Clostridium difficile Infection (CDI): Prevention, Treatment and Control Policy HH(1)/IC/573/16

Previous document(s) being replaced

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<td>HH(1)/IC/573/12c</td>
<td>Clostridium difficile Infection (CDI): Prevention, Treatment and Control Policy</td>
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Document Summary

This policy outlines the management and infection prevention and control procedures for Clostridium difficile infection (CDI). It emphasises the importance of early diagnosis and prompt isolation and treatment of patients with CDI to reduce the risk of spread to other patients and minimise morbidity for the affected patients. Maintaining high standards of infection prevention practice (hand hygiene, use of Personal Protective Equipment (PPE)), environmental cleanliness and compliance with guidelines for antibiotic prescribing are essential. The importance of providing patients and their relatives with the information they need about CDI is identified. CDIs are reported to the Department of Health through an enhanced surveillance system and outbreaks of infection are reportable as a serious untoward incident. Root cause analysis is performed on all cases of hospital-acquired CDI in order to monitor and improve practice. NHS England annually sets targets for reduction of CDIs and for HHFT. Non-compliance with these targets can lead to large financial penalties for the Trust. In the event of death of a patient with CDI, the requirements regarding death certification are outlined.

Ownership

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<tbody>
<tr>
<td>Author</td>
<td>Hazel Gray</td>
<td>Lead Infection Prevention and Control Nurse</td>
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<td>Job Title</td>
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Related Documents

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<th>HHFT Antimicrobial Guide for Adults</th>
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Relevant Standards

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Equality Impact Assessment

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Final Document Approval

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Other Specialist committee(s) recommending approval

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Authorisation

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<tr>
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<th>Mary Edwards</th>
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<tr>
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<td>IPCT and Communication Team</td>
<td>Within 1 week of publication</td>
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<td>The policy will be available on the intranet and web site</td>
<td>BNHH Healthcare Library and Communication Team</td>
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| Date Authorised | 11 November 2016 |
| Target Audience | All Trust Staff |

**Dissemination and Implementation Plan**

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**Document Control – Document Amendments**

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<td>1</td>
<td>Review of BNHFT and WEHCT policies to produce harmonised HHFT policy</td>
<td>New <em>C. difficile</em> algorithm and guidance from the Department of Health, HPV Cleaning guidance Medications that can cause diarrhoea</td>
<td>Hazel Gray</td>
<td>July 2012</td>
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<tr>
<td>1.1</td>
<td>Review of policy following recommendation from PHE</td>
<td>Amended to include VNTR Typing</td>
<td>Infection Control</td>
<td>April 2014</td>
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<td>1.2</td>
<td>Review of <em>C. difficile</em> care pathway</td>
<td>New version of <em>C. difficile</em> Care pathway. Change to appendix K (algorithm for use by Medical Staff)</td>
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<td><em>C. difficile</em> Care pathway updated New D&amp;V risk assessment</td>
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1. Introduction

*Clostridium difficile* (*C. difficile*) is a bacterium that can be found in the gastrointestinal tract. It is commonly found in the gut of healthy babies and in some adults without causing any symptoms. Some strains of *C. difficile* produce harmful toxins that damage the lining of the gut causing diarrhoea and pseudo-membranous colitis. This is more likely to happen in patients who are taking antibiotics, or who have recently taken them, as these may eliminate the normal gut flora and allow the *C. difficile* to grow in unusually high numbers.

The symptoms associated with toxin-producing *C. difficile* infection (CDI) range from mild to severe diarrhoea and may also include fever, loss of appetite, nausea and abdominal pain or tenderness. In the most severe cases, the pseudomembranous colitis may require emergency bowel surgery and can be fatal. Patients with CDI must therefore be carefully monitored and treated promptly and effectively.

*C. difficile* is able to form spores and these enable it to survive for long periods in the environment and contribute to its ability to spread between patients. The spores are not destroyed by alcohol based hand washing agents and therefore have to be removed from the hands using soap and water.

Patients who have *C. difficile* associated diarrhoea will shed the organisms into their immediate environment. The bacteria can then be ingested by other patients through contact with the contaminated environment and equipment, or indirectly on the hands of staff. In healthy people such as staff, the *C. difficile* will not be able to multiply in the gut and they will not develop a disease. However, in vulnerable patients, particularly those whose normal gut bacteria have been disrupted by antibiotic treatment, the *C. difficile* may be able to multiply in the gut and cause CDI.

Asymptomatic carriage is seen in up to 3% of healthy adults, where normal intestinal flora inhibits the over-population of *C. difficile* bacteria. The decline of intestinal flora with age, together with a reduction in immune response increases the risk of CDI in the elderly, with over 80% of cases reported occurring in people aged over 65 years. Carriage may be as high as 20% in elderly patients in hospital and 50% in some long-term care facilities. Community-associated CDI has been increasingly recognised, although the extent of, and risk factors for community acquisition are not well understood.

Evidence has shown that healthcare associated pathogens such as *C. difficile* can survive for days, weeks and sometimes months on environmental surfaces and when healthcare workers or patients touch these contaminated surfaces transmission of pathogens can occur (Boyce 2007).

Evidence has shown that it takes only two hours to seed a bay with *C. difficile* (Frampton 2011) and the Department of Health (DH) guidance (May 2013) advises
that patients with unexplained diarrhoea where *C. difficile* cannot be ruled out should be isolated within two hours of commencement of symptoms.

**Responsibilities for the management of CDI**

DH guidance on CDI emphasises three key principles in the management of CDI:

- CDI should be managed as a diagnosis in its own right (Healthcare Commission, 2007b in DH/HPA 2009)
- The safety of patients cannot be compromised by other strategic or financial objectives but is at the centre of everything we do (Commission for Healthcare Audit and Inspection, 2006 and Healthcare Commission, 2007a in DH/HPA 2009)
- Infection control, including CDI, is “everybody’s business” (Committee on Public Accounts, 2000 and Healthcare Commission, 2007a in DH/HPA 2009), requiring not only a ‘board to ward’ approach in the hospital but active engagement of primary care trusts (PCTs), health protection units (HPUs) and strategic health authorities (SHAs), using the rubric of clinical and corporate governance. Clinical Commissioning Groups (CCG) and Public Health England Units (PHE) have taken over this responsibility.

Infection control is the responsibility of all staff associated with patient care. A high standard of infection control is required on all wards and units, although the level of risk may vary. It is an important part of total patient care. Individual doctors and nurses are responsible for initiating early diagnosis and prompt isolation, and for compliance with guidelines for antibiotic prescribing, hand hygiene and wearing disposable gloves and aprons.

It is essential that infection control is seen as an organisational responsibility and priority, that adequate isolation facilities and resources are provided, and that appropriate infection control staff and support services are available.

2. **Purpose**

This policy outlines the management and infection prevention and control procedures for *C. difficile* infection (CDI). It has been reviewed and updated in accordance with new national guidance issued in January 2009 and the Department of Health guidance 2012.

Effective application of this policy, along with other relevant guidance on antimicrobial prescribing and infection prevention and control practice, by all staff will enable the Trust to maintain high standards of patient safety with respect to the prevention and control of CDI.

The policy has a number of appendices that summarise the policy and are to be used by staff to care for their patients.
3. **Scope**

This policy and procedure will be applied fairly and consistently to all employees and service users regardless of their protected characteristics as defined by the Equality Act 2010 namely, age, disability, gender reassignment, race, religion or belief, gender, sexual orientation, marriage or civil partnership, pregnancy and maternity. For employees this policy also applies irrespective of length of service, whether full or part-time or employed under a permanent or a fixed-term contract, irrespective of job role or seniority within the organisation.

Where an employee or service user has difficulty in communicating, whether verbally or in writing, arrangements will be put in place as necessary to ensure that the processes to be followed are understood and that the individual is not disadvantaged during the application of this policy.

The application of this policy is completely clinically based and ensuring prompt testing/treatment would be the priority, however the Trust would endeavour to continue to meet patients’ individual needs as far as is practicable.

In line with the Equality Act 2010, the Trust will make reasonable adjustments to the processes to be followed where not doing so would disadvantage an individual with a disability during the application of this policy.

