



Public Health
England

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Toolkit for Managing Carbapenemase-producing Enterobacteriaceae in Non-acute and Community Settings – Draft for Technical Engagement

About Public Health England

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For whom is this toolkit intended?

This toolkit provides practical advice for health and social care staff working in community and non-acute healthcare settings, both with and without specialist knowledge of infection prevention and control (IP&C). It also provides advice and information for the service user and their family.

The advice in this toolkit is applicable to the NHS, the independent and social care sectors, in which settings many service users may reside or receive care, often following discharge or transfer from an acute care setting. These will include:

- community hospitals
- hospices
- mental health trusts
- care homes (residential and/or nursing) including dementia care
- community rehabilitation
- residential social care
- domiciliary care
- prisons/detention centres

If the IP&C advice in this toolkit does not 'fit' your situation, please seek further advice from your community IP&C team (where available), advising clinician, microbiologist or the individual's general practitioner (according to which service is appropriate and available). Alternatively, you may obtain further advice and signposting, *particularly in relation to making a risk assessment*, through your local PHE Centre. A 'useful contacts' sheet (for you to complete with local contacts) is provided in [Section C4](#).

Format of toolkit – main elements

i. Care Matrix (Section A2)

To assess risk to your setting posed by a positive individual, taking into account the care needs of the individual and those of others in the same setting.

ii. Flow chart (Section A7)

To provide an overview of the whole process for managing a case i.e. an individual who is positive for carbapenemase-producing Enterobacteriaceae, whether colonised or infected.

iii. Inter-care transfer (Section C3 and Annex A)

To inform receiving care settings and carers when transferring or discharging the individual.

iv. Advice & information leaflets (Annex B – F)

To inform the individual, their family and those who care for them or who manage their environment.

v. Primary Care Quick Reference Guide (Annex G)

To act as a reference for primary care practitioners, signposting to relevant toolkit sections.

Section A

A1 Introduction – What is the problem?

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 (protein catalysts), made by some strains of these bacteria, which allow them to destroy carbapenem antibiotics and so become resistant to these and most other penicillin-like (beta-lactam) antibiotics. Carbapenemase-producing Enterobacteriaceae are sometimes abbreviated to CPE.

Why does carbapenem resistance matter?

Carbapenem antibiotics can only be given by injection either directly into the bloodstream (intravenously) or the muscle (intramuscularly). Until now, doctors have relied on these antibiotics to treat certain complicated infections successfully when other antibiotics have failed. Therefore, in hospital or other settings where there are very vulnerable patients, spread of these resistant bacteria can cause problems, as infections will be very difficult to treat.

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

If a person is a carrier of carbapenemase-producing Enterobacteriaceae, they do not need to be treated. However, if the resistant bacteria cause an infection then treatment to manage the infection e.g. antibiotics and sometimes other treatment e.g. wound management, will be required.

How are carbapenemase-producing Enterobacteriaceae spread?

If a person is a carrier, the bacteria can get into the environment when poor hygiene leads to faecal contamination, allowing spread to other people. Where hygiene is poor, the bacteria can be passed on by carers or by the affected individual having direct contact with others. Therefore, good personal hygiene including hand hygiene by carers and the affected individual (particularly after visiting the toilet) is important. Keeping the environment scrupulously clean is also an important measure in preventing spread.

What is the risk to those being cared for in the community?

Most people will be unaware that they are a carrier and, for most healthy carriers, the chance of developing an infection with the bacteria is low. However, immunocompromised individuals and those receiving complex and intensive hands-on care in the community (very often with frequent visits to hospital) will be more

vulnerable. This means that they are at greater risk of becoming a carrier in the first place and potentially, being vulnerable, suffering more serious consequences if they develop an infection.

Therefore, 'CPE' pose two main risks:

- Firstly, to an individual, who may develop a serious infection needing more intensive treatment in hospital to clear (e.g. antibiotics intravenously). There are few antibiotics which work against most CPE strains.
- Secondly, if the levels of hygiene in the community setting are inadequate, then the resistant bacteria may spread among individuals who congregate together, e.g. in care homes.

Therefore, it is especially important that consistent good hygiene is practiced and maintained by staff, service users and visitors, at all times. See Annex C and Annex D for more information to provide to contacts and family of colonised individuals.

How can we prevent spread?

Without doubt, delivery of robust, high quality infection prevention and control practices at all times is the key to preventing spread. Well-trained carers and domestic staff, together with regular audit of practice, are essential elements of effective infection prevention and control. Furthermore, it is crucial to maintain excellent communications with the affected individual and/or their family (as appropriate) and all healthcare providers with whom you or your organisation works. This is critical to preventing ongoing spread.

Please note: Assuming that good hygiene is practiced and maintained at all times by staff, service users and visitors, there is no reason for non-acute settings to refuse admission or readmission of service users on the grounds that they are colonised with carbapenemase-producing Enterobacteriaceae.

