CLOSTRIDIUM DIFFICILE INFECTION: INFECTION PREVENTION AND CONTROL MANAGEMENT

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- All children with diarrhoea are to be isolated until infectious aetiology is excluded.
- All children with diarrhoea and toxigenic *C. difficile* in their stool (*C.difficile* infection) **MUST** be nursed in a single room or cohorted with other children with toxigenic *C. difficile* infection in a dedicated room with en-suite toilet and bathroom facilities. Only cohort after consultation with Infection Prevention and Control.
- Rational use of broad spectrum antibiotics, particularly cephalosporins, quinolones, and carbapenems is an important preventative measure at both an individual and unit level.
- Hand Hygiene and glove use is essential to prevent and contain *C. difficile* transmission
- Only unformed stool specimens should be submitted to pathology for *C. difficile* testing.
- Education of staff, parents and carers is important

CHANGE SUMMARY

- Change of *C.difficile* testing from *C.difficile* toxin detection to *C.difficile* PCR detection in stool.
- Change de-isolation duration from 72hrs after being asymptomatic to 48hrs.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st November 2018	**Review Period**: 3 years
Team Leader:	CNC Infection Control	**Area/Dept**: Infection Control

Date of Publishing: 22 October 2018 11:15 AM Date of Printing: 22 October 2018

READ ACKNOWLEDGEMENT

- All clinical SCHN staff working in the clinical areas are to read and acknowledge they understand the content of this policy.

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This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Background

- Toxigenic *Clostridioides difficile*, formerly *Clostridium difficile* (*C. difficile*) is one of the most common causes of healthcare-associated diarrhoea.
- *C. difficile* is a spore-forming, Gram-positive anaerobic bacillus. Certain strains produce exotoxins. Diarrhoea and colitis result from toxin production within the intestinal lumen.
- *C. difficile* infection (CDI) is defined by the presence of symptoms (usually diarrhoea) and either stool test positive for *C. difficile* toxins or detection of toxigenic *C. difficile*, or colonoscopic or histopathologic findings revealing pseudomembranous colitis.
- The clinical manifestations of CDI range from asymptomatic colonisation to severe disease. Clinical symptoms include watery diarrhoea, abdominal pain, anorexia, nausea and vomiting.
- Children with CDI are at risk of developing pseudomembranous colitis, toxic megacolon, perforation of the bowel and severe sepsis.
- Risk factors include:
    - Broad spectrum antibiotics particularly cephalosporins, quinolones and carbapenems;
    - Prolonged paralytic ileus following abdominal surgery;
    - Immunocompromise;
    - Recurrent or prolonged hospitalisation and;
    - Gastric acid suppression (proton pump inhibitors or H2 blockers).
- Because of a very high prevalence of asymptomatic carriage of toxigenic *C. difficile* in infants, testing for CDI should not be routinely recommended for neonates or infants ≤12 months of age with diarrhoea. In children aged 1-2 years, asymptomatic carriage is still relatively common and other sources of diarrhoea should be excluded in consideration of treatment.[1]
- Only unformed stool specimens should be submitted to pathology for *C.difficile* testing (Faecal *C.difficile* toxin, A/B PCR).
- Routine re-testing of stool as a “test of cure” after successful treatment is not recommended.
- *C. difficile* associated diarrhoea in some patients will resolve without treatment. Treatment is recommended in symptomatic patients, including younger children with significant colitis where no other cause is evident. Current guidelines suggest using either oral metronidazole or oral vancomycin with an initial episode or first recurrence of non-severe CDI.[2] Oral vancomycin is the preferred choice for severe CDI.[2] Consult the Infectious Diseases team for any advice on management of CDI.