This policy complements professional and ethical guidelines and the Nursing and Midwifery Council (NMC) and The Code - Professional standards of practice and behaviour for nurses and midwives (NMC 2015)

4. **Explanation of Terms**

*C. difficile infection (CDI)* is one or more episodes of diarrhoea, defined either as stool loose enough to take the shape of a container used to sample it or as Bristol Stool Chart types 6–7 (Appendix C), that is not attributable to any other cause, including medicines (Appendix F), and that occurs at the same time as a positive toxin assay (with or without a positive C. difficile result) and/or endoscopic evidence of pseudomembranous colitis (PMC). (Code: Duty 10; Annex 2)

**Period of increased incidence (PII) of CDI** will be initiated when two or more new cases (occurring >48 hours post admission, not relapses) occur in a 28-day period on a ward. The PII will last for 28 days and will involve enhanced surveillance and IPCT audit.

**Outbreak of C. difficile infection** is two or more cases caused by the same strain, related in time and place over a defined period that is based on the date of onset of the first case.

**NAAT (PCR) testing** is the primary laboratory test undertaken to identify the presence of the *C. difficile* gene.
5. Duties

5.1 Postholders
The Chief Executive (CE) has ultimate accountability for ensuring robust systems are in place to ensure the Trust continues to work to best practice and complies with all relevant legislation in regard to this policy. The CE has overall responsibility for the provision of adequate isolation facilities to enable national guidance on the control of CDI to be implemented. There is a mandatory requirement for the CE to validate all cases of CDI reported to Public Health England monthly.

The Director of Infection Prevention and Control (DIPC) is the Trust Director responsible to the Board of Directors for the delivery of IPC standards.

The Director of Nursing will ensure that the Divisional Directors take clinical ownership of the policy.

The Divisional Operational Directors will ensure that all healthcare workers comply with this policy and that all healthcare workers attend mandatory infection prevention and control training. They are responsible for ensuring adequate facilities and resources are available including isolation facilities match demand; that resources are made available for antimicrobial management teams (AMTs), surveillance, audit, rapid diagnosis, environmental cleaning and education; that there are collaborative links with PHE and NHS England; and that patients and the public are kept informed proactively of policies and practice, as appropriate.

The Clinical Service Managers/Leads/Clinical Matrons will ensure that the current version of this policy is available in all of their areas. They will ensure that all healthcare workers comply with this policy and that all healthcare workers attend mandatory infection prevention and control training.

Medical staff should consider CDI as a diagnosis in its own right, grading each confirmed case for severity (see appendix B) treating accordingly and reviewing each patient daily regarding fluid resuscitation, electrolyte replacement, nutritional requirements abdominal pain, and monitoring bowel function using the Bristol stool chart. Monitor for signs of increasing severity of disease. Clinical teams should review antibiotic prescribing on all their ward rounds, stopping unnecessary prescriptions and changing those that do not comply with guidelines.

All Trust employees will comply with this policy and inform the Infection Prevention and Control Team about any issues or concerns relating to the policy. All staff will attend mandatory Infection Prevention and Control training annually. Infection control is the responsibility of ALL staff associated with patient care. A high standard of infection control is required on ALL wards and units, although the level of risk may vary. It is an important part of total patient care.

5.2 Groups
The Infection Prevention and Control Team (IPCT) will act as a resource for information and support. They will provide education in relation to this policy which
includes mandatory training. They will monitor the implementation of this policy via audit within clinical areas and be responsible for regularly reviewing and updating it. The IPCT has a mandatory responsibility to report cases of CDI to Public Health England via the national reporting system, NHS England and within the Trust. IPCT members will collate data and disseminate within the Trust via Reporting Warehouse on the Corporate Drive, Infection Prevention and Control Committee and the Trust Board of Directors and Executive Committee.

**Multidisciplinary review team**, latest guidance recommends that the Trust establish a multidisciplinary review team consisting of a consultant microbiologist, infection control doctor, gastroenterologist or surgeon, a dietician and an Infection Prevention and Control Nurse. The team should review all CDI patients at least weekly to ensure that the infection is optimally treated and the patient is receiving all necessary supportive care. The IPCT review all C diff positive patients on week days and will highlight any concerns to the Microbiologist on call.

**Root Cause Analysis (RCA) Panel for Infection Prevention and Control** has been instigated to review infection control cases using the Root Cause Analysis (RCA) process and to ensure that a multi-disciplinary team (MDT) approach is undertaken. The panel will be held once a month on both the BNH and RHCH sites (two panels a month) to review any patient who has acquired a healthcare associated infection (HCAI) and warrants a review using the RCA criteria i.e. *C. difficile* that are two test positive or where there are issues concerning management or individual lapses in care, vascular access device (VAD) related infections.

**The Health4Work department** will act as a resource for information, and support and consult with managers, the Infection Prevention and Control Team and healthcare workers regarding the use of personal protective equipment.

**The Health and Safety Advisor** will act as a resource for information, and support and consult with managers, the Infection Prevention and Control Team and healthcare workers regarding the use of personal protective equipment.

6. **Signs and Symptoms of CDI**

There is a range of presentation within the spectrum of CDI:

- *C. difficile* spores can be ingested and excreted without any clinical signs in some patients
- An asymptomatic chronic carrier state can occur
- In cases where symptomatic infection does occur, the severity varies greatly

There are four main routes of transmission of *C. difficile* spores

- Transmission via hands, particularly the hands of staff, but also on patients hands
- Contact with affected patients
- Contact with contaminated surfaces or equipment, e.g., commodes, bed pans, furniture
- By direct inoculation into the bowel via contaminated equipment, e.g., sigmoidoscopes, rectal thermometers

When symptomatic, *C. difficile* can cause a variety of symptoms:
- Diarrhoea
- Fever
- Loss of appetite
- Nausea and/or vomiting
- Abdominal pain or tenderness
- Raised white blood count (WBC)
- Pseudomembranous colitis can occur in a small proportion of the cases

Most patients with CDI display symptoms of mild to moderate watery diarrhoea, with or without abdominal pain and an elevated white cell count. This is a result of the toxins damaging the mucous membrane of the large colon (colitis). In some cases diarrhoea might not be present and the patient presents with distension and abdominal pain. A careful assessment is required for sedated and unconscious patients in particular.

A small proportion of patients develop a condition known as pseudo membranous colitis (or PMC). These patients develop frequent, profuse, foul-smelling diarrhoea accompanied by abdominal pain, distension, fever and a raised white cell count. PMC can lead to toxic mega colon and death.
- Older age, WBC >20, increased peak serum creatinine, low potassium and low albumin are associated with greater risk of severe CDI
- Relapse is a common cause of recurrence in *C. difficile*. Recurrent attacks and intractable diarrhoea can complicate cases
- Diarrhoea usually starts a few days after commencing antibiotics but can be up to two months later

**Who is at risk?** The following groups of patients are the greatest risk:
- elderly patients, particularly those with serious underlying illness
- Immunocompromised patients
- those who are having, or have had, antibiotic treatment
- patients who have had gut surgery
- those receiving enteral nutrition
- those on proton pump inhibitors (PPIs)
- Recent endoscopic procedure
- Stay on intensive care

**7. Diagnosis of CDI**
When a patient presents with diarrhoea, the possibility that it may be infectious in origin must be considered where there is no clear alternative cause. Staff should apply the following mnemonic when managing suspected 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>
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<tr>
<td>I</td>
<td>Isolate the patient and consult with the infection prevention and control team (IPCT) while determining the cause of the diarrhoea</td>
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<tr>
<td>G</td>
<td>Gloves and aprons must be used for all contacts with the patient and their environment, with chlorine used for all cleaning</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. Alcohol gel should not be used</td>
</tr>
<tr>
<td>T</td>
<td>Test the stool for toxin, by sending a specimen immediately (do not wait for a result before isolating the patient)</td>
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A diarrhoea and vomiting risk assessment (appendix D) should also be completed on all cases and a specimen of faeces should be sent to the microbiology laboratory unless a laboratory confirmed positive diagnosis of *C. difficile* has been made within the previous 28 days. Children under the age of two years should not have stool samples sent for a *C. difficile* toxin (CDT) test, as children under this age do not develop CDI due to lack of specific receptors for the toxins.

The diagnosis should be made on: clinical and/or laboratory and/or endoscopic findings. In cases where CDI is suspected and there is no diarrhoea, a specific request should be made for testing a semi-formed or formed stool sample for toxins by the treating doctor.