A2 Care matrix for managing individuals with a positive laboratory result for carbapenemase-producing Enterobacteriaceae*		A. CARE NEEDS						
		Permanent ventilation	Device(s) in situ / undergoing invasive procedures	Incontinence / smearing / 'dirty protests' / confused state	Infection with exudate / discharging wound	Requires assistance with hygiene	Requiring physical rehabilitation / assistance with mobility	Independent and self-caring
						MEDIUM		
		HIGH				MEDIUM		LOW
B. CARE ENVIRONMENT	Nursing care setting / specialist rehabilitation units	HIGH	Standard precautions PLUS enhanced focus on staff education / review necessity for devices / prevention of faecal & environmental contamination / reinforcement of hygiene advice to individual				<ul style="list-style-type: none"> • standard precautions (see Section C1) PLUS enhanced focus on staff education • hygiene advice to individual (Annex B-D) • effective environmental hygiene (Annex F) 	
	Haemodialysis unit / EMI or dementia care unit		<ul style="list-style-type: none"> • <u>colonised patient</u>- provide care in single room, ideally with en-suite facilities or single room with a designated commode (i.e for single-patient use only); daily communal activities should not be curtailed** • <u>patient with carbapenemase-producing Enterobacteriaceae infection</u> – as above PLUS any discharging wounds should be contained within an impermeable dressing 					
	Mental health trust / community hospital / hospice	MEDIUM	Standard precautions PLUS enhanced focus on education of staff; reinforcement of hygiene advice to individual				<ul style="list-style-type: none"> • <u>haemodialysis</u> – provide end of list appointment and effective terminal cleaning • <u>confused individual</u> - supervision of individual / remain alert to episodes that could lead to direct transmission to others and / or environmental contamination, facilitation of speedy cleaning 	<ul style="list-style-type: none"> • hygiene advice to individual, specifically hand hygiene (Annex B-D) • effective environmental hygiene (Annex F)
	Rehabilitation / intermediate care		<ul style="list-style-type: none"> • <u>community hospital or hospice</u> – discuss isolation with PHE Centre on a case by case basis (if not detrimental to individual's wellbeing) • <u>confused individual</u> - supervision of individual / remain alert to episodes that may lead to direct transmission to others and / or environmental contamination, facilitation of speedy cleaning 					
Residential care / prison / detention centre/ domiciliary care	LOW	Standard precautions PLUS end of list appointment for outpatients; effective terminal cleaning / reinforcement of hygiene advice to individual				<ul style="list-style-type: none"> • <u>residential rehabilitation</u> - single room with en suite facilities PLUS separate rehabilitation facilities to others 		
		Standard precautions PLUS enhanced focus on staff education and reinforcement of hygiene advice to individual				<ul style="list-style-type: none"> • <u>confused individual or dirty protests</u> - supervision of individual / remain alert to episodes that may lead to direct transmission to others and / or environmental contamination, facilitation of speedy cleaning 		

* See Section A2.1, p8 for information on how to use this matrix.

** No curtailment needed where robust standard precautions are being maintained and there is no acute risk of infecting others. Acute risk would include affected individual with acute diarrhoea or uncontrollable leaking discharge from an infected wound. In these situations, discuss possible isolation with your IP&C advisor or PHE Centre Health Protection Team.

A2.1 How to use the Care matrix for managing individuals with a positive laboratory result for carbapenemase-producing Enterobacteriaceae (A2, page 7)

- Step 1:** consider the positive individual and their care needs assessing where they fit in the matrix (as described in horizontal row 'A. Care Needs')
- Step 2:** consider the care setting, the type of care provided and the individuals for whom you provide care. Again, assess where it fits in the matrix (as described in vertical column 'B. Care Environment')
- Step 3:** match the care needs and the care setting to identify infection prevention and control measures that are most appropriate to your setting
- Step 4:** consult with your community IP&C team or local PHE Centre for further advice e.g. if the management is unclear.
- Step 5:** inform and educate the affected individual and all carers about the required measures, particularly hygiene measures (use Annexes B – F as appropriate)
- Step 6:** check adherence to the measures through regular audit and feedback
- Step 7:** continue appropriate standard precaution measures for duration of individual's stay maintaining Steps 4-7; reassess and return to Step 1 should care needs change

A3 Management advice for differing care needs

Multiple measures and interventions are required to address the variety of care needs and settings in the community. The Care Matrix is intended to assist care providers in assessing what measures are required in their setting and with their individual service users. For practical purposes, we suggest you classify the affected individual according to their care needs and then match the infection prevention and control measures that are most appropriate to your setting along with that care need.

