**ICPG1 Infection Prevention and Control Procedural Guidelines**

**Section 6: Prevention and Management of *Clostridium difficile***

**PROCEDURE SUMMARY**

The purpose of this guideline is to ensure that every member of staff has an understanding of the disease process of *Clostridium difficile* as well the principles of management and prevention of spread.

The Trust monitors the implementation of and compliance with this procedure in the following ways:

The responsibility for monitoring and reviewing this Policy lies with the Director responsible for Infection Prevention and Control. Compliance with this procedure will be audited. Audit results will be presented to the Infection Prevention and Control Group.

<table>
<thead>
<tr>
<th>Services</th>
<th>Applicable</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trustwide</td>
<td>✔</td>
<td></td>
</tr>
</tbody>
</table>

The Director responsible for monitoring and reviewing this procedure is

The Executive Chief Operating Officer
1.0 WHAT IS CLOSTRIDIUM DIFFICILE?

1.1 *Clostridium difficile* is a common gram-positive, spore forming, anaerobic bacillus, found in the faeces of approximately 3-5% of healthy adults.

1.2 These spores are resistant to exposure to air, drying and heat and can survive in the environment for some time.

2.0 WHAT DOES IT CAUSE?

2.1 *Clostridium difficile* diarrhoea is usually triggered by the use of broad-spectrum antibiotics. These reduce the numbers of normal flora within the bowel and allow the *Clostridium difficile* bacteria to multiply.

2.2 Repeated enemas and gastro-intestinal surgery can also increase a person’s risk of developing the infection.

2.3. When this happens, the bacteria produce large amounts of a toxin, which irritates the lining of the bowel. This irritation causes diarrhoea, which may be minimal or may develop into a life-threatening pseudo-membranous colitis. The diarrhoea may recur at intervals. A patient may carry the bacteria in their bowel for many months. It is only when they are suffering from diarrhoea that they are considered infectious.

3.0 DEFINITIONS

<table>
<thead>
<tr>
<th>TERM</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Clostridium difficile</em> (C difficile, C diff) diarrhoea</td>
<td>Diarrhoea that is not attributed to any other cause, confirmed with a positive stool toxin assay.</td>
</tr>
<tr>
<td>(CDI)</td>
<td><em>Clostridium difficile</em> infection</td>
</tr>
<tr>
<td>GDH</td>
<td>Glutamate dehydrogenase – lab test to determine the presence of C. diff bacteria in the gut (not necessarily toxin producing).</td>
</tr>
<tr>
<td>Endotoxin</td>
<td>A toxin that is not secreted in soluble form by live bacteria, but is a structural component in the bacteria which is released mainly when bacteria are destroyed.</td>
</tr>
<tr>
<td>Pseudo-membranous colitis</td>
<td>Is an infection of the colon, frequently, but not exclusively caused by <em>C difficile</em>. In severe cases life-threatening complications, such as toxic mega-colon, can occur.</td>
</tr>
<tr>
<td>Toxic mega colon</td>
<td>A life-threatening complication of intestinal conditions. It is characterized by an extremely dilated colon (mega colon), accompanied by abdominal distension (bloating), sometimes fever, abdominal pain, or symptoms of shock may be evident.</td>
</tr>
<tr>
<td>SIGHT</td>
<td>Mnemonic protocol to be used when managing patients with suspected infectious diarrhoea.</td>
</tr>
</tbody>
</table>
ICPG1 – Section 6 – Prevention and Management of Clostridium Difficile

4.0 DIAGNOSTIC CRITERIA

4.1 Any patient who has unexplained diarrhoea must have a specimen sent to the laboratory for microbiological analysis. (Diarrhoea is defined as: a liquid stool that conforms to the shape of a specimen pot)

4.2 Testing for Clostridium difficile Toxin must be specifically requested on the accompanying microbiology form.

5.0 TRANSMISSION

5.1 Transmission of Clostridium difficile is via spores that survive in faecal matter. C. diff spores are resistant to heat and alcohol.

