1. Introduction

Healthcare Associated Infections (HCAI) are a major concern both in the acute and community setting. The cost of HCAI is huge and includes both the direct effects on the patient and their carers in terms of increased morbidity / mortality and the financial costs to the NHS.

This policy is underpinned by DH guidance ‘Clostridium difficile infection: How to deal with the problem’ (2008) and ‘Updated guidance on the diagnosis and reporting of Clostridium difficile’ (2012). This takes into account a national framework for clinical governance supported by other good practice advice, such as Saving Lives (DH, 2007) and recommendations aligned with the Health and Social Care Act (2008) and Code of Practice on the Prevention and Control of Infections and related guidance (DH 2010), in order to fulfil the Codes’ requirements for addressing Clostridium difficile infection (CDI).

A significant proportion of HCAI can be prevented by the adoption of evidence-based Infection Prevention and Control (IPC) standards. Using preventative measures that are based on reliable evidence of efficacy is a core component of an effective strategy designed to protect patients from the risk of infection.

2. Policy Scope

This policy applies to all healthcare professionals delivering care in both acute and community services within Newcastle-upon-Tyne Hospitals NHS Foundation Trust. This includes medical staff, nurses, allied health professionals, locum / agency staff and students.

3. Policy Aim

The aim of this policy is to prevent avoidable CDI by supporting clinical staff in initiating early diagnosis, prompt isolation, and compliance with hand hygiene, personal protective equipment (PPE) and antibiotic stewardship. It also supports risk assessment for staff working in community settings.
4. **Duties (Roles and Responsibilities)**

4.1 The Chief Executive has overall responsibility for the implementation, monitoring and review of this policy; this responsibility is delegated to the Nursing and Patient Services Director as part of the Executive Team.

4.2 The Infection Prevention and Control Committee (IPCC), chaired by the Director of Infection Prevention and Control (DIPC), will review this policy and any new evidence base within the time frame set out in the policy, ensuring an effective and integrated approach to preventing and reducing CDI.

4.3 Consultants, and their juniors, are responsible for reviewing antibiotic prescribing on all wards rounds, stopping unnecessary prescriptions and changing those that do not comply with national guidelines and local policy. Doctors should consider CDI as a diagnosis in its’ own right, grading each case for severity, treating accordingly, reviewing each patient daily and monitoring bowel function.

4.4 Patient Services Coordinators (PSC) in collaboration with clinical staff and IPC Nurses are responsible for ensuring patients are placed in accordance with this policy. In any situations where safe placement cannot be achieved this will be escalated as appropriate to site IPC Doctor, DIPC and Senior Nursing Team where appropriate.

4.5 On–Call Managers are responsible, in the out-of-hours period, for providing senior and executive leadership to ensure implementation of this policy and for ensuring infection risks are fully considered and documented when complex decisions need to be made regarding capacity and patient flow.

4.6 It is the responsibility of line managers and heads of department to ensure that policies, procedures and access to education and training are made available to all staff to minimise the risk of infection and ensure clinical practice is in line with policy.

4.7 It is the responsibility of all staff to ensure that they understand and implement this policy and attend training sessions as specified in their role.

5. **Definitions**

5.1 **C. difficile infection (CDI):** one episode of diarrhoea (Bristol Stool Chart Type 5-7 (Appendix 1) or stool loose enough to take the shape of a container used to sample it) that is not attributable to any other cause, including medicines, and that occurs at the same time as a positive toxin assay and / or endoscopic evidence of pseudomembranous colitis (PMC).

5.2 **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.
5.3 **An outbreak of CDI:** 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 severity of CDI should be assessed using the following definitions:**

5.4 **Mild CDI** is not associated with a raised WCC; it is typically associated with <3 stools of type 5-7 on the Bristol Stool Chart per day.

5.5 **Moderate CDI** is associated with a raised WCC that is <15 x 10^9/L; it is typically associated with 3-5 stools per day.

5.6 **Severe CDI** is associated with a WCC >15 x 10^9/L, or an acute rising serum creatinine (i.e. >50% increase above baseline), or a temperature of >38.5°C, or evidence of severe colitis (abdominal or radiological signs). The number of stools may be a less reliable indicator of severity.

5.7 **Life-threatening CDI** includes hypotension, partial or complete ileus or toxic megacolon, or CT evidence of severe disease.

6. **Clostridium difficile** (C. difficile) - general information

6.1 **General Information**

6.1.1 *C. difficile*, a gram positive spore-forming anaerobic bacilli, is part of normal flora of human bowels (3% in healthy adults, 16-35% in hospitalised patients). It is the leading identified cause of nosocomial (hospital acquired) diarrhoea associated with antibiotic therapy, symptoms which range from mild / severe diarrhoea, pseudomembranous colitis to toxic megacolon and fatal colonic perforation.

6.1.2 The pathogenesis of CDI is multifactorial, involving altered bowel flora due to antibiotic use, production of toxins (Toxins A and B) by overgrown *C. difficile* in susceptible host.

6.1.3 Examples of ‘at risk’ patients

<table>
<thead>
<tr>
<th>Older patients</th>
<th>Stay on Intensive Care Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity of underlying disease</td>
<td>Duration of hospital stay</td>
</tr>
<tr>
<td>Non surgical gastrointestinal procedures</td>
<td>Duration of antibiotic course</td>
</tr>
<tr>
<td>Presence of naso-gastric tube</td>
<td>Administration of multiple antibiotics or multiple courses</td>
</tr>
<tr>
<td>Anti-ulcer medications, e.g. protein pump inhibitors (PPIs)</td>
<td></td>
</tr>
</tbody>
</table>

6.1.4 National incidence of CDI has increased in the past decade. The proportion of hospital patients with severe, refractory or recurrent disease as well as cases in the community setting has gone up in recent years.
6.1.5 Probiotics are not recommended for the prevention of CDI.

6.2 C. difficile Surveillance

6.2.1 All NHS Trusts in England are required to participate in the Department of Health’s mandatory CDI reporting system and to report all cases of C. difficile toxin (CDT) positive diarrhoea in patients over 2 years of age.

6.2.2 All samples (hospital and wider community) should be tested on all patients aged 65 years and above and on those aged less than 65 years if this is clinically indicated.

6.2.3 From continuous local surveillance of CDI cases, monthly reports are included in the IPCC and Trust Board meetings. In addition, a report of all cases (in all age groups) is circulated to directorates, wards and units with analysis of trends and exceptional events.

6.2.4 Local surveillance should also include the number of patients with severe infection, the number requiring surgery and the number dying where CDI caused or contributed to the death. A regular review of deaths within 30 days of diagnosis of CDI should be conducted to ensure that a common standard of assessment of causation or contribution to death is being applied. All deaths attributed to CDI will be reviewed at the Trust’s Serious Infection Meeting following Root Cause Analysis (RCA), (see Sections 6.7 and 6.12).

6.3 Stool Specimen Collection and Laboratory Diagnosis

6.3.1 C. difficile toxin testing service is available 7 days / week in the Microbiology Department, Freeman Hospital. It is essential to include appropriate patient ID, clinical details and medication information (antibiotics, PPIs, laxatives or aperients) on the request.

6.3.2 Stool specimens should be sent for toxin testing on the 2nd episode of Type 5 – 7 diarrhoea of unknown cause. Ensure sufficient quantity is sent for testing, i.e. fills up to 1/5th of the container. Based on local surveillance, stool specimens are not requested routinely on the first episode of diarrhoea (see 6.3.4).

6.3.3 Only Registered Nurses or Doctors can approve stool sample requests. Clinical details must be provided and include current / recent antibiotics, PPIs and patient diagnosis. If the patient is, for example symptomatic of malena, on the Liverpool Care Pathway, and further advice on specimen collection is required, please liaise with the Microbiologist.

