Homerton University Hospital NHS
NHS Foundation Trust

Management and Prevention C.*difficile* Associated Diarrhoea

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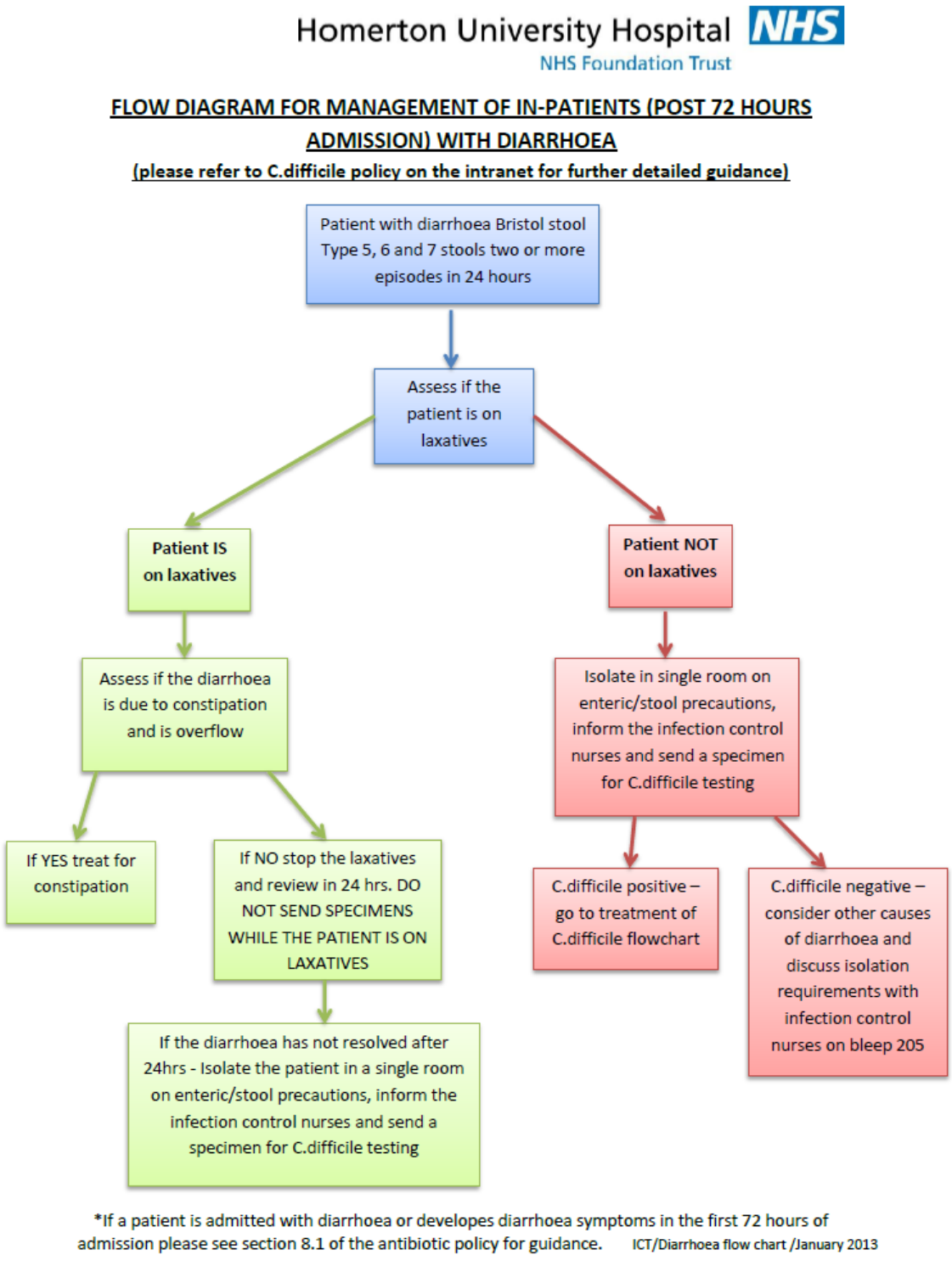
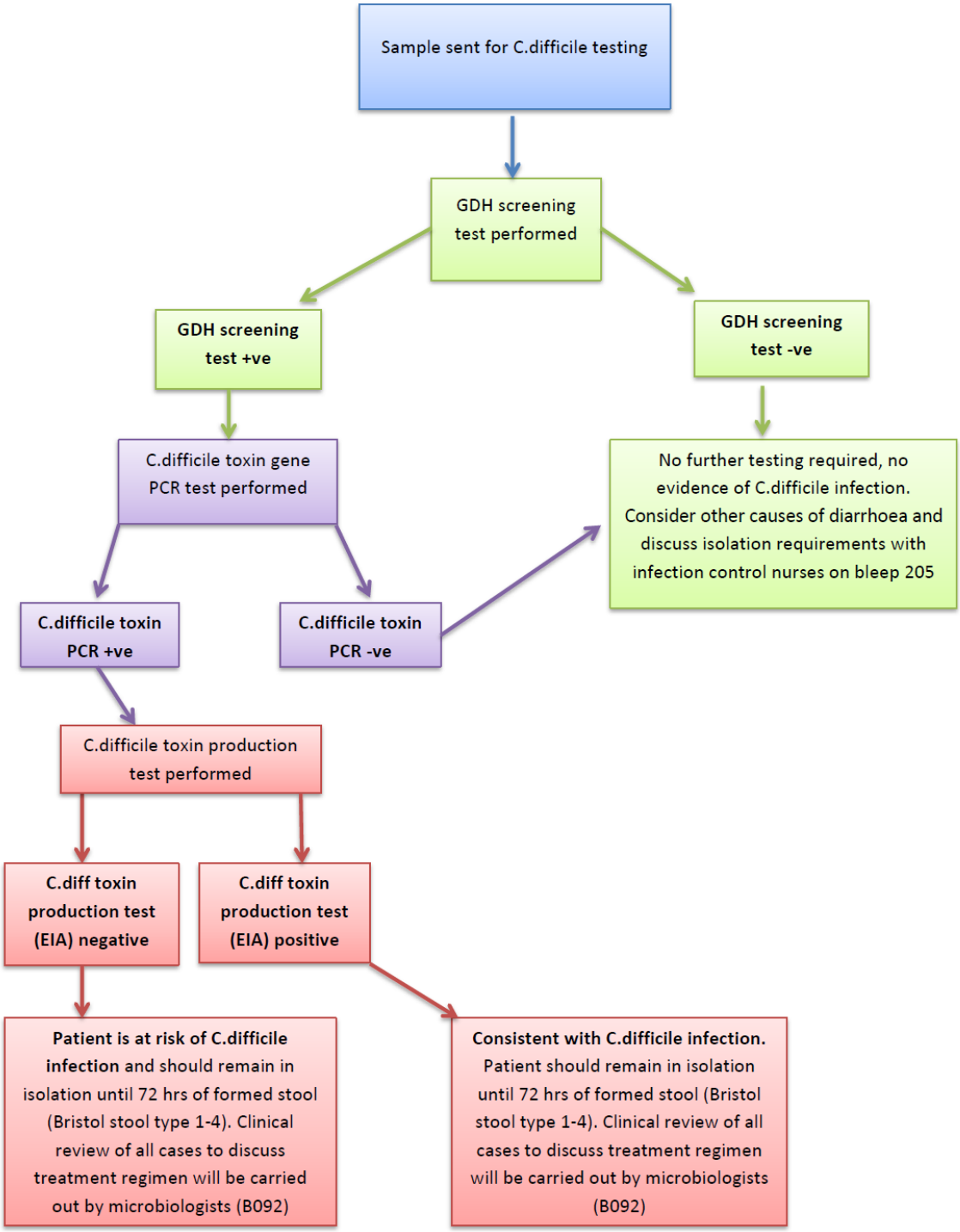
1 Summary


