KEY POINTS

C. difficile is common in the hospital environment

Patients are likely to acquire the organism during their hospital stay

Some strains are more likely to be associated with disease than

others and these may become endemic in a ward

Disease associated with this organism in the large bowel is

generally precipitated by antibiotic use

Whereas all antibiotics can cause diarrhoea, some are more

likely than others to precipitate pseudomembranous colitis, which is a rare but serious infection with a high mortality

All patients with diarrhoea should be nursed in Source Isolation (see policy for Source Isolation)

1.0. SUMMARY

This policy aims to provide operational guidance for the control and management of *Clostridium difficile*. It is based on DH operational management policies.

The main and most important aspects of this policy are:

1. Isolation of patients who have symptoms of infection
2. Handwashing with soap and water to decontaminate hands
3. Adherence to antibiotic prescribing policies
4. Maintaining a high standard of environmental cleanliness
5. Ensuring compliance with all aspects of the policy and associated guidance.

2.0 INTRODUCTION

2.1 Background

Clostridium difficile (*C. difficile*) is a spore-forming anaerobic bacterium acquired by the ingestion of spores after contact with the contaminated environment, other patients or the hands of staff. *C. difficile* is common in the hospital environment and rarely acquired outside hospital. Some strains produce toxins. *C. difficile* disease is associated with the use of antibiotics which may result in disruption of the “normal bowel flora”.

C. difficile acquisition may result in asymptomatic carriage, loose stools or profuse diarrhoea which can result in life-threatening pseudo-membranous colitis. *C. difficile* infections are most common in people over the age of 65 years but any age group may be susceptible.

Large outbreaks of *C. difficile* with significant mortality have been documented in healthcare facilities. Robust management to prevent secondary spread is essential.

Confirmation of infection occurs following identification of *C. difficile* toxin in stool samples. It is necessary to grow the organism to do epidemiological typing.

2.2. Ribotype 027

In 2006, a single hypervirulent clone of *C. difficile* PCR ribotype 027 emerged first in Canada then in the USA and Europe. This strain is more virulent than sporadic strains. It produces higher levels of toxins and the course of infection is more severe and carries more complications, a higher risk of relapse and a higher mortality.

C. difficile 027 causes outbreaks in hospitals. Fluoroquinolones have been implicated as a risk factor for disease and all strains are inherently resistant to quinolones.

This type of infection is likely to be identified because a cluster of patients with severe *C. difficile* infections occurs in one ward. Additional tests are required to grow and identify the strain. These take a long time and action has to be taken on clinical grounds together with the results of toxin tests.

If an outbreak of 027 occurs, it is likely that control can only be achieved by ward closure, intensive cleaning and activity reduction or cessation.

3.0. DIAGNOSIS

Infection with *C.difficile* is routinely diagnosed by detection of toxins A & B in faeces. Culture is not normally undertaken. Loose stools from patients over 65 years will be tested for *C. difficile* toxins (CDT) routinely as part of the National Healthcare Associated Infection Surveillance programme. In all other patients, specimens of diarrhoeal stool will only be tested if specifically requested. Stools from children below 1 year are not normally tested for this organism.

C.difficile toxin tests should be requested in patients with diarrhoea in the following situations:

a. The patient is on or has been on antibiotics in the past 4 weeks.

b. There is severe diarrhoea, fever, bloody stools or severe abdominal cramps.

c. When previous cultures of stools are negative, but symptoms persist.

d. The patient developed diarrhoea whilst there was an existing case nearby.

3.1 Clearance and repeat specimens

There is no need to send further specimens once *C.difficile* has been diagnosed unless:

- Symptoms persist despite treatment when a further test may be undertaken after 4 weeks.
- Symptoms resolve and then recur which may suggest a relapse which occurs in

about 20-30 of patients. Sometimes this is due to acquisition of a new strain.

4.0. SURVEILLANCE

Infections are broadly classified as "community acquired" i.e. confirmed within 72 hours of admissions and "hospital acquired", confirmed after 72 hours of admission. Cases may arise from the patients own "endogenous" flora or from cross infection – "exogenous". Infection control is the key intervention to minimise the development of carriage. Antibiotic management is the way to reduce disease.

The infection control and microbiology department monitor and record *C. difficile* results. Monitoring is undertaken for national surveillance which is reported to the Health Protection Agency. Where numbers of cases exceed the expected norm for an area, the infection control team will initiate an investigation.

Unless it is reported to the infection control team, increased or unexpected numbers of diarrhoea cases will not be obvious to infection control or microbiology. It is therefore important that all staff are alert to increases in the number of patients with diarrhoea and report these suspicions to the infection control team who will investigate. (See Outbreak Management Policy)

5.0. PATIENT MANAGEMENT

The number and presentation of *C*. *difficile* cases will influence the management of *C*. *difficile* infection. Monitoring of *C*. *difficile* cases by the Infection Control Team (ICT) with epidemiological investigation will result in initiation of 3 categories of management:

1. Sporadic cases (hospital or community acquired)
2. Localised cluster of cases (2 or more cases of hospital acquired *C*. *difficile* in a defined area i.e. ward per week where cross infection is suspected). These may occur sporadically without indicating an outbreak.
3. Outbreak – site-specific C. *difficile* expected levels exceeded for 2 weeks or more than 3 cases of hospital acquired infection per week for 2 consecutive weeks in a defined area.

