Southern Health
NHS Foundation Trust

SH CP 33

Clostridium difficile Procedure

(Infection Prevention and Control Policy: Appendix 15)

This *Clostridium difficile* Appendix must be read in conjunction with the Infection Prevention and Control Policy

Version: 3

Summary:	Clostridium difficile infection causes serious illness and outbreaks among hospital service users, affecting the elderly & debilitated. Antibiotic use and environmental contamination contribute to the risk. Service users in the community setting can also be affected. This appendix defines the actions to be taken by the Trust to reduce the transmission of C. difficile infection and improve the management of affected service users.	
Keywords (minimum of 5): *(To assist policy search engine)*	Clostridium difficile, C. diff, CDI, infectious diarrhoea, Health care associated infection (HCAI), antibiotic associated infection.	
Target Audience:	All staff of all disciplines	
Next Review Date:	September 2020	
Approved & Ratified by:	Infection Prevention and Control Committee	**Date of meeting:** 6th November 2017
Date issued:	December 2017	
Author:	Louise Piper Infection Prevention and Control Nurse	
Sponsor:	Sara Courtney Deputy Director of Nursing and Director of Infection Prevention and Control	

Version Control

Change Record

Date	Author	Version	Page	Reason for Change
18.07.12	Angela Roberts	1		Merger of HPFT and HCHC
18.09.13	Theresa Lewis	2	Multiple changes	Updated guidance published by Public Health England May 2013
19.05.15	Angela Roberts	2	30	Ulysses and SI number prompt added
13.03.17	Angela Roberts	2	23,28	Technical Amendment – Appendix 15.3 terminal clean of isolation room has been strengthened to include advice on radiator cleaning and separate instruction is now available for microfibre and mop and bucket cleaning.
03.11.17	Louise Piper	3	Multiple changes	Policy Review

Reviewers/contributors

Name	Position	Version Reviewed & Date
Theresa Lewis	Lead IPC Nurse	June 2012
Jacky Hunt	IPCN North Hampshire	June 2012
Mary Pilgrim	IPCN SE Hampshire	June 2012
Dr. Helen Chesterfield	Consultant Microbiologist	June 2012
Steve Menear	Chief Pharmacist	June 2012
Sue Hobbs	Community Matron, YEW CCT & virtual ward, Tadley.	June 2012
ICS Area and Modern Matrons		June 2012
MH/LD&SS Area Lead Nurses & Modern Matrons		June 2012
IP&C Committee members		July 2012
Abigail Barkham	Community Matron	June 2012
Rosie Parker	Community Matron	June 2012
Sue Yorke	Community Matron	June 2012
Dr Helen Chesterfield	Consultant Microbiologist	July 2013
Jude Diggins	Exec Director of Nursing, AHP & Quality	Sept 2013
David Jones	Chief Pharmacist	Sept 2013
Jacky Hunt	IPCN North Hampshire	July 2013
Angela Roberts	IPCN SW Hampshire	July 2013
Mary Pilgrim	IPCN SE Hampshire	July 2013
Jacky Hunt	IPCN North Hampshire	V3 November 2017
Joanne Williams	IPCN SW Hampshire	V3 November 2017
IP&C Group members		V3 6.11.17
Jonathan Peters	Antimicrobial Pharmacist	V3 November 2017

CONTENTS

Clostridium difficile Procedure

1. Introduction

1.1 This appendix outlines the management and infection prevention and control procedures required when a service user is suspected / confirmed with *Clostridium difficile* diarrhoea.

1.2 This appendix is based on the recommendations made in *Clostridium difficile* infection: How to deal with the problem (DH 2008) and is compliant with the DH (2012) updated guidance on the diagnosis and reporting of *Clostridium difficile.*
(2 stage testing to deliver accurate results). Updated guidance was published by Public Health England (2013) and this appendix has been updated to reflect these changes.

1.3 *Clostridium difficile* infection (CDI) causes serious illness and outbreaks among hospital in-service users. The elderly and those who have received prior broad spectrum antibiotics are particularly at risk.

1.4 Environmental contamination with *Clostridium difficile* spores contributes to the risk of a service user acquiring CDI.

1.5 Service users from the community setting can also develop Clostridium difficile (C. diff) associated diarrhoea. The extent of, and risk factors for true community acquired C. diff infection is not clear from the evidence available, and requires further exploration.

1.6 It is important that when a service user presents with diarrhoea, the possibility that it may have an infectious cause is considered. Service users with known/ suspected infectious diarrhoea should be isolated, to prevent the spread of infection.

1.7 Effective application of this appendix by SHFT care staff and any other contracted care staff e.g. agency, along with other relevant guidance on antimicrobial prescribing and infection prevention and control practice, will enable the trust to maintain high standards of service user safety with respect to the prevention and control of CDI.

1.8 “The prevention and control of health care associated infection (HCAI) is a priority for all parts of the NHS” (DH 2010). Because of public, media and political interest in CDI and the potential morbidity and mortality this infection can cause, Southern Health NHS Foundation Trust is set an annual target for reducing these infections which is monitored by the trust and our commissioners and recorded onto a national data-base.

2. Definitions

To help identify and manage incidents of *Clostridium difficile* infection, the following definitions are recommended (DH 2008).

2.1 **Clostridium difficile:** Anaerobic, gram positive spore forming bacillus. These spores are resistant to exposure to air, drying, heat and survive in the environment. Following antibiotic therapy the intestinal flora is altered which allows any *C difficile* bacteria to proliferate, the bacteria produce 2 toxins:
Toxin A which irritates the colon and causes what is commonly known as antibiotic associated diarrhoea and Toxin B which is predominantly cytotoxic.

2.2 **C. diff infection:** 1 episode of diarrhoea, defined either as stool loose enough to take the shape of a container used to sample it or as Bristol Stool Chart types 5 -7, that is not attributable to any other cause, including medicines and that occurs at the same time as a positive C. diff culture and/or endoscopic evidence of Pseudomembranous colitis (PMC).

2.3 **CDI:** *Clostridium difficile* infection

2.4 **A period of increased incidence (PII) of CDI:** 2 or more new cases (occurring > 48 hours post admission, not relapses), in a 28-day period on a ward.

2.5 **An outbreak of C. diff infection:** 2 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.

2.6 **Pseudomembranous colitis (PMC):** Infection of the gut resulting in the formation of a thick exudate (false membrane) on the surface of the gut.

2.7 **Cohort nursing:** A group of service users with the same infection who are separated from other service users who do not harbour the infection, and who are nursed in a geographically distinct area in the same room. Ideally, the same nursing staff should provide daily care for the same cohort for the duration of their isolation.