Homerton University Hospital NHS
NHS Foundation Trust
FLOW DIAGRAM FOR MANAGEMENT OF IN-PATIENTS (POST 72 HOURS ADMISSION) WITH DIARRHOEA
(please refer to C.difficile policy on the intranet for further detailed guidance)
Patient with diarrhoea Bristol stool Type 5, 6 and 7 stools two or more episodes in 24 hours
Assess if the patient is on laxatives
Patient IS on laxatives
Patient NOT on laxatives
Assess if the diarrhoea is due to constipation and is overflow
Isolate in single room on enteric/stool precautions, inform the infection control nurses and send a specimen for C.difficile testing
If YES treat for constipation
If NO stop the laxatives and review in 24 hrs. DO NOT SEND SPECIMENS WHILE THE PATIENT IS ON LAXATIVES
C.difficile positive – go to treatment of C.difficile flowchart
C.difficile negative – consider other causes of diarrhoea and discuss isolation requirements with infection control nurses on bleep 205
If the diarrhoea has not resolved after 24hrs - Isolate the patient in a single room on enteric/stool precautions, inform the infection control nurses and send a specimen for C.difficile testing
*If a patient is admitted with diarrhoea or developes diarrhoea symptoms in the first 72 hours of admission please see section 8.1 of the antibiotic policy for guidance.
ICT/Diarrhoea flow chart /January 2013

C.difficile Testing Regime and Results



2 Introduction

Background
Clostridium difficile is an anaerobic bacterium and produces spores that can survive for months in the environment. It can be found in a small number of healthy people as part of their normal gut bacteria. It is common in the intestines of babies, but does not cause disease because its toxins do not damage their immature intestinal cells.
C. difficile is a major cause of antibiotic-associated diarrhoea. People over the age of 65 are particularly susceptible. Acute hospitals in England are required to report all *C. difficile* toxin positive stool samples in those over 2 years of age.

Trust-wide Control Strategy
The Trust has done a considerable amount of work in order to reduce the risk of *C. difficile* infection (CDI) to patients. The main components of this strategy are based on the Department of Health High Impact Intervention for reducing the risk of infection from *C. difficile,* and the Health Protection Agency good practice guide for control of *C.difficile*. The main components are

- A care pathway for patients with C.difficile diarrhoea (Appendix 2).
- Isolation of all symptomatic cases with use of personal protective clothing for staff.
- Promotion of hand washing for patients with diarrhoea.
- Restrictive antibiotic prescribing policy (available on the intranet and compliance monitored).
- Enhanced environmental cleaning with chlorine (this includes a trigger mechanism).
- Root cause analysis (RCA) of *C.difficile* cases and SUI for associated deaths.
- Informing patient's GPs that that they have had a recent C.*difficile* infection and giving written advice on re-occurrence (Appendix 3).
- Infection Prevention & Control (IPC) Team operational procedure for the follow-up of patients with *C.difficile*.

