



Community Infection Prevention and Control Guidance for General Practice

(also suitable for adoption by other healthcare providers,
e.g. Dental Practice, Podiatry)

Clostridium difficile

CLOSTRIDIUM DIFFICILE

**Version 1.00
December 2017**

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1. Introduction

Clostridium difficile (*C. difficile*) is a bacterium which produces spores that are resistant to air, drying and heat. The spores survive in the environment and are the main route of transmission of the bacterium.

C. difficile is present harmlessly in the gut (bowel) of 3% of healthy adults as part of their normal gut flora. However, when antibiotics disturb the balance of bacteria in the gut, *C. difficile* can multiply rapidly producing toxins causing diarrhoea or colitis.

C. difficile produces two major toxins (A and B) that are linked to its pathogenicity (ability to cause disease). The presence or absence of these toxins is detected in the Laboratory as part of the *C. difficile* testing process.

The 027 strain of this organism is particularly virulent (hypertoxigenic) causing severe morbidity and mortality.

C. difficile has been associated with outbreaks in health and social care settings. It is, therefore, imperative that good infection prevention and control measures are instigated so that transmission does not occur in any health or social care setting.

2. *C. difficile* conditions

There are two types of *C. difficile* conditions:

- ***C. difficile* colonisation** – this means that the bacteria are present in the bowel, but not producing toxins. Symptoms, if present, are usually very mild and antibiotic treatment is not usually required. People who are colonised are often known as ‘carriers’
Patients who are colonised are at high risk of progressing to infection
- ***C. difficile* infection (CDI)** – this means that the bacteria are present and producing toxins, causing symptoms which can be mild to severe including life-threatening pseudomembranous colitis, toxic megacolon and even perforation of the bowel

CDI is almost always associated with, and triggered by, the prior use of antibiotics prescribed as treatment or prophylaxis

3. Risk factors for *C. difficile* infection

The risk factors associated with acquiring *C. difficile* infection (CDI) are:

- **Age** – incidence is much higher in patients aged over 65 years
- **Underlying disease** – patients with chronic renal disease, underlying gastrointestinal conditions and oncology patients
- **Antibiotic therapy** – patients who have recently received or who are receiving antibiotic therapy, especially broad-spectrum antibiotics such as cephalosporins, e.g. cefuroxime, quinolones, such as, ciprofloxacin, co-amoxiclav or clindamycin. CDI has been associated with oral, intramuscular and intravenous routes of administration of antibiotics
- **Recent hospital stay** – patients who are frequently in hospital or who have had a lengthy stay in hospital
- **Other medication** – patients receiving anti-ulcer medications including antacids and proton pump inhibitors, e.g. omeprazole
- **Nasogastric tubes** – patients undergoing treatments requiring nasogastric tubes
- **Colonisation with *C. difficile*** – patients are at greater risk of developing CDI

4. Signs and symptoms

If a patient has diarrhoea (types 5-7 on the Bristol Stool Form Scale, see Appendix 1), that is not attributable to underlying causes, e.g. inflammatory colitis, overflow, or therapy, such as, laxatives, enteral feeding, then it is necessary to determine if this is due to *Clostridium difficile* infection (CDI).

Symptoms include:

- Explosive, foul-smelling watery diarrhoea, which may contain blood and or mucus
- Abdominal pain and fever due to the toxins causing fluid loss from the gut and cell damage
- Dehydration which can be severe due to fluid loss

In the majority of patients, the illness is mild and a full recovery is usual. Older patients often with underlying illnesses may, however, become seriously ill. Occasionally, patients may develop a severe form of the infection called pseudomembranous colitis which can cause significant damage to the large bowel resulting in perforation, peritonitis and death.