6.3.4 Do not send stool samples:
on the first episode of diarrhoea (unless the patient is admitted due to diarrhoea of unknown cause, if this is the case, send specimen immediately)

- if the patient is on or has had laxatives, aperients or bowel prep in the previous 24 hours, unless the patient is systemically unwell or there is a significant clinical indication to do so. There may be exceptions to this e.g. liver disease and those in critical care areas. In these instances liaise with Microbiologist or the patients clinician

Refer to ‘When to Send a Stool Specimen Poster’ (Appendix 2)

6.3.5 In suspected cases of 'silent' CDI, such as ileus, toxic megacolon or pseudomembranous colitis without diarrhoea, other diagnostic procedures, such as colonoscopy, white cell count (WCC), serum creatinine and abdominal CT scanning, may be required.

6.3.6 Community staff caring for patients in the community setting should carry out an assessment prior to submitting a stool specimen and if C. difficile is suspected liaise further with the patients GP.

6.3.7 Do not retest for C. difficile toxin (CDT) in positive cases if patients are still symptomatic within a period of 28 days unless symptoms resolve and then recur and there is a need to confirm recurrent CDI. Discuss with appropriate medical staff and / or Microbiologist before sending further specimens.

6.3.8 More than one test per patient may be required if the first test is negative and there is a strong clinical suspicion of CDI. If the patient remains symptomatic, seek advice from a Microbiologist; further tests might be necessary in light of clinical evidence.

6.3.9 Generally it is not advisable to test children under the age of 2 years in whom toxigenic strains of C. difficile and toxins A and B may be present in the absence of symptoms.

6.3.10 Results (see Appendices 3, 4 and 5)

There are 3 possible results for a C. difficile test:

i) The GDH test is positive (C. difficile is present) and Vidas positive (C. difficile is a toxin producer); this means the patient has C. difficile and should be treated.

ii) The GDH test is negative, therefore there is no evidence on this test that C. difficile is present. Some patients may need to be retested or considered for further investigation; this should be discussed with microbiology, infectious diseases or gastroenterology, particularly if the patient has markers of severe C. difficile.

iii) GDH test is positive, Vidas negative and PCR positive; these patients are identified as carriers of C. difficile. This means that patients
are carrying *C. difficile* in their bowel but it is currently not producing toxin and causing CDI. This result must be interpreted in the clinical context and also discussed with the IPC Team and if there are continuing symptoms, with microbiology, infectious diseases or gastroenterology.

6.4 **Management of C. difficile**

**Acute Services (Refer to C. difficile Management Pathway, Appendix 6)**

6.4.1 A patient with diarrhoea should be isolated after one episode of Type 5-7 diarrhoea if infective diarrhoea suspected, in line with the Trust’s Standard Precautions, Isolation, Waste Management and Procedures and the Used Laundry Management policies.

6.4.2 In-patient areas must commence a Diarrhoea Care Pathway and / or *C. difficile* Care Pathway, document positive result and provide the patient and / or relative with *Clostridium difficile* patient information leaflet.

6.4.3 Positive *C. difficile* results will be acted upon by IPC Team, who will liaise with the appropriate clinical teams looking after the patient.

6.4.4 An alert will be added to eRecord and the patients notes marked with a blue IPC alert sticker and sheet to identify the patient is *C. difficile* toxin positive or *C. difficile* carrier.

6.4.5 Medication must be reviewed by medical staff and those not required should be stopped, as should other drugs, e.g. PPIs, that may cause diarrhoea.

6.4.6 The clinical assessment of the patient and appropriate need for senior medical input, surgical review or critical care input should be guided by the actions required on the Patient’s Observation Chart and MEWS scoring.

6.4.7 Symptomatic patients should not be transferred / discharged to other areas unless in exceptional circumstances and following risk assessment in conjunction with IPC Team. A single room should be requested.

6.4.8 If isolation in a single room is not possible then nursing in a cohort bay or cohort ward may have to be considered in discussion with IPC Team.

6.4.9 The patient must remain isolated until asymptomatic for at least 48 hours.
Community Services

6.4.10 Positive *C. difficile* results from patients in the community are sent directly from the laboratory to the patient’s GP. It is the responsibility of the GP to review current medication and prescribe the appropriate treatment seeking Microbiology advice if appropriate.

6.4.11 Patients in community settings who are symptomatic should be individually assessed and when required, advice sought from the IPC Team regarding their management.

6.4.12 Where community staff are involved in patient care where the patient is symptomatic of *C. difficile*, any disposable waste contaminated with infected faecal material must be disposed of in accordance with Clinical Waste in Patients Homes (Appendix 7) and District Nursing Service Process for Collection of Clinical Waste from Patient Home (Appendix 8). This is arranged using the ‘Request for Collection of Clinical Waste from a Patient’s Home’ form (Appendix 9); this would remain the case until the patient becomes asymptomatic.

6.4.13 If a symptomatic patient is receiving clinical care from a member of community staff and becomes acutely unwell requiring admission to an acute hospital, it is the responsibility of that member of staff to notify the receiving facility of the patient’s *C. difficile* status to ensure appropriate management.

6.5 Hand Hygiene and Personal Protective Equipment (PPE)

6.5.1 Alcohol hand rub must not be used as an alternative to hand washing as it is not effective against *C. difficile* spores. It can be applied after hand washing to rid hands of remaining non-clostridial organisms.

Acute Services

6.5.2 All staff must use disposable gloves and aprons for all contact with the patient / patient’s environment, and wash their hands with antiseptic solution and water as per Hand Hygiene Policy.

6.5.3 Visitors need only wear gloves and an apron if directly involved in patient care and wash hands with antiseptic solution and water after each patient contact.

6.5.4 Patients should be encouraged to wash their hands before meals and after visiting the toilet.

Community Services

6.5.5 All staff must use disposable gloves and aprons for all contact with the patient / patient's environment, and wash their hands with liquid soap and water as per Hand Hygiene policy.
6.5.6 In a patient’s home where hand washing facilities are unavailable or inadequate, the member of staff must wash their hands with soap and water at the first available opportunity. A moist hand cleansing wipe can be used, but again hands must be washed with soap and water as soon as possible.

6.5.7 Where it is known by community staff that relatives are involved in delivering care, they must be informed of the importance of carrying out effective hand hygiene, and the wearing of disposable gloves and aprons to prevent transmission of C. difficile spores.

6.6 Treatment according to severity

Refer to Trust's Guide to Antimicrobial Therapy

6.6.1 Mild and moderate CDI – oral metronidazole 400-500 mg tds for 10-14 days.

6.6.2 Severe CDI – oral vancomycin 125 mg qds for 10-14 days. In severe CDI cases not responding to oral vancomycin 125 mg qds, high-dosage oral vancomycin (up to 500 mg qds, if necessary administered via a nasogastric tube) +/- intravenous (IV) metronidazole 500 mg tds is recommended. All cases of severe C. difficile must have a clinical review by gastroenterology or infectious diseases. The addition of oral rifampicin (300 mg bd) or IV immunoglobulin (400 mg/kg) may also be considered in discussion with Consultant Microbiologist.

6.6.3 Life-threatening CDI – oral vancomycin up to 500 mg qds for 10-14 days via nasogastric tube or rectal installation plus IV metronidazole 500 mg tds. Such patients should be closely monitored, with specialist surgical input (colorectal team) and / or critical care referral, and should have their blood lactate monitored. Colectomy should be considered, especially if caecal dilatation is >10 cm. Colectomy is best performed before blood lactate rises >5 mmol/L, when survival is extremely poor. All cases of life threatening C. difficile must have a clinical review by gastroenterology or infectious diseases.