A3.1 Assessing level of management

The suggested management in the Care Matrix provides a starting point for non-acute and community care settings *but is not exhaustive*.¹ There will be occasions where additional measures will need to be considered following a local risk assessment and on a case-by-case basis. When in doubt you should seek further advice from your community IPC team (if available) or local PHE Centre. This guidance focuses on the care needed for the management of carbapenemase-producing Enterobacteriaceae. For this to be effective, it must be underpinned by uninterrupted delivery of robust, high

¹ Due to the similarities between organisational structures in both acute and mental health trusts, the checklists included in section B of the **Acute Trust Toolkit** may be helpful for planning purposes (see reference section B3)

quality infection prevention and control practices including effective standard precautions (accompanied by audit). Initial training and routine updates for all care and domestic staff should be instituted to enable a *full understanding* of the the risks of poor practice.

A4 Communications

Robust inter-care communications (within and between settings and carers) are central to a successful concerted effort to prevent and control spread of carbapenemase-producing Enterobacteriaceae (see [Section C3 for inter-care transfer form](#) or Annex A for a standalone version).

It is vital that affected individuals (and / or their families) play a role in preventing spread and that they have a full understanding of their status and of the infection prevention and control measures needed. To assist with this, advice leaflets have been created to share with:

- individuals receiving care at home who have an infection with or are colonised by carbapenemase-producing Enterobacteriaceae (Annex B)
- contacts of a carbapenemase-producing Enterobacteriaceae (CPE) carrier (Annex C)
- the family of a person who is a carrier of a carbapenemase-producing Enterobacteriaceae (CPE) (Annex D)

A patient card (Annex E) may prove useful for the affected individual to provide information about their status to health and social care staff when attending or being transferred to another health or social care setting. This method of communication is currently being used successfully in some areas, helping the patient to explain their status.

A5 Factors that increase the risk of spread

There is a greater risk of spread in a shared care environment where individuals are congregated and are cared for in close proximity to one another compared with domiciliary care (i.e. an individual being cared for in their own home). That said, where hygiene is poor, community carers travelling between clients also increase the risk of spread. Equally, an uninformed service-user and their family risk spreading the bacteria if they lack understanding of how to prevent this from happening. [Section A7.1](#) covers the factors that increase the risk of spread.

Note: there will be an even greater risk of spread in those positive individuals who have more than one factor ([Section A7.1](#)). It is important that both the positive individual and staff understand these and the measures required to prevent spread due to these factors.

Poor hand hygiene, poor infection prevention and control practices and poor environmental cleaning present the greatest risk to increasing spread of these organisms. Summarised information on standard principles of infection prevention and control (often called standard precautions) has been included in [Section C1](#). Please do ensure all staff fully understand these principles and check that their practice demonstrates their understanding by regular auditing.

A5.1 Where an individual has an infection

With the exception of an individual living in their own home, a single room with en-suite facilities is the ideal environment when providing care for an individual who is colonised or has an infection with carbapenemase-producing Enterobacteriaceae. If en-suite facilities are not available, a single room with a designated commode should be provided.

In any care setting, and for individuals living in their own home, full attention needs to be given to containing an infection. For example, a discharging wound should be secured with an impermeable dressing and any environmental contamination cleaned immediately according to your infection prevention and control policy. Domiciliary carers should be reminded of their responsibility to maintain robust IPC measures to prevent spread within the affected individual's home or to other clients on their case list.

Where the affected individual has an acute condition e.g. acute diarrhoea or uncontrollable leaking discharge from an infected wound, the possibility of short-term isolation, with a planned 'end-date' (normally when the infection has cleared)² should be discussed with your community IPC team or local PHE Centre ([see Care Matrix, section A2](#)) and taking into account the impact on the individual's social and psychological wellbeing.

Care organisations, and all staff, should be familiar with guidance on the infection and prevention control management for such risk factors. In addition to this Toolkit, three key documents should be used to understand and embed high quality infection prevention and control practices in community settings ([Section A6: Essential resources](#)).

A5.2 Pragmatic approach to isolation

A colonised individual should be allowed to use communal facilities when and where robust standard precautions are being maintained and the affected individual is not at high risk of infecting others, e.g. due to acute diarrhoea or leaking discharge from a wound.

² Should the infection fail to clear, discuss onward management with the clinician in charge of the individual's care; your local PHE centre will assist in the risk assessment

A5.3 Where an outbreak or cluster of cases is suspected

Having cared for a positive individual, should a second individual in your care setting develop infection or become colonised with carbapenemase-producing Enterobacteriaceae, immediately advise the clinician in charge of the individual or General Practitioner (as appropriate to the setting). You should also contact your local PHE Centre immediately; they will assist you in assessing whether spread is likely to have occurred in your care setting or from another setting. Until advised otherwise, care for the individuals affected in line with the [Care Matrix on page 7](#).