2.8 **Broad spectrum antibiotic:** Active against a large number of bacteria, including normal gut flora. Examples include cephalosporins, ciprofloxacin co-amoxiclav, piperacillin / tazobactam and carbapenams. These are high risk antibiotics for predisposing service users to CDI.

2.9 **Narrow spectrum antibiotic** - Only active against a limited number of bacteria. Less likely to disturb normal gut flora, and therefore less likely to predispose to CDI.

2.10 **Cytotoxin:** Reference test for the presence of *C. difficile* toxins.

2.11 **Toxin test:** A toxin test is used to detect the presence of *C. difficile* toxin(s) that are specific for *C. difficile* colitis / Pseudomembranous colitis.

2.12 **EIA:** Enzyme immunoassay test that detects the presence of toxins

2.13 **GDH:** A glutamate dehydrgenase (GDH) test that detects an antigen that is produced in high amounts by *C. difficile*, both toxin and non-toxin producing. Used to detect if *C. difficile* bacteria are present.

2.14 **NAAT:** Nucleic acid amplification test that detects the presence of toxin gene(s). Used to detect if *C. difficile* bacteria are present.

2.15 **PCR:** Polymerase chain reaction test (a type of NAAT). Used to detect if *C. difficile* bacteria are present.

3. Process

3.1 Key recommendations

Clinicians (doctors and nurses) should apply the following pneumonic protocol (**SIGHT**) when managing suspected potentially infectious diarrhoea.

S	Suspect that diarrhoea might be infective where there is no clear alternative cause for the diarrhoea
I	Isolate the service user and consult with the infection control team while determining the cause of the diarrhoea
G	Gloves and aprons must be used for all contacts with the service user and their environment.
H	Hand washing with soap and water should be carried out before and after each contact with the service user and the service users environment
T	Test the stool for toxin, by sending the specimen immediately to the laboratory

Doctors should consider CDI as a diagnosis in its own right grading each confirmed case for severity (Mild, Moderate or Severe), treating accordingly and reviewing each service user daily, monitoring bowel function using the Bristol Stool Chart.
Assess the severity of CDI every day as follows.

Mild CDI - less than 3 type 5-7 stools on Bristol Stool Chart and a normal white cell count (WCC) per 24 hours.

Moderate CDI - 3-5 stools of type 5-7 on Bristol Stool Chart and a raised WCC (but less than 15 $X10^9$ /L) per 24 hours.

Severe CDI - WCC greater than 15 X 10^9 /L, ***OR*** a temperature of >38.5 ^oC, ***OR*** acute rising serum creatinine (>50% increase above baseline), ***OR*** evidence of severe colitis (abdominal or radiological signs).
The number of stools is a less reliable indicator of severity.

Life threatening CDI - includes hypotension (as a result of sepsis), partial or complete ileus or toxic megacolon, perforation or CT evidence of severe disease.

Prescribers should review antibiotic prescribing on all their ward rounds/service user consultations, stopping unnecessary antibiotics and changing those that do not comply with guidelines.

There is increasing evidence that acid-suppressing medications, in particular proton pump inhibitors (PPI's) may be a risk factor for CDI (Public Health England 2013). Consideration should be given to stopping / reviewing the need for PPI's in patients with or at high risk of CDI.

Pharmacists should also review antibiotic prescribing when checking drug charts during their ward rounds, and consult with medical staff regarding the stopping of unnecessary antibiotics and changing those that do not comply with the HIOW guidelines or those relevant for the locality (e.g. Lymington New Forest Hospital use University Hospital Southampton's guidelines).

3.2 Clinical presentation

CDI affects the colon, and results in a wide spectrum of disease. Some 2% of healthy adults are asymptomatic carriers.

Most service users experience abdominal pain with explosive watery foul smelling diarrhoea.
Some have fever and a raised white cell count (leucocytosis)
Pseudomembranous colitis, toxic mega-colon (i.e. diarrhoea may stop, bowel becomes distended) and perforation are life threatening complications.

CDI is a toxin mediated disease.

Clostridium difficile ribotype 027 is a virulent strain which is capable of producing more toxin, resulting in more severe disease and increased mortality. It has been associated with hospital outbreaks in the UK.

3.3 **Laboratory diagnosis**

3.3.1 Revised guidance DH (2012) to healthcare providers identifies which two types of tests, which when used in combination, will deliver the most accurate results for C.difficile infection testing.

Southern Health NHS Foundation Trust (SHFT) has contracts with acute laboratories that are compliant with the new guidance advocating the use of a two-test protocol / testing process.

3.3.2 Previous testing only identified the presence or absence of C. difficile toxin. Now other tests (GDH antigen test and molecular tests like PCR and NAAT) can detect the presence or absence of the C. difficile bacteria itself.
This additional testing will identify service users who are carrying the bacteria without toxin production. These service users can still contaminate their environment and may be at greater risk of C. difficile infection. (Please refer to figure 1, page 8). Management of service users with unexplained diarrhoea.

3.3.3 Only test stools from symptomatic service users i.e. only liquid/loose stools that take the shape of the container, (Bristol Stool Chart types 5 -7).

3.3.4 Occasionally severe disease, such as PMC or ileus can occur without diarrhoea, in cases of ‘silent’ CDI, other diagnostic procedures such as colonoscopy or CT scan may be required.

3.3.5 Do not retest C. difficile positive cases within a period of 28 days if still symptomatic. (Assume C. difficile infection remains and take appropriate precautions).

3.3.6 More than one test may be required if the first test is negative where there is a strong clinical suspicion of CDI, different acute labs have differing timescales for re-testing samples. When there is a strong suspicion of CDI the service user’s medical doctor must contact the microbiologists at your acute laboratory for further advice.

Figure 1: Algorithm for management of a service user with unexplained diarrhoea
Suspected *Clostridium difficile* infection (CDI)

Step 1: If a service user has diarrhoea (Bristol Stool Chart types 5-7) that is not clearly attributable to an underlying condition (e.g. inflammatory colitis, overflow) or therapy (e.g. laxatives, enteral feeding) then it is necessary to determine if this is due to CDI. If in doubt please seek advice.

Step 2: Collect stool specimen and send to Microbiology
In order for the specimen to be processed for *C.difficile* the sample must take on the shape of the container and ideally be at least ¼ filled (to indicate the service user has diarrhoea).