Symptoms
C. *difficile* as part of the normal gut bacteria may never cause any symptoms and therefore does not need any attention.
When symptomatic, *C. difficile* can cause a variety of symptoms:

- diarrhoea
- fever
- loss of appetite
- nausea and / or vomiting
- abdominal pain or tenderness
- raised WBC
- pseudomembranous colitis can occur in a small percentage of the cases.

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)

Spread

Although some patients may be asymptomatic carriers (<5% adults, increasing carriage with increasing age)) most cases develop after cross-infection from another source. The source can be a patient, healthcare staff, or the environment. A person who has *C. difficile* diarrhoea excretes a large number of spores in their diarrhoea. These spores can contaminate the general environment, including toilet areas, bedside areas, and sluice rooms. Spores remain viable for a long period of time.
The mode of transmission is contact spread by either the direct or indirect route. The bacterial spores are then transported on the hands, and if ingested by a susceptible person, can cause illness.
The policy has been developed by the Infection Prevention & Control (IPC) Team and distributed to the Infection Control Committee for comments and endorsement (See appendix 1) prior to being sent to the Trust policy review group for ratification.

3 Scope

This policy applies to all employees of the Trust in all locations including the Non-Executive Directors, temporary employees, locums and contracted staff'.

4 Roles and Responsibilities

Trust Board
Have the ultimate and collective responsibility for ensuring that the importance of control of *C.difficile* is engendered in all staff. They must ensure that the processes and necessary resources are available to allow for effective control of *C.difficile.*

Infection Control Committee
Will advise and monitor the implementation of the hospital control strategy for *C.difficile*, ensure the necessary processes are available and ensure the highest standards of clinical care in relation to hand hygiene are achieved, monitored, and maintained.

Directorates
Are to ensure that all staff within their teams attend training, comply with Trust control of *C.difficile* practices, and clinical areas participate in appropriate audits as recommended the IPC Team.

Dept / team Managers
Are to ensure that all staff attend Trust induction and refresher infection prevention & control sessions, which include control of *C.difficile* as standard and comply with the standards in this policy.

Non Medical Education Team
Are to ensure that all appropriate training incorporates infection control and prevention training which includes prevention and management of C.*difficile*. To organise and maintain records with follow-up on non-attendance for induction and refresher training.

Medical Staffing and Education Team
Are to ensure that all appropriate training incorporates infection control and prevention training which includes prevention and management of C.*difficile*. To organise, maintain records and follow up on non-attendance for induction of all medical staff.

Clinical staff

Are to attend the Trust induction which includes infection prevention & control and control of *C.difficile,* and then annual refresher infection control sessions which include control of *C.difficile* as standard. Clinical staff are further expected to comply with practice recommendations at all times.

Non clinical staff
Are to attend the Trust induction, which includes infection prevention & control and control of C.difficile. Non-Clinical staff are further expected to comply with practice recommendations at all times.

Infection Prevention & Control Team
On laboratory confirmation of *C difficile* toxin positive stool result the mandatory surveillance (MESS) website will be completed. The case will be reported as an incident on the Trust incident reporting system (Datix) and investigated as a Serious Incident Investigation (SII), which will then be reported to the Patient Safety Committee.

The infection control nurses will provide a patient care pathway and ensure that appropriate isolation and treatment is implemented (for in-patients).

5 Practice recommendations

5.1 Diagnosis

As soon as a patient produces a diarrhoeal stool (Bristol stool chart type 5 – 7, see Appendix 4) a specimen must be sent to the microbiology laboratory for *C.difficile* toxin testing (unless already known to be *C.difficile* toxin positive in a previous stool sample within one month). The Homerton Microbiology laboratory routinely performs 7 day testing for C.*difficile* in diarrhoeal stool samples.

Stage 1: Glutamate dehydrogenase (GDH) screening test – for the presence of C.difficile.
If the stool sample is GDH positive, the C.difficile toxin gene PCR will be performed.

Stage 2: C.difficile toxin gene PCR test – to establish whether the strain of C.difficile is toxigenic (and therefore capable of producing C.difficile infection which is a toxin-mediated disease) or non-toxigenic (and therefore not capable of producing C.difficile infection).
If the stool sample is also C.difficile toxin gene PCR positive, the C.difficile toxin production test will be performed.

Stage 3: C.difficile toxin production test (by Enzyme ImmunoAssay (EIA)) – to look for C.difficile toxin production

The comments on the microbiology reports will read as follows:

1. GDH screening test negative –
    - C.difficile NOT detected.

2. GDH screening test positive, C.difficile toxin PCR negative
    - C.difficile toxin gene NOT detected, no evidence of toxigenic C.difficile.
    - If any queries discuss with Microbiologist B092 or Infection Control Nurses B205

3. GDH screening test positive, C.difficile toxin PCR positive, C.difficile production test (EIA) negative.
    - C.diff toxin gene detected. C.diff toxin production not detected. Patient is at risk of C.difficile infection (CDI).
    - Patient should remain or be placed if not already so in Side Room isolation on enteric precautions until formed stool (Bristol Stool Chart type 1-4) for 72h.
    - Clinical review of all cases to discuss the possible need for treatment will be carried out by the Microbiologists (B092)

4. GDH screening test positive, C.difficile toxin PCR positive, C.difficile production test (EIA) positive.
    - C.diff toxin gene detected. C.diff toxin production detected. Consistent with C.difficile infection (CDI)
    - Patient should remain in or be placed if not already so in Side Room isolation on enteric precautions until formed stool (Bristol Stool Chart type 1-4) for 72h.
    - Clinical review of all cases to discuss treatment regimen will be carried out by the Microbiologists (B092)

The reports on EPR will reflect the above advice for clinical teams.