5.1 Sporadic cases

Following identification of *C*. *difficile* infection the following infection control measures must be implemented:

- Immediate isolation of the patient in a single room. An en-suite bathroom is preferable. Patients who do not have access to en-suite facilities must have a commode dedicated for their use.
- Patients who require being moved from a bay to a side room for isolation following confirmation of *C*. *difficile* infection must have the previous bed space thoroughly cleaned with a 5% solution of hypochlorite detergent (1000 ppm available chorine e.g. Actichlor plus), and the curtains changed prior to occupation by the next patient. The

bathroom or toilet which they used will also require a thorough clean if patients have used the toilet whilst symptomatic.

- Patients should be provided with an information leaflet on *C. difficile* (available from the website).

ON ENTERING

- Staff must wear aprons and gloves
- Use alcohol gel

ON LEAVING

- **All** staff leaving the patient's room dispose of apron and gloves in a yellow sack.
- **The use of alcohol hand disinfectant is not advised, as these are not effective in killing *C. difficile* spores.**

- Patient transfers to other wards must be kept to a minimum in order to prevent potential spread of infection. Should the patient require transfer for clinical reasons, the receiving ward must be informed of the patient's infection status to enable side room accommodation to be identified. The transfer of symptomatic patients to another hospital or facility should be avoided if possible. If it is necessary, infection control staff should be informed and the receiving hospital should be informed both verbally and in the written handover.
- A stool chart must be implemented and updated following every bowel action. Stools charts should record daily if a patient does *not* have their bowels open.
- Patients may become constipated when they recover.
- The patient may be removed from isolation for *C. difficile* infection when a 'symptom free status' has been achieved. This is normally regarded to be 48-72 hours free of diarrhoea or of normal formed stools. Patients with underlying bowel disorders who did not have semi-formed 'normal' stools prior to infection should be assessed by the ICT on an individual patient basis following two courses of antibiotic therapy. **(**Toxin tests are not used as a "test of cure")
- The GP must be notified of their patients' *C. difficile* episode at discharge.
- No special precautions are required for deceased patients.

5.2. Clinical patient management

- Appropriate fluid and electrolyte replacement is a vital component of general treatment.
- **STOP ANTIBIOTICS** if possible.
- If the patient is very ill, or the antibiotics cannot be stopped or the diarrhoea does not settle within 48 hours of stopping antibiotics:

  1st choice Metronidazole 400mg tds orally for 7-10 days.

  2nd choice Vancomycin 125mg qds orally for 7-10 days.
- Patients who experience prolonged *C. difficile* diarrhoea (>4 weeks) should be managed with advice from a consultant microbiologist.
- Repeat faeces specimens for C. *difficile* toxin testing are not necessary within 1 month of diagnosis.
- Patients who develop diarrhoea following a period of being symptom free may have been re-infected or relapsed. These patients must be isolated immediately and a faeces specimen sent for *C. difficile* toxin testing if more than one month since the previous toxin positive result.

5.3. Localised cluster of cases

The ICT will inform the relevant clinical Team if a potential cluster of hospital acquired *C. difficile* infection has been detected. ICT to review cases involved, including ward moves and exposure to other cases. Use forms avaialble in the Outbreak Management Policy to record cases.

In addition to guidance provided for 'sporadic cases', the following measures will be implemented:

- ICT to inform Director Infection Prevention and Control (DIPC), chief nurse, relevant divisional clinical leads, senior nurses in addition to ward sister. This information will be cascaded to appropriate trust personnel according to location and requirements.
- Instigation of enhanced patient monitoring within the affected area by ICT to identify potential further cases, with daily reporting of situation to DIPC and chief Nurse.
- Control of staff deployment to other areas to ensure adequate staffing levels are present and to prevent transmission of C. *difficile.*
- Enhanced promotion of hand hygiene to raise awareness locally, with particular emphasis on the use of soap and water.
- Restriction of patient transfers and admissions to/from affected area (ward/bay) for 48 hours to prevent 'seeding' of infection to other areas.

- Patients in the affected area who develop diarrhoea/loose stools must have faeces specimens sent for *C. difficile* toxin testing. All patients in the affected area must have stool charts implemented.
- Typing of *C. difficile* isolates to be requested
- Staff working on the ward **must** change their uniforms on a daily basis. Sufficient supplies of uniforms must be available.
- Additional cleaning should be arranged using 5% hypochlorite solution e.g. Actichlor plus. This should focus on the near patient environment and particularly toilet areas. The domestic supervisor should be included in discussions about enhanced cleaning to ensure continuity.

5.4. Outbreaks

The identification of more than 3 cases per week of hospital acquired infection, for 2 consecutive weeks in a defined area will initiate specific actions by the ICT and DIPC in order to manage a potential outbreak of *C. difficile*.