Laboratory diagnosis will follow the recent Department of Health diagnostic algorithm. Initial screening test at HHFT will be done by NAAT (PCR). If this is positive then toxin detection will be carried out by EIA. Interpretation and actions will depend on the results and be guided by the criteria below:

- If toxin PCR positive and toxin EIA positive then toxigenic *C. difficile* is likely to be present and this represents the laboratory criteria for a case of CDI. Result must be included in mandatory reporting to PHE
- If toxin PCR positive and toxin EIA negative, then *C. difficile* could be present i.e. potential *C. difficile* excretors – do not include in mandatory reporting but will still require barrier nursing;
- If toxin PCR negative then *C. difficile* is very unlikely to be present – do not include in mandatory reporting.

All patients over the age of two years with diarrhoea (a stool sample that takes the shape of the container) should be tested for *C. difficile* toxins.

In completing the specimen form, it must be clearly stated that testing for *C. difficile* is required on the ICE request. Any history of antibiotics taken by the patient in the last 6-8 weeks, along with the patient’s present medical history, should be included on the ICE specimen request form.
Doctors should consider CDI as a diagnosis in its own right, grading each confirmed case for severity, treating accordingly and reviewing each patient daily, monitoring bowel function using the Bristol Stool Chart (See Appendix C).

If the first stool sample is negative and the patient still has diarrhoea another sample should be sent 24 hours later for examination before the patient is considered to be *C. difficile* negative.

**Repeat testing**
*C. difficile* can be excreted in the faeces of patients for weeks so stool samples are not needed following a positive test and clearance of infection is indicated by disappearance of symptoms. If a patient has not had diarrhoea for 48 hours they should be regarded as non-infectious but will remain isolated in a single room till discharge or assessed by the IPCT.

**Relapse**
Statistics show a 20-30% chance of relapse for *C. difficile* after initial infection, and that the numbers go up to 60% for people that have recurrent infections.

**Patient re-admitted who have had C. difficile in the past.**
All patients who have been admitted and have had *C difficile* in the past need to be risk assessed on admission (see Appendix I Previous *C difficile* risk assessment).

**8. Treatment of CDI**
The first line treatment for *C. difficile* is to discontinue the offending antibiotic/s that has been prescribed for the patient, if possible. In some cases this may be enough for the normal bowel flora to re-grow and no further intervention is required. Please see Appendix B *C difficile* care pathway (page 2) for the Trust antibiotic treatment guidelines for CDI.

**Proton Pump Inhibitors (PPIs)**
There is increasing evidence that acid-suppressing medications, in particular proton pump inhibitors (PPIs) may be a risk factor for CDI (Howell *et al.*, 2010; Janarthanan *et al.*, 2012). It remains possible that these associations are confounded by other CDI risk factors (Cohen *et al.*, 2010). However, given that acid suppression drugs, especially PPIs, may be over-prescribed and frequently not reviewed to determine if long-standing prescriptions are still justifiable, consideration should be given to stopping/reviewing the need for PPIs in patients with or at high risk of CDI.

**9. Antibiotic prescribing**
High levels of antibiotic use are the major risk factor for development of CDI. Whilst most antibiotics have been associated with CDI, some appear to carry more risk than others especially for the patients in the risk groups above.

Table 1 summarises the risk category for some of the commonly used antibiotics:
### Table 1: Risk of CDI associated with commonly used antibiotics

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<th>Medium risk</th>
<th>Low risk</th>
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<td>All Cephalosporins</td>
<td>Ampicillin/Amoxycillin</td>
<td>Aminoglycosides</td>
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<tr>
<td>Clindamycin</td>
<td>Coamoxiclav</td>
<td>Metronidazole</td>
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<td>Quinolones</td>
<td>All macrolides</td>
<td>Vancomycin</td>
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<td>Tetracyclines</td>
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<td></td>
<td></td>
<td>Cotrimoxazole (Septrin)</td>
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<td>Rifampicin</td>
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</table>

**High risk antibiotics e.g. Cefalexin, Cefuroxime and Ciprofloxacin should not be used for the treatment of infections in patients over the age of 65 years.** The use of a single prophylactic dose at induction for surgical and orthopaedic patients carries a lower risk but this will be monitored by the Infection Control Doctor (ICD), Antibiotic Lead for Microbiology and Antibiotic Pharmacist and antibiotic prophylaxis policies will be altered if the situation changes.

Antibiotic use should follow the Trust antibiotic prescribing guidelines. Clinicians should follow the principles of safe antibiotic prescribing in the ARHAI standards 2015 ‘Start smart, then focus’. The patient’s antimicrobial treatment should be reviewed daily, IV/oral switch as soon as possible, narrow spectrum switch in line with microbiology results, and the duration should be as short as possible. Pharmacists will undertake regular review of ward stocks and high risk antibiotics should not be stocked on wards with a high proportion of elderly patients.

**Prudent Antimicrobial Prescribing:**
CDI is predominantly associated with and triggered by the use of antimicrobials, which disrupt the normal intestinal flora which would ordinarily compete with and suppress non-indigenous species like C. difficile.

Antimicrobials must only be prescribed in patients who have confirmed evidence (clinical, microbiologic, and radiologic) of a bacterial infection.

Staff prescribing antimicrobials must adhere to the Trust’s antimicrobial guidelines
Where antimicrobial prescription cannot be avoided, the prescription should be reviewed daily.

Wards and specialties should be provided with antibiotic prescription data regularly highlighting compliance.

There is no evidence to support using Metronidazole or Vancomycin to prevent CDI (in patients receiving antibiotic therapy); this approach may actually increase risk.

To prevent CDI consider giving probiotics when starting antibiotics, if not contraindicated.

**Surgical intervention**
In a series of patients who were assessed for the effectiveness of surgical intervention, a serum lactate >5mmol/L was associated with almost 100% mortality (Surawicz et al 2013). Total or subtotal Colectomy is likely to be more effective than Hemi-Colectomy.

10. Infection Prevention Measures
It is important that when a patient presents with diarrhoea, the possibility that it may have an infectious cause is considered. It is Trust Protocol that every patient has a diarrhoea and vomiting risk assessment completed and followed if the patient has diarrhoea (Appendix D) Patients with suspected potentially infectious diarrhoea should be isolated in a single room.

Prevention of CDI is mainly through prudent use of antibiotics in patients >65 years of age and infection prevention measures, including patient isolation, hand hygiene, personal protective equipment and environmental cleanliness. Surveillance and feedback of data play a key role in infection prevention and control.

Isolation precautions
Patients with CDI should be moved to the identified Isolation Ward at BNH and Victoria Ward at RHCH as soon as a side room is available unless this would be clinically detrimental to the patient. If this is not possible the patient should be isolated in a side room with an en suite toilet and hand wash basin. If an en suite is not available then the patient will need a dedicated commode. The room should have impermeable flooring, not carpet. If isolation is not possible the Site Coordinator must be informed of the situation immediately.

- All patients need to be placed on the CDI care pathway (Appendix B) and all hospital acquired CDI will require an incident form (Datix) to be completed by the ward where the patient was positive
- Each patient should be given a C. difficile patient leaflet which can be downloaded from the Trust Intranet. In accordance with the Trust Patient Information Policy the Macmillan Health Information Manager will ensure information is made available in alternative formats and languages, as and when requested
- All staff anticipating physical contact with the patient or their equipment/environment must wear a yellow plastic apron and gloves when entering the room. Gloves must be changed and hands washed between ‘dirty’ and ‘clean’ procedures on the patient. Gloves do not obviate the need to wash hands. Following use, these items must be disposed of in a clinical waste bag before leaving the room and hands must then be washed. Hands must be washed with soap and water following contact with the patient and removal of gloves. Alcohol hand rub must not be used
- All patients must be offered the opportunity to wash their hands or use a hand wipe after using the toilet/commode and before meals. They should be informed about the importance of hand hygiene while in hospital, particularly before hand to mouth contact. Patients unable to perform hand hygiene themselves should be assisted by a healthcare worker
- Visitors should be asked to wash their hands using soap and water on
entering and leaving the patient’s room. They do not need to wear protective clothing unless assisting with the patient’s physical care, but should refrain from sitting on the bed

- Open food e.g. fruits; biscuits should be kept in a sealed container
- Crockery and cutlery can be used as long as it goes through a hot dishwasher cycle
- Used disposable bedpans must be removed from the room and placed in the macerator. Staff should ensure that aprons and gloves are used when undertaking this role and these removed, and hands washed in the dirty utility
- Bed linen should be changed daily. All used linen should be regarded as infected and placed in an alginate (water soluble) bag before being placed into a white plastic bag
- Whenever possible, a patient with suspected/confirmed CDI should have designated equipment and in particular, a designated toilet/commode
- All waste leaving the room must be classed as clinical waste and disposed of into the orange waste bag stream
- The patient may undergo essential investigations and treatment including physiotherapy/occupational therapy and medical imaging. A risk assessment must be undertaken by the staff involved. Staff should ensure that all relevant members of the multidisciplinary team are kept informed concerning the patient’s condition.