Mode of Transmission

- Transmission of C. difficile occurs primarily via the faecal-oral route, by ingestion of spores that are resistant to the acidity of the stomach. These spores then germinate in the small intestine.
- C. difficile is found in faeces and can contaminate areas, materials or surfaces that come in contact with faeces.
- It has two forms – vegetative and spore. The spores can live outside the body on inanimate surfaces for months. People can be infected by touching surfaces contaminated with faeces or spores.
- Spores are transferred between patients mainly via the hands of health care personnel who have touched contaminated patients, surfaces or items.

Infection Prevention and Control Precautions and Patient Placement

Patient Placement

- Any child with toxigenic CDI should be nursed on the ward which is most appropriate for their medical needs.
- All children with toxigenic CDI **MUST** be nursed in a single room or cohorted with other patients with toxigenic CDI in a dedicated room with en-suite toilet and bathroom facilities. Only cohort after consultation with Infection Prevention and Control.
- There are insufficient data to recommend screening for asymptomatic carriage and placing asymptomatic carriers on contact precautions.
- **Contact precautions must be observed by all staff entering the patient's room.**
- **During patient-care activities where contamination of staff clothing is likely, staff must use a gown/apron** (e.g. activities such as lifting, rolling, wound care, or toileting).
- Staff must notify the Infection Prevention and Control team if there are any other patients, parents or carers with symptoms of gastroenteritis.

Duration of isolation requirements

- A child **with toxigenic CDI associated diarrhoea** is to remain isolated until a normal stool consistency has been observed for 48 hours (i.e. formed/semi-formed stool) and exhibit no other clinical symptoms.
- Children who are **colonised with toxigenic *C. difficile* and exhibit no symptoms** do not require treatment or isolation. Colonisation occurs most frequently in neonates and infants.

- In the rare event of a *sustained ward outbreak* of toxigenic CDI, Infection Prevention and Control may instruct that asymptomatic carriers also be isolated.

Infection Prevention and Control Precautions

Hand hygiene – All persons entering or leaving the room

- Perform hand hygiene before and after contact of a patient with CDI and after removing gloves with either soap and water or an alcohol-based hand hygiene product.
- Use non sterile disposable gloves.
- Change gloves if moving from a “dirty” task (such as wound dressing) to a “clean” task (e.g. medication administration).
- Before leaving the room remove gloves then wash hands with antiseptic wash and water.
- Use alcohol hand rub when outside the room before leaving the ward or attending another patient.
- In a C. difficile outbreak setting, perform hand hygiene with soap and water preferentially instead of alcohol-based hand hygiene products before and after caring for a patient with CDI given the increased efficacy of spore removal with soap and water.1
- Handwashing with soap and water is preferred if there is direct contact with faeces or an area where faecal contamination is likely.
- Toilets where body waste is being disposed should have the lid of the toilet closed before flushing to stop aerosols being generated.

Patient Activity Outside Room

- The child can use the outside areas in the hospital grounds.
- The child cannot visit the common food outlet areas.
- The child cannot visit the Starlight Room.
- The child cannot visit Ronald McDonald House.
- The child cannot attend the schoolroom.
    - Activities and school can be organised in the room.
- The child cannot visit other inpatients.
- All other activities must be negotiated with Infection Prevention and Control Team.

Patient care equipment

- A child with toxigenic CDI must have dedicated reusable patient care equipment wherever possible.
- Dedicated equipment should remain in the patient's room for the duration of the patient's stay.
- Use disposable patient equipment when possible and ensure that reusable equipment is thoroughly cleaned and disinfected, preferentially with a sporicidal disinfectant (see below) that is equipment compatible.
- **Cleaning equipment – to be performed at discharge or when the equipment is leaving the room:** All equipment must be wiped over with hypochlorite (0.5% sodium hypochlorite solution (5000 ppm) (i.e. 5 dichloroisocyanurate tablets dissolved in 1L of water) and then wiped over with a neutral detergent.
- All disposable items must be discarded.
- Bed pans and any other equipment that has been in contact with faeces must first be decontaminated of visible faecal matter. Then it needs to be wiped over with hypochlorite and then washed with a neutral detergent prior to use on another patient.
- Cleaning staff shall don personal protective equipment (PPE) and adhere to hand hygiene practices.