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Severity of *C. difficile* infection

1	Mild disease: typically <3 stools per day type 5-7 (on Bristol Stool Form Scale) and a normal white cell count (WCC).
2	Moderate disease: typically 3-5 stools per day type 5-7 and raised WCC (but $15 \times 10^9/L$).
3	Severe disease: WCC >math>15 \times 10^9/L</math>, or a temperature of >math>38.5^\circ\text{C}</math> or acutely rising serum creatinine (e.g. >50% increase above baseline) or evidence of severe colitis (abdominal symptoms or radiological signs). The number of stools may be less reliable as an indicator of severity.
4	Life threatening disease: includes hypotension, partial or complete ileus or toxic megacolon.

5. Diagnosis

It is difficult to diagnose *C. difficile* just by symptoms alone. Therefore, a diarrhoea sample should be sent to the microbiology laboratory and tested for the presence of *C. difficile*.

6. Routes of transmission

C. difficile can survive on surfaces for months or even years.

The main routes of transmission of *C. difficile* spores are:

- Hands of staff and patients
- Contact with contaminated surfaces or equipment

7. Prevention of *C. difficile* infection

The main methods of prevention are:

- Prudent antibiotic prescribing:
 - Antibiotics should not be prescribed unless necessary
 - Where possible, broad spectrum agents should be substituted by those with a narrower spectrum of activity
- Courses of antibiotics should be as short as the clinical condition allows
- Use of antibiotics associated with CDI should be avoided where possible
- Your local 'Antibiotic Prescribing Policy' should be followed

- Send a stool sample for *C. difficile* testing promptly
- Good hand hygiene with liquid soap and warm running water. Alcohol handrub should not be used as it is **not** effective at killing *C. difficile* spores
- Use of appropriate personal protective equipment, e.g. disposable gloves and apron
- Reducing the number of spores in the environment by appropriate cleaning and disinfection with a sporicidal product

The following mnemonic protocol (SIGHT) should be applied when managing suspected potentially infectious diarrhoea.

Table 1: SIGHT mnemonic (adapted from *Clostridium difficile* infection: How to deal with the problem)

S	Suspect that a case may be infective where there is no clear alternative cause for diarrhoea
I	Isolation. Advise isolating the patient if they are a patient in a care home
G	Gloves and aprons must be worn for all contact with the patient and their environment
H	Hand washing with liquid soap and warm running water before and after each contact with the patient (and their environment if a home visit is undertaken)
T	Test the stool for toxin by sending a specimen immediately

8. Management and treatment

- Inciting antibiotics should be stopped if possible as should other drugs that might cause diarrhoea. If it is not appropriate to discontinue antibiotics, it may be possible to substitute agent(s) with a narrower spectrum.
- Anti-motility agents should not be prescribed in acute infection.
- Consideration should be given to stopping/reviewing the need for PPIs in patients with or at high risk of CDI.
- Antibiotic treatment for patients who are symptomatic with CDI should be prescribed in line with your local 'Antibiotic Prescribing Policy'. Guidance can be sought from your local Consultant Microbiologist.
- In mild cases of CDI, and those where the diarrhoea is settling, antibiotic treatment may not be indicated.

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- In cases of *C. difficile* colonisation, antibiotic treatment is not usually indicated.
- The course of treatment can be repeated if symptoms persist. Advice can be sought from your local Consultant Microbiologist.
- If diarrhoea persists after 20 days treatment but the patient is stable, the number of type 5-7 stools (see Appendix 1) has decreased, the WCC is normal and there is no abdominal pain or distension - in such cases, the diarrhoea may be due to post-infective irritable bowel syndrome and the patient may be treated with an anti-motility agent such as loperamide (instead of antibiotic treatment). The patient should be closely monitored for evidence of a therapeutic response and to ensure there is no evidence of colonic dilatation.

Recurrence of diarrhoea following treatment

Recurrence of CDI occurs in up to 20% of cases after the first episode. This increases to 50-60% after a second episode.

Studies have suggested that some of these relapses are in fact re-infection due to the patient re-infecting themselves from spores in their environment. If a patient relapses, a second course of treatment is usually indicated. See your local 'Antibiotic Prescribing Policy' for further advice or consult with your local Consultant Microbiologist.