If there is a strong clinical suspicion, it is advised that the patient be managed and treated as presumptive C.*difficile* toxin positive pending confirmation. If the first specimen is C.*difficile* toxin positive there is no need to send a repeat. If it is C.*difficile* negative but the patient continues to be symptomatic, and *C.difficile* is a likely diagnosis, please discuss the case with microbiology. During this time the patient must be managed according to clinical picture as a presumed case of C.*difficile*. Do not continue to send specimens unless advised by the IPC Team or Microbiologists.

Severity of disease
Assess the initial severity of CDI using criteria below (please tick) and then <u>review daily</u> - see over page for treatment options for each CDI severity level
Mild CDI □ <3 type 5-7 stool on the Bristol Stool Chart per day □ WCC not raised
Moderate CDI □ Raised WCC that is <15 x 10^9/L □ 3-5 type 5-7 stool on the Bristol Stool Chart per day
Severe CDI (any one of the below) □ WCC>15 x 10^9/L □ Acutely rising creatinine (i.e. >50% increase above baseline) □ Temperature of >38.5°C □ Evidence of severe colitis (abdominal or radiological signs) □ Bowels open > 7 times per day (may be a less reliable indicator of severity)
Life-threatening infection (one of the below) □ Hypotension □ Partial or complete ileus □ Toxic megacolon □ CT evidence of severe disease

5.2 Identification of a case and Isolation – acute hospital/inpatient setting

Isolation
Inform patient of the need for isolation precautions and provide an information leaflet. Ensure that relatives who are immunocompromised or high risk (e.g. on antibiotics) are aware of the risks and any additional precautions they may need to take and importance of hand washing with soap and water.
Isolate the patient in a single room with ensuite toilet facility or dedicated commode Implement STOOL/ENTERIC PRECAUTIONS (blue sign) Linen must be bagged in the room into an alginate dissolve bag. Waste must be discarded into an orange clinical waste bag. Equipment, especially commodes, should stay inside the room/cohort area until patient discharge or de-isolation.
Domestic team informed of requirement for a daily source isolation clean using a 1,000ppm chlorine disinfectant/ Tristel®.
Patient management
Antibiotic treatment reviewed within 12 hours and where possible discontinued. If not possible discuss alternative CDI lower risk antibiotics with Microbiology
Started treatment for CDI as per severity and treatment regime
Bristol Stool chart commenced
Fluid balance chart commenced
Nutritional status of patient assessed using MUST and referred to dietician team if required. Repeat nutritional assessments may required weekly.
Skin integrity assessed and referred to Tissue Viability if required. Repeat skin integrity assessments may be required.
Assessed for Zassi® bowel management system. Repeat Zassi® bowel management system assessments may be required.
Proton Pump Inhibitors and other medicines that can produce diarrhoea to be reviewed and where possible stopped e.g. acarbose, biguanides, bile salts, colchicines, cytotoxics, dipyridamole, gold preparations, iron preparations, laxatives, leflunomide, magnesium preparations e.g. antacids, metoclopramide, misoprostil, NSAIDs, olsalazine, orlistat, ticlopidine.
Use and dosage of immunosuppressants e.g. steroids to be reviewed
Anti-peristaltic drugs e.g. codeine and loperamide stopped (alternative pain relief should be instituted if necessary)
De-isolation
No type 5-7 stools for 72 hours (do not send clearance stool specimens) – de-isolate
Terminal clean of room carried out

5.3 Identification of a case and Isolation – community non-inpatient setting

Infection control precautions
Inform patient of the need for high standards of personal hygiene and provide an information leaflet. Ensure that relatives who are immunocompromised or high risk (e.g. on antibiotics) are aware of the risks and any additional precautions they may need to take and importance of hand washing with soap and water.
Staff visiting the patient should wear gloves and aprons for contact with the patient, remove these immediately on completing the care task and wash hands with soap and water.
Patient management
Antibiotic treatment reviewed within 12 hours and where possible discontinued. If not

possible discuss alternative CDI lower risk antibiotics with Microbiologists.
Started treatment for CDI as per severity and treatment regime as discussed with Microbiologists.
Patient advised re fluid intake
Skin integrity assessed and referred to Tissue Viability if required.
Proton Pump Inhibitors and other medicines that can produce diarrhoea reviewed and where possible stopped e.g. acarbose, biguanides, bile salts, colchicines, cytotoxics, dipyridamole, gold preparations, iron preparations, laxatives, leflunomide, magnesium preparations e.g. antacids, metoclopramide, misoprostil, NSAIDs, olsalazine, orlistat, ticlopidine.
Use and dosage of immunosuppressants e.g. steroids reviewed
Anti-peristaltic drugs e.g. codeine and loperamide stopped (alternative pain relief should be instituted if necessary)

5.4 Treatment

A care pathway (Appendix 2) has been developed for use on in-patients. All in-patients' will be automatically followed up by the infection control nurses and reviewed on the weekly Infection Prevention & Control ward round which consists of infection control nurse and microbiologist. Patients in the community will be followed up by the patient's GP.