6.6.4 If diarrhoea persists despite 20 days’ treatment but the patient is stable and the daily number of type 5-7 stools has decreased, the WCC is normal, and there is no abdominal pain or distension, the persistent diarrhoea may be due to post-infective irritable bowel syndrome. The patient may be treated with an anti-motility agent such as loperamide 2 mg prn (instead of metronidazole or vancomycin). The patient should be closely observed for evidence of a therapeutic response and to ensure there is no evidence of colonic dilatation.

6.6.5 For first recurrence, repeat the same antibiotic used to treat the initial episode (unless the first episode was treated with metronidazole and the recurrence is severe CDI, in which case vancomycin should be used).
6.6.6 For subsequent recurrences, use vancomycin 125 mg qds, alternative treatment to be discussed with microbiology. All patients must be referred to gastroenterology or infectious diseases.

6.6.7 If following treatment the patient’s symptoms persist, the medical team / GP should seek advice from a Microbiologist and a referral to gastroenterology should be considered.

6.6.8 Fidaxomicin (Dificlir) is now available on the North of Tyne formulary for treatment of CDI and can only be used on advice from a Consultant Microbiologist or ID physician.

6.7 Rapid Review / Root Cause Analysis (RCA) and Serious Infection Review meeting

6.7.1 A Rapid Review (Appendix 10) will be conducted on all patients who are confirmed C. difficile positive >72 hours after admission or following contact with Trust acute services in the preceding 28 days. This is to be completed by the Matron (or Sister / Charge Nurse) and Doctor involved in the patients care supported by an IPC Nurse.

6.7.2 The community IPC Team receive notification of positive C. difficile samples from GP practices for information only. However following notification of a confirmed C. difficile sample on a patient < 72 hours after admission, the IPC Nurse will contact the patients GP and request an antibiotic and / or PPI history. This information, if available, will then be forwarded for inclusion in the Rapid Review.

6.7.3 In acute services, a RCA (Appendix 10) will be conducted where there is an outbreak of CDI, serious clinical disease or when C. difficile is identified on Part 1 or Part 2 of the death certificate. All RCAs are discussed at the Trust Serious Infection Review Meeting.

6.7.4 When C. difficile is identified on Part 1 or 2 of a death certificate information may be required from the GP to inform the RCA. The community IPC Nurse will contact the relevant GP and request disclosure of any relevant information for inclusion in the RCA.

6.8 Environmental cleaning and disinfection

Refer to Trust Decontamination of the Patient Environment (including Terminal and Deep Cleaning).

Acute Services

6.8.1 Environmental cleaning of rooms or bed spaces of C. difficile patients should be carried out at least daily using combined detergent / chlorine releasing agent (1,000 ppm available chlorine). All commodes, toilets and bathroom areas of CDI patients should be cleaned after each use
with combined detergent / chlorine releasing agent (1,000 ppm available chlorine).

6.8.2 Once a patient is asymptomatic for >48 hours and isolation ceased, after discharge, transfer or death, terminal cleaning of the mattress, bed space (including equipment), bay or ward area should be thorough. All areas should be cleaned using combined detergent / chlorine releasing agent (1,000 ppm available chlorine), and the curtains should be changed.

6.8.3 The ward environment should be clutter free and Trust policy Decontamination of Healthcare Equipment following Patient Use Prior to Service and/or Repair and the Cleaning and Disinfection Procedure should be adhered to.

Community Services

6.8.4 Community staff can offer advice to patients / carers / relatives on environmental cleanliness in the home setting. Further advice to be sought from the IPC Nurses when required. NB: Cleaning agents containing chlorine must not be used on patient’s furniture or carpets. Any faecal soiling on these items must be cleaned using warm soapy water and disposable cloths.

6.9 Prevention of CDI through antibiotic prescribing

Refer to Trust’s Guide to Antimicrobial Therapy.

6.9.1 Use narrow-spectrum agents for empirical treatment where appropriate.

6.9.2 Avoid use of clindamycin and second- and third-generation cephalosporins especially in the elderly.

6.9.3 Minimise use of fluoroquinolones, carbapenems and prolonged courses of aminopenicillins.

6.9.4 Restricted broad-spectrum antibiotics should be used only when indicated by the patient’s clinical condition, and must be reviewed on results of microbiological testing or according to the local sensitivities of causative organisms.

6.9.5 Refer to Trust’s Antibiotic Stop/Review Date and Indication Policy. When in doubt seek advice from site Microbiologists.

6.9.6 Education in prudent antibiotic use is undertaken by medical and nursing staff at induction and annual mandatory training via the Trust eLearning programme.

6.9.7 Ward-based audit of antibiotic usage and compliance in accordance with the Antibiotic Stop / Review and Indication Policy.
6.10 Management of PII / Outbreak

6.10.1 IPC Team must inform the Clinical Director, Directorate Manager, Matron, Sister or Charge Nurse.

6.10.2 An incident meeting should be held as determined by the size and rate of growth of the PII following assessment of the situation by the DIPC and / or the Site Microbiologist with the Clinical Director and consultants, depending on the number of cases.

6.10.3 The Nurse-in-Charge to conduct a weekly *C. difficile* ward audit (Appendix 11). The audit should continue until the weekly score is >90% for three consecutive weeks with no further cases of CDI >48 hours on the ward during the PII. The audit results to be fed back to the Matron / IPC Team for dissemination to relevant directorate staff. The IPC Team to monitor the ward on a weekly basis for the duration of the PII.

6.10.4 Anti-microbial pharmacist to undertake a weekly antibiotic review in the ward (using local tools).

6.10.5 In conjunction with IPC Team, environmental screening may be undertaken and a review of the requirement to deep clean the whole ward with combined detergent / chlorine releasing agent.

6.10.6 Trusts should report all outbreaks as Serious Untoward Incidents (SUIs) to the Strategic Health Authority (SHA) and the Health Protection Agency (HPA) and subject them to a RCA. This includes all ward closures that are due to diarrhoea shown to be associated with *C. difficile*.

6.11 Managing increased *C. difficile* prevalence

In line with DH guidelines *C. difficile*: how to deal with the problem, following points will be brought into practice:

- Regular meetings (minimum weekly), with the IPC Team, Clinical Director / Lead Consultant, Matron, Ward Sister / Charge Nurse and Directorate Manager
- Daily review of new and existing cases of CDI
- Review and maximise isolation procedures
- Institute intensive local surveillance
- Optimise ward cleaning and disinfection
- Communicate diagnostic microbiology results as rapidly as possible
- Enhance communications with all parties and staff
- Reduce the movement of patients and staff to an operationally effective minimum
- Consider establishment of an isolation ward or cohort bays; these areas should have minimal contact with uninfected ward areas
• Prevent the movement of beds, commodes, trolleys and other equipment between areas
• IPC Team / directorate to audit compliance with guidelines

6.12 Death certification

Acute Services

6.12.1 If a patient with CDI dies, the Medical Certificate of Cause of Death (MCCD) 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 stated in Part 1 of the certificate. If CDI is not part of the sequence of events leading directly to death but contributed in some way to it, this should be stated in Part 2 of the MCCD. When CDI is recorded on either Part 1 or 2 of the MCCD, a RCA is completed by the patient’s consultant in conjunction with the Matron (see section 6.7.3).

6.12.2 The Trust will notify the commissioners of every death of a patient where C. difficile is entered on either Part 1 or Part 2 of the MCCD; this will be reported as a SUI.

6.12.3 If a doctor is in doubt about the circumstances of death when writing the certificate, they should consult with the Microbiologist or DIPC.

6.12.4 Where the patient has been identified as a C. difficile carrier, this should not routinely be recorded on the MCCD unless the result is deemed clinically significant, the patient required treatment and after discussion with the Microbiologist or DIPC.

