, the ICD is required to liaise with PHE and consider screening the whole ward, *PLUS* discharged patients who occupied the bay (or ward if the case occupied more than one bay) at the same time as the case.

If a patient is identified as being colonised / infected with CPE during their hospital stay, an immediate risk assessment should be undertaken to investigate the likely source(s) and completion of the CPE Surveillance Form to be done (Appendix 3).

Potential screening of environment on a risk assessment basis by IPCT.

10. Clinical Management of Patient Colonised / Infected with CPE

Patient information
Inform the patient of infection/carrier status. For specific patient information leaflets refer to the following appendices:

Appendix 4 – CPE I am colonised / have an infection - what does this mean?
Appendix 5– CPE I may be a carrier or have an infection – what does this mean?
Appendix 6– CPE I am a contact of someone who is a carrier or has an infection – what does this mean?
Treatment

Infection with CPE
Treatment of the patient with an infection caused by CPE should be promptly undertaken under the advice of a Microbiologist (PHE, 2013). It is important to establish clinically whether the patient has an infection or is colonised with CPE.

Further advice about laboratory procedures may be accessed in Section 5.2 'Other antibiotics' in: *UK Standards for Microbiology Investigations: Laboratory Detection and Reporting of Bacteria with Carbapenem-Hydrolysing β-lactamases (Carbapenemase)* (2013) published at: http://www.hpa.org.uk/

Please also refer to Start Smart, Then Focus. Department of Health's advisory committee on Antimicrobial Resistance and Healthcare-associated Infection (ARHAI): https://www.gov.uk/government/publications/antimicrobial-stewardship-start-smart-then-focus

Colonisation with CPE
No antibiotic treatment is required for colonisation; skin decolonisation is not recommended as the bacteria generally colonise the gut and not the skin. Gut decolonisation (by prescribing antibiotics) is not advised.

11. IPC Management – CPE screen positive patients or awaiting results

Source Isolation: Side room isolation precautions are required (with en-suite facilities), door closure and a standard precaution sign displayed on the door for the duration of hospitalisation or until screening results are known. If the side room has pressure facilities, this must be in negative pressure, unless neutropenic, when a neutral pressure room is advised. Fans are not advised within the isolation room. Only designated staff involved in the patient's care should access the isolation room.

CPE Guidance: All patients who are found to be positive for CPE/VRE must have a daily checklist completed by the nurse in charge of an area / matron, including weekly joint completion with an IPCN. Refer to appendix 9.

Hand Hygiene: To prevent the risk of bacterial cross transmission, strict adherence to the hand hygiene policy is advised. Alcohol gel is also effective and can be used if hands are not visibly soiled.
Patients should be advised about the need for a high standard of hand hygiene, after using the toilet, before mealtime, or handling continence products e.g. pads, urinary catheters and equipment. and especially if they develop loose stools or diarrhoea. Assistance must be provided to enable this.

Personal Protective Equipment (PPE): All staff that have direct contact with the patient, their immediate environment or blood / body fluids must wear single-use thumb loop gowns plastic aprons and gloves. PPE must be removed and discarded after each use and before leaving the room, with the exception of removing items to the sluice. In such instances, be aware of contact points that may become contaminated, and will require cleaning following removal of PPE. Where any part of the uniform, not protected by a plastic apron, is expected to come into contact with the patient, a long sleeve thumb loop gown is required e.g when assisting movement for a dependant patient.

Linen: All linen must be considered infectious and managed in accordance with CHFT linen policy.

Waste Management: All isolation rooms must have a domestic bin and an orange infectious waste bin, in accordance with CHFT waste policy.

ANTT: Scrupulous ANTT and infection prevention and control, practices are particularly important when using and caring for any invasive medical device such as intravenous lines, urinary catheters, enteral feeding equipment, colostomy / ileostomy to ensure optimum patient safety. Remove any devices that are no longer required**.**

Cleaning/Decontamination

Patient Environment: Scrupulous cleaning and disinfection of all surfaces is required. Cleaning services must be informed that the patient's room requires thorough cleaning with a chlorine based disinfectant (such as Tristal) twice daily paying particular attention to those that may have had patient or staff hand contact e.g. door handles, touch plates, light switches.
A RED clean is required on patient transfer/discharge – this includes a full terminal clean with Tristal followed by HPV room decontamination.