Step 3:
S - Suspect that a case may be infective when there is no clear alternative cause for diarrhoea.
I - Isolate the service user within 2 hours (and until stools have been formed for at least 48 hours).
G - Gloves and aprons must be used for all contact with the service user and their environment.
H - Hand washing with soap and water should be carried out before and after each contact with the service user and the service user's environment.
T - Test the stool for C.difficile by sending a specimen immediately to the laboratory.

Results:	**Advice:**
1. Clostridium difficile Infection: *C. difficile* bacteria present: **positive screening tests** e.g. GDH antigen test, PCR or NAAT AND *C. difficile* toxin present (**positive** EIA toxin test) **Clostridium difficile Infection likely to be present.**	**Refer to the following local policies:** • Remember the **SIGHT** list above • *Clostridium difficile* Infection appendix 15 • *Clostridium difficile* treatment algorithm • Commence *C. diff* care pathway. • Inform service user, relative/carer of test result • Provide a C. diff information leaflet • Report internally to IPCT.
2. Clostridium difficile carrier: *C. difficile* bacteria present: **positive screening test** AND *C. difficile* toxin not present (**negative** EIA toxin test) ***C.difficile* could be present i.e. potential excretor.**	• Consider other cause of diarrhoea • Routine isolation in a side room is not normally required if asymptomatic but may be indicated, following risk assessment & discussions with the IPCT. • Consider treatment only if symptomatic and clinical symptoms of rising CRP, rising WBC & onset of diarrhoea. • Discuss this case with a microbiologist at your acute laboratory.
3. Unlikely to be a C. difficile infection: *C. difficile* bacteria not present: **negative screening** test AND *C. difficile* toxin not present (**negative** EIA toxin test) ***C. difficile* or CDI is very unlikely to be present.** (There may be transmission potential for other pathogens).	• **Consider other cause of diarrhoea** • **If not infective may consider ending single room isolation, discuss with IPCT** • **Repeat test if problem persists and no alternative causes can be found.**

3.4 **For the Clinical management and treatment of CDI in the Community setting (please refer to 3.9 page 15).**

3.5 **Clinical management and treatment of CDI: In-patient areas:**

- ✓ It is important to be aware of the background rate of diarrhoea in each in-patient area, particularly wards with elderly service users, since loose stools are common in this group.

- ✓ Upon a positive diagnosis of CDI implement the *Clostridium difficile* Care Pathway document (*refer to Appendix 15.1)*.

- ✓ Inform the service user and their relatives and issue a C. diff information leaflet *(refer to appendix 15.4).*

- ✓ **Isolation:**
  Isolate service user immediately in a side room. Service users who do not have access to en-suite facilities must have a commode dedicated for their use, store commodes / bed pan holders in isolation room. The service user may be removed from isolation for rehabilitation, eating and physiotherapy once their stools have returned back to a formed stool, that is "normal for them" for a minimum of 48hrs. **No stool passed for 48 hours does not imply formed stool.** If the service user is incontinent, pads should be worn. If the service user is faecally incontinent, please contact the IPCT for advice.

  There is evidence that even asymptomatic carriers of C. diff can continue to contaminate the environment.

  If the service user relapses, commence strict isolation immediately, request a medical assessment (re-sampling may not be necessary, please contact the IPCT or consultant Microbiologist for advice)

- ✓ **Hand Hygiene:**
  Healthcare workers should wash their hands with soap and water before and after service user contact, after contact with the service user's immediate environment and after contact with body fluids.

  Alcohol hand rub **must not** be used as an alternative to soap and water. It can be applied after hand washing to rid hands of remaining non-clostridial organisms.

  "Liquid soap and water effectively decontaminates hands from both spore and vegetative forms of organisms", (National *Clostridium difficile* Standards Group 2004).

- ✓ **Personal Protective Clothing (PPE):** Staff must wear apron and gloves for any direct contact with the service user or service user's immediate environment. Prior to staff leaving the room they must remove their protective clothing (PPE) dispose of into an infectious (orange) waste bag then wash their hands with soap and water.

  All visitors entering the room must wear disposable gloves and aprons for all contact with the service user and the surrounding environment. They must wash their hands with soap and water before and after each visit.

- ✓ **Cleaning and Decontamination:** If available use single use equipment otherwise use dedicated equipment whenever possible for the sole use of the affected service user whilst in source isolation. Before use on another service user, equipment must be cleaned as per manufacturers' instructions with 1000ppp of available chlorine then rinse and dried with a disposable paper towel.

Inform housekeeping staff, commence daily cleaning with a chlorine based cleaning agent (at least 1,000 ppm available chlorine in addition to detergent).

- ✓ **Microbiology testing:** Send a stool specimen to microbiology for MC&S and C. diff testing.

- ✓ **Other supportive measures:** Implement stool chart. Provide supportive measures for the service user. Replace any fluid or electrolyte deficiency (implement fluid balance chart).

- ✓ **Review current medication:** Stop any unnecessary precipitating antibiotics/other medication e.g. aperients, Loperamide, PPIs or other GI active drugs. Consult Doctor/GP, ward pharmacist or a medical microbiologist based at your Acute hospital, if further prescription advice is required. *(Refer to appendix 15.2, SHFT antibiotic drug trolley poster).*

- ✓ **Assess the severity of CDI every day (mild, moderate or severe)**
  Treat service users according to severity.

  Mild and moderate CDI - oral metronidazole 400mg tds for 10-14 days. If no response or symptoms worsening, change to oral vancomycin 125 mg qds for 10-14 days.

  Severe CDI - oral vancomycin 125 mg qds for 10-14 days. ,
  In patients not responding to oral vancomycin 125 mg qds, consider high dose oral vancomycin (up to 500mg qds), administered via nasogastric tube if necessary, plus intravenous metronidazole 500mg tds.

  If symptoms are not improving, or worsening, request urgent surgical review, for consideration of colectomy.

  (The addition of oral rifampicin (300mg bd), IV immunoglobulin or po fidaxomicin may be considered in discussion with an infection specialist/consultant microbiologist). Please note that Fidaxomicin can only be prescribed by a Consultant on the advice of a Microbiologist.

  Life threatening CDI – These service users require close monitoring, with specialist surgical input, and should be transferred to the local acute Hospital trust. *(Refer to Treatment Algorithim, figure 2, page 12).*

  Relapse or recurrence of symptoms - Recurrence occurs in about 20% after episode 1 and 40-60% after episode 2. Up to half of recurrences are re-infection as opposed to relapses due to the same strain.

