

Management of patients with Clostridioides (Clostridium) difficile infection (CDI)

Guideline



1. Purpose

This guideline provides recommendations regarding best practice for the management of adult patients with *C. difficile* infection (CDI).

2. Scope

This guideline provides information for all employees, contractors and consultants within the Hospital and Health Services (HHS) and Divisions and Business units within the Queensland public health system.

3. Related documents

Authorising policy and standard/s:

- [NSQHS Standard 3 – Preventing and Controlling Healthcare Associated Infections](#)

Procedures, guidelines and standard/s:

- [Australian guidelines for the prevention and control of infection in healthcare](#)
- [Guideline: Management of outbreaks of communicable diseases in health facilities](#)
- [Guideline for surveillance of healthcare associated infection](#)
- [Hand hygiene guideline – Bare Below the Elbows](#)
- [Cleaning and disinfecting shared patient care equipment](#)

4. Guideline for the management of patients with *Clostridioides* infection

4.1 Diagnosis

It is recommended that clinicians suspect and test for CDI in all hospitalised adult patients with diarrhoea, and in all patients who present with diarrhoea in association with antibiotic or immunosuppressive therapy.^{1,2}

Routine screening of patients and testing of stool specimens from asymptomatic patients is not recommended.³

The following measures should be in place to facilitate early diagnosis:

- Stool specimens should be obtained from patients in or admitted to healthcare settings as soon as possible after the onset of diarrhoea.

- All specimens should be kept refrigerated until testing can be done. Specimens kept unrefrigerated for periods greater than two hours should be discarded and a new specimen collected. *C. difficile* is very unstable and the toxin degrades at room temperature.
- If the first test is negative, but there is a strong suspicion of CDI, consult with a microbiologist as further testing may be necessary.
- Laboratory testing for *C. difficile* toxins should only be performed on diarrhoeal stool specimens defined as a faecal specimen that conforms to the shape of its container or corresponds to Bristol stool chart type 5–7.³⁻⁵
- If the following are identified, CDI should be suspected:
 - pseudomembranous colitis seen during endoscopic examination or surgery
 - pseudomembranous colitis seen during histopathological examination
- If pseudomembranous colitis is seen during sigmoidoscopy, colonoscopy, surgery or colonic histopathology a faecal specimen should be sent for CDI testing.^{4,5}
- Notify the laboratory of any wards/units that are experiencing a period of increased number of patients with diarrhoea.
- It is not recommended to test for CDI in children under two years of age. Children are commonly asymptomatic carriers of *C. difficile*. Only test in this age group if significant clinical suspicion of CDI.^{2, 4, 6}

4.2 Isolation

Direct and indirect contact are the main routes of transmission of *C. difficile*. The primary mode of transmission of *C. difficile* is via the faecal-oral route.^{2, 4, 6-8}

Surfaces, devices and equipment (for example, commodes, toilets) that become contaminated with faeces may serve as a reservoir for *C. difficile* spores. These spores are then predominantly transmitted by the hands of healthcare providers who have touched the contaminated surface or environment.⁸

It is recommended that the following transmission-based contact precautions be implemented for all patients with confirmed or suspected CDI.^{2-6, 9}

- Single room placement with a dedicated ensuite,⁹ or
- Cohort with other CDI patients based on microbiological confirmation of cause of diarrhoea.¹⁰ If cohorting is necessary, the presence of known multi-resistant organism should be considered when allocating patient placement.
- If there are a limited number of single rooms, it is recommended that patients with faecal incontinence be prioritised to reduce the likelihood of transmission to other patients.
- Each patient should have dedicated toileting facilities (private bathroom or individual commode chair). Patients using commode chairs or who are bedbound should use dedicated or single-use bed pans.⁴
- Dedicated patient-care equipment should be utilised where possible. In instances where this is not possible, equipment should be cleaned in accordance with section 4.6 Cleaning and disinfecting shared patient care equipment.⁹

- Signage should be utilised to clearly identify any isolation rooms and include the necessary precautions to be adopted.²⁻⁵

4.3 Duration of transmission-based precautions

It is recommended that:

- Transmission-based contact precautions should commence as soon as patients develop clinically significant diarrhoea or CDI is suspected.
- Transmission-based contact precautions should remain in place until at least 48 hours after diarrhoea has ceased and the patient is passing formed stools.^{2,7}
- Transmission-based contact precautions should be re-instituted immediately if diarrhoea recurs. Retesting for *C. difficile* is not necessary.
- Re-testing for *C. difficile* is not necessary to determine clearance before removing patients from isolation.^{2,4,6}

4.4 Hand hygiene

C. difficile spores are not killed by alcohol-based hand rub.¹¹ The mechanical action of washing and scrubbing with soap and water will not kill *C. difficile* spores but will physically assist in the removal of spores from the hands, reducing the risk of transmission.^{8,9} Hand hygiene should be performed with liquid soap and water after having contact with the patient or the environment and between procedures or episodes of patient care, as per the [Hand hygiene guideline – Bare Below the Elbows](#).^{2,4,5,8-11}

4.5 Personal protective equipment (PPE)

Gloves

Clean, non-sterile single-use gloves should be donned by healthcare personnel prior to entering the patient's environment and should be used for all contact with patients and their surroundings.^{3,6} This is to minimise the level of contamination of spores on the hands of clinicians when caring for patients with CDI.⁹

Gloves should be changed between different care/treatment activities for the same patient and removed upon exiting the patient's environment.^{2-4,6} When gloves are changed/removed, hand hygiene should be performed as per the [Hand hygiene guideline – Bare Below the Elbows](#).