7. Training

All staff working on Trust premises, including Trust employed staff, agency and locum staff are responsible for accessing all relevant IPC policies (via intranet) in order to assist in the optimal management of their patients.

The basic IPC principles are incorporated in to all mandatory IPC e-Learning training programmes; management of C. difficile is included in ‘IPC Level 2’ and ‘Medical Staff’ programmes.

8. Equality and Diversity

The Trust is committed to ensuring that, as far as is reasonably practicable, the way we provide services to the public and the way we treat our staff reflects their individual needs and does not discriminate against individuals or groups on any grounds. This policy has been appropriately assessed.
9. Monitoring

<table>
<thead>
<tr>
<th>Standard / process / issue</th>
<th>Monitoring and audit</th>
<th>Method</th>
<th>By</th>
<th>Committee</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous monitoring of standards</td>
<td>Clinical Assurance Tool</td>
<td>Matron</td>
<td>Trust Board, IPCC</td>
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</tr>
<tr>
<td>Essential Steps</td>
<td>Cluster Lead</td>
<td>IPCC</td>
<td>Quarterly</td>
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</tr>
<tr>
<td>C. difficile statistics</td>
<td>HCAI scorecard</td>
<td>IPC Information Manager</td>
<td>Trust Board, IPCC</td>
<td>Monthly</td>
<td></td>
</tr>
<tr>
<td>Monitoring of RCA outcomes</td>
<td>HCAI Report</td>
<td>IPC Information Manager</td>
<td>IPCC</td>
<td>Quarterly</td>
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</tr>
<tr>
<td>Specimen transit and laboratory turnaround times</td>
<td>HCAI scorecard</td>
<td>IPC Healthcare scientist</td>
<td>Trust Board, IPCC</td>
<td>Monthly</td>
<td></td>
</tr>
</tbody>
</table>

10. Consultation and Review

Consultation of this policy was undertaken by members of IPCC and IPC Nurses. This policy will be reviewed annually by IPCC or as and when significant changes make earlier review necessary.

11. Implementation of Policy (including raising awareness)

Clinical Directors / Matrons / Sisters / Charge Nurses and Clinical Leads should ensure that staff are aware of this policy.

This policy is available for staff to access via NUTH intranet.

IPC information is available via the Trust Intranet and Internet; additionally, patient information leaflets are available across the organisation.

12. References

- Clostridium difficile infection: How to deal with the problem, DH, December 2008
- A good practice guide to control Clostridium difficile: HPA regional microbiology network, Jan 2007
- Essential steps to safe clean care. DH 2006
- Update guidance on the diagnosis and reporting of Clostridium difficile, DH, March 2012

13. Associated Documentation

- Cleaning and Disinfection Procedure
- Decontamination of Healthcare Equipment following Patient Use and Prior to Service and/or Repair
• Decontamination of the Patient Environment (including Terminal and Deep Cleaning)
• Guidelines for Skin Care
• Hand Hygiene Policy
• Isolation Policy
• Standard Precautions
• Transport of Clinical Specimens
• Used Laundry Management Policy
• Waste Management Policy and Procedures

Author: Consultant Microbiologist, Matron IPC
## Bristol Stool Chart

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Separate hard lumps, like nuts (hard to pass)</th>
</tr>
</thead>
<tbody>
<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. <strong>Entirely Liquid</strong></td>
</tr>
</tbody>
</table>
Appendix 2 When to send a stool sample

WHEN TO SEND A STOOL SAMPLE

SEND A STOOL SAMPLE:

✓ On the 2\textsuperscript{ND} EPISODE of diarrhoea of unknown cause in 24 hrs (TYPE 5-7 on the Bristol Stool Chart)

DO NOT SEND A STOOL SAMPLE:

✗ On the FIRST EPISODE of diarrhoea (unless the patient is admitted due to diarrhoea of unknown cause - when a stool sample must be sent immediately)

✗ If the patient has received LAXATIVES or APERIENTS, an ENEMA or BOWEL PREP within last 24 hrs (unless the patient is systemically unwell / it is clinically indicated)

✗ UNLESS ADVICE HAS BEEN SOUGHT FROM A MICROBIOLOGIST on the following patients:
  ➢ PREVIOUSLY CLOSTRIDIUM DIFFICILE POSITIVE
  ➢ CLOSTRIDIUM DIFFICILE CARRIER
  ➢ Original sample was NEGATIVE but symptoms persist

SUBMISSION OF STOOL SAMPLES

➢ Request can only be approved by a Registered Nurse / Doctor
➢ Clinical details MUST be provided and include:
  ✓ Current / recent antibiotics
  ✓ Proton Pump Inhibitors (PPIs)
  ✓ Patient diagnosis
➢ Ensure a sufficient quantity is sent for testing i.e. fills up to 1/5 of the container

If you have any queries regarding sample submission please discuss with a Microbiologist

Infection Prevention and Control September 2012
Appendix 3  NuTH C. difficile testing & reporting algorithm

NuTH C. difficile testing & reporting algorithm

GDH EIA Screening Test

NEG

CDIFF = NEG

CDIFF toxin negative:
• Result automatically authorised
• No further action required

CDIFF TOXIN POSITIVE RESULTS:
• Lab will inform Microbiologist & IPCN
• Seek advice from Gastro team if required
• Mark notes & add eRecord alert & perform Rapid Review
• Mandatory reporting to HCAI DCS
• Consider ribotyping if PII or death

Carrier of C. difficile:
• Lab will inform Microbiologist & IPCN
• Seek advice from Gastro team if required
• Mark notes & add eRecord alert
• Mandatory reporting NOT required

Confirmatory TOXIN Test (Vidas)

NEG

Equivocal

POS

PCR molecular test

NEG

CDIFF = POS

POS

CDIFF = NEG

CARRIER **

** Result documented in Apex as:
C difficile: CARRIER
This indicates C difficile carriage with the potential of toxin excretion
This result has been telephoned

Issued by Microbiology: 20th July 2012
Validated by IPC Operational Group: 29th July 2012
Appendix 4

Explanation of *C. difficile* testing algorithm for medical and nursing staff

**Summary**

*Clostridium difficile* infection (CDI) remains a major cause of morbidity and mortality. CDI is caused by *Clostridium difficile* (*C. difficile*) bacteria producing toxins that cause loose stools and may lead to inflammation of the bowel wall and in the most serious cases pseudomembranous colitis. There is no perfect single diagnostic test for CDI at present; therefore we use a combination of tests. The tests are only reliable when there is a clinical suspicion of CDI, therefore stool samples should only be sent under these circumstances and results interpreted in light of the clinical picture.

**Types of *C. difficile* tests conducted in the laboratory:**

1. **GDH (Glutamate Dehydrogenase) TEST:** GDH is an enzyme that is produced by all *C. difficile* species (as well as other bacteria). This test is used as a SCREENING test. If it is NEGATIVE it is unlikely that the patient has CDI. If it is positive, further tests are carried out;

2. **TOXIN TESTING:** This test looks for the presence of *C. difficile* toxin A and B in the stool, this test has poor reliability. Positive GDH & toxin tests suggest the patient has *C. difficile* and its toxin in their stool. If it is negative or equivocal PCR testing is carried out:

3. **MOLECULAR PCR TESTING:** This test looks for the presence of the genes that encode for the production of the *C. difficile* TOXIN. If it is positive in the context of a positive GDH test it implies that the patient harbours *C. difficile* bacteria with the capability to produce *C. difficile* toxin.

**What the results mean and the clinical implications:**

*C. difficile* TOXIN DETECTED (GDH +, Toxin +);
*C. difficile* toxin detected in the patients stool and this can cause CDI.

**Clinical implication:** Review in the clinical context, make a severity assessment and most likely start treatment for CDI in line with the antibiotic policies. Medical staff must review the patients medication including; antibiotics, laxatives and PPI prescriptions.