  Treat 1st recurrence with 125mg qds po vancomycin for 10-14 days

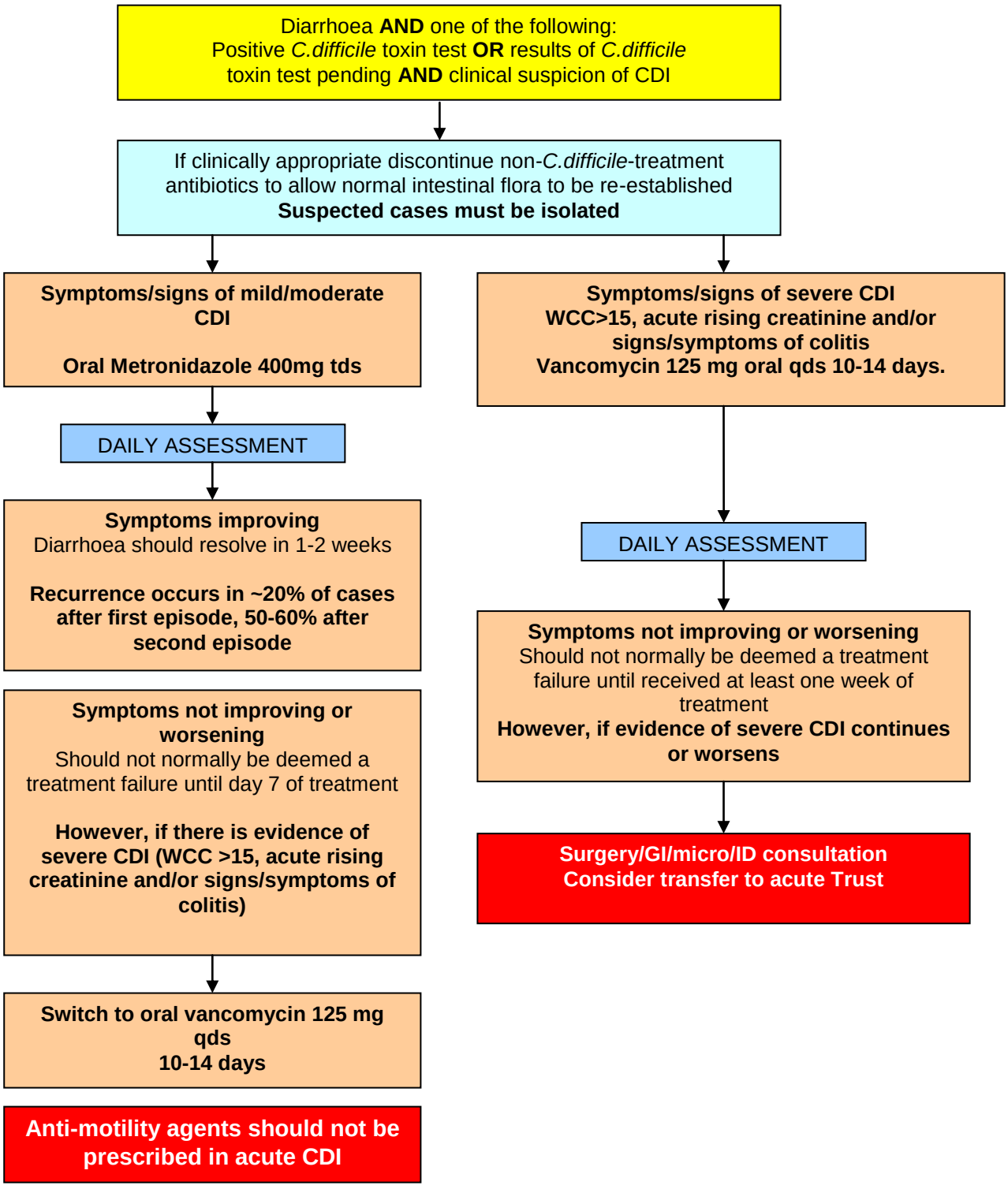
  Do not re-test for C. diff toxin in positive cases if the service user is still symptomatic within a period of 28 days unless symptoms resolve and then reoccur and there is a need to confirm recurrent CDI (DH 2008).

  Recurrent CDI - If there are multiple recurrences consider either a tapering course or pulsed regime of vancomycin therapy. Please discuss with local microbiology consultant. (*Refer to Treatment Algorithm figure 3, page 13).*

  Published guidelines (PHE 2013) recommend Fidaxomicin 200mg od as an alternative to vancomycin for recurrent infection. This will be dependent on local decisions and must be discussed with a local infection specialist/microbiology consultant. As mentioned previously Fidaxomicin can only be prescribed by a Consultant on the advice of a Microbiologist