**Environmental cleaning:** (to be read in conjunction with the Environmental Cleaning Policy)

It is the responsibility of all clinical staff to ensure adequate environmental hygiene in clinical areas, especially around infected patients. The patient care environment acts as a reservoir for *C. difficile* spores and thorough cleaning of all surfaces is essential.

- Cleaning frequency must be increased to three times a day using ‘Actichlor Plus’ (general purpose detergent combined with hypochlorite solution) at a strength of 1000ppm (one 1.7G tablet diluted in one litre of warm water). The nurse in charge is responsible for ensuring that increased cleaning using ‘Actichlor Plus’ is requested from domestic services. The cleaning checklist must be changed to represent this
- Toilets/commodes need special attention and must be decontaminated after every use by a patient with diarrhoea. Ideally, the patient will have a designated toilet/commode and this should be cleaned after each use and disinfected when soiled. Before use by another patient, commodes must be decontaminated using ‘Actichlor Plus’ and indicator tape applied to confirm readiness for re-use. Protective visor/goggles should be worn in addition to an apron and gloves when handling Actichlor Plus tablets and when cleaning toilets/commodes if there is a risk of splashing
- When a room/area is about to reopen: a deep clean should be undertaken.
- Curtains and linen should be removed before cleaning and sent to be laundered
• All surfaces and equipment must be decontaminated thoroughly using ‘Actichlor Plus’ at 1000ppm strength (one 1.7G tablet diluted in one litre of warm water) or as per manufacturer’s recommendations
• All rooms will need to be Hydrogen Peroxide Vapour (HPV) cleaned before they can be reused. (Appendix E)
• Ward areas/side rooms should not reopen without the cleaning standard being checked by the senior nurse responsible for that area.

Surveillance
• Surveillance of CDI is carried out routinely by the IPCT as part of the surveillance programme
• CDIs are reported to the Department of Health through an enhanced surveillance system. (Appendix I)
• The Trust ascertains if outbreaks of infection are reportable as a serious incident requiring investigation (SIRI) using a specially designed form
• Clinical staff should review their practice supported by the IPCT and through use of the DH (2006) High Impact Intervention No. 7: Reducing the risk from and presence of C. difficile. This tool is used on a weekly basis to audit practice against these standards. The audit is completed by the IPCT and the cleaning of rooms fed back to the facilities teams on a weekly basis
• Surveillance data is fed back to all senior and general managers and clinical teams within the Trust
• Root cause analysis is performed on all hospital-acquired CDI cases, action plans created and key findings fed back to senior and general managers and clinical teams within the Trust
• The Clinical Commissioning Group (CCG) is responsible for setting up annual targets for reduction of infections and monitoring progress
• Samples will only be sent for ribotyping if part of a PII or outbreak. If the samples from the same area/ward come back as the same ribotype further testing using Variable Number Tandem Repeat (VNTR) typing will be undertaken to establish if true cross contamination has occurred.

11. Outbreak Control
The definition of periods of increased incidence and outbreak is as follows:

A period of increased incidence (PII) of CDI: two or more new cases (occurring >48 hours post admission, not relapses) in a 28-day period on a ward.

An outbreak of C. difficile diarrhoea: two or more cases caused by the same strain related in time and place over a defined period that is based on the date of onset of the first case.

The following actions are to be taken if a PII is identified on a ward:

• IPCT will inform the clinical director, Clinical Matron, ward manager and directorate manager
• Conduct a weekly C. difficile ward audit using the DH C. difficile High Impact Intervention 7 (HII 7) tool by infection control nurse or infection control doctor to continue until the weekly score is >90% in three consecutive weeks and there have been no further >48 hours cases of CDI on the ward during that period. Feedback the audit results to the ward manager and Clinical Matron
• Carry out a weekly antibiotic review in each ward, (using local tools); this is the responsibility of the antibiotic pharmacist
• A deep-clean of the whole ward is to be undertaken as soon as possible using HPV. Following this the whole ward must continue to be cleaned with an Actichlor plus solution twice a day for the whole period of the PII. Emphasise that each bed space needs to be cleaned separately with separate cloths
• IPCT will discuss with the laboratory about sending stool samples for PCR ribotyping of all isolates from patients in the ward
• If samples from the same area/ward come back as the same ribotype further testing using Variable Number Tandem Repeat (VNTR) typing will be undertaken to establish if true cross contamination has occurred
• The IPCT should carry out an automatic review of ward hand hygiene and PPE use daily for the duration of the PII
• An incident meeting should be held as determined by the size and rate of growth of the PII by assessment of the situation by the DIIC and/or the duty microbiologist with the clinical director and consultants
• The Ward Manager should evaluate staff training during this time and send a copy to the IPCT
• The ward should undertake hand hygiene audits twice a day for the duration of the PII

**Outbreaks**

An outbreak will be managed as per the Norovirus and Diarrhoea and Vomiting Management Policy.

In these cases it may be necessary to cohort the patients into the same bay/ward and initiate isolation precautions. If this occurs staff must:

• Inform the IPCT about the outbreak
• Draw up a list of all affected patients and update each shift
• Stool samples must be sent from all patients with symptoms of diarrhoea
• If single rooms are not available then the patients may be cohort nursed in a bay. The doors must be kept closed or screens used if doors are not available
• The area must be scrupulously decontaminated three times a day using ‘Actichlor Plus’ (general purpose detergent combined with hypochlorite solution at 1000ppm strength (one 1.7G tablet diluted in one litre of warm water)
• The affected bay/ward should be closed to all admissions and transfers to and from other areas within the hospital or other hospitals, unless approved by a consultant microbiologist.
• Isolation precautions apply and must be adhered to at all times.
• All staff entering the area must wear an apron and gloves for physical contact with the patient or their equipment/environment. Personal Protective Equipment (PPE) must be changed between patients and between different tasks on the same patient. PPE must be disposed of and hands washed before leaving the infected area.

• Visitors are at little risk of catching the illness themselves but should be encouraged to use the soap and water available. PPE should be worn if helping with patient needs.

• Isolation precautions must continue until all infected patients have been free from diarrhoea for 48 hours and following discussion with the IPCT

• Patient movement between units increases the risk of the outbreak spreading to other units/wards. If patients need to be transferred clear accurate documentation between areas is required.

12. Death Certification

If a patient with CDI dies, the death certificate should state whether CDI was part of the sequence of events leading directly to death or whether it was the underlying cause of death. If either case applies CDI should be mentioned in Part 1 of the certificate, having discussed this with the DIPC.

If CDI was not part of the sequence of events leading directly to death but contributed in some way to it, this should be mentioned in Part 2, having discussed this with the DIPC. Doctors have a legal duty to mention CDI on a death certificate if it was part of the sequence of events directly leading to death or contributed in some way.

Clinical directors should ensure that training is provided on death certification and should audit certificates to check that they accurately record HCAI.

13. Stakeholders Engaged During Consultation

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Date of Consultation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infection Prevention and Control (Lead Infection Prevention &amp; Control Nurse)</td>
<td>N/A</td>
</tr>
<tr>
<td>Health and Safety (Health, Safety and Risk Officer)</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Safeguarding (Trust Safeguarding Lead)</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Information Governance (Information Governance Manager)</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Assistant Risk and Compliance Manager (Risk and Compliance)</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Divisional Directors and Divisional Directors (Operational)</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Equality and Diversity Lead (Equality &amp; Diversity)</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Head of Health4Work</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Infection Prevention and Control Committee</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Consultant Microbiologists</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Clinical Service Managers/Leads/Clinical Matrons</td>
<td>14/07/2016</td>
</tr>
<tr>
<td>Operational Service Managers</td>
<td>14/07/2016</td>
</tr>
</tbody>
</table>
14. Dissemination and Implementation

The policy will be disseminated in the following ways:

<table>
<thead>
<tr>
<th>Action(s)</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publicise detail of new document via Intranet and Midweek message</td>
<td>IPCT and Communication Team</td>
</tr>
<tr>
<td>Communication to all Senior Managers to advise publication of policy</td>
<td>BNHH Healthcare Library</td>
</tr>
<tr>
<td>The policy will be available on the intranet and web site</td>
<td>BNHH Healthcare Library and Communication Team</td>
</tr>
</tbody>
</table>

15. Training

Individuals in the Trust should receive annual infection prevention and control training to ensure they are aware of their responsibilities. Education and Training will be provided in accordance with the Trust Training Needs Analysis (Learning and Development Policy).

