



PROCEDURE FOR THE MANAGEMENT OF CLOSTRIDIUM DIFFICILE (C.Diff) ICPr003

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Version No.	Date Ratified/ Amended	Date of Implementation	Next Review Date	Reason for Change (eg. full rewrite, amendment to reflect new legislation, updated flowchart, minor amendments, etc.)
1	01/03/16		01/03/2018	Changed from policy to procedure
2	June 18	29/06/2018	31/03/2020	review

INTRODUCTION

Clostridium Difficile (*C. difficile* or *C. diff*) is a spore-forming anaerobic bacterium which lives in the large intestine. It is a major cause of healthcare-associated diarrhoea. People who are particularly susceptible are the over 65's, those who have recently undergone surgery, and people with serious underlying disease.

C. difficile associated disease is often a complication of broad-spectrum antibiotic therapy; occurring when a reduction in normal intestinal bacteria/flora allows *C. difficile* to flourish and produce toxins (A & B). A virulent strain of *C. difficile*, known as type 027, has recently been detected in a number of NHS trusts. Type 027 produces more toxins and has been reported to be associated with increased rates of mortality and relapses, compared to other strains.

This procedure is intended to provide staff working within Northamptonshire Healthcare Foundation Trust (NHFT) with a robust framework for managing patients with *C. difficile* and the knowledge to aid the reduction of cross infection.

Clostridium difficile

C. difficile is a bacteria normally present in the bowel in numbers. If there is disruption to the normal bowel flora the number of *C. difficile* may rapidly multiply and produce a toxin which causes disease. The illness can be of varying severity. *C. difficile* can form spores which are excreted from the body via diarrhoea. These can survive for prolonged periods of time in the environment as they have a thick protective capsule. The diagnosis of *C. difficile* is based on the detection of the toxin in the stools and the clinical presentation.

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

RISK FACTORS

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

Recurrence of diarrhoea following apparently successful treatment may occur in up to 30% of cases. This may be due to germination of persistent spores and failure to re-establish normal flora.

PREVENTION OF C. DIFFICILE INFECTION

Latest guidance issued by the Department of Health in January 2009 recommends that clinicians (doctors and nurses) should apply the following mnemonic protocol (SIGHT) when managing suspected potentially infectious diarrhoea:

S	<ul style="list-style-type: none"> • Suspect that a case may be infective where there is no clear alternative cause for diarrhoea
I	<ul style="list-style-type: none"> • Isolate the patient and consult with the infection control team (ICT) while determining the cause of the diarrhoea
G	<ul style="list-style-type: none"> • Gloves and aprons must be used for all contacts with the patient and the environment
H	<ul style="list-style-type: none"> • Hand washing with soap and water should be carried out before and after each contact with the patient and the patients environment
T	<ul style="list-style-type: none"> • Test the stool for toxin by sending a specimen

Outbreak of diarrhoea

Diarrhoea is considered as significant when a patient has more than 3 episodes in 24 hours. If a ward/home has two or more associated cases of diarrhoea (by time and place) the Outbreak Procedure must be instigated.

DIAGNOSIS

C. difficile can be present in low numbers in healthy adults. The presence of the organism in the stool is therefore not diagnostic. The diagnosis of C difficile infection is based upon the presence of the C. difficile toxin.

If there is a change in the patients normal bowel habit (type 6/7 on the Bristol Stool Chart Appendix 1) and there is no clinical indication for this, or if the patient is suspected of having C. difficile associated disease send a specimen of stool, for toxin testing, to the laboratory as soon as possible and immediately following collection. The Bristol Stool chart should be used where possible for accurate monitoring and recording of any improvement in the patient's health. The patient may be removed from isolation when symptom free as defined by the "minimum of one but preferably two consecutive type 1-5 stools and no type 6-7 in the preceding 72hrs. However it may be prudent to discuss with the Infection Control Nurses.

When the patient is asymptomatic, and stools have become formed (or as Bristol Stool Chart 1 - 4 (see Appendix 2) for a 48 hour period, the patient can return to the main ward area.

The stool sample must take on the shape of the container and ideally be at least ¼ filled (to indicate the patient has diarrhoea) before it is sent to the laboratory for testing.

If a specimen is collected from a patient who is using an incontinence pad, please ensure that this information is clearly labeled on the pathology form.

Specimens should not be sent for C. difficile testing if:

- The patient is taking an aperients (laxative)
- The patient is receiving an enteral feed e.g. TPN, NG feed or PEG feed
- The patient has a known bowel condition e.g. Crohns disease, diverticulitis

Once the diagnosis is confirmed NO further specimens are required, unless another cause of diarrhoea is suspected, as C. difficile may continue to be excreted for several weeks.