- ALL cases of *C.difficile* infection MUST BE DISCUSSED WITH THE MICROBIOLOGISTS so that appropriate treatment plans can be put in place.
- STOP all antibiotics unless absolutely essential; if antibiotic treatment is required, please discuss with Microbiology for lowest risk antibiotics.
- If antibiotics are essential, AVOID quinolones, cephalosporins, clindamycin or co-amoxiclav.
- Correct any dehydration and electrolyte abnormalities
- Monitoring of inflammatory markers such as white cell count and C-reactive protein
- Review use and dosage of immunosuppressants e.g. steroids
- Avoid anti-peristaltic drugs e.g. codeine and loperamide
- Avoid and review proton pump inhibitors.
- Recurrence is common but antibiotic resistance unlikely

TREATMENT REGIMENS FOR CDI **ALL CASES OF CDI AND ANY CHANGES IN TREATMENT REGIMEN MUST BE DISCUSSED WITH THE MICROBIOLOGISTS** ***&*** **ALL CDI IN-PATIENTS MUST BE RE-ASSESSED DAILY BY THEIR CLINICAL WARD TEAM**
Mild and Moderate CDI
Metronidazole 400 mg TDS oral or NG tube or PEG for duration: 14 days Diarrhoea should resolve in 1-2 weeks. If no improvement in symptoms after one week or symptoms worsening then change to **vancomycin 125mg QDS oral or NG tube or PEG for duration: 14 days** If no improvement in type or frequency of stool after two weeks of treatment please discuss further treatment options with Microbiologists and refer to Gastroenterologists for sigmoidoscopy to exclude alternative diagnoses If evidence of severe or life-threatening CDI – see below

Severe CDI
Vancomycin 125mg QDS oral or NG tube or PEG duration: 14 days If no improvement in symptoms after one week or symptoms worsening, AND, depending on degree of ileus, the use of high-dosage **oral vancomycin (500 mg QDS, oral or NG or PEG) +/- IV metronidazole 500mg TDS for 10 days** should be discussed with the Microbiologists and GI/Surgical consultation considered. The addition of oral rifampicin 300mg BD or IV immunoglobulin (400mg/mg, one dose) or intracolonic vancomycin or other adjunctive therapies may also be considered. If the patient is not responding to Vancomycin then Fidaxomicin 200mg BD should be considered. This will on Consultant Microbiologist recommendation only.
Life-threatening CDI
Fidaxomicin 200mg BD OR **Vancomycin 500mg QDS oral for 14 days via nasogastric tube or rectal installation using Zassi® bowel management system PLUS Metronidazole 500 mg TDS IV** The addition of oral rifampicin 300mg BD or IV immunoglobulin (400mg/mg) or other adjunctive therapies may also be considered. **Close monitoring with input from Microbiologists, Surgeons and Critical Care Outreach essential.** Monitor blood lactate. Colectomy should be considered, especially if caecal dilatation >10cm. Colectomy should be performed before blood lactate rises >5mmol/L, when survival is extremely poor.
Recurrences with no evidence of impending surgical abdomen
Vancomycin 125mg QDS oral or NG tube or PEG duration: 14 days **THEN tapering dose of vancomycin: 125mg TDS for 7 days** **THEN 125mgs BD for 7 days** **THEN 125mg OD for 7 days** Other therapies such as Fidaxomicin 200mg BD may be recommended by Microbiologists.

5.5 De-isolation and discharge

- The patient may be removed from isolation for *C. difficile* infection when a 'symptom free status' is obtained. This is defined as no type 5 – 7 stool (based on the Bristol stool chart (Appendix 5) **for 72 hours**.
- Repeat stool samples for a test of cure are not required as the toxin may continue to be detectable in the stool for up to 4 weeks and infectivity is based on the presence of diarrhoea.
- Once a patient no longer requires a side room, a terminal clean of the room must be completed. See isolation room cleaning policy.
- The patient should remain under observation for further episodes of diarrhoea and consideration given to future antibiotic prescribing in relation to previous *C.difficile* diarrhoeal illness.
- The risk of re-occurrence is 20% and for this reason upon discharge the IPC Team will send a letter to the patient's GP advising them of the patient's history of *C.difficile* infection and risk of antibiotic use (Appendix 3).

5.6 Relapse

- It is important to continue to assess a patient who has had symptomatic *C. difficile* infection, as a certain number of patients, treated apparently successfully, will relapse and require further treatment.

- Patients who have been previously *C. difficile* toxin positive and develop diarrhoea should be considered as a potential re-infection or re-lapse. However, it is difficult to distinguish between relapse and re-infection.
- The IPC team and Microbiologists must be contacted for advice.
- See Appendix 2 the Care Pathway for treatment of re-lapse.

5.7 Outbreak or cluster of cases

If there are 2 cases of *C.difficile* toxin gene PCR or C.difficile toxin (EIA) on the same ward in a 28-day period this triggers an automatic deep clean of the whole ward, sending the isolates for typing and reporting as an incident via the Trust incident reporting system. The IPC Team are responsible for identifying such situations, requesting the deep clean and increased cleaning input, reporting the incident and investigating it. In a situation where there are further cases and an ongoing outbreak, the Trust outbreak policy would be referred to and an Outbreak Control Group convened.

5.8 Patient and Public Information

All patients are informed of their positive *C.difficile* toxin result by the ward staff or infection control nurses. The *C.difficile* patient information leaflet is available from the IPC Team.
Information on the Trust performance is available from the published data on the Health Protection Agency website via the Trust infection prevention and control website page. Additional information can be requested from the IPC Team.

6 Training and awareness

All Infection Prevention and Control training sessions for staff contain a section on C.difficile. Infection Prevention and Control training is part of the Trust mandatory training programme contained in the Trust Mandatory Training Policy available on the Trust intranet

Managers are responsible for identifying staff training requirements, booking and following up attendance/non attendance of Infection Prevention & Control mandatory training. Identification of what training staff require can be found in the Trust mandatory training policy available on the Trust intranet.