A6 Essential resources

NICE Standard principles of prevention and control of healthcare-associated infections in primary and community care (a summary is provided in section 8)
<http://pathways.nice.org.uk/pathways/prevention-and-control-of-healthcare-associated-infections/standard-principles-of-prevention-and-control-of-healthcare-associated-infections-in-primary-and-community-care>

Department of Health 'Prevention and control of infection in care homes – an information resource' available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214929/Care-home-resource-18-February-2013.pdf

The Health and Social Care Act 2008: Code of practice for health and adult social care on the prevention and control of infections and related guidance (DH, 2011) available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216227/dh_123923.pdf

A7 Non-acute/community setting – summary of infection prevention and control (IP&C) management for individuals positive for carbapenemase-producing Enterobacteriaceae (colonisation or infection)

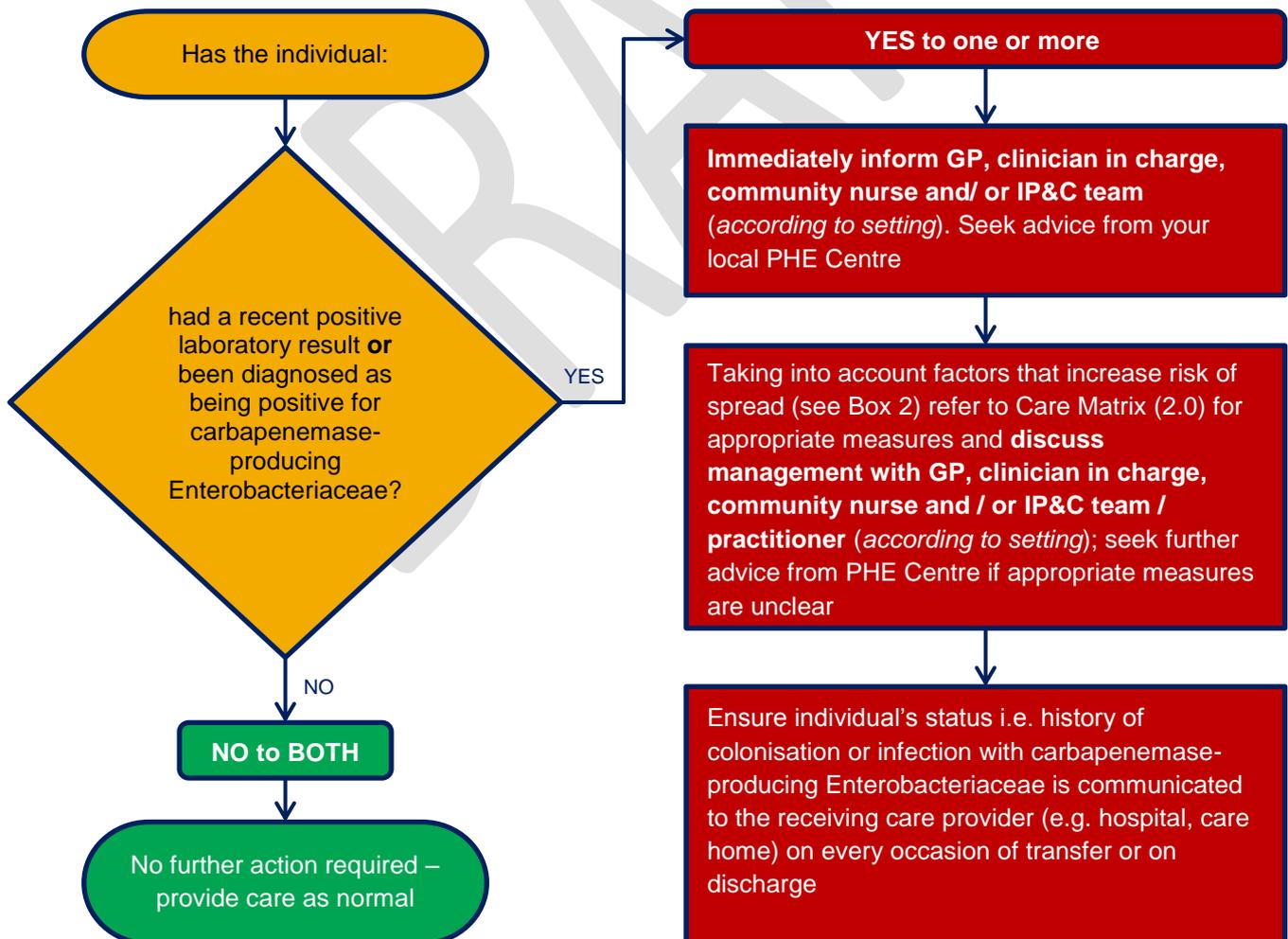
A7.1 Factors that increase risk of spread – information for managers and carers

The individual:

- has a diagnosed infection with carbapenemase-producing Enterobacteriaceae and there is a discharging wound or purulent fluid (exudate) from an infected area
- has diarrhoea; is incontinent; smears or protests with faeces
- is confused or has dementia
- has medical device(s) in situ
- requires physical rehabilitation or assistance with washing, dressing or mobility

Practices such as:

- poor hand hygiene, poor infection prevention and control practices, poor environmental cleaning and poor communications with staff and clients



Section B

B1 Frequently asked questions

If Carbapenemase-producing Enterobacteriaceae is such a big problem, why do you advise a much less rigorous approach for the community than acute trusts?

