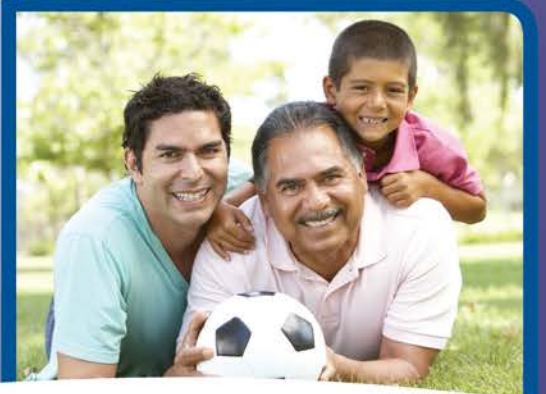


Carbapenemase-producing Enterobacteriaceae (CPE)

Management and surveillance protocol



Carbapenemase-producing Enterobacteriaceae (CPE) – management and surveillance protocol

Public Health Services

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Background

Carbapenem resistance in Enterobacteriaceae is an emerging clinical and public health problem that threatens the effectiveness of the last currently available antibiotic group – carbapenems – that are highly active against multi-drug resistant Gram negative organisms. The epidemiology of Carbapenemase-producing Enterobacteriaceae (CPE) varies between countries and it is evident that without active surveillance and subsequent stringent infection control measures these organisms may rapidly become endemic. In areas where few CPE cases have occurred, it is recommended that health departments take an aggressive approach to contain CPE. With current low prevalence rates, surveillance through mandatory laboratory notification creates an opportunity for proactive measures to prevent, detect and contain CPE within Tasmania.

Definitions

Carbapenem – beta lactam antibiotic; used to treat multi drug resistant Gram negative infections in hospitalised patients; examples include imipenem, meropenem and ertapenem.

Enterobacteriaceae – large family of Gram negative bacteria.

CPE – Enterobacteriaceae that produce an enzyme – carbapenemase – which break down carbapenems.

CPE contact - a patient who has shared the same room, bathroom or toilet facilities for more than 24 hours with a CPE colonised or infected patient where contact precautions were not in place.

Inpatient healthcare facility – facility where patients can be admitted for overnight stay and includes acute private or public hospitals, rural hospital, sub-acute facility, long term care facility, nursing home.

Inpatient/resident – patient who has a minimum of an overnight stay in a healthcare facility.

Outpatient – patient who visits a healthcare facility for a medical or allied health appointment.

Day case – patient who attends a healthcare facility for a course of acute treatment for a full or part day.

Case definition

Suspected case

- Enterobacteriaceae isolate demonstrating elevated Meropenem MIC defined as:
 - EUCAST/CLSI disc zone diameter <25mm(10ug Meropenem disc).
 - CDS disc zone diameter <6 mm (10ug Meropenem disc).
 - MIC >0.25 mg/l (VITEK 2, Phoenix, Etest).

Confirmed case

- Enterobacteriaceae isolate with carbapenemase gene detected

Exclusion

- Carbapenem-resistant isolates that do not have a carbapenemase gene detected.

Contact details for notification

TIPCU

Telephone – 6166 0605

Email – tipcu@dhhs.tas.gov.au

CDPU

Telephone (24 hours) – 1800 671 738

Facsimile – 6222 7744

Notification summary

- All **suspected and confirmed** CPE isolates must be notified by the identifying laboratory to the treating clinician and to Public Health Services (PHS).
- Suspected cases will be identified by the laboratory prior to the results being confirmed.
- Suspected cases who are current inpatients/ residents require pre-emptive contact precautions in addition to standard precautions, prior to the results being finalised.
- Contact precautions are used to reduce the risk of transmission to other patients.
- Further management and surveillance activities will depend on final CPE results.
- During business hours, Tasmanian Infection Prevention and Control (TIPCU) will take responsibility for ensuring the healthcare facility is aware of the suspected or confirmed case and is implementing appropriate infection control precautions; provide recommendations regarding contact screening and coordinate surveillance.
- Outside of business hours, Communicable Diseases Prevention (CDPU) on-call is responsible for notifying an inpatient/ residential facility of any suspected cases of CPE and recommending using contact precautions.
- If a case is identified in the community, the patient's treating clinician is responsible for providing information to the patient and communicating the patient's CPE status to a healthcare facility should the patient be admitted.
- Treatment of CPE infection is the responsibility of the treating clinician.

Notification process

Suspected case identified during TIPCU business hours:

Laboratory

Suspected CPE isolate from a clinical or screening specimen

- Identifies if specimen taken at an inpatient/residential healthcare facility.
- If yes – notifies suspected result to:
 - treating clinician via telephone
 - TIPCU via telephone
 - CDPU via results facsimile.
- If no - awaits final results.