**IPC implication:** Isolate and commence enteric precautions.

*C. difficile* CARRIER (GDH +, Toxin – or equivocal, PCR +)
Implies that the patient carries *C. difficile* in their bowel that has the potential to produce *C. difficile* toxin however, the presence of the toxin has not been detected at this time but may cause disease.
**Clinical implication:** This result needs to be interpreted in the clinical context. The patient may have CDI (and the toxin test is a false negative) OR be a carrier of *C. difficile* with the potential to develop CDI. If there is a clinical suspicion of CDI, treatment should be commenced after making a severity assessment. Any existing antibiotic, laxative and PPI prescriptions should be reviewed. It is essential to only prescribe antibiotics in these patients if absolutely necessary.

**IPC implication:** These patients may be infectious therefore should be isolated and commence enteric precautions.

*C. difficile toxin NOT DETECTED (GDH -)*

No microbiological evidence on this sample to suggest CDI.

**Clinical implication:** Interpret in the clinical context. If CDI strongly suspected, send a repeat sample. Review and if possible stop any unnecessary antibiotics (antibiotic associated colitis is a common cause of loose stools). Review laxative and PPI prescriptions.

**IPC implication:** Patients with unexplained diarrhoea should be isolated and commence enteric precautions.

Please contact Microbiology or the ID team if further advice required.
Appendix 5

Newcastle Hospital Trust Community Stool Sample Algorithm

- If clinical suspicion of infectious diarrhoea please send specimen prior to commencing treatment
- Select the appropriate tests using ICE
- Provide relevant clinical details to assist with laboratory processing decisions (e.g., symptoms following food, travel, or antibiotics)
- Inform the patient to fill at least ¼ of the collection pot
- Inform the patient that they may be contacted by Environmental Health if faecal pathogens are detected
- Any positive results will be telephoned to the GP Practice

D&V outbreak

Testing regime guided by HPU

Usually includes:
- Norovirus
- C. difficile
- Salmonella
- Shigella
- Campylobacter
- E.coli O157
- Cryptosporidium

Bloody diarrhoea may be associated with vero cytotoxin producing E.coli (VTEC)

Haemolytic uraemia syndrome (HUS) or infectious bloody diarrhoea is a notifiable condition*

Seek urgent advice from paediatric specialist if patient <16yrs

Virology if <5yrs

Virology if <5yrs

Adenovirus
Rotavirus

Salmonella
Shigella
Campylobacter
E.coli O157
Cryptosporidium
V.Cholera (if travel to endemic area)

All diarrhoeal specimens

Culture & Sensitivity

Parasitology if foreign travel or unexplained persistent diarrhoea

Ova, cysts & parasites

C. difficile toxin or 'carrier' status detected

TAT = 24hrs
Prevalence = 0.4%

TAT = 4hrs
Prevalence = 3%

Loose or watery specimens (type 5-7) in patients >65yrs or recent antibiotics/PPI or recent hospitalisation or if specifically requested by GP

TAT = 1hr
Seasonal peak Feb & March
Prevalence = 13%

TAT = 48hrs
Prevalence = 9%

TAT = specimen turnaround time

Samples that culture negative for E.coli O157 will be sent to a reference lab

C. difficile testing is performed following March 2012 DH Guidance

Asymptomatic carriers of C. difficile may be identified using DH protocol

C. difficile disease is primarily associated with antibiotics & hospitalisation however cases have been noted where neither is apparent

NB: All faecal pathogens must be reported to HPU
*(Health Protection (Notification) Regulations 2010)
Tel: HPA North East 08442553550 (see reverse)

Microbiology Department; Newcastle upon Tyne Hospitals NHS FT- November 2012
HEALTH PROTECTION (NOTIFICATION) REGULATIONS 2010
NOTIFICATION TO THE PROPER OFFICER OF THE LOCAL AUTHORITY

Registered Medical Practitioner report the case:
- Name
- Address
- Post code
- Contact number
- Date of notification

Notifiable disease:
- Disease, infection or contamination
- Date of onset of symptoms
- Date of diagnosis
- Date of death (if patient died)
- Has the case been vaccinated against the disease (if relevant)
  - If yes, please give dates of vaccination

Index case details
- First name
- Surname
- Gender
- DOB
- Ethnicity
- NHS number
- Home address
- Home post code
- Current residence if not home address
- Current residence post code
- Patient contact number
- Occupation (if relevant), e.g. foodhandler, healthcare worker
- Work/education/nursery address (if relevant)
- Work/education/nursery post code
- Work/education/nursery contact number
- Overseas travel if relevant (destination & dates)

Proper Office, Health Protection Agency North East:
Email: nenotifications@nhs.net (preferred option)
Telephone: 0844 255 3550 Fax: 0191 221 2584
HPA North East, Floor 2, Citygate, Gallowgate, Newcastle upon Tyne, NE41 4WH
Appendix 6

**Clostridium difficile Clinical Management Pathway**

**Patient has diarrhoea**

- Commence Diarrhoea Care Pathway
- Isolate in single room (preferably en-suite)
- Wear gloves and apron, hand wash with antiseptic solution and water
- Send stool sample for *C. difficile* testing, provide adequate information on specimen request
- Contact IPC Nurse as necessary

**C. difficile Toxin Negative**
- No further action required

**C. difficile Toxin Positive / C. difficile Carrier**
- IPCN will contact ward
- Microbiologist will contact clinical team for review of antibiotics and other medication (CAV ward nursing staff to contact out of hours medical cover to review patient/medication as required)
- Document treatment plan in notes and apply *C. difficile* Care Pathway
- Commence oral Metronidazole (unless contraindicated) for 10 days and/or refer *C. difficile* treatment in CDI guidelines
- Document positive result in *C. difficile* Care Pathway Specimen Record

**Mild**
- WCC not raised
- <3 stools of type 5-7 on Bristol Stool Chart

**Moderate**
- WCC <15x10^9/L
- 3-5 stools per day

**Severe**
- WCC >15x10^9/L
- Serum Creatinine >50% of baseline, fever >38.5°C abdominal or imaging signs

**Life threatening**
- Hypotension
- Ileus/Toxic megacolon
- CT evidence

**PROGRESS**

**Symptoms not resolving over 3-4 days**
- Contact Microbiologist
- Consider assessment by:
  - Dietician
  - Surgeon
- Consider change of therapy

**If diarrhoea ceases unexpectedly and/or quickly, look for:**
- Distended abdomen
- Absent bowel sounds (?ileus)
- Abdominal x-ray shows caecal dilatation (>10cms), CT signs

**Good clinical response**
- Complete course of therapy
- Cease isolation measures when patient is asymptomatic for >48h
- Terminal cleaning of isolation room

**If “Yes” to a number of the above suspect Toxic megacolon:**
- Consult colo-rectal surgical team urgently
- Consult Microbiologist
- Document decisions

**NB: immunosuppressed patient**
- More likely to develop toxic megacolon
- May deteriorate more quickly
Appendix 7

Clinical waste in Patients Homes – Model Flow chart

Waste arising in patients home – carry out a risk assessment

Is the waste likely to cause a risk of infection?