Patients in an acute care setting are likely to receive multiple interventions, may be immobile and intubated, have their daily life restricted and be concentrated together with many other vulnerable patients. In contrast, most individuals in the community are in their own home, be that a care home, a domestic setting or other community setting. Hence, their care needs to be structured in a way that will allow them to carry on with their normal life and daily business. Individuals in such care settings are more likely to be mobile, undergo fewer procedures or interventions, are less vulnerable to infection and are not so concentrated in terms of proximity with other vulnerable patients.

Therefore, risk of spread in the community setting is smaller than in the acute care setting, as long as the positive individual can practice good hand hygiene after visiting the toilet (as the bacteria are mainly carried in the gut) and provided that advice in this toolkit on management of acute diarrhoea and leaking wounds is followed. Similarly, high standards of hygiene should be observed by those assisting individuals with toileting, undertaking dressings, managing or changing urinary catheters and other devices.

Why is screening of individuals suspected of being a carrier recommended for Acute Trusts but not for other care settings?

In non-acute care settings, risk of spread is small as long as individuals, service-users and carers, can practice good hygiene. Patients in an acute care setting receive more intensive care and are concentrated together with many other vulnerable patients so risk of spread is higher. To manage patients effectively in such settings, healthcare trusts need to have a full understanding of the patient's status i.e. whether they are a carrier or not. This will allow them to plan the care for that individual and those around him/her in a safe and effective manner.

There will be occasions when public health experts may request a screening test on individuals in the community. Normally, this will be to help them understand if there has been spread of carbapenemase-producing Enterobacteriaceae, e.g. if it is found that the individual was on an affected hospital ward; or to check if the individual was the possible source of the problem. Occasionally, if there are a number of unexplained

cases in a community setting, screening of some or all individuals in that setting may be requested.

A major challenge for us is training of staff. Do you know whether there are any plans to address this nationally, e.g. by developing e-learning based on the toolkit?

Releasing advice to inform carers about the management of carbapenemase-producing Enterobacteriaceae in the community is of utmost priority, many are already aware of activities relating to this problem in acute settings and have experienced carbapenemase-producing Enterobacteriaceae in their own setting. However, it is hoped that workshops and educational materials will be provided to accompany, or as soon as possible after, the launch of this toolkit. In due course, information and educational materials will be included on the same page of the Gov.uk web site as this toolkit.

Are staff at risk of taking this home to their families? I have a vulnerable relative at home. If I care for this individual will I put my relative at risk?

Like any other bacteria that staff come into contact with on a daily basis, strict hand hygiene and adherence to standard precautions, as described in this toolkit, together with appropriate management of uniforms, are the most effective way to prevent indirect spread to others including family members. Staff should carry on as normal at home, maintaining good hand hygiene without any changes to their activities of daily living.

In addition, organisations should ensure that all staff have sufficient education and knowledge about carbapenemase-producing Enterobacteriaceae and measures aimed at preventing spread in order to alleviate their concerns, and ensure that precautions are maintained.

Should staff caring for individuals colonised or infected with carbapenemase-producing Enterobacteriaceae be screened to see if they have become a carrier themselves?

Currently, there is no evidence to support screening of staff as part of routine infection prevention and control measures. Strict adherence to standard precautions in the workplace and good hand hygiene at all times are the key measures to prevent spread.

What happens if the affected individual needs to go into hospital or to another care home?

Should the individual need to be transferred to another care setting, the care provider of the current setting has a 'duty of care' to inform the receiving facility of the positive individual's status. Senior staff should ensure that the destination hospital or care

setting has been supplied with a completed copy of the **UK Inter-care transfer form – notification of an individual carrying or infected with a carbapenemase-producing Enterobacteriaceae or other multidrug-resistant organism**. Additionally, direct communication of the patient's status (if confidentiality requirements can be maintained) to the receiving staff and the infection prevention and control team may be helpful. This will help maintain a continued high level of care and for the hospital or care home to make the appropriate risk assessments. A patient card (Annex E) may be useful for the affected individual, who may struggle to explain their status, to present to staff if they attend another health or social care setting.

What do we use to clean the room after the positive individual's appointment?

After removal of any visible soiling with detergent wipes, surfaces that are likely to have been contaminated should be wiped with a disinfectant wipe ensuring that all surfaces are reliably wetted. This applies equally to surfaces that may have had contact with potentially contaminated hands, or gloves of staff, following contact with contaminated areas on the affected individual's body. It is important to carefully consider and include those areas where contamination and further spread is common i.e. prevention by use of an absorbent paper covering for examination couches; removal of gloves and cleansing of hands before using a computer keyboard. No special type of detergent or disinfectant is required for this purpose, rather use that which is in line with your organisation's policy. It is more important that cleaning is thorough and complies with your organisational protocol and procedures. Further information on **terminal decontamination** can be found in Annex F.