7 Review

This policy will be reviewed in *3* years time. Earlier review may be required in response to exceptional circumstances, organisational change or relevant changes in legislation or guidance.

8 Monitoring/Audit

Monitoring

The Trust has rigorous procedures in place to monitor the incidence of *C.difficile* in the organisation. The IPC Team receives daily isolate results to identify any new positive patients. Each new case is investigated as a Trust Serious Incident (SI) with Post Infection Review and report to the Patient Safety Committee. If there is a C.difficile associated death a Serious Investigation (SI) is completed and reported to the Patient Safety Committee. In order to identify and prevent any potential problems a trigger has been set for *C.difficile;* if there are 2 cases on the same ward in a 28 day period, a deep clean of the ward or bay is performed. The deep clean is requested by the IPC Team.

Surveillance and reporting

Mandatory surveillance is performed as per DH and HPA instruction and details of the process are in the Infection Control Surveillance and Incident Reporting Policy. All C.difficile Toxin (EIA) results are reported on the mandatory enhanced surveillance website. Monthly alert organism surveillance is performed by the ICNs and results fed back to wards and directorates as per surveillance and incident monitoring policy. All patients have a severity score recorded and this is monitored by the Infection Control Team All data is reported to the Infection Control Committee which is a sub committee of the Trust board.

Audit and compliance

The audit and monitoring of these standards is essential to ensure that all aspects of patient care related to the prevention and control of *C.difficile* associated diarrhoea are carried out.

Compliance is audited as part the infection control audit programme. Results of the audits are fed back through to the directorates and clinical areas. The Saving Lives tool is used to inform this process. Each patient identified with *C.difficile* is assessed to determine compliance with the Trust Antibiotic Policy.

Measurable Policy Objective	**Monitoring/Audit**	**Frequency of monitoring**	**Responsibility for performing the monitoring**	**Monitoring reported to which groups/committees, inc responsibility for reviewing action plans**
Compliance with policy practices Compliance with antibiotic prescribing practices	RCA into each case Audit	Ad hoc as required As per Infection Control Annual Programme	Infection control team Antibiotic pharmacist & ICT	Patient safety committee/ Infection control committee Infection control committee

9 References / Bibliography

This document has been developed using the evidence and recommendations from the Department of Health and Public health England. Some of the recommendations are based on lessons learnt from Health Care Commission investigation and recommendation into Trust-wide outbreaks of C.*difficile* at 2 large NHS Trusts.

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6. National *Clostridium difficile* Standards Group. : Report to the Department of Health. The Stationary office, London, 2005

7. Saving Lives: a delivery programme to reduce Healthcare associated infection including MRSA. High Impact Intervention No6: reducing the risk of infection from and the presence of *Clostridium difficile*. Department of Health, 2006

8. Health Protection Agency Regional Microbiology Network. A Good Practice Guide to Control of *Clostridium difficile*. January 2007.

9. Department of Health. Updated Guidance on the diagnosis and reporting of Clostridium difficile. 2012

10. Public Health England. Updated Guidance on the management and treatment of Clostridium difficile infection. 2013.

Appendix 1: Multidisciplinary *Clostridium difficile* Infection (CDI) Care Pathway

REMEMBER: CDI IS A DIAGNOSIS IN ITS OWN RIGHT

Patient name:	**Date of admission:**
Hospital Number:	**Date of specimen:**
Date care pathway initiated:	**Consultant:**

Inclusion Criteria – Adult patients with *Clostridium difficile* toxin positive stool result and loose stool
Exclusion Criteria – Patients under the age of 16. Contact microbiology and infection control for advice on these cases

Severity of disease	**Date/s**	**Signature**
Assess the initial severity of CDI using criteria below (please tick) and then review daily - see over page for treatment options for each CDI severity level		
Mild CDI □ <3 type 5-7 stool on the Bristol Stool Chart per day □ WCC not raised		
Moderate CDI □ Raised WCC that is <15 x 10^9/L □ 3-5 type 5-7 stool on the Bristol Stool Chart per day		
Severe CDI (any one of the below) □ WCC>15 x 10^9/L □ Acutely rising creatinine (i.e. >50% increase above baseline) □ Temperature of >38.5°C □ Evidence of severe colitis (abdominal or radiological signs) □ Bowels open > 7 times per day (may be a less reliable indicator of severity)		
Life-threatening infection (one of the below) □ Hypotension □ Partial or complete ileus □ Toxic megacolon □ CT evidence of severe disease		
Isolation		
Inform patient of the need for isolation precautions and provide an information leaflet. Ensure that relatives who are immunocompromised or high risk (e.g. on antibiotics) are aware of the risks and any additional precautions they may need to take and importance of hand washing with soap and water.		
Isolate the patient in a single room with ensuite toilet facility or dedicated commode Implement STOOL/ENTERIC PRECAUTIONS (blue sign) Linen must be bagged in the room into an alginate dissolve bag. Waste must be discarded into an orange clinical waste bag. Equipment, especially commodes, should stay inside the room/cohort area until patient discharge or de-isolation.		
Domestic team informed of requirement for a daily source isolation clean using a 1,000ppm chlorine disinfectant.		
Patient management		
Antibiotic treatment reviewed within 12 hours and where possible discontinued. If not possible discuss alternative CDI lower risk antibiotics with Microbiology		
Started treatment for CDI as per severity and treatment regime		
Bristol Stool chart commenced		
Fluid balance chart commenced		
Nutritional status of patient assessed using MUST and referred to dietician team if required. Repeat nutritional assessments may required weekly. Date referred…….		