Aprons and gowns

It is recommended that all staff caring for a patient with CDI ensure that their arms are bare below the elbows (refer to [definitions](#)).

A single-use apron should be donned prior to entering the patient's room and disposed of prior to exiting the patient room.

Staff that will be performing patient-care activities involving extensive patient contact should wear a single-use gown (extensive patient contact is described as direct contact with areas not covered by the apron, for example, contact with staff forearm).^{2-4, 6}

Non-disposable gowns should be sent for laundering after each use.^{2-4, 6}

4.6 Visitors

All visitors should perform hand hygiene prior to entering and after leaving the patient's room.^{3, 4}

Visitors are not required to wear PPE unless they are involved in the patient's care. They should be advised by nursing staff on the use of PPE if required.

Visitors should be instructed not to use the patient's ensuite/toilet facilities. Visitors should not visit other areas of the hospital after visiting a person with CDI.^{2,6}

4.7 Environmental cleaning

The environment is an important source of healthcare associated CDI. *C. difficile* forms spores that can remain viable on surfaces for several weeks or months. Frequently touched objects in the patient environment such as toilets, bedrails and door handles can be heavily contaminated.^{2, 4, 6, 8, 9, 12-15}

It is recommended that all cleaning and disinfection of rooms and equipment (for example, electronic thermometers, sphygmomanometers, glucometers, hoists, pat slides) of patients with *C. difficile* is undertaken using detergent and 1000 ppm available chlorine solution or impregnated sporicidal wipe.

Cleaning products containing quaternary ammonium compounds have poor activity against *C. difficile* spores and therefore are not indicated for use in CDI.^{11,16,17}

The cleaning and disinfection process of rooms and equipment of patients with CDI should involve either:

- a physical clean using a combined detergent and 1000 ppm available chlorine solution or sporicidal impregnated wipe (2-in-1 clean), e.g. a combined detergent/available chlorine solution or impregnated wipe could be used if this process involves mechanical/manual cleaning, or
- a physical clean using detergent followed by a chemical disinfectant (2-step clean), i.e. clean with detergent, then clean with 1000 ppm available chlorine solution or sporicidal impregnated wipe.

After the floor of the room has been mopped, the mop head should be changed, and the bucket cleaned and disinfected before use in any other area.

Equipment that is unable to be dedicated should be cleaned and disinfected after use, allowed to dry and stored clean.

Daily cleaning of patient's room

Minimum frequencies for routine cleaning are outlined in the [Queensland Health—Cleaning Services Operational Guidelines](#).

All patient surrounds and frequently touched surfaces (such as bedrails, trolleys, bedside commodes, doorknobs, light switches, tap handles and ensuite facilities) should be cleaned daily as a minimum.

Discharge cleaning of inpatient rooms

Cleaning should not commence until all the patient's personal effects have been removed from the room. Privacy curtains and window curtains, if present, should be removed for laundering prior to cleaning commencing.

The room and all patient care equipment remaining in the room should be physically cleaned and disinfected with 1000 ppm available chlorine solution. All furniture, patient equipment items, horizontal surfaces, frequently touched surfaces (for example, light switches and call buttons) and bathroom/toilet/shower area should be thoroughly cleaned and disinfected with chlorine solution. All consumables that are unable to be cleaned should be discarded.

Cleaning of ambulatory areas

All patient care equipment items that the patient comes into contact with should be cleaned with a combined detergent and 1000 ppm available chlorine solution or sporicidal impregnated wipes.

If patients with *C. difficile* have used the waiting areas of renal dialysis and day therapy areas, these areas do not require cleaning in addition to the routine cleaning practices for the area.

4.8 Bed pans

Facilities should select one of the following options for the management of bed pans based on risk assessment and available resources:

1. Single-use bed pans should be utilised. If a macerator is not available in the clinical area, the bed pan and contents should be disposed of into an appropriate waste receptacle.
2. CDI patient dedicated re-useable bed pans should be washed in the ward washer/disinfector between uses by itself and cannot be with items from other patients.
3. Dedicated re-useable bed pans should be discarded when the patient is discharged or no longer considered infectious.

4.9 Considerations for residential long-term care facilities

People living in a long-term care facility or residential aged care facility are at high risk of *C. difficile* infection due to chronic disease, increased age and co-morbidities. Additionally, higher rates of antibiotic usage in long-term care facilities increases the risk for residents to acquire *C. difficile*.