How long does a person carry the bacteria?

There is no definitive answer to how long a person may carry the bacteria. The length of time could be anything from a few days to indefinitely. Carbapenemases can be carried by many different types of bacteria and the likely length of carriage varies with the bacterial strain, not its particular type of resistance. Treatment with certain antibiotics (for any infection) may also affect length of carriage. In a similar way to that employed for MRSA, if good hygiene practices/standard precautions are observed by and for all individuals receiving care, whether they are carrying carbapenemase-producing Enterobacteriaceae or not should not matter.

What about family members or visitors who are pregnant?

As carbapenemase-producing Enterobacteriaceae are bacteria, and bacteria do not cross the placental barrier, the unborn baby is not at risk in the womb. As before, the message is that the affected individual should practice good hand hygiene, especially after visiting the toilet, as this bacteria is mainly carried in the gut. Additionally, good

hygienic practices by those who live with and care for the individual is key, including adherence to standard precautions for carers.

The affected individual wants to know if it is safe for them to share a bed with their partner?

Yes, it is safe for them to share a bed, however if the affected individual has a discharging infected wound this would need to be contained within an impermeable dressing. If it is not possible to contain the wound, it may be that a short spell in a separate bed, until the wound has stopped discharging may be sensible. In such situations, bedding should be laundered daily, where possible. Any concerns you have about individual cases should be discussed with your IP&C advisor, the individual's GP or the local PHE Centre.

If the toolkit does not cover the scenario we are dealing with, where can we get further advice?

If the advice in this toolkit does not 'fit' your situation, please seek further advice from your community IP&C team (where available), advising clinician, microbiologist or the individual's general practitioner (according to which service is appropriate and available). Alternatively, you may obtain further advice and signposting, *particularly in relation to making a risk assessment*, through your local PHE Centre. The Public Health England website is another source of information:

<https://www.gov.uk/government/collections/carbapenem-resistance-guidance-data-and-analysis> or email us directly at hcai@phe.gov.uk

B2 Community based scenarios

Scenario 1: A mental health trust has a number of bedded areas and also general community service lines with bedded areas. They receive patients from a number of large acute hospitals and want to know what preparation is needed to receive a positive patient.

Scenario 1 response: Generally, care provided within a mental health setting is more akin to that of a non-acute setting. The degree of risk to service users differ, and the application of control measures are less stringent in isolating individuals, to those needing care in an acute setting. It is important that both the physical and mental wellbeing of the service user is taken into account, and care planned accordingly.

The non-acute toolkit is probably most useful in assisting in planning day-to-day infection prevention and control practices and associated operational activities, particularly for areas such as community service lines. However, as mental health trusts do have similarities to acute settings in the way overarching structures and functions are managed, reference to section B of the **acute toolkit**³ may be useful, particularly in relation to preparing a plan and the detection and management of outbreaks.

Scenario 2: A residential care home has two confirmed cases of carbapenemase-producing Enterobacteriaceae. The source of infection for one of the cases is unclear as they have not been outside of the home. Residents have single rooms but there are some shared facilities, including bathrooms and toilets. The managers are unclear whether or not to screen all residents, to check whether anyone else is colonised.

Scenario 2 response: Seeking advice from your normal IP&C advisor (if you have one) is important. Additionally, it is important to speak to your local PHE Centre who can work with you and your IP&C advisor (where applicable) to establish whether it is likely that there has been spread within the home. Depending on the outcome it may be decided that screening is recommended in a selective way e.g. screening residents who have had closest contact with the affected individuals or who shared the same carer(s). Should more residents confirm positive on screening (or there is no obvious smaller group to select for screening) the PHE Centre may recommend that all residents in the home should be screened. Staff are not normally screened. In any case, the fact that you have a number of cases in the home should be communicated on every occasion to receiving care providers for all transfers and discharges of residents.

Critically, if it is likely that spread has occurred, a thorough investigation e.g. root cause analysis, should be undertaken. All staff (including carers, domestics and other ancillary

³ <https://www.gov.uk/government/publications/carbapenemase-producing-enterobacteriaceae-early-detection-management-and-control-toolkit-for-acute-trusts>

staff) should be gathered together to examine whether practices and procedures within the home are in line with this toolkit and other IP&C guidance as noted in [section 2.4](#). Any lapses in best practice need to be addressed quickly and lessons learned by all, reinforcing robust IP&C practices. Compliance with best practice should be demonstrated by regular audit.

Scenario 3: A hospice has admitted a patient who is positive for carbapenemase-producing Enterobacteriaceae. So far, they have not developed a plan, being unsure whether the acute trust or non-acute/community toolkit is more applicable to the setting.