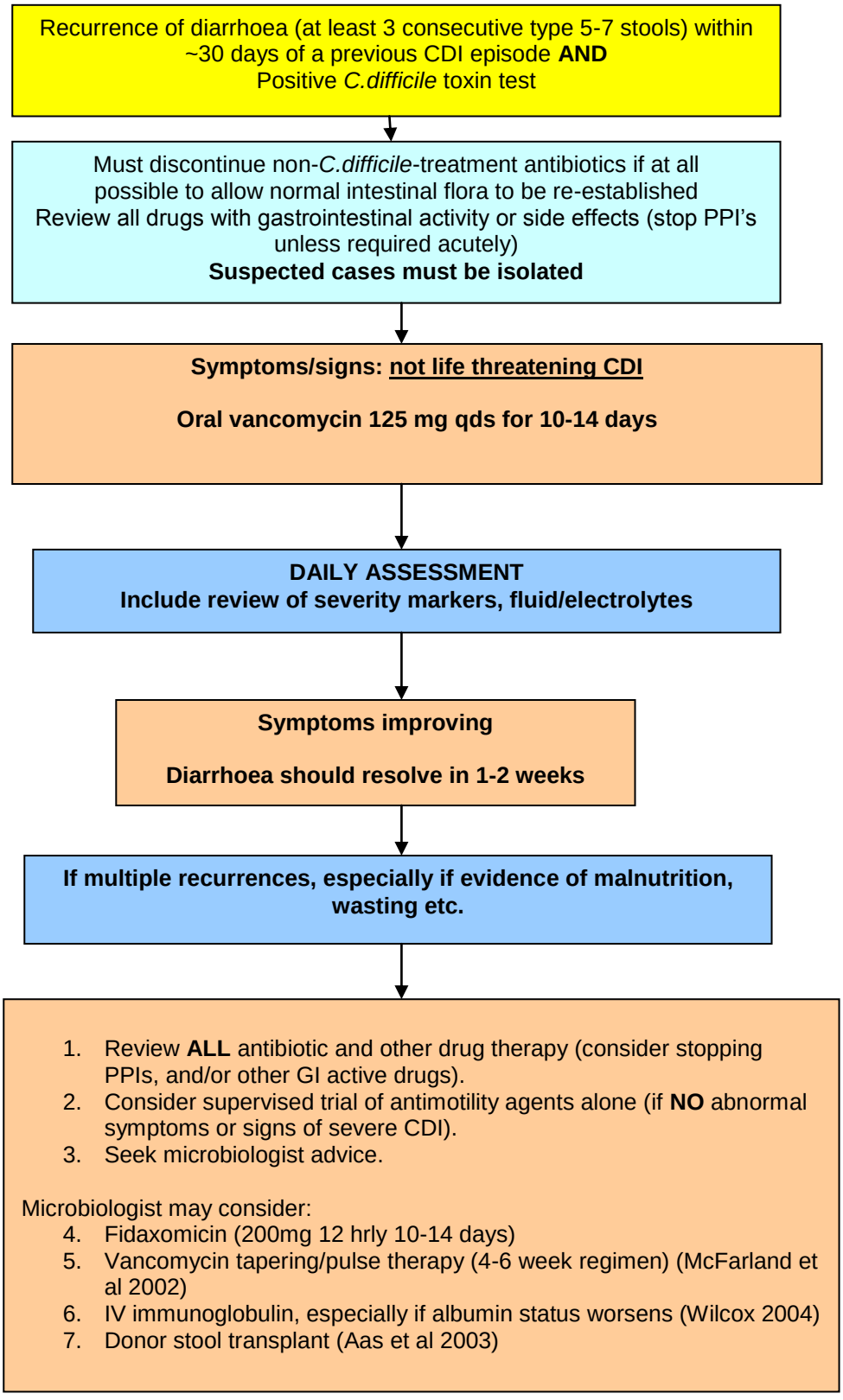
Treatment algorithm

Figure 2: First episode of *C.difficile* infection (CDI).



Treatment algorithm

Figure 3: Recurrent *C.difficile* infection (Recurrent CDI occurs in 15-30% of patients treated with metronidazole or vancomycin)



3.6 Prevention of CDI through antibiotic prescribing

Follow Hampshire and Isle Of Wight (HIOW) guidelines for appropriate antibiotic Prescribing (or University Hospital Southampton if at Lymington New Forest Hospital or Portsmouth Hospital Trust for Petersfield Community Hospital). (*Please refer to HIOW Antibiotic guidelines, found on staff intranet click on medicines management then documents, view all, and Appendix 15.2, SHFT Antibiotic drug trolley poster.)*

Restrict use of broad spectrum antibiotics, use only when indicated by the service user's clinical condition, and review on results of microbiological testing or according to the local sensitivities of causative organisms. Narrow spectrum agents **should be used** for empirical treatment where appropriate. Adhere to the "start smart then focus" advice to optimise empirical therapy and de-escalate to narrow spectrum as soon as possible.

Minimise the use of broad spectrum antibiotics such as clindamycin, third generation cephalosporin's, quinolones and penicillin's with beta lactamase inhibitors (i.e. coamoxiclav and piperacillin/tazobactam) especially in the elderly or in those with a history of CDI.

Prescribers and pharmacists should review antibiotic prescriptions on all their ward rounds, stopping unnecessary treatment. Antibiotics should be prescribed only when there is clinical evidence of bacterial infection. The indication for antibiotics should be clearly documented in the service user's notes.

Current research does not recommend the use or probiotics for the prevention of antibiotic associated diarrhoea or CDI. The role of prebiotics in the prevention of CDI has been under-explored and further research is desirable (Public Health England 2013).

3.7 Prevention of CDI through isolation in hospital

Because C. diff is an infectious disease with high levels of hand and environmental contamination (but not staff carriage), early isolation helps to both control outbreaks and reduce endemic levels of CDI (National *Clostridium difficile* Standards group, 2004).

All service users with suspected or confirmed CDI or diarrhoea of unknown origin should be moved immediately into a single room with a self contained toilet or commode.

If isolation is not possible in a single room, take advice from the Infection Prevention and Control team or manager on call. Inability to isolate will result in an incident being recorded onto Ulysses.

In an outbreak situation involving 2 or more service users where single rooms are not available, it will be necessary to cohort nurse service users together in a dedicated area of the clinical environment.

All staff and visitors entering the room must use disposable gloves and aprons for all contact with the service user and the surrounding environment.

All staff and visitors must wash hands with soap and water before and after each service user contact. Alcohol hand rub must not be used as an alternative to soap and water as it is not effective against *C. difficile* spores but can be applied after hand washing to rid hands of remaining non-clostridial organisms.

All clinical waste must be treated as infectious and placed inside an orange bag within community hospitals.

All linen, including curtains, should be considered as contaminated and bagged into an alginate then clear bag.

Transfer and movement of service users with CDI should be reduced to a minimum unless clinically urgent.
If a service user requires transfer to another department for urgent investigation e.g. X ray, the receiving area should be notified of the service users CDI status before transfer, arrangements should be put into place to minimize the service user's waiting time and hence contact with a new environment/other service users.
Transfer to other healthcare facilities e.g. Acute Trust should include notification of the service users CDI status documented on the transfer form as per Trust Transfer policy, consult the Infection Prevention and Control Nurse (IPCN) for your area in the first instance.
The GP/community team, should be informed via the discharge summary and GP proforma letter (*appendix 15.5 pg.28)*, once the service user is ready to go home.

After transport of the service user, good infection control practice (standard precautions) and cleaning using a chlorine containing agent should suffice to prevent cross infection.

The service user may be removed from isolation for rehabilitation, eating and physiotherapy once their stools have returned back to a formed stool, that is "normal for them" for a minimum of 48hrs.

Deceased service user: Infection control precautions for handling deceased service users are the same as those used when the service user is alive.
Faecal soiling around the cadaver on equipment/surfaces should be cleaned firstly with detergent followed by a chlorine containing agent (at least 1,000 ppm available chlorine in addition to detergent).
Body bags are not considered necessary.
There is negligible risk to mortuary staff or undertakers provided that standard infection control precautions are used.