5.2 C. difficile is easily transmitted between patients on the hands of healthcare workers or in the hospital environment

5.3 Contamination of patient equipment such as commodes, chairs and bathroom facilities increases the risk of an infection being spread

6.0 PREVENTION AND CONTROL

6.1 Control of antibiotic use; prudent antibiotic prescribing (good antimicrobial stewardship) to reduce the use of broad spectrum antibiotics.

6.2 Hand washing by staff and patients; using soap and water is of paramount importance (NB: alcohol gel does not kill bacterial spores).

6.3 Protective clothing; staff must wear disposable gloves and aprons when handling body fluids.

6.4 Effective environmental cleaning; enhanced environmental cleaning and use of chlorine containing disinfectant, where there are cases of C. difficile, should be used to reduce environmental contamination with spores.

6.5 Isolation; all patients with diarrhoea should be isolated within 2 hours of onset where possible/practicable.

6.6 Isolation may be discontinued when the patient has been symptom free for 72hrs with one formed stool (type 4).

6.7 It is essential that education of staff, visitors and patients is provided.
7.0 DIAGNOSIS

7.1 Clinicians (doctors and nurses) should apply the following mnemonic protocol (SIGHT) when managing suspected potentially infectious diarrhoea:

<table>
<thead>
<tr>
<th>S</th>
<th>Suspect that a case may be infective where there is no clear alternative cause for diarrhoea</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Isolate the patient and consult with the infection control team (ICT) while determining the cause of the diarrhoea</td>
</tr>
<tr>
<td>G</td>
<td>Gloves and aprons must be used for all contacts with the patient and their environment</td>
</tr>
<tr>
<td>H</td>
<td>Hand washing with soap and water should be carried out before and after each contact with the patient and the patient’s environment</td>
</tr>
<tr>
<td>T</td>
<td>Test the stool for toxin, by sending a specimen immediately</td>
</tr>
</tbody>
</table>

7.2 GPs should review antibiotic prescribing; ensuring prescribing complies with antimicrobial prescribing guidelines. All courses of antibiotics for in patients should be for the shortest duration and must include a “stop” date.

7.3 All prescribers need to ensure they are prescribing according to Trust antimicrobial prescribing guidelines.

7.4 A sample of the diarrhoea must be obtained as soon as possible, it is important to note that only liquid stool samples are tested for C. difficile (Bristol stool chart type 7- see below). Give a detailed description of the symptoms and antibiotic use on the laboratory/microbiology form.

7.5 CDI should be suspected in patients with diarrhoea in the following situations:

- The patient is on or has been on antibiotics in the past 3 months
- There is explosive, watery, offensive diarrhoea, fever, bloody stools or severe abdominal cramps
- The patient has previously tested positive for C difficile
- The patient developed diarrhoea on a ward where there is or was a known case of CDI

7.6 Do not wait for a result before isolating the patient.

7.7 Repeat stool samples are not required and must not be taken following diagnosis or after treatment without prior discussion with a microbiologist.

7.8 The organism can remain in the bowel for many months and will therefore test positive even when the patient has recovered. Patients who test GDH positive but toxin negative can still shed C. diff spores and should therefore be isolated until stools are formed.

7.9 As soon as an in-patient develops diarrhoea, of an unknown cause, the patient should be isolated in a single room. Strict isolation guidelines must be adhered to/maintained.
7.10 In the absence of an en suite bathroom, a dedicated commode should be made available for patient use.

7.11 Thorough cleaning with hypochlorite solution with specific attention paid to frequently handled areas, sinks and toilet should be in place at least twice daily.

7.12 Bedpans must be covered and disposed of into a macerator immediately.

7.13 Commodes must be decontaminated after use; a hypochlorite solution must be used. (See Appendix 2 for decontamination of equipment).

7.14 Isolation is no longer necessary when the patient has been symptom free for 72hrs with one formed stool (type 4).

7.15 At the end of the episode the room must receive a thorough “deep/post-infection” clean with hypochlorite solution and any room curtains changed.

7.16 A thorough root cause analysis must be undertaken by the clinicians caring for the patient with support from the Infection Prevention and Control Team.

7.17 Diagnosis of Clostridium difficile infection (CDI) is made using the recommended 2 part testing process.

If the first test for Glutamate dehydrogenase (GDH) is negative it means that C. difficile is not present in the gut at the time of testing.