Scenario 3 response: In the first instance, it is worth working through the steps in [Section A2.1](#) (on page 8) to assess whether, in general, your patients and care setting would fit those identified in the matrix. You should work on this with your normal IP&C advisor, clinical and estates/hotel management staff. However, there may be organisational elements of the [acute toolkit](#), particularly in section B, which you will find helpful. If unclear, seeking advice from your PHE Centre, once you have a draft plan, will be beneficial.

Scenario 4: A patient colonised with carbapenemase-producing Enterobacteriaceae needs to attend stroke rehabilitation sessions with other patients. Also, they require a patient transport vehicle to transport them to and from the rehabilitation centre.

Scenario 4 response: With some small, but important, measures, the patient should continue life as normal, including receiving transport to and attending their rehabilitation sessions. The patient should be advised and supported to practice good hand hygiene. Transport and rehabilitation unit staff should be advised to maintain robust standard precautions. Should there be any spillage of body fluids or an episode of incontinence, a thorough clean of the affected area should be undertaken immediately, in line with the organisation's policy. As usual, should the patient develop an infection which cannot be contained, or develops acute diarrhoea, they should stay away until the infection or diarrhoea has resolved.

Scenario 5: A regional neuro-rehabilitation unit feels that it has to decline admission of patients positive for carbapenemase-producing Enterobacteriaceae as it does not wish to expose other neuro-rehabilitation patients to the risk of spread of these bacteria, e.g. through use of communal facilities.

Scenario 5 response: It is important that a patient's health and wellbeing is not compromised by their positive status. With robust infection prevention and control measures, plus an informed patient and staff, care can be provided. For inpatients, it is recommended that they are accommodated in a single room with en-suite facilities. If possible, when attending communal rehabilitation sessions (as an inpatient or an outpatient), the patient should be allocated separate equipment and receive care from

an allocated member of staff. A thorough clean of the allocated area should be undertaken straight after use in line with the organisation's policy (see Annex F: Terminal Decontamination) As normal, staff should ensure that standard precautions are followed at all times and hand hygiene between patients is effective.

Should there be any spillage of body fluids or an episode of incontinence, a thorough clean of the affected area should be undertaken immediately, in line with the organisation's policy. Should the patient develop a related infection which cannot be contained or if they develop acute diarrhoea, they should not attend communal rehabilitation until the infection or diarrhoea has resolved

Scenario 6: A community hospital has an elderly patient who has been identified as positive for carbapenemase-producing Enterobacteriaceae six days after admission. The patient was in a six-bedded rehabilitation ward with two other elderly patient contacts. The patient also used shared rehabilitation facilities. It is unclear whether the contacts should be screened.

Scenario 6 response: As a community hospital is not an acute care setting, the complexity of care is generally less, so a pragmatic approach should be considered which balances the health and wellbeing of those receiving care with the risk of infection. However, as the two contacts have spent a considerable amount of time in the same bay, sharing the same facilities as the positive individual, screening of these individuals may well be indicated. It could be that one of the contacts was actually the source of the infection.

Seeking advice from your IP&C team is important to make a risk assessment. Additionally, it is important to speak to your local PHE Centre who can work with you and your IP&C team to jointly decide whether screening is required.

Scenario 7: A prison has recently received a prisoner transferred directly from hospital. The microbiologist at the hospital has informed prison medical staff that the prisoner is colonised with carbapenemase-producing Enterobacteriaceae. It is unclear whether or not the prisoner needs isolating.

Scenario 7 response: On entering the prison from hospital the prisoner does not require isolation. However, where possible, a single cell with a toilet is preferable. That said, prisoners who are carriers should not share cells with prisoners who are considered to be immunosuppressed. Whilst prison staff are not required to take additional infection prevention and control measures, use of robust standard precautions, as would normally be adopted for any individual in a similar multi-occupied setting, should be reinforced. The prisoner should be advised to maintain good hand hygiene, especially after using the toilet. Additionally, should the prisoner develop acute diarrhoea or an infection which cannot be contained, they should be placed in a single cell with a toilet until the diarrhoea or infection has resolved.

Section C

C1 Summary of key standard principles (standard precautions) of prevention and control of infections in primary and community care⁴ to support prevention of spread

C1.1 Hand Decontamination

Hands must be immediately decontaminated in all of the following circumstances:

- before and after every episode of direct patient contact or care, including aseptic procedures
- after any exposure to body fluids
- after any other activity or contact with a patient's surroundings that could potentially result in hands becoming contaminated
- after removal of gloves

Decontaminate hands by:

- using **liquid soap and water** when hands are visibly soiled or potentially contaminated with body fluids
- using **a hand rub** (conforming to current British standards), when not visibly soiled or contaminated with body fluids

To ensure that hands *can be* decontaminated carers should ensure that they are:

- bare below the elbow when delivering direct patient care including:
 - not wearing false nails or nail polish
 - not wearing a wrist-watch or hand jewellery, including stoned rings
 - wedding bands are permitted
 - wearing short-sleeved garments (or being able to roll up sleeves)
- making sure that fingernails are short and clean
- covering cuts and abrasions with waterproof dressings

An effective hand washing technique involves three stages: preparation, washing and rinsing, and drying.