Patient Equipment: All the equipment and room furniture must be decontaminated daily. Any equipment required for patient management should be single patient use only or dedicated to that patient only and cleaned thoroughly after use.
Commodes must be decontaminated **after every use with** chlorine based disinfectant, for example Tristel.
Blood pressure cuffs should be single-patient use only
Endoscopes - there are no extra decontamination requirements for endoscopes above the usual organisational procedures. Any attached cameras / equipment which cannot be steam sterilised, should be protected using a single-use covering and thoroughly chemically disinfected between patients after removal.
Single use items - keep minimal stock in the isolation room to avoid contamination; otherwise these would need discarding ie unused wrapped single-use. Single use items such as cleansing foam must be disposed on patient discharge.
Mattresses - conventional mattresses should be checked by unzipping the cover to check for breaches; covers must be cleaned and disinfected. If any breaches are apparent, the mattress must be condemned. Refer to the intranet for specialist mattress cleaning:

Clinical investigations: Patients with CPE can undergo departmental investigations, provided the department has been informed in advance. It is recommended that patients are seen last on the list where possible **(**unless clinical need is a priority**),** and are dealt with promptly to minimise delay within the department. Decontamination of all equipment should be undertaken with Tristel.

Transfers to other wards or health settings: transfers can occur **only if clinical need dictates.** The receiving area **must** be informed in advance of the CPE status to ensure that the appropriate facilities are available and the required precautions are applied. Movement for non-clinical reasons is not advised.

In conjunction with full discharge / transfer planning, a transfer form (Appendix 8) requires completion to notify of an individual carrying or infected with CPE or other multidrug-resistant organisms.

Transporting by Hospital Transport: If clinically well, patients with CPE/VRE can be transported with other patients as long as any open wounds are covered, they are continent of urine and faeces and the ambulance crew maintains standard infection control precautions

Visitors: are not required to wear PPE unless involved in the patient's personal care. Decontaminate of hands is required immediately prior to leaving an isolation room and are advised not to wander around the ward or visit other patients. A contact advisory leaflet is available in appendix 7.

Outpatients: Known CPE positive patients should be planned at the end of the clinic list if possible, to enable thorough environmental cleaning to be undertaken following the appointment. For all patients - If admission is being planned, the risk assessment questions (page 7) must be completed and the receiving ward/department notified so that isolation precautions and screening can be initiated on admission.

12. Communication

Communication is vital and required when a suspected/confirmed case is identified: This includes communication with:

- The patient
- Microbiologists/IPCT
- Clinical team and nursing staff (including visiting staff)
- Laboratory personnel
- The patient's GP plus any other relevant care provider
- Cleaning services
- Clinical departments as required.
- PHE (appendix 4)

IPC will also add an infection risk alert to the patient's EPR

13. Training and Implementation

The policy will be available on the Trust intranet and communicated through existing clinical forums, senior managers' briefings, divisions, induction and mandatory training. The IPCT will also carry out ad hoc training sessions as required.

14. Trust Equalities Statement

Calderdale and Huddersfield NHS Foundation Trust aims to design and implement services, policies and measures that meet the diverse needs of our service, population and workforce, ensuring that none are placed at a disadvantage over others. We therefore aim to ensure that in both employment and services no individual is discriminated against by reason of their gender, gender reassignment, race, disability, age, sexual orientation, religion or religious/philosophical belief, marital status or civil partnerships.

This policy has been through the Trust's EQUIP (Equality Impact Assessment Process) to assess the effects that it is likely to have on people from different protected groups, as defined in the Equality Act 2010.