Room Cleaning

- PPE, including non-sterile gloves and gowns/aprons, should be worn by people cleaning areas contaminated by faeces, or microscopic spores.
- A daily clean is to be conducted with neutral detergent.
- The Discharge clean will be a two-step clean. First with a Hypochlorite (0.5%) used by cleaning services staff and then with Neutral Detergent
- Curtains need to be changed between patients.

Linen

- All staff must perform hand hygiene immediately prior to accessing the ward's clean linen dispensary to prevent contaminating clean linen.
- If linen is removed from the clean linen dispensary it must not be replaced back onto the trolley, but be placed in to the "Used" linen skip.
- PPE should be worn by staff when handling soiled linen from an infected patient, regardless of the child being in the bed or not.
- Used linen, whether visibly soiled or not, should not be shaken.
- Used linen should be bagged and tied at the point of generation. Care needs to be taken not to overfull the linen skip. It should not be filled more than ¾ full so that it can be secured safely.
- The laundering of used linen should be consistent with Australian Standard AS 4146: Laundry Practice.

Family and Visitors

- Visitors should be restricted to immediate family or carers only until 48 hours after the patient's symptoms resolve.
- Family and visitors should be instructed on the requirements for hand hygiene (hand washing or use of alcoholic hand wash) while their child is symptomatic.
- Family and visitors with a history of vomiting and diarrhoea at home should not visit patients until at least 48 hours after their last episode of vomiting or diarrhoea.
- Any linen required by the patient or the parent must be provided by the nursing staff. Parents of symptomatic children are not to access the clean linen dispensary on the ward.

At Children's Hospital Westmead

- Must request nurse assistance to get food, beverages or feeding bottles from the Ward Kitchen for their child.
- If the parent needs to purchase meals themselves the parent can go to the providers in the hospital and either eat in an area isolated from people, for example – the outdoor areas, or eat in their child's room.

At Sydney Children's Hospital, Randwick

- Parents on wards other than C2West are able to use the kitchen a get food for their child.
- Parents on C2West are advised not to use the common kitchen. Fridges are available for use in isolation rooms.

Hospital Volunteers

- General visiting by hospital volunteers needs to be postponed until the patient has been symptom free for 48 hours.
- There are some circumstances in which volunteer assistance is acceptable. In this case the volunteer needs to comply with the same requirements for hand hygiene and PPE usage as staff.
- Ward Volunteers can continue to work with their symptomatic child but need to comply with the same requirements for hand hygiene and PPE usage as parents/staff.
- Book Bunkers/ lending should be postponed until the child or the symptomatic parent/carer has been symptom free for 48 hours.
- Visitors organised by the Public Relations Department to the wards must not visit a symptomatic patient. This also must be postponed until the patient or the symptomatic parent/carer has been symptom free for 48 hours.

Eating Utensils

- Meal trays and eating utensils/plates and cups are to be collected from the room by staff with care. They can be placed in the Food Services trolley to be taken down to the Food Services department so they can be washed as per Food Services Guidelines.
- After carefully placing the used meal tray on the trolley staff need to be mindful to perform hand hygiene with antiseptic wash and water in case of spore contaminants on the tray.

Waste Management

- General waste from the room of a child with CDI is to be placed appropriately in to the general waste receptacle. It is not to be over filled. When there is the requirement for a larger general waste bin to cope with the use of disposable gowns contact the cleaning services supervisor so that a size appropriate general waste bin can be obtained. After general working hours if the bin reached ¾ full contact the after-hours cleaning supervisor so that appropriate action can be taken.

General Maintenance

- Routine maintenance needs to be postponed until the patient has been symptom free for 48 hours.
- Urgent maintenance can proceed with appropriate PPE and hand hygiene while the patient is in the acute stage of the illness.
- Contact the Infection Prevention and Control team for advice if required.