In addition to guidance provided for localised clusters, the following additional measures will be implemented:

- ICT and DIPC and Chief Nurse should consider the need to form an outbreak committee. Chief Executive to be informed of decision.
- Potential outbreak to be reported to HPA and SHA by ICT with completion of Serious Untoward Incident (SUI) forms (Healthcare Associated SUI form to be submitted to HPA by ICT, trust SUI form to be submitted to SHA).
- Restriction on admissions to and transfer from all affected area(s).
- Resolution of the cluster/outbreak will be confirmed by the ICT. Following confirmation, the affected area will undergo a 'terminal' clean of the whole ward environment, including all patient equipment with a 5% solution of hypochlorite detergent. A full curtain change is required.
- Patients may not be admitted to the ward until the 'terminal' clean is completed and the nurse in charge is happy with the standard of cleanliness.
- Audit of outbreak management to be undertaken by the ICT utilising the Dept of Health Saving Lives High Impact Intervention no 6 – *C. difficile.* Results of the audit to be submitted to the Risk Management Committee.

6.0. MANAGERS RESPONSIBILITIES

Managers are responsible for ensuring staff are aware of this policy and comply with all aspects but with particular reference to:

- The timely taking of stool specimens
- Prompt isolation of patients
- Cleaning of the environment
- Antibiotic control

Managers are also responsible for ensuring staff have adequate supplies of equipment, particularly consumables to ensure compliance with this policy.

If there is an outbreak, management will take responsibility for actions including ward closure on advice from the infection control team. (See your hospital's Ward Closure Policy)

7.0. ISOLATION

- Patients with diarrhoea should be isolated unless a non infective cause has been identified for their diarrhoea.
- Patients should be given priority for isolation and where possible isolated on the ward where the diarrhoea commenced.
- Patients with diarrhoea and who are CDT positive must be isolated in a single room preferably with an en-suite toilet and washing facilities. If an en-suite is not available a commode should be provided for their sole use.
- The door of the room should be closed and an isolation notice placed on the door.
- If the patient is required to leave the room for diagnostic or treatment purposes the infection control team should be contacted for advice. It is not advisable to move the patient from the room whilst they have active diarrhoea particularly if they are incontinent.
- Should the patient required transfer to other clinical areas (e.g. x-ray, theatres) then the patients C. *difficile* status must be declared in advance to allow appropriate arrangements to be made to prevent the spread of infection.
- Always use disposable gloves and aprons for direct patient contact or contact with their environment. It is particularly important to use gloves and aprons when handling body excretions.
- Soap and water must be used for hand hygiene. Alcohol based disinfectants do not destroy C.difficile spores.
- Patients with *C.difficile* infection can be removed from isolation after 48 hours without

diarrhoea. There is no requirement to submit a faeces sample for testing.

- Dispose of urine or faeces in the bed pan washer or macerator as rapidly as possible.
- Use normal china and cutlery and machine dish wash.
- Equipment such as blood pressure monitor, commode, temperature probe etc should be used only on that patient. If the equipment is taken for use elsewhere it should be effectively decontaminated – this would normally be with a chlorine based disinfectant or via the sterile service department.
- Linen should be placed in a red linen bag and double bagged.
- Waste should be placed in a yellow waste bag
- Visitors who do not assist in patient care and who have minimal patient contact do not need to wear gloves and apron. Visitors who assist in patient care should wear gloves and aprons. All visitors should wash their hands with soap and water before they leave the room. Visitors should not eat or drink in the vicinity of the patient.

8.0 ENVIRONMENTAL CLEANING

- The room (and any associated patient equipment e.g. commode) must be cleaned thoroughly on a daily basis using a 5% solution of hypochlorite preferably with detergent (free chlorine 1000 ppm). Any concerns in relation to the standard of environmental cleanliness **must** be reported to the help-desk immediately to allow prompt rectification of the problem
- Any equipment required for patient management/care should ideally be disposable or must be dedicated for that patient only. It should be thoroughly cleaned after use or when no longer required with a 5% solution of hypochlorite detergent e.g. actichlor plus. This includes equipment such as BP cuffs, moving and handling equipment, physiotherapy equipment etc.
- Therapy mattresses/beds must be returned to the manufacturers for centralised decontamination. These should be labelled as contaminated.
- Once a patient no longer requires isolation, a terminal clean of the room, equipment and toilet /commode is required using a 5% solution of hypochlorite detergent. A curtain change is also required. The order of clean should be to remove curtains and any linen, clean high surfaces first and work down to the floor. *C. difficile* spores may persist in the environment so thorough removal of all dirt and dust is required.

9.0 ANTIBIOTIC PRESCRIBING

- The appropriate use of antibiotics will reduce the selection pressure for colonisation and infection with *C.difficile*.
- Staff prescribing antibiotics should adhere to the trust antibiotic prescribing guidelines.
- There should be a daily review of the need to continue antibiotics in all patients on antibiotics
- Where there is more than one case of *C.difficile* on a ward the prescriber should consider avoiding cepahalosporin use in other patients on the ward.
- In an outbreak all antibiotics in use in that area should be reviewed and the advice of the microbiologist should be sought.

10.0. REFERENCES

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