Skin integrity assessed and referred to Tissue Viability if required. Repeat skin integrity assessments may be required. Date referred……		
Assessed for Zassi® bowel management system. Repeat Zassi® bowel management system assessments may be required. Date commenced…….		
Proton Pump Inhibitors and other medicines that can produce diarrhoea reviewed and where possible stopped e.g. acarbose, biguanides, bile salts, colchicines, cytotoxics, dipyridamole, gold preparations, iron preparations, laxatives, leflunomide, magnesium preparations e.g. antacids, metoclopramide, misoprostil, NSAIDs, olsalazine, orlistat, ticlopidine.		
Use and dosage of immunosuppressants e.g. steroids reviewed		
Anti-peristaltic drugs e.g. codeine and loperamide stopped (alternative pain relief should be instituted if necessary)		
De-isolation		
No type 5-7 stools for 72 hours (do not send clearance stool specimens) – de-isolate		
Terminal clean of room carried out		
Pathway discontinued		
No diarrhoea, treatment complete and patient de-isolated		

TREATMENT REGIMENS FOR CDI
ALL CASES OF CDI AND ANY CHANGES IN TREATMENT REGIMEN MUST BE DISCUSSED WITH THE MICROBIOLOGISTS
&
ALL CDI PATIENTS MUST BE RE-ASSESSED DAILY BY THEIR CLINICAL WARD TEAM

Mild and Moderate CDI

Metronidazole 400 mg TDS oral or NG tube or PEG for duration: 14 days

Diarrhoea should resolve in 1-2 weeks.

If no improvement in symptoms after one week or symptoms worsening then change to **vancomycin 125mg QDS oral or NG tube or PEG for duration: 14 days**

If no improvement in type or frequency of stool after two weeks of treatment please discuss further treatment options with Microbiologists and refer to Gastroenterologists for sigmoidoscopy to exclude alternative diagnoses

If evidence of severe or life-threatening CDI – see below

Severe CDI

Vancomycin 125mg QDS oral or NG tube or PEG duration: 14 days

If no improvement in symptoms after one week or symptoms worsening, AND, depending on degree of ileus, the use of high-dosage **oral vancomycin (500 mg QDS, oral or NG or PEG) +/- IV metronidazole 500mg TDS for 10 days** should be discussed with the Microbiologists and GI/Surgical consultation considered.

The addition of IV immunoglobulin (400mg/mg, one dose) or intracolonic vancomycin or other adjunctive therapies may also be considered.

If the patient is not responding to Vancomycin then Fidaxomicin 200mg BD should be considered. This will on Consultant Microbiologist recommendation only.

Life-threatening CDI

Fidaxomicin 200mg BD OR

Vancomycin 500mg QDS oral for 14 days via nasogastric tube or rectal installation using Zassi® bowel management system PLUS Metronidazole 500 mg TDS IV

The addition of IV immunoglobulin (400mg/mg) or other adjunctive therapies may also be considered.

Close monitoring with input from Microbiologists, Surgeons and Critical Care Outreach essential. Monitor blood lactate. Colectomy should be considered, especially if caecal dilatation >10cm. Colectomy should be performed before blood lactate rises >5mmol/L, when survival is extremely poor.

Recurrences with no evidence of impending surgical abdomen

Vancomycin 125mg QDS oral or NG tube or PEG duration: 14 days
THEN tapering dose of vancomycin: 125mg TDS for 7 days
THEN 125mgs BD for 7 days
THEN 125mg OD for 7 days

Other therapies such as Fidaxomicin 200mg BD may be recommended by Microbiologists.

Appendix 2: GP letter

Homerton University Hospital NHS
NHS Foundation Trust

Homerton University Hospital
Department of Clinical Microbiology
Homerton Row
London E9 6SR

Microbiology SpR tel: 020 851 5143
Or bleep 092 via Switch 020 8510 5555
Fax: 020 8510 7183

Infection Control Nurse tel: 020 8510 7332
Or bleep 205 via Switch 020 8510 5555

Dear Dr

Re: Patient Name / DOB
Address

The above patient was an inpatient at Homerton University Hospital from to

During admission the patient was diagnosed with *Clostridium difficile* infection and was treated accordingly.

We are writing to inform you there is a small chance that:

- Your patient may relapse. This is usually due to germination of residual spores in the colon, rather than drug resistance or re-infection. In this case you may consider using the same antibiotic that the patient previously responded to (usually oral Metronidazole or Vancomycin).

- In general, future administration of broad-spectrum antibiotics for any reason may precipitate *C. difficile* infection again. Short courses of narrow-spectrum antibiotics are therefore generally preferred.

Once the patient has recovered a test of cure is not required as the *C. difficile* toxin test may remain positive for up to 4 weeks post infection.

If you would like to obtain antibiotic advice for therapy refractory cases, please contact either our Infection Control Team or the Microbiology SpR (contact details above).

Yours sincerely

……
Infection Control Nurse

Appendix 3: Patient Daily Bristol Stool Chart

Bristol Stool Chart

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

Appendix 4: *C.difficile* Diarrhoea Severity Score.