TIPCU

Checks CPE list on shared drive to identify if a new case.

- New case:
 - Notify inpatient/residential healthcare facility infection control personnel or Director of Nursing or Nurse Unit Manager of suspected CPE result and recommend contact precautions to be commenced as per appropriate case management outline (Appendices 1 - 4).
 - Requests minimum patient data set for patient.
- Previous case:
 - Await confirmation of result.
 - File result with patient's previous results.

Suspected case identified outside of TIPCU business hours:

Laboratory

Suspected CPE isolated from a clinical or screening specimen.

- Identifies if specimen taken at an inpatient/ residential healthcare facility.
 - If yes – notify suspected result to:
 - treating clinician via telephone
 - CDPU on call via telephone
 - CDPU via results facsimile.
 - If no - awaits final results.

CDPU on call arrangements

- Notify inpatient/ residential healthcare facility (After Hours Nursing Coordinator, nurse in charge) of suspected CPE result and recommend contact precautions be commenced as per appropriate case management outline (Appendices 1- 4).
- Email case details to TIPCU at tipcu@dhhs.tas.gov.au

TIPCU - next business day

- Contacts infection control personnel to ensure CDPU instructions have been followed up.
- Requests minimum data set for patient from infection control personnel.
- Enters minimum data set into CPE spreadsheet.

Confirmed case

Laboratory

Suspected CPE isolate confirmed to be CPE

- Notify confirmed results to:
 - treating clinician
 - TIPCU via telephone
 - CDPU results facsimile.

TIPCU

- Request enhanced data set from treating clinician or infection control personnel or Director of Nursing or Nurse Unit Manager.
- Enter enhanced data set into CPE spreadsheet.

Negative result following initially suspected case

Laboratory

Initial suspected CPE isolate is CPE negative

- Notify negative results to:
 - treating clinician via telephone
 - TIPCU via telephone in hours or via email after hours
 - CDPU results facsimile.

TIPCU

- Notifies hospital infection control personnel or Director of Nursing or Nurse Unit Manager.
- Remove suspected case details from CPE spreadsheet.

Contact Management

- Contacts of cases will require surveillance screening following consent by the contact.
- Surveillance screening specimens include rectal swabs, perianal swabs or faeces.
- Contacts may include:
 - inpatients of acute and rural hospitals who have shared a room or bed bay or toilet with the case for > 24 hours
 - Household contacts.
- TIPCU will advise healthcare facilities on contact screening.

Education

- Inform the case and/or relevant care provider about the nature of the colonisation or infection and the mode of transmission.
- Emphasise the importance of standard precautions particularly hand hygiene.
- Provide information via the ACSQHC factsheet.

Circumstances requiring further attention

- Clusters or outbreaks of disease detected by routine or contact tracing surveillance will require further investigative processes to attempt to ascertain transmission pathways.

Surveillance

- CPE surveillance focuses on collection and use of data to identify cases and/ or outbreaks requiring PHS response.
- TIPCU will manage the surveillance process.
- All suspected healthcare facility inpatient cases must have the minimum surveillance data collected by either the treating medical clinician or hospital infection prevention and control personnel or delegated staff member.
- All confirmed cases must have both the minimum and enhanced surveillance data collected by the treating medical officer or delegated staff member.
- All relevant information from laboratory notifications and data collection forms will be entered into the TIPCU spreadsheet within two days of receipt.

Minimum data set for suspected and confirmed cases

- Demographics - name, date of birth, sex, address, postcode.
- Specimen details – geographical site of patient (e.g hospital, GP clinic, long term care facility), body site/s of isolate, screening/ clinical specimen, date taken, antibiogram.
- Current hospitalisation – date of admission, treating medical officer, date of discharge.

Enhanced data set for confirmed cases

- As per minimum data set plus specific information from the previous 12 months:
 - acute and/or sub-acute hospitalisations – dates of admission and discharge
 - residential and/or long term care facility stays – dates of admission and discharge
 - overseas travel history - dates and countries
 - antibiotic therapy– drug/s name, dose, duration, route
 - CPE contact/s
 - previous screening results.

Information Management

- Suspected cases:
 - minimum data entered into the TIPCU CPE spreadsheet
- Confirmed cases:
 - enhanced surveillance data collection form sent electronically or via mail to the relevant personnel for completion within 2 weeks
 - completed data entered into the CPE spreadsheet.
- Paper forms scanned to electronic versions.
- Electronic forms stored in the TIPCU shared drive.
- Hard copy laboratory reports filed alphabetically by surname in the TIPCU locked filing cabinet.
- Refer all data or information requests to the ADON PHS and/or PHS Senior Medical Advisor.