Death certification: Doctors have a legal duty to mention CDI on the death certificate if it was part of the sequence of events directly leading to death or contributed in some way. (Chief Medical Officer, 2007).
If a service user with CDI dies, the death certificate should state whether CDI was part of the sequence of events leading directly to death or whether it was the underlying cause of death. If either case applies the CDI should be mentioned in Part 1 of the death certificate.
If CDI was not part of the sequence of events leading directly to death but contributed in some way, this should be mentioned in part 2 of the death certificate.
C. diff deaths are investigated as a serious incident requiring investigation (SI) and a root cause analysis will be undertaken involving the service user's medical doctor, ward manager and member of the Infection Prevention and Control Team (IPCT) with additional support from a consultant microbiologist and the Trust's medicines management team.

3.8 Prevention of CDI through environmental cleaning and disinfection

C. diff spores can survive in the environment and on multiple surfaces for months or years. The heaviest contamination is often found on floors, commodes, toilets, bedpans and bed frames which are subject to faecal contamination, (DH 2008).

Management of the environment and equipment should be considered as central to minimising the spread of C difficile. C. diff spores can survive for long periods in the environment and survive the cleaning process using routine disinfectants. The use of a chlorine-containing cleaning agent is more effective on environmental surfaces.

Environmental cleaning of rooms or bed spaces of service users with CDI should be carried out at least daily, as per appendix 9 of the overarching IPC policy, using chlorine-containing cleaning agents, at least 1,000 ppm available chlorine in addition to detergent (DH 2008).

All commodes, toilets and bathroom areas of CDI service users should be cleaned after each use with chlorine containing agents as above.

The clinical environment should be kept clutter free.

Infectious terminal isolation room clean, should be carried out (as per appendix 9 of the over-arching IPC policy), after the discharge, transfer or death of a service user with CDI. (*Please refer to Appendix 15.3*).

In certain circumstances e.g. outbreak of CDI the IPCT will give consideration to the benefits of disinfection using vaporised hydrogen peroxide for the environment/equipment affected.

3.9 **Clinical management and treatment of CDI in the Community setting.**

Healthcare-associated CDI is defined as that occurring up to 4 weeks after discharge from a healthcare unit (i.e. hospital acute/community). The exact incidence of true community-acquired CDI is not clear.

Management of identified cases of CDI in the community will be GP led.

Services users in their own homes:

- ✓ **Microbiology testing:** All cases of diarrhoea of unknown cause among people in the community aged 2 years and above should be investigated for CDI unless there are good clinical or epidemiological reasons not to do so (DH 2009).
  A stool sample should be collected and sent to the microbiology laboratory at your nearest acute trust for MC&S and *C. diff* testing. Clearly indicate who should be informed of the result i.e. GP.

- ✓ **Personal hygiene:** Service users who have CDI in their own home and who are symptomatic must maintain good standards of personal hygiene e.g. hand washing with soap and water after using the toilet/commode and before preparing/eating food or following cleaning.
  Service users should avoid socialising whilst active with disease/diarrhoea, to minimize the risk to others.

- ✓ **Cleaning:** Keep surfaces in bathrooms/toilets clean using a household disinfectant e.g. bleach type agent (bleach can discolour/damage some surfaces - advise service user to use with caution).

- ✓ **Laundry:** Soiled bedding to be laundered daily. Wash with household detergent/washing powder/liquid at a minimum temperature of 65 degrees Celsius, unless likely to damage fabric. Thorough dry/tumble and hot ironing.

- ✓ **Antibiotic control:** GP's to follow the HIOW guidelines for appropriate antibiotic prescribing (*refer to page 13 of this appendix).*

- ✓ **Visitors:** Discourage visitors whilst symptomatic with diarrhoea.
  If visitors attend they should be in good health, encourage them to wash their hands with soap and water and dry in a clean towel/kitchen roll before they leave or prepare/eat food within the home.

Once the service user has recovered from symptoms, when their stools have returned back to a formed stool, “normal for them” for a minimum of 48hrs, **(NB: no stool passed for 48 hours does not imply formed stool),** there is minimal risk to others.

Service users living in nursing/residential facilities, mental health, or learning disability environments.

Isolation: Those who are symptomatic should have their own room preferably with en-suite facilities or a dedicated toilet/commode for their personal use.

Service users whilst active with diarrhoea should be restricted from the communal areas e.g. dining room/day room.

The service user may be removed from isolation once their stools have returned back to a formed stool, “normal for them” for a minimum of 48hrs, **(NB: No stool passed for 48 hours does not imply formed stool).**

Hand hygiene: Healthcare workers should wash their hands with soap and water before and after service user contact, after contact with the service user’s immediate environment and after contact with body fluids.
Alcohol hand rub **must not** be used as an alternative to soap and water. It can be applied after hand washing to rid hands of remaining non-clostridial organisms.
“Liquid soap and water effectively decontaminates hands from both spore and vegetative forms of organisms”, (National Clostridium difficile Standards Group 2004).

Personal Protective Clothing (PPE): Healthcare staff caring for service users with CDI in the community should wear correct PPE, disposable gloves and aprons for all contact with service users and their environment.
After contact they should dispose of their PPE into the service user’s domestic waste stream or into the clinical waste stream if visiting a nursing/rest home, and wash their hands with soap and water. If soap and water facilities are not accessible then a Clinell sanitizing wipe can be used.

Equipment: If available use single use equipment otherwise use dedicated equipment whenever possible for the sole use of the affected service user whilst active with diarrhoea. Before use on another service user, equipment must be cleaned as per manufacturers’ instructions/1,000ppp of available chlorine then rinse and dry with a disposable paper towel.

Antibiotic control: When prescribing for all service users irrespective of healthcare setting, prescribers should follow the HIOW antibiotic guidelines. (*Please refer to HIOW Antibiotic guidelines, found on the staff intranet). Where applicable prescribers should follow their appropriate local guidance (e.g. Lymington New Forest Hospital should follow University Hospital Southampton guidelines and Petersfield Community Hospital should follow Portsmouth Hospital Trust’s guidelines).*

Transfer to residential facilities: There should be no restriction on institutions such as care homes receiving service users who have had a previous CDI providing they are now clinically asymptomatic. Communication should include notification of the service users CDI status prior to transfer and documentation to this effect on the transfer form as per trust transfer policy. Consult the Infection Prevention and Control Nurse (IPCN) for your area in the first instance.

Communicate the individual’s infectious status clearly to staff and GPs. (*Refer to appendix 15.5: Performa letter to GPs*)

Outbreaks of CDI in institutional settings (Nursing/care home) should be investigated in the same way as a hospital setting led by the Health Protection Agency (DH 2006b, Infection Control Guidance for Care Homes).