If only the GDH test is positive this indicates that C difficile is present in the gut but is not producing toxins so other reasons for diarrhoea need to be sought. However, if diarrhoea is present it should be assumed that the patient could potentially be excreting spores and patients should remain isolated, and standard infection control precautions must be adhered to. Treatment should be considered

Further stool specimens should not be submitted for C difficile toxin testing within 72hours without prior discussion with a microbiologist.

If both the GDH and toxin test are positive in a patient whose diarrhoea cannot be attributed to other causes this is indicative of C difficile infection (CDI).
7.18 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 its 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**
8.0 RISK FACTORS

8.1 People most at risk are those who have recently been treated with broad spectrum antibiotics, other risk factors include;

- Elderly (over 65)
- Immunosuppressed
- Enteral / naso-gastric feeding
- Non-surgical gastro-intestinal procedures e.g. endoscopy
- Administration of Proton Pump Inhibitors (PPI's)
- Intensive care treatment
- Frequent hospital admissions

Although proposed to be most commonly acquired in hospital, *C difficile* can be a community acquired infection.

9.0 TREATMENT

9.1 Commence the *C. difficile* care bundle once CDI is confirmed (Appendix 2).

9.2 The first priority with cases of *Clostridium difficile* associated diarrhoea (CDAD) is to stop any antibiotics, if at all possible (Appendix 1). However, sometimes antibiotics must continue if clinically indicated and there is no alternative that can be prescribed. The current first line effective antibiotic in the treatment of *Clostridium difficile* is Metronidazole 400mgs three times a day for 10 days. This drug must be taken orally. If this treatment is not successful please seek advice from the microbiologist. The second line of treatment is oral Vancomycin. For clinical guidance please contact the medical microbiologist.

9.3 If diarrhoea is profuse, especially in vulnerable patients, attention should be paid to the patient's hydration. Oral rehydration fluids such as ‘Diaoralyte’ may be helpful. Intravenous fluids may be necessary if the patient is severely dehydrated — this may necessitate admission to an acute hospital setting.

9.4 Anti motility agents (lomotil, codeine) are CONTRAINDICATED. Proton pump inhibitor drugs should be reviewed and discontinued if possible. Consider stopping iron treatments temporarily as they may mask or interfere with symptoms.

9.5 There is some anecdotal evidence that ‘Bioactive yoghurts’ may be of benefit.

10.0 VISITORS AND RELATIVES

10.1 Visitors who are immunocompromised or concerned that they may be vulnerable to *C. difficile* infection should contact the Infection Prevention and control Team or the Microbiologist for individual advice before visiting.
10.2 Visitors need to be made aware of the risks of cross infection, the risk to them and their responsibilities whilst visiting.

10.3 Visitors are not required to wear protective clothing unless giving / assisting with the patient’s personal care. They are however expected to wash their hands thoroughly with soap and water before leaving the room and use sporicidal foam/gel if available.

10.4 Visitors should be strongly advised not to eat and drink in the room.

10.5 If visitors are expecting to visit more than one patient, they MUST visit the infectious patients last.

11.0 PATIENT TRANSFERS/DISCHARGES

11.1 Symptomatic patients should not be admitted to inpatient settings without prior discussion with the infection prevention and control team.

11.2 Patients must not be discharged to nursing/residential homes until they have been asymptomatic for 72 hours with one formed stool (type 4). An infection risk admission/transfer form must be completed (Appendix 3).

11.3 The patient’s GP must be informed that they have had a C. diff. infection. This is to ensure that the GP is aware of the risk of recurrence of infection and advice can be sought if future antibiotic treatment is required.

12.0 APPENDICES

Appendix 1: Clostridium difficile patient management algorithms adapted from the Department of Health algorithms (2009 & 2013)

Appendix 2: Clostridium difficile Care Bundle

Appendix 3: Infection risk admission/transfer form

13.0 REFERENCES

Department of Health & Health Protection Agency (2009), Clostridium difficile infection: How to deal with the problem, Crown Copyright 2009. www.dh.gov.uk/publications.