15. Monitoring Compliance with Procedural Document

Compliance will be monitored via the ward assurance monthly dashboard and reported to the Executive Boards. Monitoring of compliance will also include the weekly Frontline Ownership Audit (FLO) process.

16. References and Bibliography

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APPENDIX 1

Countries and regions with reported high prevalence of healthcare-associated Carbapenemase-producing Enterobacteriaceae (CPE).

Bangladesh	**North Africa (all)**
The Balkans	**Malta**
China	**Middle East (all)**
Cyprus	**Pakistan**
Greece	**South East Asia**
India	**South/Central America**
Ireland	**Turkey**
Israel	**Taiwan**
Italy	**USA**
Japan	

This is not an exhaustive list: admission to <u>any</u> hospital abroad should be considered when making a risk assessment. Lack of data from a country not included in this list may reflect lack of reporting / detection rather than lack of a Carbapenemase problem (which may additionally contribute to an under-estimation of its prevalence).

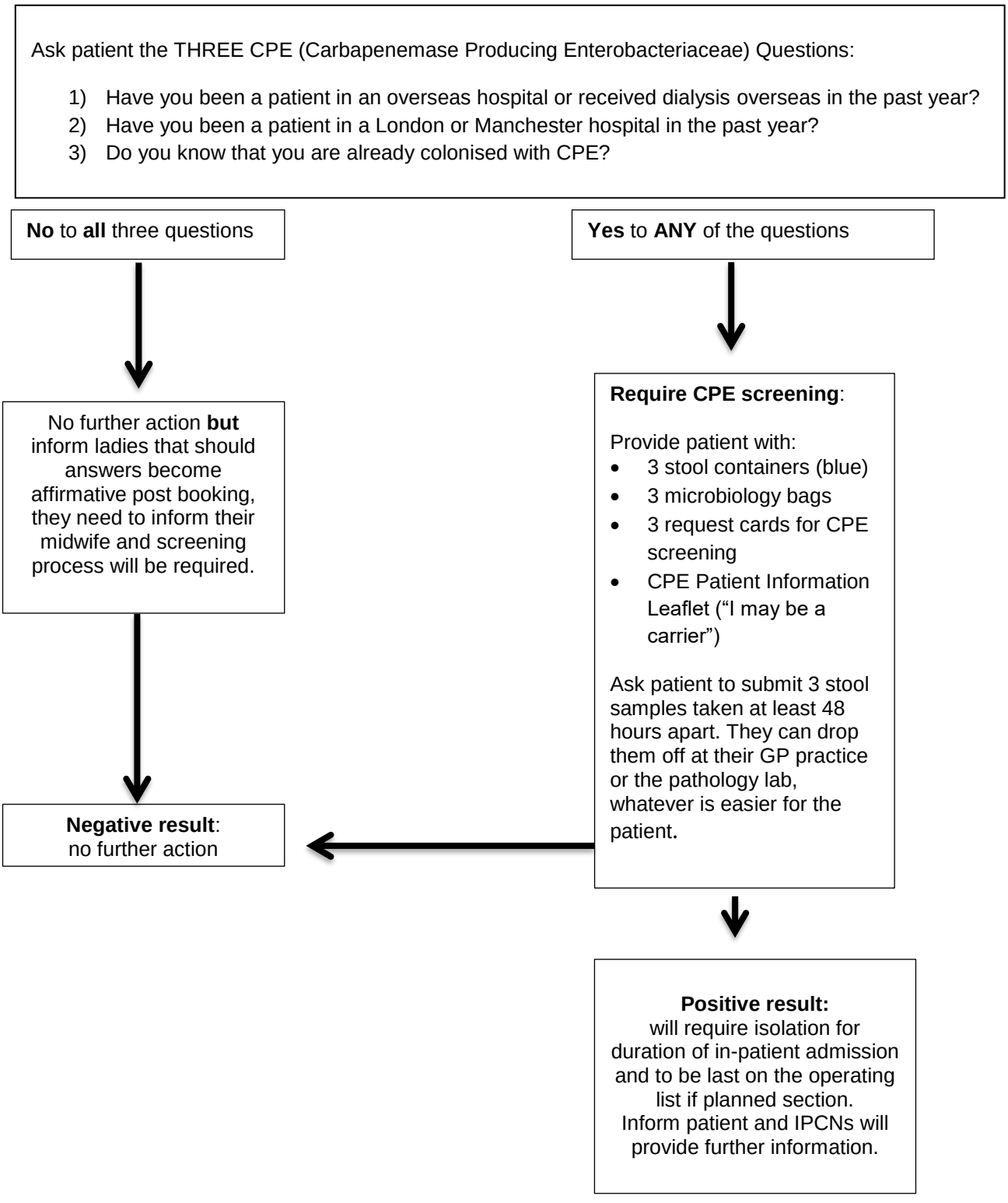
UK regions / areas where problems have been noted in <u>some</u> hospitals:

Manchester
London

IMPORTANT: Healthcare providers have a '<u>duty of care</u>' to proactively communicate any problems they are experiencing with CPE, <u>not only</u> with colleagues in healthcare settings which are co-terminus, but with any organisation they deal with on the patient pathway, either routinely or sporadically.

CPE Process for Maternity Booking

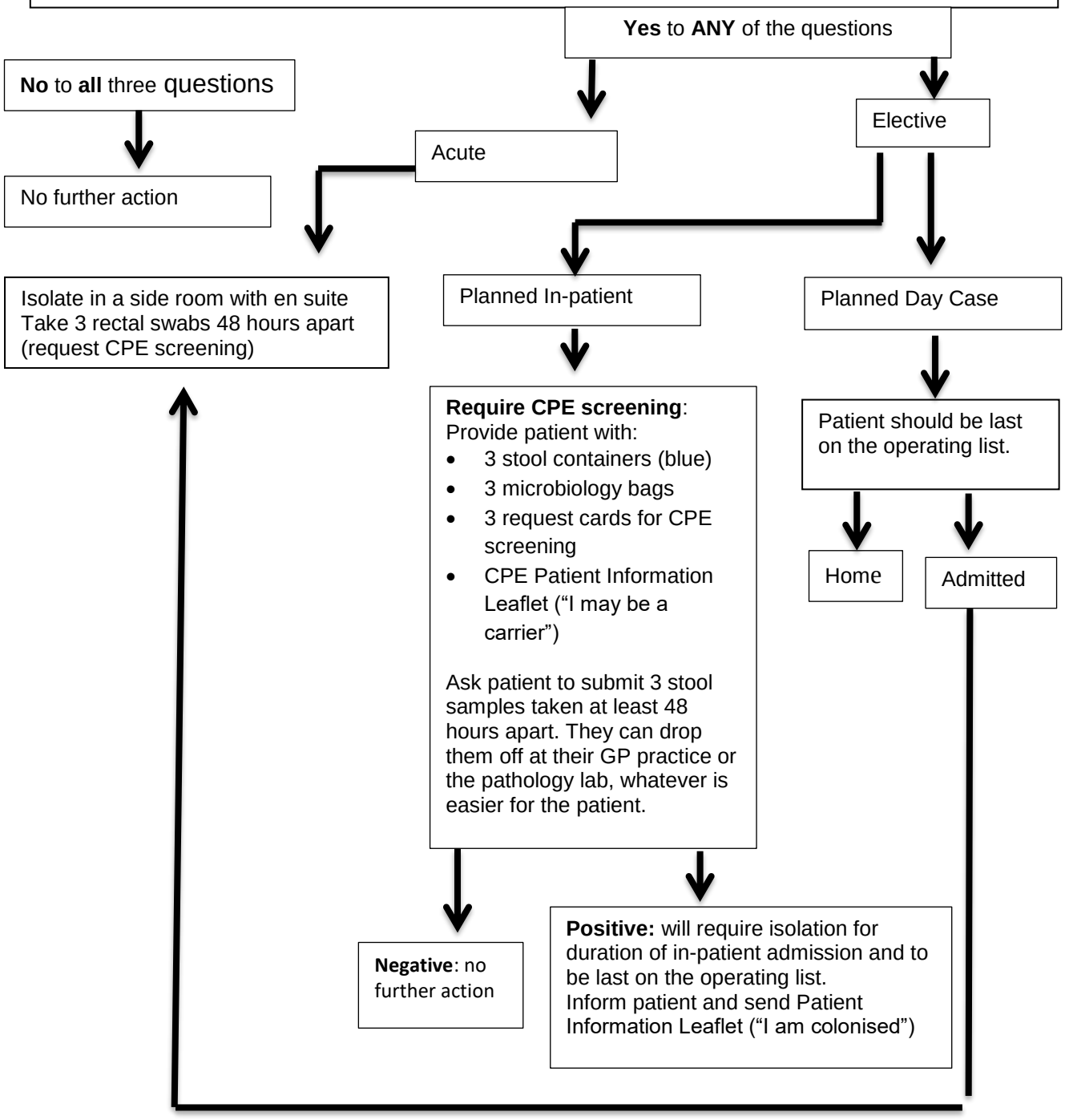
APPENDIX 2



CPE Process for Pre – Assessment:

Ask patient the THREE CPE (Carbapenemase Producing Enterobacteriaceae) Questions:

4) Have you been a patient in an overseas hospital or received dialysis overseas in the past year?
5) Have you been a patient in a London or Manchester hospital in the past year? – Again do we change this to any UK hospital
6) Do you know that you are already colonised with CPE?



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Carbapenemase producing Enterobacteriaceae (CPE) Case / Contact Sheet

APPENDIX 4

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 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

Abroad - hospitalised abroad in last 12 months;
UK Hospital – hospitalised in a UK hospital (with known transmission problems) in last 12 months;
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 5

Public Health England

Enhanced Surveillance of suspected Carbapenemase – producing Enterobacteriaceae (CPE) in Yorkshire & Humber

Patient Details

1	**NHS Number** (Do not enter spaces)	
2	**First name of patient**	
3	**Surname of patient**	
4	**Date of Birth** (dd/mm/yyyy)	
5	**Gender**	
6	**Normal residence** (choose only one answer)	