If two or more cases of diarrhoea are suspected or known to be infectious and occur within a few days at a care/rest home the registered manager is responsible for reporting this to the local Health Protection Unit (HPU).

3.10 Surveillance

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 *Clostridium difficile* toxin (CDT) positive diarrhoea in service users over 2 years of age (DH 2009).

SHFT are set a target each year by our commissioners, which the IPCT monitor monthly for trends.
SHFT maintains continuous local surveillance of CDI data of community hospital in-service users.
This data is recorded monthly via alert organism surveillance/score card data and forms part of the quality outcome indicators report, which is presented to Trust board monthly. Trends are monitored and fed back through the IPC & Decontamination and divisional governance groups.

Any in-patient who acquires CDI post 72 hours of admission is followed up as part of surveillance monitoring by the IPCT. Acquisition is investigated by a root cause analysis (*refer to appendix 15.6: C. diff RCA tool*) and internal panel meeting in order to monitor and improve practice.

In-patient staff will undertake Saving Lives audit of practice for each newly identified case. (High Impact Intervention No 7 - care bundle to reduce the risk from Clostridium difficile, (DH 2007b), as per care pathway documentation, (*refer to appendix 15.1).*

Any in-patient death of CDI confirmed on part A of the death certificate will be reported as a serious incident requiring investigation (SI), and followed up with an investigation and dissemination of lessons learned via the divisional governance structure. Divisional directors will feedback at Quality and Governance committee.

4. Training

Refer to TNA in the IP&C Policy.

5. References

Aas J, Gessert C, Bakken J. Recurrent *Clostridium difficile* colitis: case series involving 18 patients treated with donor stool administered via nasogastric tube. Clin Infect Dis 2003; 36: 580 -5.

Boyce JM & Pittet D, Healthcare Infection Control Practices Advisory C, Force HSAIHHT (2002) Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Society for Healthcare Epidemiology of America/Association for Professionals in Infection Control/Infectious Diseases Society of America. *MMWR Recomm Rep* 51: 1–45.

Chief Medical Officer (2007). *Healthcare Associated Infections and Death Certification*. PL CMO (2007)8. www.dh.gov.uk/en/Publicationsandstatistics/ Lettersandcirculars/Professionalletters/Chiefmedicalofficerletters/DH_079104

Department of Health (2006) Infection Control Guidance for Care Homes. London: Department of Health.

Department of Health (2008) *Clostridium difficile* infection: How to deal with the problem. London: Department of Health.

Department of Health (2012) Updated Guidance on the diagnosis and reporting of *Clostridium difficile.* London: Department of Health. *www.dh.gov.uk/publications*

Department of Health (2010) The Health and Social Care Act 2008: Code of Practice on the prevention and control of infections and related guidance. London: Department of Health.

Johnson S & Wilcox M (2012) Fidaxomicin: a new option for the treatment of Clostridium difficile infection. *J Antimicrobial Chemotherapy* 67: 2788-92

McFarland LV, Elmer GW and Surawicz CM. Breaking the cycle: Treatment startegies for 163 cases of recurrent *Clostridium difficile* disease. AM j Gastroenterol 2002; 97 (7): 1769 – 1775.

National *Clostridium difficile* Standards Group (2004). Report to the Department of Health. Journal Hospital Infection **56** (Supplement 1): page1 – 38.

Public Health England (2013) Updated guidance on the management and treatment of *Clostridium difficile* infection www.gov.uk/phe@PHE_uk

Wilcox MH. Descriptive study of intravenous immunoglobulin for the treatment of recurrent *Clostridium difficile* diarrhoea. J Antimicrob Chemothera 2004; 53: 882 – 4.

Wilcox M (2012) Progress with a difficult infection. *Lancet Infectious Disease* 12: 256-7

Appendix 15.1: *Clostridium difficile* Care Pathway

Clostridium difficile (C. diff) Care Pathway For use in service users with suspected or confirmed C. diff	Service user's Name: DOB: Hospital No: NHS No:
Date symptomatic: Date isolated: Date stool specimen taken: Date of result:	

Mode of Transmission:

Severity	Tick box	WCC	Stools (24hr period)	Other
Carriage				Incidental isolation of C. difficile toxin
Mild		Not raised	<3 stools of type 5-7	
Moderate		<15x10^9/L	3-5 stools of type 5-7	
Severe		>15x10^9/L	Unreliable indicator of severity	**OR** acute rising serum creatinine (>50% above baseline) **OR** temperature >38.5°C or evidence of severe colitis
Life threatening		As above	As above	Includes hypotension / septic shock **OR** complete ileus or toxic megacolon **OR** CT evidence of severe disease

- **Direct contact with faeces – faecal oral spread**
- **Indirectly through contact with contaminated equipment/environment**

Problem	Aim	Nursing Action (tick when complete)	Review date/ comments	Name
Clostridium difficile toxin has been detected in a stool sample. Service user has active diarrhoea	**Prevent spread of organism**	• Inform service user of diagnosis, give service user information leaflet ☐ • Inform housekeeping and visitors that isolation is in progress ☐ • Isolate service user in a single room ☐ • Display red 'Alert' isolation sign on door ☐ • Commence on Bristol Stool Chart ☐ • Dedicated equipment e.g. named commode ☐ • Request that the Medical team review antibiotics and commence treatment if symptomatic ☐		
If a single room is not available contact IP&CT / bed manager				
Further repeat stool specimens <u>should not</u> be sent to the laboratory within 28 days of a C.difficile toxin positive result, unless another pathogen is suspected.				

	Intervention	Date	Variance (reason & action taken)	Name
Stool Chart	Bristol Stool Chart commenced			
Isolation	Service user isolated in a single room within 2 hours of known positive result. If not achieved report as an incident via Safeguard			
	Standard precautions taken PPE – gloves, aprons, hand hygiene with soap and water – **No alcohol gel**			
	Service user / relatives informed of result and need for isolation, C. diff information leaflet given			
	Service user has dedicated en-suite toilet or commode and access to hand hygiene facilities			
	Source isolation sign displayed at room entrance			
Med	Antibiotic treatment for C. diff started for symptomatic service user. Rationalisation of			

	laxatives, PPI and broad spectrum antibiotics as per HIOW or local Guidelines.			
	Referral for nutritional assessment. Regular monitoring of hydration, fluid balance (adequate oral / IV intake, urine output)			
	Medical assessment required Regular monitoring of WCC/CRP/Serum Creatinine/Albumin. If abdominal pain or distended abdomen, perform abdominal X-ray to detect a toxic mega colon. Monitor fluid balance. Consider bowel management system eg Flexiseal. For antibiotic advice contact the consultant microbiologist at nearest acute trust.			
Cleaning	Domestic team completing daily environmental barrier cleaning of the isolation room using a chlorine releasing agent e.g. Actichlor Plus (1,000ppm available chlorine)			
	All horizontal surfaces and equipment cleaned daily by nursing staff with Actichlor Plus, commode cleaning after each use			
	Fresh solution of Actichlor Plus made up every 24 hours (one 1.7g tablet diluted in 1 litre of warm water)			
	Infectious terminal/Final isolation clean with Actichlor Plus arranged on discharge of service user (ref number if applicable) / retain copies of documentation.			