Clearance samples are not required from patients whose symptoms have resolved. The laboratory will not re-test if the patient has been found *C. difficile* positive within the previous **28 days**. If the patient with diarrhoea is found *C. difficile* negative and the clinical picture remains unchanged then no re-testing will be undertaken for this within **7 days**.

No treatment is required if the patient is asymptomatic.

METHODS OF SPREAD

C. difficile is spread by direct and indirect contact from an infected patient, healthcare staff or the environment. Bacterial spores are dispersed into the environment by colonised patients who have diarrhoea symptoms Type 6/7. The spores are resistant to air, drying and heat, unaffected by some disinfectants and can survive for long periods in the environment. Large outbreaks of *C. difficile* infections have occurred in hospitals in the UK resulting in deaths of patients.

TREATMENT

In all cases of *C. difficile* disease concurrent medication should be reviewed by medical staff and antibiotic therapy discontinued as soon as possible if clinically indicated. *C. difficile* is particularly associated with the use of Cephalosporins and Clindamycin and increasingly with Fluoroquinolones (e.g. Ciprofloxacin).

The length of antibiotic therapy is as, or more, important than the choice of antibiotic. It is well known that patients on prolonged antibiotic therapy have a higher risk of *C. difficile*. Antibiotic courses should be kept to the minimum. As a rule of thumb, 5 days is usually enough for most non-severe/non-life-threatening infections. Antibiotic prescribing should be in accordance with Trust guidelines. Inappropriate administration broad-spectrum antibiotics should be avoided and prescribing regularly monitored with feedback to prescribers as appropriate. Medical staff should consider oral antibiotic treatment for symptomatic patients with *C. difficile* diarrhoea. Anti-motility drugs e.g. Loperamide should be avoided, as this makes it difficult for the toxins to be dispelled.

INFECTION CONTROL MEASURES

Healthcare providers should be encouraged to promote practices known to reduce the incidence of *C. difficile* infection. These fall into two broad groups, the first being cleanliness and hygiene (including environmental cleaning and hand washing), and the second being a restrictive approach to antibiotic prescribing. These simple interventions could have major influence on the impact of *C. diff*. Appropriate use of antibiotics will greatly reduce the selection pressure for colonisation and infection with *C. difficile*. Those prescribing antibiotics

should adhere to the NHFT Management of Infection: Guidance for prescribers (MMG018) there should be regular review of the need for continuation of antibiotics in all patients on antibiotics. NHFT will ensure the prudent use of antibiotics and will develop programmes to capture and feedback data to clinical staff with responsibility for prescribing on antibiotic use.

If the patient is asymptomatic then no special measures are necessary e.g. the patient is continent and has passed a formed stool.

If symptomatic, high standards of infection control precautions are required, see below.

Hand Hygiene

Staff must observe stringent hand-washing procedures and use soap and water; alcohol hand gel is considered to be in-effective against *C. difficile* spores. Hands must be meticulously washed after contact with an affected patient or their immediate environment; especially after performing patient care, handling bedpans, commodes or other soiled equipment.

Personal Protective Equipment

Gloves and aprons are to be worn when in contact with an affected patient or contaminated items. Ensure hands are washed thoroughly following the removal of personal protective equipment e.g. aprons and gloves.

Patient Isolation

Patients with potentially infectious diarrhoea should be isolated in a single room, preferably with en-suite toilet facilities. If no single room is available cohort nurse symptomatic patients, close to a hand wash basin and perform/document a risk assessment. Every effort must be made to find a side room for the symptomatic patient as soon as possible.

Good communication about the infection and the reason for the precautions will encourage compliance.

If en-suite facilities are not available symptomatic patients should be allocated their own dedicated commode or toilet.

Laundry

Treat linen as foul/infected and handle according to the Standard Precautions Policy.

Visitors

C. difficile infection poses little risk to healthy individuals. Visitors are not required to wear gloves and aprons unless performing/assisting with direct patient care; providing there is no

contact with other hospital patients. Hand washing should be performed on leaving the room/cohort area.

Environmental Cleaning

The ward/isolation room should be cleaned daily using Uni9 cleaning product whilst diarrhoea in progress; especially under beds and locker tops. When a cubicle is vacated clean the room with Uni9 detergent.

All equipment that has been in contact with an affected patient will require cleaning in accordance with trust disinfection/sterilisation procedure e.g. Uni9. It is preferable to use separate or single use equipment for symptomatic patients e.g. BP cuffs, thermometers.

Movement of Infected Patients

Patients affected by C. difficile disease should not be transferred to other wards, unless overriding clinical reasons, and visits to other departments should be minimised. This is a decision which needs to be made locally. If ward transfers, or visits to other departments, are considered necessary the receiving area should be informed of the patient's status in advance. Where possible patients should be treated at the end of a session and their waiting time in the department kept to a minimum. Advice may be sought from the Infection Control Team.