16. Monitoring Compliance with the Document

<table>
<thead>
<tr>
<th>NHSLA Minimum requirements</th>
<th>Requirement Reviewed by</th>
<th>Method of Monitoring</th>
<th>Frequency of Review</th>
<th>Committee where Monitoring is Reported to</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Enhanced surveillance of cases of <em>C. difficile</em></td>
<td>Surveillance Officer Infection Prevention and Control Team</td>
<td>Case by case Reported to PHE</td>
<td>Monthly Quarterly</td>
<td>Trust dash board Infection Prevention and Control Committee Divisional Governance Boards Board of Directors Executive Committee</td>
</tr>
<tr>
<td>B. RCA Panel for Infection Control</td>
<td>Infection Prevention and Control Team</td>
<td>MDT approach to review any patient who has acquired a healthcare associated infection</td>
<td>Monthly</td>
<td>SERG</td>
</tr>
<tr>
<td>C. Antibiotic Prescribing Point Prevalence Study</td>
<td>Antimicrobial Management Team</td>
<td>Audit of compliance with Trust antimicrobial guidelines</td>
<td></td>
<td>Infection Prevention and Control Team Board of Directors Executive Committee</td>
</tr>
<tr>
<td>D. Infection Control Measures</td>
<td>Infection Prevention and Control</td>
<td>Saving Lives HII 7 C. difficile audit</td>
<td>Weekly</td>
<td>Trust dash board Infection Prevention and</td>
</tr>
</tbody>
</table>
17. References


Commission for Healthcare Audit and Inspection (2006). Investigation into outbreaks of Clostridium difficile at Stoke Mandeville Hospital, Buckinghamshire Hospitals NHS Trust.

Department of Health and Health Protection Agency (January 2009). Clostridium difficile infection: How to deal with the problem. London.


Legislation

**Associated Documentation**
- HHFT Antimicrobial Guide for Adults
- Environmental Cleaning policy
- Norovirus and Diarrhoea and Vomiting Management Policy
- Patient Information and Procedure policy
- Hand Hygiene Policy
- Linen Policy
- Standard Precautions Policy (Incorporating Personal Protective Equipment)
- Waste Management Policy

**18. Contributors**

<table>
<thead>
<tr>
<th>Contributor Job Title</th>
<th>Contributor Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director of Infection Prevention and Control</td>
<td>Dr Claire Thomas</td>
</tr>
</tbody>
</table>
Appendix A – Equality Impact Assessment

To be completed by the Policy Author at the development stage of the policy and before consultation. Part 1 should be forwarded to an Equality Analysis Lead (list available on the Document Control Trust Intranet page) for sign off and any comments from them considered and addressed before seeking final approval of the policy.

**Document Title:** Clostridium difficile Infection (CDI): Prevention, Treatment and Control

**PART 1 – Policy Author to complete and forward on to an EA Lead for sign off**

<table>
<thead>
<tr>
<th></th>
<th>Could the application of this document have a detrimental equality impact on individuals with any of the following protected characteristics? (See Note 1)</th>
<th>Yes/No/NA</th>
<th>Summarise the equality and diversity related elements within the policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Age</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Disability</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Gender reassignment</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Race</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Religion or belief</td>
<td>No</td>
<td></td>
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<tr>
<td>f</td>
<td>Sex</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Sexual orientation</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Marriage &amp; civil partnership</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Pregnancy and maternity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. If ‘Yes’ to question 1, do you consider the detrimental impact to be valid, justifiable and lawful? If so, please explain your reasoning.

It is recognised that isolation may have an adverse psychological impact on a person and may affect their freedom of liberty. However isolation is still considered the most effective measure in limiting the spread of infectious diseases/organisms and is therefore considered a necessary intervention.

3. Specify with which, if any, individuals and groups you have consulted in reaching your decision.
PART 2 – Equality Analysis Lead to complete and forward back to the Policy Author

Provide a brief summary of the potential impact of the policy and whether sufficient consideration has been given to the Equality Duty.

1. Is this document recommended for publication?  Y / N
   If ‘yes’ go to question 3 if ‘No’ complete number 2 below.

2. This document is not recommended for publication because:

   A Amendments are suggested as follows:

   B A more detailed equality analysis should be undertaken as follows:

   C Other (please specify)

3. Specify with which, if any, individuals and groups you have consulted in reaching your decision.

   Name: Lorraine Amos  
   Job Title: Pathology Business Manager  
   Date: 10/11/2016

PART 3 – Policy Author to complete on receipt of part 2 and before forwarding for final policy approval

1. I have reviewed the Part 2 assessment and have made the necessary amendments to the policy.
   • If you have answered ‘no’, please explain why not

   Name: Hazel Gray  
   Job Title: Lead Infection Control Nurse  
   Date: 10/11/2016

Note 1
Under the terms of the Equality Act 2010’s public sector Equality Duty, the Trust has a legal responsibility to think about the following three aims of the Equality Duty as part of our decision making and policy development.

- **Eliminate unlawful discrimination**, harassment and victimisation;
- **Advance equality of opportunity** between people who share a protected characteristic and people who do not share it; and
- **Foster good relations** between people who share a protected characteristic and people who do not share it.
## Appendix B – Clostridium difficile Integrated Care Pathway

Printable version of this document is available on the intranet: Forms – Infection Control

<table>
<thead>
<tr>
<th>Patient Name: __________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOB: ________________________________</td>
</tr>
<tr>
<td>MRN: ________________________________</td>
</tr>
<tr>
<td>NHS Number: __________________________</td>
</tr>
</tbody>
</table>

**Ward:** __________________________

### C. difficile Care Plan

<table>
<thead>
<tr>
<th>IPC Team to complete:</th>
<th>Result: PCR</th>
<th>EIA Toxin</th>
<th>Source:</th>
<th>Day 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Date and time patient identified as having <em>C. difficile</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Is this <em>C. difficile</em> infection new or a relapse?</td>
<td>New</td>
<td>Relapse</td>
<td></td>
</tr>
</tbody>
</table>

### Nursing Team to complete within 4 hours of *C. difficile* diagnosis

| 1 | Date and time patient started symptoms of diarrhoea. |
| 2 | Date and time isolation care started. |
| 3 | Type of isolation (e.g. side room with en suite or commode) |

#### Initial Nursing Interventions

| 4 | Commence 4 hourly observations of pulse, BP, temperature and respiration rate. |
| 5 | Commence fluid balance chart due to risk of dehydration. |
| 6 | Commence on Bristol stool chart to monitor and document bowel action. (if not already started) |
| 7 | Verbally inform patient/relatives of the isolation measures and the rationale (e.g. hand hygiene) before and after visiting. |

**Visitors do not need to wear aprons and gloves unless helping with personal care.**

| 8 | Give the patient/relatives copies of *C. difficile* Information Leaflet. |
| 9 | Provide dedicated commode for patient use (if no en-suite available in the single room). |
| 10 | Display correct Isolation sign on the door of the single room. |
| 11 | Review *nutritional* score and refer to ward dietitian if required. |
| 12 | Review *pressure ulcer risk* and instigate action plan if required. |
| 13 | Inform Domestic Team of isolation and the need to clean the room 3 times a day with an Actichlor Plus solution (1:1000ppm). |

**Signature**

### Medical Team to complete within 24 hours of *C. difficile* diagnosis

Consult with microbiologist or gastro-enterologist re: all cases of *C. difficile* infection including relapses.

#### Severity of symptoms

- [ ] Mild/Moderate
- [ ] Severe
- [ ] Fulminant

#### Was the patient on antibiotics when the specimen was taken?

- [ ] Yes
- [ ] No

Send URGENT referral to Gastroenterologist and/or Surgeon if *C. difficile* complications or other pathologies (e.g. bowel inflammation) are suspected.