9. Investigation of *C. difficile* infection cases

A root cause analysis (RCA) should be conducted by your local Community Infection Prevention and Control Team for each CDI case to identify any lapses in care. Your Clinical Commissioning Group can advise further on this process. By implementing the lessons learned from the RCA, patient safety can be continuously improved.

10. Infection prevention and control measures

Hand hygiene

- Hands should be washed with liquid soap and warm running water after contact with a patient (if a home visit is undertaken hands should be washed after patient contact and before leaving).
- Alcohol handrubs do not kill spores, therefore, should **not** be used.
- Patients should be encouraged to wash their hands with liquid soap and warm running water, particularly after using the toilet/commode and before eating or drinking. Use of bar soap should be discouraged as it can harbour *C. difficile* spores.

Personal protective equipment (PPE)

- Disposable gloves and an apron should be worn if a home visit is undertaken to a symptomatic patient. These should be removed (gloves first then apron) and disposed of in the patient's household waste and hands washed thoroughly.

Advice for symptomatic patients in their own home

- Wash your hands thoroughly with liquid soap and warm running water, especially after going to the toilet and before preparing or eating food.
- Use a separate towel to dry your hands, this should be washed daily. Make sure this is not used by other members of the household or visitors.
- After you have had an episode of diarrhoea, close the toilet seat lid before flushing, this will reduce spread onto surrounding surfaces.
- Clean hard surfaces in toilets/bathrooms, e.g. taps, toilet flush, door handles, soap dispenser, at least daily using household bleach following the directions on the label (generally 1 part bleach to 10 parts water).
- Wash soiled clothing and bedding as soon as possible. These should be washed separately from other people's laundry at the highest temperature the fabric will tolerate.
- If possible, have a shower or bath every day as *C. difficile* can be present on other areas of your body.
- Where possible, stay at home until you have been free from diarrhoea for 48 hours to prevent spreading it to other people.
- Do not take medicines to stop your diarrhoea as this will stop *C. difficile* being cleared from your body, unless prescribed by your doctor.
- Drink plenty of fluids to prevent dehydration.
- Visitors, including pregnant women and children, are **not** at risk if they are healthy.
- Once recovered, there is no risk to other people.
- If you have been given a *C. difficile* card, please show it to healthcare professionals. The card lets healthcare professionals know that you have had *C. difficile* and if you need any treatment with antibiotics in the next 12 months, they will choose a type of antibiotic to help prevent your symptoms of diarrhoea returning.

11. Transfer and movement of patients

Please refer to the 'Inter-health and social care infection control transfer guidance' for more detailed information.

- If a symptomatic patient requires transfer to another healthcare facility, the ambulance/transport service and receiving area must be notified of the patient's CDI status in advance.
- An Inter-Health and Social Care Infection Control Transfer Form (see Appendix 2), should be used stating the nature of the infection, symptoms and treatment.

12. *C. difficile* card

Some areas now issue patients who are confirmed CDI or *C. difficile* colonised with a '*C. difficile* card'. The card is provided so the patient can present it at any consultation with a healthcare professional or admission to hospital. This will alert the healthcare worker/admitting unit to the patients' diagnosis of *C. difficile* and help to ensure if antibiotics are needed that only appropriate ones are prescribed.

13. Infection Prevention and Control resources, education and training

The Community Infection Prevention and Control (IPC) Team have produced a wide range of innovative educational and IPC resources designed to assist your Practice in achieving compliance with the *Health and Social Care Act 2008* and CQC registration requirements.

These resources are either free to download from the website or available at a minimal cost covering administration and printing:

- Over 20 IPC Guidance documents (Policies) for General Practice
- 'Preventing Infection Workbook for General Practice'
- 'IPC CQC Inspection Preparation Pack for General Practice'
- IPC audit tools, posters, leaflets and factsheets
- 'IPC Advice Bulletin for GP Practice Staff'

In addition, we hold educational study events in North Yorkshire and can arrange bespoke training packages and 'Mock IPC CQC Inspections'. Prices vary depending on your requirements and location.