Antimicrobial Stewardship

- In a clinical area where transmission of toxigenic *C. difficile* is detected at levels beyond sporadic cases, a review of use of broad spectrum antimicrobials and infection control practice should be undertaken.
- Normal antimicrobial stewardship practices must be reinforced, and compliance ensured.
- Antimicrobial classes at high risk for promoting CDI include cephalosporins, quinolones, and carbapenems.

Transporting Children to Other Wards and Departments

If children with CDI need tests performed in other departments or they need to be transferred, the receiving ward or department MUST be notified of their isolation requirements.

Discharge of Patient from Hospital

- Discussion should take place before discharge to ensure the patient and family is fully informed about CDI.
- The patient should be requested to alert staff of their recent toxigenic CDI if admitted to a health care facility while still symptomatic. If they are asymptomatic, further isolation is not required.
- Children cannot be immediately discharged to Ronald MacDonald House until 48 hours have passed without vomiting OR diarrhoea, other housing arrangements must be organised until this time.

Staff Management

- Minimise as much as possible the circulation of staff between affected and unaffected areas[1]. Where possible, designated staff should care for affected patients.
- Although *C. difficile* rarely causes disease in previously well Healthcare Workers, staff with gastrointestinal symptoms should leave work immediately and not return to work until 48 hours after their last episode of vomiting OR diarrhoea[4]. Those affected staff should seek medical advice immediately.
- Food handlers with any diarrhoeal illness should be encouraged to see their local doctor/general practitioner and excluded from food preparation until at least 48 hours after their symptoms have stopped.

Staff Education

- Infection Prevention and Control will provide education on request.
- NSW Department of Health factsheet available: https://www.health.nsw.gov.au/Infectious/gastroenteritis/Documents/Clostridium-factsheet-for-hcw.pdf

Command and Control

Responsibility for implementation of this policy is the direct responsibility of appropriate clinical line managers caring for affected patients.

- The clinical line managers will consult with the Infection Prevention and Control Team regarding appropriate patient placement and infection control procedures.
- If there is no policy on a particular issue or the policy needs updating then there needs to be further discussion between clinical line managers, Infection Prevention and Control, Infectious Diseases/Microbiology and the Director of Clinical Operations to

develop a consensus agreement based on best evidence. If a dispute arises about policy it is to be referred to the Chief Executive for resolution.

- Toxigenic CDI in persons 2 years and older is a mandatory indicator reported to NSW Health on a monthly basis. In addition, any clusters of gastroenteritis amongst patients in the Hospital shall be notified to the Public Health Unit. This notification is the responsibility of Infection Prevention and Control.
- A Reportable Incident Brief (RIB) will be sent to NSW Department of Health on any potential media interests or problems. This is currently the responsibility of the Executive Assistant to the Chief Executive.
- The Infectious Diseases Physician, Microbiologist or Infection Prevention and Control Practitioner will notify the Director of Clinical Operations of identification of any known toxigenic *C. difficile* infection clusters. The Director of Clinical Operations is responsible to notify the Chief Executive.
- A report on management of any new clusters of toxigenic *C. difficile* infection will be made to the next Infection Control Committee meeting.

Monitoring and Reporting: The Infection Prevention and Control Committee includes monthly toxigenic *C. difficile* infection data in the quarterly Infection Control report to the hospital Executive via the Health Care Quality Committee.

References

1. McDonald LC, Gerding D, Johnson SB, Karen C, Coffin SE, Dubberke ER, et al. Clinical Practice Guidelines for Clostridium difficile Infection in Adults and Children: 2017 Update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA). Clinical Infectious Diseases.66(7):987-994.
2. Therapeutic Guidelines - Antibiotic. 2014 Version 15. Therapeutic Guidelines Limited, Melbourne.