#### What treatment has been started?

- [ ] Antibiotic therapy
- [ ] None
- [ ] Other/s Specify: __________________________

**PRINT NAME:** __________________________ **Signature:** __________________________ **Bleep No.:** __________________________
Management Guidelines
- If there is clinical suspicion of infectious diarrhoea, isolate the patient and send a stool sample for *C. difficile* toxin testing. If the *C. difficile* toxin result is not known yet and *C. difficile* infection is suspected, discuss with Consultant Microbiologist re: commencing therapy as soon as possible.
- Control risk factors. Review antibiotic therapy and need for PPI.
- Keep patient well hydrated. Avoid anti-motility and pro-motility agents (e.g. loperamide, codeine, metoclopramide).
- **Vancomycin** injection may be given orally. It is not usually absorbed via the GIT therefore measurable levels may indicate that dose adjustment is required to prevent toxicity (maintain levels below 10mg/L).

<table>
<thead>
<tr>
<th>Severity</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mild/Moderate</strong></td>
<td><strong>Vancomycin</strong> PO 250-500mg 6hourly for 14days</td>
</tr>
<tr>
<td>- ≤ 3 loose stools/day</td>
<td>CONSIDER ADDING <strong>Metronidazole</strong> IV 500mg 8hourly</td>
</tr>
<tr>
<td>- WCC normal</td>
<td>Intracolonic <strong>Vancomycin</strong> (enema) may be an effective adjunctive therapy:</td>
</tr>
<tr>
<td></td>
<td>500mg in 250ml Sodium Chloride 0.9% via flexi-seal device 4-12hourly. Clamp device for 60min and then release. (Check random levels daily). Contact microbiologist or gastro-enterologist and lower GI surgeons to discuss additional therapy and/or IV immunoglobulin – see protocol.</td>
</tr>
<tr>
<td><strong>Severe/ fulminant infection</strong></td>
<td><strong>Vancomycin</strong> PO 125-500mg 6hourly for 14days</td>
</tr>
<tr>
<td>- WCC &gt; 15</td>
<td>Consider <strong>Rifaximin</strong> to prevent relapse. Please discuss with gastroenterologist to assess suitability before adding <strong>Rifaximin</strong> to treatment regime.</td>
</tr>
<tr>
<td>- Rise in creatinine</td>
<td></td>
</tr>
<tr>
<td>- Severe colitis</td>
<td></td>
</tr>
<tr>
<td>- Partial ileus</td>
<td></td>
</tr>
<tr>
<td><strong>Relapse</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Vancomycin</strong> PO</td>
<td></td>
</tr>
<tr>
<td>- is a higher risk of mortality in <em>C. difficile</em> relapses.</td>
<td></td>
</tr>
<tr>
<td><strong>Moderate</strong></td>
<td></td>
</tr>
<tr>
<td>- 4-6 loose stools/day</td>
<td></td>
</tr>
<tr>
<td>- WCC &lt; 15</td>
<td></td>
</tr>
<tr>
<td><strong>Second Line</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Severe/ fulminant infection</strong></td>
<td>If concurrent antibiotics are required to treat a different infection, use:</td>
</tr>
<tr>
<td></td>
<td><strong>Fidaxomicin</strong> PO 200mg 12hourly for 10days</td>
</tr>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td><strong>Vancomycin</strong> PO 250-500mg 6hourly for 2 weeks (check random levels)</td>
</tr>
<tr>
<td></td>
<td>FOLLOWED BY <strong>Rifaximin</strong> PO 200-400mg 12hourly for 2weeks</td>
</tr>
</tbody>
</table>

**Re-testing:** Do not retest for *C. difficile* within 28 days of last positive result without prior consultation with IPCT. Maintain isolation in a single room until discharge from HHFT or assessment by IPCT.

**In the event of patient’s transfer to another facility or department for investigations, discharge, or death**
- Communicate patient’s infection status
  - In case of death, a body bag is required for all patients. Attach a danger of infection sticker/label to the patient and inform the mortuary of patient’s infection status.
  - In case of transfer to another facility, provide a verbal and written hand over including the date when the patient was found to have *C. difficile* and any treatment given or ongoing.
  - In case of transfer to another department for investigation (e.g. Ct scan or X ray), plan ahead: inform the department of patient’s infection status, liaise with Infection Control for any additional precautions, and coordinate the move to avoid delays and patients waiting in communal areas.
- Clean and decontaminate all nursing equipment with Actichlor Plus and contact Domestics Team for HPV decontamination of the side room prior to re-use.

*These guidelines are not comprehensive. Consult a Microbiologist if advice is required. For dosing in renal / hepatic failure, seek advice from a pharmacist.*

Source: HHFT Antimicrobial Guide

For more information, see CDI Prevention, Treatment and Control Policy available on the Trust Intranet site.
C. difficile Care Plan

<table>
<thead>
<tr>
<th>Date:</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean the room (including bathroom) three times daily with Actichlor Plus (1:1000ppm).</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Inform Domestic supervisor if daily bed space cleaning checklist has not been completed.</td>
<td></td>
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</tr>
<tr>
<td>Clean commode with Actichlor Plus (1:1000ppm) after every use.</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Monitor and document bowel action on Bristol Stool Chart.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record 4 hourly clinical observations. Increase frequency if patient clinically unwell.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Maintain and document fluid balance. Refer to doctors/medical team if concerned with hydration.</td>
<td></td>
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</tr>
<tr>
<td>Day 7. Review nutrition score weekly and refer to ward dietitian if required.</td>
<td></td>
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</tr>
<tr>
<td>Day 7. Review pressure ulcer risk weekly and instigate action plan if required.</td>
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</tr>
</tbody>
</table>

Signature

Patient progress must be discussed with their consultant physician. If stool frequency has not decreased and blood results continue to be outside normal limits, advice should be sought from the Consultant Microbiologist.

C. difficile Care Plan

<table>
<thead>
<tr>
<th>Date:</th>
<th>Day 8</th>
<th>Day 9</th>
<th>Day 10</th>
<th>Day 11</th>
<th>Day 12</th>
<th>Day 13*</th>
<th>Day 14*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean the room (including bathroom) three times daily with Actichlor Plus (1:1000ppm).</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
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<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor and document bowel action on Bristol Stool Chart.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintain and document fluid balance. Refer to doctors/medical team if concerned with hydration.</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day 14. Review nutrition score weekly and refer to ward dietitian if required.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Day 14. Review pressure ulcer risk weekly and instigate action plan if required.</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Signature

*Days 13-21.
Consult the Microbiologist if stool frequency has not decreased and blood results continue to be outside normal limits. If concerned that patient is deteriorating: CALL THE DOCTOR.
**C. difficile Care Plan**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean the room (including bathroom) three times daily with Actichlor Plus (1:1000ppm). Inform Domestic supervisor if daily bed space cleaning checklist has not been completed.</td>
<td></td>
</tr>
<tr>
<td>Clean commode with Actichlor Plus (1:1000ppm) after every use.</td>
<td></td>
</tr>
<tr>
<td>Monitor and document bowel action on Bristol Stool Chart.</td>
<td></td>
</tr>
<tr>
<td>Record 4 hourly clinical observations. Increase frequency if patient clinically unwell.</td>
<td></td>
</tr>
<tr>
<td>Maintain and document fluid balance. Refer to doctors/medical team if concerned with hydration.</td>
<td></td>
</tr>
</tbody>
</table>

**Day 21. Review nutrition score** weekly and refer to ward dietitian if required.

**Day 21. Review pressure ulcer risk** weekly and instigate action plan if required.

*Days 13-21. Consult the Microbiologist if stool frequency has not decreased and blood results continue to be outside normal limits.