Further information on these high quality evidence-based resources is available at www.infectionpreventioncontrol.co.uk.

14. References

Department of Health (2015) *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*

Department of Health (2012) Updated Guidance on the Diagnosis and reporting of *Clostridium Difficile*

Department of Health (January 2009) *Clostridium difficile infection: How to deal with the problem*

Department of Health (2007) *Saving Lives: Reducing infection, delivering clean and safe care - High Impact Intervention No. 7: Care bundle to reduce the risk from Clostridium difficile* www.clean-safe-care.nhs.uk

Health and Social Care Commission (October 2007) *Investigation into outbreaks of Clostridium difficile at Maidstone and Tunbridge Wells NHS*

National Institute for Health and Care Excellence (2012 – Updated February 2017) *Healthcare-associated infections: prevention and control in primary and community care Clinical Guideline 139*

Public Health England (May 2013) *Updated guidance on the management and treatment of Clostridium difficile infection*

15. Appendices

Appendix 1: Bristol Stool Form Scale

Appendix 2: Inter-Health and Social Care Infection Control Transfer Form



The Bristol Stool Form Scale

Please refer to this chart when completing a bowel history on the Inter-Health and Social Care Infection Control Transfer Form

Definition of diarrhoea: an increased number (two or more) of watery or liquefied stools, i.e. types 5, 6 and 7 only, within a duration of 24 hours. Please remember, hands must be washed with liquid soap and warm water when caring for patients/clients with diarrhoea.

NB: Hands must be decontaminated after glove use.

THE BRISTOL STOOL FORM SCALE

<i>Type 1</i>		Separate hard lumps, like nuts (hard to pass)
<i>Type 2</i>		Sausage-shaped but lumpy
<i>Type 3</i>		Like a sausage but with cracks on its surface
<i>Type 4</i>		Like a sausage or snake, smooth and soft
<i>Type 5</i>		Soft blobs with clear-cut edges (passed easily)
<i>Type 6</i>		Fluffy pieces with ragged edges, a mushy stool
<i>Type 7</i>		Watery, no solid pieces ENTIRELY LIQUID

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Inter-Health and Social Care Infection Control Transfer Form

The *Health and Social Care Act 2008: Code of Practice on the prevention and control of Infection and related guidance* (Department of Health 2015), states that "suitable accurate information on infections be provided to any person concerned with providing further support or nursing/medical care in a timely fashion". This form has been developed to help you share information with other health and social care providers. The form should accompany the patient and, where possible, a copy filed in the patient's notes.

Patient Name: Address: NHS number: Date of birth: Patient's current location:	GP Name and contact details:		
Receiving facility, e.g., hospital ward, hospice:			
If transferred by ambulance, the service has been notified: Yes <input type="checkbox"/> N/A <input type="checkbox"/>			
Is the patient an infection risk: Please tick most appropriate box and give details of the confirmed or suspected organism			
<input type="checkbox"/> Confirmed risk Organisms:			
<input type="checkbox"/> Suspected risk Organisms:			
<input type="checkbox"/> No known risk			
Patient exposed to others with infection, e.g., D&V, Influenza: Yes <input type="checkbox"/> No <input type="checkbox"/> Unaware <input type="checkbox"/>			
If yes, please state:			
If the patient has a diarrhoeal illness, please indicate bowel history for last week, if known, (based on Bristol Stool Form Scale):			
Is diarrhoea thought to be of an infectious nature? Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>			
Relevant specimen results if available			
Specimen:			
Date:			
Result:			
Treatment information:			
Is the patient aware of their diagnosis/risk of infection?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Does the patient require isolation?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
If the patient requires isolation, phone the receiving facility in advance:		Actioned <input type="checkbox"/> N/A <input type="checkbox"/>	
Additional information:			
Name of staff member completing form:			
Print name:			
Contact No:		Date	