Discharge Planning

Affected patients may be discharged home as soon as considered clinically fit. Patients should not be discharged to nursing and rest homes with symptoms of diarrhoea which are considered abnormal for the patient. Good communication with other institutions is imperative before the patient is transferred, this should be supported by written information e.g. discharge letter.

CONTROL OF C.DIFFICILE OUTBREAKS IN INPATIENT AREAS

If the number of cases of C. difficile is considered to be unusually high for a clinical area, and cases epidemiologically or microbiologically related, the Consultant Microbiologist will call an incident control meeting. Care should be exercised in the reporting of clusters of C. difficile infection and consideration given to the normal "background" rate of infection/diarrhoea in the affected ward before deciding that an outbreak is occurring. Refer to Outbreak Procedure.

From 2007 acute NHS Trusts in England are required to report all patients aged 2 years and above affected with C. difficile. This is co-ordinated by the Health Protection Agency (HPA) on behalf of the Department of Health. To facilitate this reporting process certain areas will be required to perform, and document, a root cause analysis. The Infection Control Team will review patients affected with C. difficile and audit the effectiveness of this procedure. All

community acquired C difficile positive cases that require surgical intervention or have C. diff on Part 1 A, B, C of the death certificate.

COMMUNITY NURSING SERVICES

When visiting patients who are known to be C Diff positive in their own home then good Standard Precautions (see Standard Precautions Policy) and hand hygiene (see Hand Hygiene Procedure) should be maintained to prevent carriage of transient organisms between patients.

Clients Own Home

In the main, the same principles apply in the home as in the hospital setting. Carers or relatives should therefore, be encouraged / advised:

- To practice good hand hygiene
- That all surfaces and floors must be kept clean, disinfected (general detergent and diluted chlorine based product (household bleach)) and free from dust
- Soft furnishings e.g. curtains should be changed when a patient has recovered to prevent re-infection
- The importance of washing all bedding, towels and clothing on the hottest cycle possible
- Foul linen should not come into contact with ordinary household laundry

RECURRENCE OF SYMPTOMS

Should the patient become symptomatic following treatment regard the patient as infectious and reinstate appropriate infection control precautions. It may also be necessary to recommence oral therapy. For further advice regarding treatment of patients please contact the Consultant Microbiologist.

EQUALITY CONSIDERATIONS

The author has considered the needs of the protected characteristics in relation to the operation of this policy and protocol to align with the outcomes with IP&C Assurance Framework. We have identified that ensuring that communication reaches all vulnerable groups. The service has been designed to ensure communication relevant to any outbreaks or other healthcare associated infections reaches all sections of the community. This includes taking into consideration communication barriers relating to language or specific needs to reach the whole population. IP&C work closely with multi agency groups and community partners where appropriate we will undertake engagement and outreach activity. We targeted action to relevant groups follow public health England's communication framework. Some groups are particularly vulnerable in relation to their protected characteristics, e.g. age, ethnic minority

communities and disability and where we identify that, the expectation is that staff will meet the needs appropriately.

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Northamptonshire Healthcare
NHS Foundation Trust



Appendix 1 - Bristol Stool Chart

Bristol Stool Chart

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

Appendix 2 - Daily Cleaning

C. DIFFICILE INFECTION CLEANING SCHEDULE

Wash hands with soap and water - wear disposable gloves and plastic apron



Clean room, floors, sinks, toilets and **all** surfaces and equipment (pay particular attention to all patient contact areas such as table, locker, chairs, door handles, taps, walking aids etc)

Wash walls if visibly soiled



Use separate cleaning equipment
(single-use disposable cloths, disposable mop heads or launder after each use)



Clean all areas with Uni9 disinfectant



Dispose of cloths, gloves and apron in a yellow clinical waste sack



Wash hands with soap and water

For further advice contact ward manager or nurse in charge.

Appendix 3 - Deep Cleaning

C. DIFFICILE INFECTION CLEANING SCHEDULE

Wash hands with soap and water - wear disposable gloves and plastic apron



Clean room, floors, sinks, toilets and **all** surfaces and equipment (pay particular attention to all patient contact areas such as table, locker, chairs, door handles, taps, walking aids etc)

Wash walls if visibly soiled



Inspect pillows & mattress internally & externally
if internally damaged/contaminated discard and replace
wipe covers of bed mattress & pillows with warm water & detergent & dry thoroughly



Use separate cleaning equipment
(single-use disposable cloths, disposable mop heads or launder after each use)



Clean all areas with a Uni9 disinfectant



Remove cubicle curtains for cleaning and place in red laundry bag



Dispose of cloths, gloves and apron in a yellow clinical waste sack



Wash hands with soap and water

For further advice contact ward manager or nurse in charge.