No CDAD: = **1**	(*C. difficile* toxin positive, diarrhoea has already resolved without treatment)
MILD: = **2**	(*C. difficile* toxin positive, diarrhoea resolves with withdrawal of antibiotics + single standard length course of metronidazole (1^{st} line treatment)
MODERATE: = **3a**	*C difficile* positive, diarrhoea requires second line treatment with vanc)
MODERATE: = **3b**	(*C difficile* positive), diarrhoea requires third line treatment of cholestyramine or tapered/pulse dosed vanc and diarrhoea resolves within 1 week of starting treatment)
MODERATE: = **3c**	(*C difficile* positive, diarrhoea requires prolonged/multiple courses of treatment that goes beyond 1^{st}, 2^{nd}, 3^{rd} line treatment with symptoms resolving)
SEVERE: = **4**	(*C difficile* positive, evidence of PMC/toxic megacolon/colonic perforation)
FATAL= **5a**	(non-contributory): (*C difficile* positive, patient dies but *C difficile* is not considered a contributory cause)
FATAL= **5b**	(contributory): (*C difficile* positive, patient dies & *C difficile* is contributory cause)
FATAL= **5c**	(cause of death 1a on death cert)

Equalities Impact Assessment

This checklist should be completed for all new Corporate Policies and procedures to understand their potential impact on equalities and assure equality in service delivery and employment.

Policy/Service Name:	Management and Prevention C.*difficile* Associated Diarrhoea
Author:	Vickie Longstaff
Role:	Infection Control Nurse Consultant
Directorate:	CDSO
Date	10/12/2013

Equalities Impact Assessment Question	**Yes**	**No**	**Comment**
1. How does the attached policy/service fit into the trusts overall aims?			Compliance with Health and Social Care Act 2008. DH targets for C.difficile.
2. How will the policy/service be implemented?			No significant changes in practice and systems already in place.
3. What outcomes are intended by implementing the policy/delivering the service?			Reduction in cases of C.difficile and achieving target.
4. How will the above outcomes be measured?			Mandatory surveillance of C.difficile cases and RCA's.
5. Who are they key stakeholders in respect of this policy/service and how have they been involved?			Infection control committee
6. Does this policy/service impact on other policies or services and is that impact understood?		X	
7. Does this policy/service impact on other agencies and is that impact understood?		X	
8. Is there any data on the policy or service that will help inform the EqIA?		X	
9. Are there are information gaps, and how will they be addressed/what additional information is required?		X	
Equalities Impact Assessment Question	**Yes**	**No**	**Comment**

10. Does the policy or service development have an adverse impact on any particular group?		X	
11. Could the way the policy is carried out have an adverse impact on equality of opportunity or good relations between different groups?		X	
12. Where an adverse impact has been identified can changes be made to minimise it?		N/A	
13. Is the policy directly or indirectly discriminatory, and can the latter be justified?		X	
14. Is the policy intended to increase equality of opportunity by permitting Positive Action or Reasonable Adjustment? If so is this lawful?		X	

EQUALITIES IMPACT ASSESSMENT
FOR POLICIES AND PROCEDURES

2. If any of the questions are answered 'yes', then the proposed policy is likely to be relevant to the Trust's responsibilities under the equalities duties. Please provide the ratifying committee with information on why 'yes' answers were given and whether or not this is justifiable for clinical reasons. The author should consult with the Director of HR & Environment to develop a more detailed assessment of the Policy's impact and, where appropriate, design monitoring and reporting systems if there is any uncertainty.

3. A copy of the completed form should be submitted to the ratifying committee when submitting the document for ratification. The Committee will inform you if they perceive the Impact to be sufficient that a more detailed assessment is required. In this instance, the result of this impact assessment and any further work should be summarised in the body of the Policy and support will be given to ensure that the policy promotes equality.

Policy Submission Form

To be completed and attached to any policy or procedure submitted to the Trust Policy Group

1	**Details of policy**	
1.1	Title of Policy:	Management and Prevention C.*difficile* Associated Diarrhoea
1.2	Lead Executive Director	Chief Nurse and Director of Governance
1.3	Author/Title	Vickie Longstaff (Nurse consultant)
1.4	Lead Sub Committee	Infection Control Committee
1.5	Reason for Policy	To reduce risk of C.difficile infection to patients.
1.6	Who does policy affect?	All clinical staff
1.7	Are national guidelines/codes of practice incorporated?	Yes
1.8	Has an Equality Impact Assessment been carried out?	Yes
2	**Information Collation**	
2.1	Where was Policy information obtained from?	National guidance – see references/bibliography
3	**Policy Management**	
3.1	Is there a requirement for a new or revised management structure if the policy is implemented?	No
3.2	If YES attach a copy to this form	N/A
3.3	If NO explain why	Clinical practices already in place
4	**Consultation Process**	
4.1	Was there internal/external consultation?	Yes
4.2	List groups/Persons involved	Infection control committee
4.3	Have internal/external comments been duly considered?	Yes

4.4	Date approved by relevant Sub-committee	
4.5	Signature of Sub committee chair	
5	**Implementation**	
5.1	How and to whom will the policy be distributed?	Policy available on intranet. Updates included in the infection control newsletter.
5.2	If there are implementation requirements such as training please detail?	None
5.3	What is the cost of implementation and how will this be funded?	None
6	**Monitoring**	
6.1	List the key performance indicators e.g. core standards	Health and Social Care Act 2009 C.difficile objective/target
6.2	How will this be monitored and/or audited?	Mandatory surveillance scheme/ objective monitoring Incident reporting to the patient safety Committee
6.3	Frequency of monitoring/audit	Monthly mandatory reporting As required through incident reporting

Date policy approved by Trust Policy Group:

25.02.2014

Signature of Trust Board Group chair:

Shala K. Adam