NO

If possible double bag and place into domestic waste (black bag)

YES

Hazards Infectious waste (CAT B)

Examples include:-
- Waste containing a significant quantity of blood (e.g. haemodialysis)
- Dressings from infected blood stained wounds (e.g. HIV, Hepatitis B)
- Wound vacuum drains (excluding topical negative pressure)
- Acute gastrointestinal infections (e.g. Clostridium Difficile)
- Heavily exuding infected wounds (e.g. MRSA)

Dispose of as hazardous infected clinical waste (Orange bag) ready for collection

Additional considerations

- Gain prior consent from patient for storage and collection of hazardous infectious waste.
- Ensure safe storage away from children/animals (waste cannot be left on the street awaiting collection).
- Bags should be appropriately labelled (date, service and locality) and secured with plastic tag.
- Medicinal waste should be returned to patients pharmacy
- Sharps waste generated by patient and not healthcare worker must go back to patients GP in appropriate sharps box

The health care worker responsible for generating the waste must seek approval from their Cluster Co-ordinator for collection to be undertaken by the contracted waste supplier.

Cluster Co-ordinator to send details to contactor who will arrange collection

NB Staff will need to inform their Cluster Co-ordinator once waste collection service no longer required.
## District Nursing Service

### Process for Collection of Clinical Waste from Patient Home

<table>
<thead>
<tr>
<th>Process</th>
<th>Responsibility</th>
<th>Timescale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify need for collection of clinical waste according to flow chart Appendix 1</td>
<td>District Nurse</td>
<td></td>
</tr>
<tr>
<td>Forward Request Form to Cluster Co-ordinator for authorisation</td>
<td>District Nurse</td>
<td></td>
</tr>
<tr>
<td>Check Request Form + authorise</td>
<td>Cluster Co-ordinator</td>
<td></td>
</tr>
<tr>
<td>Forward via email to SRCL (<a href="mailto:sallan@srcl.com">sallan@srcl.com</a>, <a href="mailto:myates@srcl.com">myates@srcl.com</a>, <a href="mailto:adevlin@srcl.com">adevlin@srcl.com</a>) Copy to <a href="mailto:Angie.Drinkald@newcastle-pct.nhs.uk">Angie.Drinkald@newcastle-pct.nhs.uk</a> <a href="mailto:James.Dixon@nuth.nhs.uk">James.Dixon@nuth.nhs.uk</a></td>
<td>Cluster Co-ordinator</td>
<td></td>
</tr>
<tr>
<td>Input details onto spreadsheet</td>
<td>Admin Team Lead</td>
<td></td>
</tr>
<tr>
<td>Confirmation received SRCL to 'Reply to All' with confirmation</td>
<td>SRCL</td>
<td></td>
</tr>
<tr>
<td>Email District Nurse to confirm service set up</td>
<td>Admin Team Lead</td>
<td></td>
</tr>
<tr>
<td>Forward Spreadsheet to clinical Nurse Lead monthly for audit Copy to <a href="mailto:James.Dixon@nuth.nhs.uk">James.Dixon@nuth.nhs.uk</a></td>
<td>Admin Team Lead</td>
<td></td>
</tr>
<tr>
<td>Inform Central Admin when service to cease</td>
<td>District Nurse</td>
<td>As soon as possible when identified</td>
</tr>
<tr>
<td>Email SRCL (<a href="mailto:sallan@srcl.com">sallan@srcl.com</a>, <a href="mailto:myates@srcl.com">myates@srcl.com</a>, <a href="mailto:adevlin@srcl.com">adevlin@srcl.com</a>) to cancel service Using standard email memo Copy to <a href="mailto:James.Dixon@nuth.nhs.uk">James.Dixon@nuth.nhs.uk</a> Copy to cluster co-ordinator for information</td>
<td>Admin Team Lead</td>
<td>As soon as possible when identified</td>
</tr>
</tbody>
</table>
# Request for Collection of Clinical Waste from a Patient’s Home

<table>
<thead>
<tr>
<th>Patient’s Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Post Code</td>
<td></td>
</tr>
<tr>
<td>Telephone Number</td>
<td></td>
</tr>
</tbody>
</table>

Has the waste been risk assessed and findings recorded on patients care plan?  [ ] Yes  [ ] No

Has the patient given consent to the waste being stored within their home until collection?  [ ] Yes  [ ] No

<table>
<thead>
<tr>
<th>Type of waste</th>
<th>Infectious Clinical (i.e. dressings, swabs)</th>
<th>Medicinally Contaminated</th>
<th>Infectious Clinical Liquid Waste (i.e. wound drains)</th>
<th>Cytotoxic/Cytostatic Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>Orange Bag</td>
<td>Yellow Bag</td>
<td>Rigid Leak Proof Container with Orange Lid</td>
<td>Rigid Leak Proof Container with Purple Lid</td>
</tr>
</tbody>
</table>

Amount to be collected and Frequency i.e. 1 bag once a week

Date waste collection to commence

<table>
<thead>
<tr>
<th>Name of Requestor</th>
<th>Date</th>
</tr>
</thead>
</table>

Other Comments (Please include details of access restrictions etc)

Once completed forward this form to your Cluster Co-ordinator for authorisation.

Please Note: You must inform your Cluster Co-ordinator when the collection is no longer required.

For Office Use Only:

<table>
<thead>
<tr>
<th>Cluster Co-ordinator Name</th>
<th>Date Authorised</th>
</tr>
</thead>
</table>

Once authorised, Cluster Co-ordinator to email form onto: Support@srcl.com (copying in District Nursing Admin, myates@srcl.com and james.dixon@nuth.nhs.uk).
**Clostridium difficile Infection (CDI) Root Cause Analysis (RCA)**

The purpose of this Root Cause Analysis (RCA) is to identify preventable factors contributing to CDI. Areas to be examined include early diagnosis, timely and appropriate isolation practices, compliance with hand hygiene, personal protective equipment (PPE) and antibiotic stewardship. This is a multi-disciplinary tool and should be completed as a team (nursing and medical staff) with IPC support where necessary – all sections of the tool must be completed.

(Appendix 1- only to be completed in the event of a patient death where *C. difficile* is recorded on the death certificate).

Please return the completed RCA electronically to [Chris.ellis@nuth.nhs.uk](mailto:Chris.ellis@nuth.nhs.uk) within 5 days of request.

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Medical Team Member</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Matron or Ward Sr/CN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IPCN</td>
<td></td>
</tr>
</tbody>
</table>

(You may include other relevant staff as necessary)

1. **Patient details**
   - **Patient Name:**
   - **MRN:**
   - **Date of Birth/Age:**
   - **Consultant:**
   - **Diagnosis:** (including clinical background & current clinical condition)

2. **Patient journey**
   - **Date of admission to Trust**
   - **Current ward (inc. location on ward)**
   - **Date of transfer to this ward**
   - **Where was the patient admitted from?**
   - **Is this the patient’s normal residence?** Yes / No
   - **Date of transfer to / from other wards on this admission (if applicable)** Ward / Department

3. **Pre-existing risk factors**
   - **Previous CDI** Yes / No If yes date
   - **History of diarrhoea prior to admission** Yes / No If yes, onset date
   - **Was this documented on admission** Yes / No
   - **Pre-existing bowel disease** Yes / No If yes, include details
   - **Proton Pump Inhibitor** Yes / No (Refer to Section 7)
   - **Immunosuppression** Yes / No If yes, include details
Over 65 years | Yes / No
---|---
Resident in long term care facility | Yes / No
If yes, please state
Any previous hospital admissions in last 8 weeks | Yes / No
If yes, include details

4. Specimen details and CDI diagnosis

<table>
<thead>
<tr>
<th>Ward specimen taken</th>
<th>Date specimen collected</th>
<th>Date of confirmed positive result</th>
</tr>
</thead>
</table>

Date and time of onset of symptoms | Stool specimen sent on 2nd episode of diarrhoea? | Yes / No |
If not, why? |
If not, on which episode? |

Review the information from sections 1 – 4; please record here any factors that may have contributed to CDI?

Do you think the CDI diagnosis was made as soon as possible? If not, why?