Appendix I - Case management - inpatients in acute and sub-acute healthcare facilities

- Inpatients in acute and sub-acute healthcare facilities must be managed using transmission-based contact precautions in addition to standard precautions.
- Contact precautions for inpatients includes:
 - Accommodation in a single room with an en-suite.
 - If no en-suite available, then a toilet should be exclusively assigned to the case.
 - If no toilet can be exclusively assigned, then the toilet must be cleaned and disinfected after each use.
 - All staff must put on single use gloves and single use, long sleeved gown prior to entering the patient's room.
 - Discard gloves and gown into appropriate waste receptacle upon leaving the room.
 - Perform hand hygiene after removing gloves and gown.
 - Maintain contact precautions when the patient visits other areas within the hospital such as radiology, physiotherapy department, occupational therapy.
- There are no requirements for cases to be placed at the end of radiology, theatre or endoscopy lists.
- Use a 2-step clean - detergent and water followed by a disinfectant - or a 2 in 1 product (detergent plus disinfectant) for environmental and shared patient equipment cleaning.

Appendix 2 - Case management – inpatient residents of residential and long term care facilities

- Residents of inpatient residential healthcare facilities must be assessed as to the level of precautions required.

Low risk residents

- Manage a CPE positive resident **who is not a higher risk resident**, using standard precautions.

Higher risk residents

- Residents who are considered to be at higher risk of CPE transmission include those who:
 - are incontinent of urine and/or faeces
 - have diarrhoea
 - have wounds with uncontrolled drainage
 - have medical devices in-situ.
- Accommodate higher risk residents in a single room with an en-suite if available:
 - if no en-suite available, then a toilet should be exclusively assigned to the case
 - if no toilet can be exclusively assigned, then the toilet must be cleaned and disinfected after each use
 - if resident can only be accommodated in a shared room, use contact precautions when entering the patients immediate bed area.
- All staff must put on single use gloves and single use, long sleeved gown prior to entering the patient's room/ bed area.
 - Discard gloves and gown into appropriate waste receptacle upon leaving the room/bed area.
 - Perform hand hygiene after removing gloves and gown.
- The resident must perform, or be assisted to perform, hand hygiene after going to the toilet or changing incontinence aids.
- There are no restrictions on the resident using communal areas such as the dining room or activities room.
- There are no restrictions on the resident joining communal activities.
- There are no visitor restrictions.
 - Instruct visitors to perform hand hygiene before and after contact with the resident and before and after contact with other residents.
- Use a 2-step clean - detergent and water followed by a disinfectant - or a 2 in 1 product (detergent plus disinfectant) for environmental and shared patient equipment cleaning.

Appendix 3 - Case management – day stay cases

- Day stay cases will require transmission-based contact precautions in addition to standard precautions during their visit to the healthcare facility.
- Contact precautions for day stay cases includes:
 - assign a toilet for the exclusive use of the case
 - if no toilet can be exclusively assigned, then the toilet must be cleaned and disinfected after each use
 - all staff must put on single use gloves and single use, long sleeved gown prior to entering the designated patient bay/care area
 - discard gloves and gown into appropriate waste receptacle upon leaving the designated patient bay/care area
 - perform hand hygiene after removing gloves and gown
 - maintain contact precautions when the patient visits other areas within the hospital such as radiology, operating suite, endoscopy unit.
- There are no requirements for cases to be placed at the end of theatre or endoscopy lists.
- Use a 2-step clean - detergent and water followed by a disinfectant - or a 2 in 1 product (detergent plus disinfectant) for environmental and shared patient equipment cleaning.

Appendix 4 - Case management – outpatients

- Outpatients will require transmission-based contact precautions in addition to standard precautions during their visit to the healthcare facility.
- Where possible facilitate patient to be seen as a priority at their appointment time.
- Contact precautions for outpatients includes:
 - patient assigned to one chair
 - if toilet facilities are required ask the patient to notify the nurse or receptionist which toilet they have used and arrange for immediate cleaning
 - staff who have direct physical contact with the patient must put on single use gloves and single use, long sleeved gown
 - discard gloves and gown into appropriate waste receptacle when the patient leaves the consulting/treatment room
 - perform hand hygiene after removing gloves and gown
 - use a 2-step clean - detergent and water followed by a disinfectant - or a 2 in 1 product (detergent plus disinfectant) for environmental and shared patient equipment cleaning.