**Signature**

If concerned that patient is deteriorating: CALL THE DOCTOR.
**Date** **C. difficile** identified: __________  **Results:** PCR □ +ve  EIA Toxin □ +ve □ -ve  **Source:** □ HAI □ CAI

### C. difficile Care Plan- Continuation

<table>
<thead>
<tr>
<th>Activities</th>
<th>Date</th>
</tr>
</thead>
</table>
| Clean the room (including bathroom) three times daily with Actichlor Plus (1:1000ppm).  
*Inform Domestic supervisor if daily bed space cleaning checklist has not been completed.* | Date: |
| Clean commode with Actichlor Plus (1:1000ppm) after every use. | |
| Monitor and document bowel action on Bristol Stool Chart. | |
| Record 4 hourly clinical observations. Increase frequency if patient clinically unwell. | |
| Maintain and document fluid balance.  
*Refer to doctors/medical team if concerned with hydration.* | |
| Review nutrition score weekly and refer to ward dietitian if required. | |
| Review pressure ulcer risk weekly and instigate action plan if required. | |

**Signature**

---

Consult the Microbiologist if stool frequency has not decreased and blood results continue to be outside normal limits.

**If concerned that patient is deteriorating:** CALL THE DOCTOR.

**Re-testing:** Do not retest for **C. difficile** within 28 days of last positive result without prior consultation with IPCT.  
Maintain isolation in a single room until discharge from HHFT or assessment by IPCT.

For more information, see CDI Prevention, Treatment and Control Policy available on the Trust intranet site.
### De-isolation of *C. difficile* patients by IPCT staff only

**Section A ONLY IPC Team to complete:**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Date and time patient identified as having <em>C. difficile</em></td>
<td>Date: Time:</td>
</tr>
<tr>
<td>2</td>
<td>Is this a relapse <em>C. difficile</em> case?</td>
<td>Yes (patient remains isolated for duration of stay, end of assessment)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No (go to question 3)</td>
</tr>
<tr>
<td>3</td>
<td>Has the patient been treated for <em>C. difficile</em>?</td>
<td>Yes (go to question 4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No (Go to Section B)</td>
</tr>
<tr>
<td>4</td>
<td>Have they completed the full course of treatment?</td>
<td>Yes (Go to Section B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No (Do not de-isolate re-assess after treatment has been completed, end of assessment)</td>
</tr>
</tbody>
</table>

**Section B Other criteria necessary for de-isolation**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Has the patient been passing formed stool (type 3-4 Bristol Stool chart) for at least 5 consecutive days?</td>
<td>Yes (Go to Section B question 2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No (Do not de-isolate end of assessment)</td>
</tr>
<tr>
<td>2</td>
<td>Is the patient continent of faeces?</td>
<td>Yes (Go to Section B question 3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No (Do not de-isolate end of assessment)</td>
</tr>
<tr>
<td>3</td>
<td>Does the patient have capacity to understand the importance of hand hygiene?</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No (Do not de-isolate end of assessment)</td>
</tr>
</tbody>
</table>

**Signature**

If ‘Yes’ to all 3 in section B then the patient can be de-isolated but if commences with diarrhoea again will need to be isolated and remain isolated for the rest of their stay.

**PRINT NAME:**

**Signature:**

**Bleep No.**
### The Bristol Stool Form Scale

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

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Appendix D – Diarrhoea and/or Vomiting Risk Assessment Form

Printable version of this document is available on the intranet: Forms – Infection Control

Patient with diarrhoea Bristol Stool Chart type 6-7 stools

Yes ☐

Is the patient on laxatives?

No ☐

Is it for a long standing medical condition that cannot be stopped?

No ☐

Yes ☐

Is the diarrhoea due to constipation or is it confirmed overflow?

No ☐

Yes ☐

Action:
Treat for constipation no need to isolate

C. difficile positive—commence C. difficile care pathway

C. difficile negative—consider other causes of diarrhoea and discuss isolation requirements with infection control nurses

Action: Send stool sample
Isolate within 2 hours
If unable to isolate inform site team date and time
If unable to obtain specimen reason why?

Action: Stop the laxatives and review in 24 hrs
DO NOT SEND SPECIMENS WHILE THE PATIENT IS ON LAXATIVES

Action: Update EPR for patient review tomorrow

Patient has vomiting, concerned about Norovirus?

No ☐

Yes ☐

Action: Send vomit sample
Isolate in a side room
Isolate bay that patient came out of until results available

Assessment done by .......................................................... Designation .................................

Date: ----------------- Time ------------------
MANAGING SUSPECTED POTENTIALLY INFECTIOUS DIARRHOEA

| S | SUSPECT that a case may be infective where there is no clear alternative cause for diarrhoea |
| S | ISOLATE the patient and consult with the Infection Prevention and Control Team (IPCT) while determining the cause of the diarrhoea |
| G | GLOVES AND APRONS must be used for all contacts with the patient and their environment |
| H | HAND WASHING with soap and water should be carried out before and after each contact with the patient and the patient’s environment |
| T | TEST the stool by sending a specimen immediately |

Actions to take in case of a laboratory confirmed diagnosis

**C. difficile**
- If a patient is in a bay when positive result is known - once the patient is isolated, the whole bay will need to close and be deep cleaned and HPV decontaminated before re-opening
- *C. difficile* Integrated Care Pathway must be commenced immediately
- Medical team must: Undertake medical review within 4 hours, record severity assessment within 4 hours; commencement antibiotic treatment within 4 hours; complete *C. difficile* care pathway within 24 hours
- Patients with *C. difficile* must remain in isolation and barrier nursed until discharge or assessed by the IPCT
- Re-testing should be discussed with Infection Prevention and Control Team/Microbiologists
- Side room must be deep cleaned and HPV decontaminated prior to re-use

**Salmonella/ Campylobacter/ Shigella/ E.coli 0157**
- Laboratory confirmed must remain in isolation and barrier nursed until 48 hours after the last symptom
- These are notifiable diseases and the Medical team needs to inform Public Health England
- Side room must be deep cleaned and HPV decontaminated prior to re-use

**Norovirus/ Rotavirus/ Adenovirus**
- Laboratory confirmed must remain in isolation and barrier nursed on base ward until 48 hours after the last symptom
- Confirmed cases must not be moved to other wards to reduce spread of outbreak to other areas
- Contacts must be isolated/cohort barrier nursed and observed for signs and symptoms for 48 hours after last exposure to positive patient
- Side room/bay must be deep cleaned and HPV decontaminated prior to re-use
Appendix E – Which clean do you require on discharge?

Which clean do you require on discharge?

**RED CLEAN**
TYPE: Actichlor Plus with relevant PPE and Deprok™ HPV decontamination

Required following discharge of patients infected with:
- C. diff.
- CVI
- HIV
- Neisseria meningitides
- Norovirus
- Other: Laboratory proven case from bay or side room
- Pseudomonas
- Salmonella
- Shigella
- Shingles
- Streptococcus pneumoniae
- Other: (Suspected)

**WARD STAFF RESPONSIBILITIES**
- Remove all bed linen
- Remove and discard disposables such as oxygen tubing, suction equipment, nebuliser pots, face masks, etc.
- Wipe down mattresses and if pressure mattresses
- Remove equipment with a completed decontamination certificate
- Clean all patient equipment such as dynamics, commodes and bed rails in the room

**DOMESTIC STAFF RESPONSIBILITIES**
- Remove waste and empty bins
- Remove all soaps, paper towels, tissue and any other disposable items
- Clean bed frame
- Clean bedside locker internally and externally
- Clean patient chair: sitting, seat, back, sides, legs, under seat
- Clean lamp and all wall fittings
- Clean all bedside drawers and bedside locker
- Open doors of drawers open
- Deep clean the area
- Remove Dexam™ system, return the room to order and hang clean curtains
- Obtain sterile change nurse sign off sheet

**CLEANING TIME SCALES (ON WARD):**
- Side rooms: 1 hour 45 minutes
- Bedded bay: 4 hours 30 minutes
- Newly: Deprok™ HPV available 8am – 6pm

**AMBER CLEAN**
TYPE: Actichlor Plus with relevant PPE including wall swabbing (as necessary)

Required following discharge of patients infected with:
- MRSA
- CMV
- Enterovirus
- Epstein B
- Hepatitis A
- Hepatitis B
- Hepatitis C
- HIVE
- Mumps
- Measles
- Respiratory syncytial virus
- Rotavirus
- Encephalitis
- Gastroenteritis
- Typhoid
- E coli 0157

**WARD STAFF RESPONSIBILITIES**
- Remove all bed linen
- Remove and discard disposables such as oxygen tubing, suction equipment, nebuliser pots, face masks, etc.
- Wipe down mattresses and if pressure mattresses
- Remove equipment with a completed decontamination certificate
- Clean all patient equipment such as dynamics, commodes and bed rails in the room