Where appropriate please identify actions, timescale and person responsible to address these:

Where appropriate please identify here areas of good practice:

5. Inform and report check list

<table>
<thead>
<tr>
<th>When was the clinical team aware of the confirmed C. difficile result?</th>
<th>Date and time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result discussed with the patient (or next of kin where appropriate) and recorded on C. difficile Care Pathway?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Patient information leaflet provided and recorded on C. difficile Care Pathway?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Treatment plan commenced and documented in medical notes?</td>
<td>Yes / No</td>
</tr>
</tbody>
</table>

6. Antibiotic exposure – MUST BE COMPLETED BY MEDICAL STAFF

Antibiotic history for the last 8 weeks (include treatment via GP where appropriate/available). **DOCTORS** when filling in this section use the ‘Drug Summary’ view in Powerchart and scroll along to count exact number of days antibiotics were received (do not rely on the dates when the drug was prescribed by the prescriber)

<table>
<thead>
<tr>
<th>Antibiotic (please state route)</th>
<th>Reason for prescribing (including specimen result)</th>
<th>Stop/review date/indication (Yes / No)</th>
<th>Date commenced</th>
<th>Date of last dose</th>
<th>Was Microbiology advice sought for each antibiotic (Yes / No)</th>
</tr>
</thead>
</table>

7. Proton pump inhibitor history – MUST BE COMPLETED BY MEDICAL STAFF
<table>
<thead>
<tr>
<th>Drug</th>
<th>Rationale</th>
<th>Stop/review/indication date (Yes/No)</th>
<th>Date commenced</th>
<th>Date of last dose</th>
</tr>
</thead>
</table>

**Is PPI treatment appropriate?**  Yes / No

8. Laxatives

<table>
<thead>
<tr>
<th>Drug</th>
<th>Date commenced</th>
<th>Date of last dose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Review the information from sections 5 - 8; please record here any factors that may have contributed to CDI?

Do you think the antibiotics were appropriate and of the correct duration?

Do you think other medications (laxatives/PPIs) were reviewed appropriately?

Where appropriate please identify actions, timescales and person responsible to address these:

Where appropriate please identify here areas of good practice:

9. Patient Management

**Treatment**

<table>
<thead>
<tr>
<th>Date of onset for CDI treatment</th>
<th>Treatment used</th>
</tr>
</thead>
</table>

**Is this severe CDI?**  Yes / No  (Refer to CDI Policy)

**Has WBC count been >15 over last 48hrs?**  Yes / No

**Were Microbiology involved in management of CDI?**  Yes / No

**Were Gastroenterology involved in management of CDI?**  Yes / No  If yes, include details

**Results of flexible sigmoidoscopy (if appropriate)**  

**Is the patient awaiting/requires surgery as a result of CDI?**  Yes / No  If yes, include details

**Isolation**

<table>
<thead>
<tr>
<th>Date and time isolation commenced (please indicate time duration from 1st symptoms to isolation)</th>
<th>Was patient isolated following the 1st episode of diarrhoea?  Yes / No</th>
</tr>
</thead>
</table>

**If not, why?**

**Identify previous location(s) on ward**

**Identify if the patient has been in contact with other cases of *C. difficile* on this admission**  Yes / No

**Did the patient use a communal toilet prior to CDI result?**  Yes / No
### Care pathways

<table>
<thead>
<tr>
<th>Date Diarrhoea Care Pathway commenced</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Are all relevant sections of Diarrhoea Care Pathway complete?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>If not, why?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date <em>C. difficile</em> Care Pathway commenced</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Are all relevant sections of <em>C. difficile</em> Care Pathway complete?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>If not, why?</td>
<td></td>
</tr>
</tbody>
</table>

#### 10. Ward practice and environment

<table>
<thead>
<tr>
<th>Isolation and decontamination practices observed (comment if applicable):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate isolation signage</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Door closed (or variance recorded on Care Pathway)</td>
<td>Yes / No</td>
</tr>
<tr>
<td>En suite facilities or designated commode</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Gloves and aprons worn</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Hands washed with soap and water / antiseptic (ask minimum of 3 staff)</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Room cleaned with Actichlor plus using appropriate colour coded micro fibre</td>
<td>Yes / No</td>
</tr>
<tr>
<td>(Please state colour of micro fibre mop)</td>
<td></td>
</tr>
<tr>
<td>Commodes cleaned with Actichlor plus 1000ppm – 1 tablet in 1 litre of cold water (ask 3 staff to confirm dilution)</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Ward commodes are visibly clean and in good condition</td>
<td>Yes / No</td>
</tr>
</tbody>
</table>

#### Previous 2 hand hygiene audit results:

<table>
<thead>
<tr>
<th>Date</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opportunity</td>
<td>Technique</td>
</tr>
<tr>
<td>1)</td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td></td>
</tr>
</tbody>
</table>

#### Antibiotics:

<table>
<thead>
<tr>
<th>Is there an Antibiotic Champion for this ward?</th>
<th>Yes / No</th>
</tr>
</thead>
<tbody>
<tr>
<td>If no, why not?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of last antibiotic audit on this ward?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Record any actions taken on review of the audit results</td>
<td></td>
</tr>
</tbody>
</table>

#### Environment:

<table>
<thead>
<tr>
<th>Number of confirmed cases of CDI in the previous quarter on this ward (If applicable how many were hospital and how many were community acquired?)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ribotype for this case (if available)</td>
<td></td>
</tr>
<tr>
<td>Is this the same as other cases this quarter?</td>
<td></td>
</tr>
<tr>
<td>Results (and ribotyping) from environmental screening, if applicable</td>
<td></td>
</tr>
<tr>
<td>Are isolation and hand hygiene prompt notices in place?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Is there a stock of Personal Protective Equipment (PPE)?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Are there adequate hand hygiene facilities available and are soaps, gels and hand towel dispensers stocked and in good working order?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Have environmental cleaning protocols been reviewed with housekeeping?</td>
<td>Yes / No</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Previous CAT score for environmental cleanliness</td>
<td></td>
</tr>
<tr>
<td>Have there been any cleaning issues on the ward for one week prior to the CDI result?</td>
<td></td>
</tr>
</tbody>
</table>

Review the information from sections 9 - 10; please record here any factors that may have contributed to CDI?

Where appropriate please identify actions, timescale and person responsible to address these:

Where appropriate please identify here areas of good practice:

### 11. Organisational issues

- Were staff to patient ratios appropriate or at least in line with local agreement in all of the areas where the patient was managed prior to CDI?

- Were there any specific issues with staff capacity prior to CDI?

- Were there any likely deficiencies of IPC education and knowledge in any of the care areas?

- Do you think any deficiencies contributed to CDI? If so, what were they?
  Where appropriate please identify actions, timescales and person responsible to address this:

- Where appropriate please identify here areas of good practice:

### 12. NuTH Governance measures

- Monthly submission of CAT (includes audit of clinical practice and knowledge, environmental standards and cleanliness); results reported to Trust Board – Directorates to identify how results are disseminated to staff

- A formal environmental assessment is undertaken by the Matron on a monthly basis and in addition cleanliness inspections are undertaken quarterly by the senior nursing team - Directorates to identify how results are disseminated to staff

- Diarrhoea and *C. difficile* Care Pathways in place Trust wide

- Infection prevention and control link nurse - Directorates to confirm

- Lessons learnt from RCA shared via Trust wide Forums including CPG, IPC Matrons Forum, Link Staff Forum - Directorates to identify how key messages are disseminated to staff

### 13. DIPC Summary – to be completed by DIPC
This RCA will be reviewed by the DIPC and IPC Team, where necessary you will be requested to present this case at a Serious Infection Review Meeting (SIRM). Following this review the DIPC will summarise the findings here; this will include areas of good practice and identify any further actions where necessary.
Appendix 1: Cause of Death