7	**Residential postcode** (leave blank if overseas patient)	

Diagnostic Laboratory

8	**Trust code** (Trust of the lab that detected the suspected CPE)	
9	**Trust name** (Trust of the lab that detected the suspected CPE)	

Public Health England

Details of specimen

10	**Sample collection date** (dd/mm/yyyy)	
11	**Sample type**	
12	**Specimen number** (number at referring lab. no spaces)	
13	**Kind of sample** (screening or clinical)	
14	**Sample sent to AMRHAI Lab, Colindale** (Yes/No)	

Details of admission

15	**Was the patient hospitalised at the time of collection of sample?** (Yes/No)	
16	**If patient was hospitalised – Trust name**	
17	**If patient was hospitalised – Hospital number at the Trust**	
18	**Main speciality at the time of sample collection** (Use HES codes/names)	
19	**Ward at the time of sample collection**	
20	**Date of admission to health facility where sample was collected** (dd/mm/yyyy)	
21	**Nature of admission**	
22	**Was patient transferred from another hospital within the UK ?** (Yes/No)	
23	**If Yes – Trust code of transferring hospital**	
24	**If Trust code is not known, name & address of transferring hospital**	
25	**Was patient transferred from another hospital or setting outside the UK?** (Yes/No)	
26	**If Yes, facility name, address & country transferred from**	

Public Health England

Screening

27	Was patient screened for CPE on admission? (Yes/No)	
28	If Yes, was the result	

Past admissions

28	Has the patient been admitted to this or other UK hospitals in the last 12 months? (Yes/No)	
29	If Yes	Trust 1: Trust 2: Trust 3: Trust 4:

Public Health England

Contact with CPE

30	Was the patient in possible contact with CPE during the current admission before the sample was taken?	o Yes. Patient was on same ward at same time as other patient(s) who were later discovered to be colonised or infected with CPE at that time. o Yes. Patient was on same ward at same time as other patient(s) who were known at the time to be colonised or infected with CPE o Possibly. Other known CPE patients in hospital at that time o No. Patient is not known to have had contact with other patient(s) with CPE
31	Has the patient had contact with a known case of CPE outside of healthcare facility?	o Yes o No o Unknown
32	Is the patient known to have received healthcare overseas in the last 12 months? (Yes/No)	
33	If Yes, list country/countries received healthcare in	1. 2. 3. 4.
34	Comments/details of local follow up where available	

APPENDIX 6

NHS
Calderdale and Huddersfield
NHS Foundation Trust

Carbapenemase-producing Enterobacteriaceae (CPE): I am colonised / 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. 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. However, if the bacteria have caused an infection then antibiotics will be required.

How did I 'pick up' Carbapenemase-producing Enterobacteriaceae?

Do ask your doctor or nurse to explain this to you in more detail. As mentioned above, sometimes this bacteria can be found, living harmlessly, in the gut of humans and so it can be difficult to say when or where you picked it up. However, there is an increased chance of picking up these bacteria if you have been a patient in a hospital abroad or in a UK hospital that has had patients carrying the bacteria, or if you have been in contact with a carrier elsewhere.

How will I be cared for whilst in hospital?

You will be accommodated in a single room with toilet facilities whilst in hospital. You may be asked to provide a number of samples, depending on your length of stay, to check if you are still carrying the bacteria. These will be taken on a weekly basis. The samples might include a number of swabs from certain areas, such as where the tube for your drip (if you have one) enters the skin,

a rectal swab ie a sample taken by inserting a swab briefly just inside your rectum (bottom), and/or a faecal sample. you will normally be informed of the results within two to three days.

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

Accommodating you in a single room whilst in hospital 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, a letter or card will be given to you advising that you have had an infection or been / are 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?

Infection Prevention & Control Nurses at Huddersfield Royal Infirmary, Lindley, Huddersfield, HD3 3EA Telephone No. 01484 342447 or at Calderdale Royal Hospital, Salterhebble, Halifax, HX3 OPW Telephone No. 01422 222376 www.cht.nhs.uk

The Public Health England website is another source of information:

https://www.gov.uk/government/publications/carbapenemase-producing-enterobacteriaceae-early-detection-management-and-control-toolkit-for-acute-trusts

APPENDIX 7

NHS
Calderdale and Huddersfield
NHS Foundation Trust

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.

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.

Advice for patients who have a positive result

What happens if the result is positive?

If the result is positive, 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, a letter or card will be given to you 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?

Infection Prevention & Control Nurses at Huddersfield Royal Infirmary, Lindley, Huddersfield, HD3 3EA Telephone No. 01484 342447 or at Calderdale Royal Hospital, Salterhebble, Halifax, HX3 OPW Telephone No. 01422 222376 www.cht.nhs.uk

The Public Health England website is another source of information:

https://www.gov.uk/topic/health-protection/infectious-diseases

APPENDIX 8

NHS
Calderdale and Huddersfield
NHS Foundation Trust

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, 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?

Infection Prevention & Control Nurses at Huddersfield Royal Infirmary, Lindley, Huddersfield, HD3 3EA Telephone No. 01484 342447 or at Calderdale Royal Hospital, Salterhebble, Halifax, HX3 OPW Telephone No. 01422 222376 www.cht.nhs.uk

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

https://www.gov.uk/topic/health-protection/infectious-diseases

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Review Lead: Lead Infection, Prevention and Control Nurse

APPENDIX 9

IPC Guidance for CPE Colonisation or Infection:

Patient Placement	**Isolation:** Side room (SR) isolation with ensuite facilities (or a dedicated commode, cleaned with Tristel after each use). Door to remain closed with a contact precaution sign displayed. If unable to isolate, inform the site co/night matron immediately to escalate this urgent requirement.
	Transfer from a bay: If a patient is moved from a bay to a SR, the whole bay will require terminally cleaning with Tristel, including horizontal surfaces and all curtains changed in the bay
Infection Prevention & Control Measures	**Hand Hygiene**: Hand wash sink and alcohol hand gel must be available in the SR. All staff/visitors **must** perform hand hygiene with alcohol hand rub prior to entry and before leaving the SR. **Note**: if staff / visitors' hands are visibly soiled soap and water must be used. Patients are advised to maintain high standards of hand hygiene at all times and hand wipes should be provided to enable this where required.
	PPE: All staff must be bare below the elbow, and decontaminate hands as above prior to applying gloves and aprons for direct contact with patient or their environment. These must be removed after attending a patient and hand decontamination repeated. Where any part of staff uniform is not protected by an apron and is expected to come into contact with the patient, a long sleeves disposable gown should be used.
	ANTT: Observe devices for signs of inflammation/infection and record daily on EPR. Remove any devices no longer required and ensure scrupulous ANTT for all activity involving invasive devices/wound management.
	Equipment: Single use or dedicated patient equipment must be used where possible and keep the amount of equipment in the SR. Remove fans or other equipment that could exacerbate any environmental contamination. The EPR trolley must not enter the SR.
	Waste: All waste in the SR must be disposed of in the infectious orange waste stream
	Linen: All linen must be considered infectious and discarded as such. Bedding must be changed daily.
	Cleaning: The SR requires Tristel cleaning twice daily and a RED clean on discharge. All equipment requires cleaning with Tristel, keeping clutter to a minimum. The ward environment also requires daily Tristel cleaning.
	Transfers: to other wards/healthcare settings should only occur if clinical need dictates.
	Clinical Investigations: communicate with the department involved and plan the procedure last on the list. Avoid delay within the department and clean all equipment and the environment with Tristel afterwards.
Information and Treatment	The patient should be informed of result and an information leaflet provided and discussed, with the inclusion of the family if the patient consents to this. Document on EPR.
	Antibiotic therapy must be reviewed by the patient's clinical team and the duty Microbiologist
	Staff Education at ward level will be given by the IPCT reinforced by written information leaflets

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Review Date: February 2020
Review Lead: Lead Infection, Prevention and Control Nurse

IPC guidance for CPE Colonisation or Infection

Patient:	
MRN:	

Date	Daily Evaluation of Care	Name	Signature

APPENDIX 10

Public Health England

Protecting and improving the nation's health

Annex A: Inter-care transfer form – notification of an individual carrying or infected with a carbapenemase–producing Enterobacteriaceae or other multidrug-resistant organism

For use in conjunction with full discharge / transfer planning

Patient / client details: *(insert label if available)* Name: **Patient name in full** Address: Address line 1 Address line 2 City, postcode, country Date of birth: DoB NHS number: NHS no.	Consultant name: **Consultant name** Consultant Contact no: Consultant telephone No. GP name: **GP name** GP contact no: GP telephone No.
Transferring facility: **Facility name / Details (eg care home, community hospital, hospice, district nurse, GP)** Contact name: Transferring facility contact Contact no: Transferring facility contact no.	Receiving facility: **Facility name / Details (eg care home, community hospital, hospice, district nurse, GP)** Contact name: Receiving facility contact Contact no: Receiving facility contact
Diagnosis: *(confirmed organism)* **Diagnosis / Confirmed organism details**	Infection: Yes☐ / No☐ Colonisation: Yes☐ / No☐

Infection prevention and control precautions required / in place:
IP&C details

Has the patient been given a patient card? Yes☐ / No☐
Other information relevant to patient's care:
Relevant information for patient care

Has ambulance service been informed? Yes☐ / No☐
This should be done when booking the transfer.
If no, please give reason.

Is the patient / client aware of their colonisation / infection status? Yes☐ / No☐
If no, please give reason.

Has patient received information about their status? (Patient leaflet) Yes☐ / No☐

Name of staff member completing form:
Name: **Staff member name** Contact number: Contact no.

Date completed: Click here to enter a date