Symptomatic residents who have suspected or confirmed *C. difficile* infection in other health care settings should not be transferred to long-term care facilities until they have formed stools for 48 hours.

Residents who have been asymptomatic and passing formed stools in the last 48 hours can be managed without any additional infection control precautions.

Residents with symptoms should be accommodated in a single room with its own ensuite facilities.

Residents with suspected or confirmed *C. difficile* infection should be placed on contact precautions. If a single room is not available, the individual should not share a room or bay with an immunocompromised individual and should have a dedicated toilet/commode.

Transmission-based contact precautions should remain in place until at least 48 hours after diarrhoea has ceased and the patient is passing formed stools.

Communal activities should be ceased while the patient is symptomatic and may resume when the resident has passed formed stools for 48 hours.

If residents with *C. difficile* receive allied health services or diversional therapy (for example, physio/occupational therapy equipment, recreational resources), staff should work with the patient individually and contact precautions should be maintained for the duration of the therapy.

Residents with symptoms should be the last to receive therapy on a given day. Shared equipment should be thoroughly cleaned and disinfected with 1000 ppm available chlorine solution.

Family members and visitors of residents should not visit if they are unwell or displaying symptoms of fever, diarrhoea or vomiting.

4.10 Antimicrobial stewardship

C. difficile infection and colonisation is almost always associated with use of antibiotics, especially excessive or prolonged. However, cases have been associated with the appropriate use of a single perioperative antibiotic dose for surgical prophylaxis. Antimicrobial stewardship guidelines for prudent antibiotic prescribing to ensure appropriate use of antibiotics should be adhered to.^{2,5}

In general, beta-lactams (for example, cephalosporins or amoxicillin), lincosamides (clindamycin or lincomycin) and fluoroquinolones are regarded as antibiotics that provide the highest risk for CDI.

However, all antibiotic types have been implicated.^{2,4,7} CDI can occur in younger patients without any evidence of recent hospitalisation or antibiotic use.¹⁸

4.11 Surveillance

Healthcare facilities should have in place reliable surveillance programs to detect patients with CDI, identify outbreaks, monitor trends and evaluate interventions aimed at reducing incidence.^{2, 6}

Surveillance of CDI in facilities should be undertaken as per the Australian Commission on Safety and Quality in Healthcare: Implementation Guide for Surveillance of *C. difficile* and the [Queensland Health Guideline for Surveillance of Healthcare Associated Infection](#).

4.12 Managing increases in CDI and possible transmission

It is recommended that all hospitals review surveillance data on a regular basis to see if there has been an increase in the number of cases and new diagnoses of CDI or if any transmission has occurred between cases. Smaller facilities where CDI is uncommon should consider one case significant.

It is recommended that a clinical response plan be developed to review surveillance and identify investigation processes when there is an increase in cases, and implement appropriate interventions to ensure patient safety. An assessment of the risk should be performed.

For additional information refer to [Queensland Health Guideline for the Management of Outbreaks of Communicable Disease in Health Facilities](#) for guidance on the management of transmission of CDI.

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5. Review

This guideline is due for review on: 22/05/2022

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6. Business area contact

Communicable Diseases and Infection Management (CDIM)

7. Definition of terms used in the policy and supporting documents

Term	Definition/Explanation/Details	Source
Alcohol-based hand rub	A TGA-registered alcohol-containing preparation designed for reducing the number of viable microorganisms on the hands without the use or aid of running water and that is included on the ARTG as a medicinal product.	ACSQHC, 2010 ¹⁰
Bare below the elbows	The effectiveness of hand hygiene is improved when skin is intact; nails are natural, short and unvarnished; hands and forearms are free of jewelry; and sleeves are above the elbow.	Queensland Government ²¹
<i>Clostridioides (Clostridium) difficile</i>	A Gram positive, anaerobic, spore forming, potentially toxigenic bacterium that is the most common infectious cause of healthcare-associated diarrhoea.	Stuart, et al., 2011 ⁶

CDI (<i>Clostridioides/Clostridium difficile</i> infection) case	A case of diarrhoea that meets the following criteria: <ul style="list-style-type: none"> The stool sample yields a positive result in a laboratory assay for <i>C. difficile</i> toxin A and/or B, or A toxin-producing <i>C. difficile</i> organism is detected in the stool sample by culture or other means. 	ACSQHC, 2013 ¹⁹
Cohorting	Placing together in the same room patients who are infected with the same pathogen and are suitable roommates.	ACSQHC, 2010 ¹⁰

8. Approval and implementation

Policy Custodian: Dr Sonya Bennett, Executive Director, CDB

Responsible Departmental Management Team Member: Ivy Gabatan, CNC, CDIM, CDB

Approving Officer: Dr Jonathan Malo, A/Medical Director, CDIM, CDB

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Version control

Version	Date	Prepared by	Comments
1.0	23/01/2014	CHRISP	
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