This section is only to be completed in the event of a patient death where *C. difficile* is recorded on the death certificate. **This must be completed by the patient’s Consultant.**

Datix incident number:

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>MRN</th>
<th>Consultant</th>
</tr>
</thead>
</table>

**Areas for consideration:**

<table>
<thead>
<tr>
<th>1. Was <em>Clostridium difficile</em> infection (CDI) noted on the patient’s death certificate?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes ❧ If Yes, please indicate section</td>
</tr>
<tr>
<td>□ Part 1 of MCCD ❧ Part 2 of MCCD</td>
</tr>
<tr>
<td>□ No ❧ Unable to determine</td>
</tr>
</tbody>
</table>

Please include all details from the death certificate

<table>
<thead>
<tr>
<th>2. How would you categorise the patients’ condition on admission?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ The patient had an acute or chronic condition expected to be rapidly fatal within 1 month</td>
</tr>
<tr>
<td>□ The patient had an acute or chronic condition expected to be fatal within 1 – 2 months</td>
</tr>
<tr>
<td>□ The patient had an acute or chronic condition expected to be fatal in over 12 months</td>
</tr>
<tr>
<td>□ The patient had an acute or chronic condition not expected to be fatal</td>
</tr>
<tr>
<td>□ Insufficient data to categorise as above</td>
</tr>
</tbody>
</table>

If insufficient data please specify:

<table>
<thead>
<tr>
<th>3. Was there evidence that the patient was recovering from the illness for which they were admitted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes ❧ No ❧ N/A ❧ Unable to determine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Was there evidence that the patient died as a direct result of the admitting illness?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes ❧ No ❧ N/A ❧ Unable to determine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Was there evidence that diarrhoea and/or other symptoms and signs of CDI had improved before death?</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Yes ❧ No ❧ N/A ❧ Unable to determine</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. Aside from CDI, what other serious illnesses were diagnosed in hospital?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness</td>
</tr>
<tr>
<td>Comment on severity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Was any of the following present after diagnosis of CDI?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marker</td>
</tr>
<tr>
<td>White cell count &gt;15,000</td>
</tr>
<tr>
<td>Creatinine level &gt;150</td>
</tr>
<tr>
<td>Albumin level &lt;25</td>
</tr>
<tr>
<td>CRP level &gt;50</td>
</tr>
<tr>
<td>Fever &gt;38°C</td>
</tr>
<tr>
<td>Abdominal pain, tenderness or distension</td>
</tr>
</tbody>
</table>
Diarrhoea >5 times a day
Deterioration in medical status not explicable by other illness

<table>
<thead>
<tr>
<th>8. Was there evidence that the clinical course was:</th>
<th>Yes</th>
<th>No</th>
<th>Unable to determine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible with death from an admission illness?</td>
<td></td>
<td></td>
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<tr>
<td>Compatible with death from a pre-existing illness?</td>
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<tr>
<td>Compatible with death from a complicating illness (not CDI)?</td>
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<tr>
<td>Compatible with severe CDI?</td>
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<tr>
<td>Compatible with death from CDI?</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Does the evidence suggest that in this patient CDI:</th>
<th>Definitely</th>
<th>Probably</th>
<th>Possibly</th>
<th>Unlikely</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contributed to this patient’s death?</td>
<td></td>
<td></td>
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<tr>
<td>Was the primary cause of death?</td>
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</tbody>
</table>

**Did the death occur <30 days after diagnosis?**

Any further comments:

Death certificate completed by:

Name: [Name]  
Signature: [Signature]  
Designation: [Designation]

Proforma completed by:

Name: [Name]  
Signature: [Signature]  
Designation: [Designation]
# Clostridium difficile Ward Audit

WARD ________________________     DATE _________________________  WEEK ________________________

<table>
<thead>
<tr>
<th>OBSERVATION</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tbody>
<tr>
<td>CORRECT HAND HYGIENE</td>
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<tr>
<td>Hands washed with soap/Hibiscrub and water:</td>
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<tr>
<td>• before patient contact</td>
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<td>• after patient contact</td>
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<tr>
<td>• after contact with the environment/equipment</td>
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<tr>
<td>• patient encouraged to wash hands after toileting</td>
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<tr>
<td>PPE</td>
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<tr>
<td>• appropriate use of gloves, aprons when handling body fluids and before entering cubicle</td>
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<tr>
<td>• removal of gloves and aprons inside room (unless removing contaminated items)</td>
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<tr>
<td>ISOLATION/COHORT NURSING</td>
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<tr>
<td>• patient must be in a single room (if available), or cohort bay</td>
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<tr>
<td>• sign on door</td>
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<tr>
<td>• door closed (cubicle or bay if cohort nursing)</td>
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<tr>
<td>• designated toilet or commode in cubicle</td>
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<tr>
<td>ENVIRONMENTAL DECONTAMINATION</td>
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<tr>
<td>Discuss with nursing staff/HCA</td>
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<tr>
<td>• increased cleaning (toilets twice daily)</td>
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<tr>
<td>• chlorine based disinfectants used – 1000ppm of available chlorine</td>
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<tr>
<td>• terminal cleaning including curtain change and wall washing after patient discharge (radiators if present)</td>
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<tr>
<td>• decontamination of room after patient asymptomatic for 48hrs using Actichlor plus (1000ppm available chlorine)</td>
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</tbody>
</table>
This form must be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

<table>
<thead>
<tr>
<th>Policy Title</th>
<th>Management of <em>Clostridium difficile</em> Infection (CDI)</th>
<th>Policy Author: Dr M Narayanan / Louise Hall</th>
<th>Yes/No?</th>
<th>You must provide evidence to support your response:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Does the policy/guidance affect one group less or more favourably than another on the basis of the following: (* denotes protected characteristics under the Equality Act 2010)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Race *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethnic origins (including gypsies and travellers)</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nationality</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Culture</td>
<td>No</td>
<td></td>
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<tr>
<td></td>
<td>Religion or belief *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sexual orientation including lesbian, gay and bisexual people *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disability – learning difficulties, physical disability, sensory impairment and mental health problems *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender reassignment *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marriage and civil partnership *</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Is there any evidence that some groups are affected differently?</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>If you have identified potential discrimination which can include associative discrimination i.e. direct discrimination against someone because they associate with another person who possesses a protected characteristic, are any exceptions valid, legal and/or justifiable?</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4(a).</td>
<td>Is the impact of the policy/guidance likely to be negative? (If “yes”, please answer sections 4(b) to 4(d)).</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4(b).</td>
<td>If so can the impact be avoided?</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4(c).</td>
<td>What alternatives are there to achieving the policy/guidance without the impact?</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4(d).</td>
<td>Can we reduce the impact by taking different action?</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comments:**

**Action Plan due (or Not Applicable):**

Name and Designation of Person responsible for completion of this form: Louise Hall

Names & Designations of those involved in the impact assessment screening process: IPCC

Date: 27.12.12

(If any reader of this procedural document identifies a potential discriminatory impact that has not been identified on this form, please refer to the Policy Author identified above, together with any suggestions for the actions required to avoid/reduce this impact.)

For advice on answering the above questions please contact Frances Blackburn, Head of Nursing, Freeman/Walkergate, or, Christine Holland, Senior HR Manager. On completion this form must be forwarded electronically to Steven Stoker, Clinical Effectiveness Manager, (Ext. 24963) steven.stoker@nuth.nhs.uk together with the procedural document. If you have identified a potential discriminatory impact of this procedural document, please ensure that you arrange for a full consultation, with relevant stakeholders, to complete a Full Impact Assessment (Form B) and to develop an Action Plan to avoid/reduce this impact; both Form B and the Action Plan should also be sent electronically to Steven Stoker within six weeks of the completion of this form.

IMPACT ASSESSMENT FORM A

October 2010