**DOMESTIC STAFF RESPONSIBILITIES**
- Remove waste and empty bins
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- Open doors of drawers open
- Deep clean the area
- Remove Dexam™ system, return the room to order and hang clean curtains
- Obtain sterile change nurse sign off sheet

**GREEN CLEAN**
TYPE: Actichlor Plus with relevant PPE

Required following discharge of patients with no known infections

**WARD STAFF RESPONSIBILITIES**
- Remove all bed linen
- Remove and discard disposables such as oxygen tubing, suction equipment, nebuliser pots, face masks, etc.
- Wipe down mattresses and if pressure mattresses
- Remove equipment with a completed decontamination certificate
- Clean all patient equipment such as dynamics, commodes and bed rails in the room

**DOMESTIC STAFF RESPONSIBILITIES**
- Remove waste and empty bins
- Remove all soaps, paper towels, tissue and any other disposable items
- Clean bed frame
- Clean bedside locker internally and externally
- Clean patient chair: sitting, seat, back, sides, legs, under seat
- Clean lamp and all wall fittings
- Clean all bedside drawers and bedside locker
- Open doors of drawers open
- Deep clean the area
- Remove Dexam™ system, return the room to order and hang clean curtains
- Obtain sterile change nurse sign off sheet

**FOR CHILD HEALTH - see additional conditions below**

- Pseudomonas
- Infected eczema
- Hand, foot and mouth disease

**IMPORTANT:** Any de-escalation of a clean must be authorised by the Infection Control team or on-call microbiologist

For Child Health units, the following will require an AMBER clean: Pseudomonas; Infected eczema; Hand, foot and mouth disease

**NB:** *C. difficile*, Norovirus and other infections as notified by the Infection Prevention and Control Team.

If the source of infection is identified while the patient is still in the bay, the patient must be isolated, and the bay closed until it has been deep cleaned and HPV decontaminated. If the source of infection is identified after they have been moved from a bay into a single room, deep clean and HPV of the bay will not usually be required providing a full bed space deep clean has occurred. However, if the infection is confirmed as Norovirus/Rotavirus/Adenovirus- Paediatric units—deep clean and HPV the contact bay; monitor patients for symptoms of diarrhoea/vomiting for 48 hours · Adult units—close the bay for 48 hours; monitor the patients for diarrhoea/vomiting. Deep clean and HPV the bay if no further symptomatic patients after 48 hours.
Appendix F – Medicines that can produce diarrhoea

- Diarrhoea is a common adverse drug reaction with many medicines
- Antimicrobials account for about 25% of drug-induced diarrhoea
- Many preparations contain sorbitol, caffeine and magnesium salts which can cause diarrhoea

If a patient has diarrhoea, especially due to *C. difficile*, check if your patient is on any of the following medicines. If so, consider very carefully whether any can be stopped temporarily paying particular attention to the temporal relationship between the times that the medicine is first taken and when the diarrhoea first appears.

- Aminosalicylates particularly Olsalazine
- Antidiabetic agents particularly Acarbose and Metformin
- **Antimicrobials** - antibiotics, antifungals, antivirals, antimalarials,
- Bile salts – e.g. cholestyramine
- Calcium preparations
- Cardiac glycosides
- Colchicine
- Cytotoxics
- Dipyridamole
- Gold preparations
- H2-receptor antagonists
- Immunosuppressants particularly Leflunomide and Azathioprine
- Iron preparations
- Laxatives
- Magnesium salts – e.g. antacids
- Metoclopramide
- Misoprostol
- NSAIDs – e.g. aspirin, ibuprofen
- Orlistat
- Proton Pump inhibitors – e.g. lansoprazole, omeprazole
- SSRIs
- Tranexamic acid
- Vitamin E (high doses)
- Zinc
- Some medicines used in parkinsonism
- Some medicines used in dementia

This list is not exhaustive. If you suspect a drug could be causing diarrhoea or you require further information about a specific drug then please contact Pharmacy Drug Info e-mail medicines-information@hhft.nhs.uk
Appendix G Algorithm for Management of a Patient with Unexplained Diarrhoea

Algorithm for Management of a Patient with Unexplained Diarrhoea

Suspected *Clostridium difficile* infection (CDI)

If a patient has diarrhoea (Bristol Stool Chart types 5-7) that is not clearly attributable to an underlying condition (e.g. inflammatory colitis, overflow) or therapy (e.g. laxatives, enteral feeding) then it is necessary to determine if this is due to CDI. If in doubt please seek advice.

This pathway relates to the diagnosis of CDI. Patients should be considered for treatment of CDI before test results are available, particularly if symptoms/signs indicate severe infection. Patients with suspected infectious diarrhoea should be isolated to prevent the transmission of *C. difficile*, norovirus or other transmissible pathogens.

Ideally isolate patient in a single room - if unable to do this within 2 hours escalate the problem.

Collect stool specimen & send to Microbiology

In order for the specimen to be processed for *C. difficile* the sample must take on the shape of the container and ideally be at least ¼ filled (to indicate the patient has diarrhoea).

Diarrhoeal samples should be tested for *C. difficile* from:

- hospital patients aged ≥2 years, and,
- community patients, aged ≥65 years, and
- community patients aged <65 years wherever clinically indicated.

GDH EIA (or NAAT) positive, toxin EIA or cytotoxin positive:

- CDI is likely to be present,
- for mandatory reporting to HPA;*
- OR
GDH EIA (or NAAT) positive, toxin EIA negative:

- *C. difficile* could be present i.e. potential *C. difficile* excretor,
- not for mandatory reporting (but may have transmission potential and be suitable for local reporting);
- OR
GDH EIA (or NAAT) negative, toxin EIA negative:

- *C. difficile* or CDI is very unlikely to be present,
- not for mandatory reporting but may have transmission potential (other pathogens)

* Please note other indications for mandatory reporting of CDI at:

NB: A cytotoxin assay may be considered as an alternative to the sensitive toxin EIA, but it yields slower results and this will need to be taken into account when making management decisions on infection control.

Refer to the following local policies:

- Remember the SIGHT list (see bottom of page)
- *Clostridium difficile* Infection Policy
- *Clostridium difficile* Treatment Guideline
- Source Isolation Policy
- Source Isolation Cleaning Policy
- Inform patient, relative/carer of test result

Consider other causes of diarrhoea.
Consider continuation of single room isolation and other measures to reduce risk of CDI.
### Appendix H - C. difficile Algorithm for use by Medical Staff

**Patient presents with first episode of diarrhoea:**

**Ward staff:**
- Complete D&V Risk Assessment (Appendix D: Diarrhoea and Vomiting Risk Assessment Form)
- Send sample for testing as soon as possible
- Isolate patient

**Medical Staff:**
- Positive result for *C. difficile* communicated to medical staff by ward (or out of hours by on-call microbiologist)

**Within 4 hours of notification:**
- Review patient’s clinical condition
- Assess severity (Appendix D: Diarrhoea and Vomiting Checklist)
- Initiate appropriate treatment according to Trust guidelines (JAC and Appendix B: *C. difficile* Care Pathway). Consider whether a STAT dose is needed if infection is severe.
- Inform admitting consultant and liaise with Infection Prevention and Control/Microbiology
- Document in patient case notes

**Follow up:**
- *C. difficile* Care Pathway (Appendix B: *C. difficile* Care Pathway Medical Team page 1) to be completed by medical staff within 24 hours of notification. This can usually be found in patient’s end of bed notes.
- Daily follow up and assessment of severity

**Root cause analysis (RCA)**
A multi-disciplinary RCA Panel will be held monthly for all two test positive reportable cases of hospital acquired *C. difficile*, the cut-off date for the panel is the 15th of each month.
RCAs for one test positive non-reportable cases of hospital acquired *C. difficile* will be arranged if issues are identified by the Infection Prevention and Control team.

*It is imperative that a member of the medical and nursing teams attends the RCA.*
Appendix I - Previous C. difficile readmissions risk assessment

Has the patient been diagnosed with C. difficile within the last 3 months?

If YES, isolate in a side room and review by IPCT

If NO, has the patient had diarrhoea in the last 48 hours prior to admission?

If YES, isolate in a side room
See Appendix D for D&V Risk Assessment Form

If NO, isolation not required at this time

N.B: All patients who have been previous C. difficile positive will have a high threshold for re-commencement of this infection. If a patient, once admitted to a ward, commences with diarrhoea then a side room will be required as a matter of priority.