C1.2 Use of Personal Protective Equipment (PPE)

Selection of protective equipment depends on risk of:

- transmission of microorganisms to the patient

⁴ Available in full on the [NICE website: Standard principles of prevention and control of healthcare associated infections in primary and community care](#)

- contamination of the healthcare worker's clothing and skin by patients' blood, body fluids, secretions or excretions

C1.2.1 Gloves

Gloves used for direct patient care must conform to current EU legislation (CE marked as medical gloves for single use) and should be appropriate for the task. Do not use polythene gloves for clinical interventions.

Gloves must be worn:

- for invasive procedures, contact with sterile sites and non-intact skin or mucous membranes
- for all activities carrying a risk of exposure to blood, body fluids, secretions or excretions, or to sharp or contaminated instruments
- as single-use items

Gloves must be put on immediately before an episode of patient contact or treatment and removed as soon as the activity is completed. Gloves must be changed between caring for different patients, and between different care or treatment activities for the same patient.

Other protective equipment when delivering direct care:

C1.2.2 Aprons/gowns

- wear a disposable plastic apron if there is a risk that clothing may be exposed to blood, body fluids, secretions or excretions **or**
- wear a long-sleeved fluid-repellent gown if there is a risk of extensive splashing of blood, body fluids, secretions or excretions onto skin or clothing
- use aprons or gowns as single-use items, for one procedure or one episode of direct patient care **and** ensure they are disposed of correctly

C1.2.3 Face masks and eye protection

- must be worn where there is a risk of blood, body fluids, secretions or excretions splashing into the face and eyes

C1.3 Waste Disposal

- Healthcare waste must be segregated immediately by the person generating the waste into appropriate colour-coded storage or waste disposal bags or containers defined as being compliant with current national legislation³ and local policies.
- Healthcare waste must be labelled, stored, transported and disposed of in accordance with current national legislation¹ and local policies.
- Educate clients and carers about the correct handling, storage and disposal of healthcare waste⁵.

⁵ NOTE: for the purposes of this guidance, faecally contaminated waste e.g. incontinence pads, provided it is free from excess liquid, can be double bagged and placed in the normal domestic waste system.

C2 Glossary

<p>Abbreviations which may be seen NOTE: it is recommended that full unabbreviated version should be used to avoid confusion; ask informant to explain exactly what the individual has</p>	<p>CPE – carbapenemase-producing Enterobacteriaceae CPO - carbapenemase-producing organism CRO – carbapenem-resistant organism CRE – carbapenem-resistant Enterobacteriaceae CPC - carbapenemase-producing coliform</p>
<p>Carbapenemases</p>	<p>Enzymes (such as KPC, OXA-48, NDM and VIM) produced by some bacteria which cause destruction of the carbapenem antibiotics, resulting in resistance – health professionals sometimes use this enzyme abbreviation only</p>
<p>Carbapenems</p>	<p>Carbapenems are a group powerful antibiotics, used to treat severe infections. They include meropenem, ertapenem, doripenem and imipenem</p>
<p>Colonisation</p>	<p>The presence of micro-organisms (germs) living harmlessly on the skin or within the bowel and causing no signs or symptoms of infection</p>
<p>Enterobacteriaceae</p>	<p>A group of bacteria that usually live harmlessly in the gut of humans (and animals). They include <i>Escherichia coli</i> (<i>E. coli</i>), <i>Klebsiella</i>, <i>Enterobacter</i></p>
<p>Infection</p>	<p>The presence of micro-organisms (germs) in the body causing adverse signs or symptoms</p>
<p>Invasive device</p>	<p>A device or tube that enters the body through the skin (e.g. intravenous drip or venflon, a percutaneous endoscopic gastrostomy [PEG] tube) or through an orifice (e.g. urinary catheter; endotracheal tube)</p>
<p>Standard precautions (standard principles)</p>	<p>Standard principles often better known as standard (infection control) precautions (formerly known as universal precautions), underpin routine safe practice, protecting both staff and clients from micro-organisms that may cause infection. By applying standard precautions at all times and to all clients, best practice becomes second nature and the risks of infection are minimised . See Section 3 for a summary of Standard Principles</p>

C4 Useful contacts – some may not be available depending on care setting

(For completion with local contact details)

Infection Prevention and Control (IP&C) Team	
Practice lead for IP&C / unit IP&C link practitioner	
Primary Care Practice	
Microbiologist	
Public Health England (PHE) Centre	
Clinical Commissioning Group (CCG)	
Local Authority	

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