High Impact Intervention "Saving Lives" Care Bundle – complete daily

Day	**Correct Hand Hygiene** (cleaned before & after service user contact with soap & water)	**Correct Environmental Decontamination** (Use Actichlor Plus to clean environment & equipment)	**Prudent Antibiotic Prescribing** (as per HIOW guidelines)	**Correct Personal Protective Equipment (PPE)** (gloves/aprons are single use, remove before leaving cubicle, unless on route to the sluice)	**Correct Isolation Maintained** (single room isolation with signage on door and door kept closed, unless other risk factors	**Name of staff member**
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Discontinuation of Care Pathway	**Name**	**Signature**	**Date**
Pathway discontinued – service user passing formed* stool for 72 hours **OFF** antibiotic treatment **(*no stool passed does not imply formed stool)**			

Infection Prevention & Control Team

Jacky Hunt, IPCN North: 07500 975962
Joanne Williams, IPCN SW: 07500 975961
Louise Piper, IPCN SE: 07717 714894

Appendix 15.2: Drug trolley poster

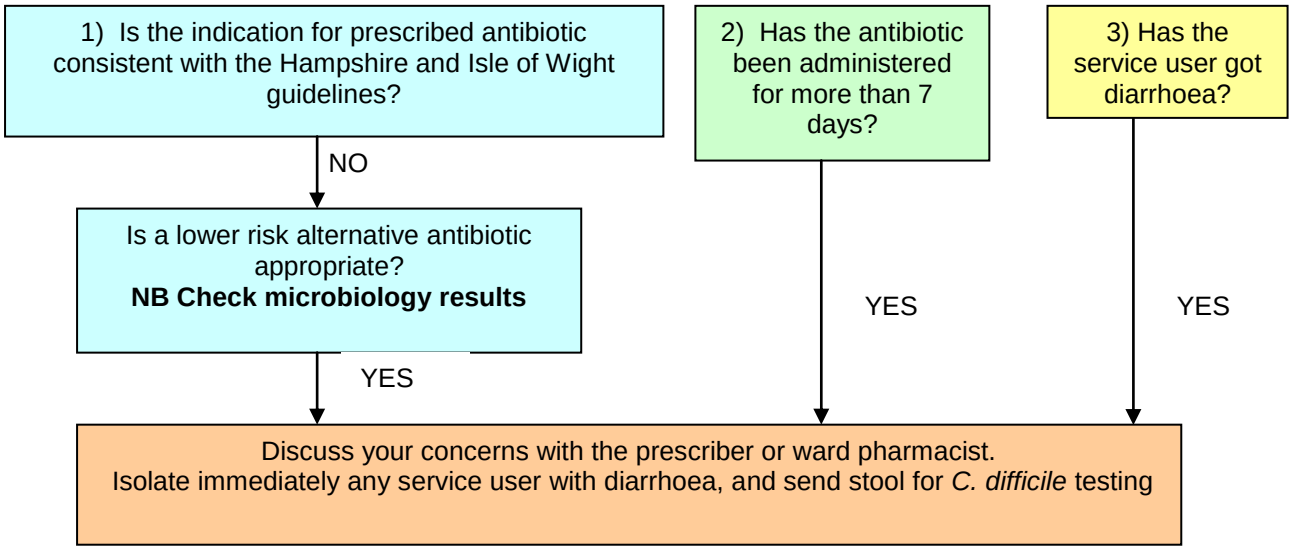
ANTIBIOTIC ADMINISTRATION

ARE YOU ABOUT TO GIVE A "4C" ANTIBIOTIC TO ONE OF YOUR SERVICE USERS?

The 4C s *: Cephalosporins, Co-amoxiclav * See full list below

Ciprofloxacin & quinolones Clindamycin

These antibiotics should be avoided in elderly service users as they are the most likely to cause **Clostridium Difficile** infection. Before administering any of these antibiotics please check the following questions:



HIGH RISK of causing C. Difficile	MEDIUM RISK	LOW RISK
Cefaclor	Amoxicillin	Chloramphenicol (systemic)
Cefadroxil	Ampicillin	Demeclocycline
Cefalexin	Azithromycin	Doxycycline
Cefixime	Clarithromycin	Flucloxacillin
Cefpodoxime	Co-Fluampicil	Lymecycline
Cefradine	Erythromycin	Metronidazole
Cefuroxime	Telithromycin	Minocycline
Ciprofloxacin (high risk for strain 027 C.Diff)		Nitrofurantoin
Clindamycin		Oxytetracycline
Co-amoxiclav		Phenoxymethylpenicillin (Penicillin V)
Moxifloxacin		Rifampicin
Levofloxacin		Tetracycline
Ofloxacin		
Piperacillin/Tazobactam		
Meropenem		
Ertropenam		

Appendix 15.3: Infectious Terminal Clean of Isolation Room / Bay

Microfibre cleaning method

Site: …….. Ward/Dept: …….

Room number/name: …….

Date requested: …… Time requested:……

Requested by: …….

Requirement to remove radiator covers prior to terminal cleaning

Remove if:-

- Ward closure due to infection (e.g. D&V, MRSA, FLU outbreak)
- Single case of Clostridium difficile and C. diff carrier case if advised by IPCT
- On request of IPCT as part of management of a resistant organism

Removal not required if:-

- Bay closures due to infection e.g. D&V
- Single case of resistant organism e.g. MRSA or ESBL

Actions	Y	N	Signature
Radiator cleaning if covers removed:- **Estates department** to be contacted in advance of infectious terminal cleaning by the nurse in charge to remove radiator covers. Estates helpline telephone number: **0300 300 3636** (Mon - Fri 08:30 – 5pm) Arrange the date and time to coincide with terminal cleaning. **Estates department** to replace radiator covers when infectious terminal cleaning process completed.			
Cleaning of radiators: Outside & Inside (if required) Facility staff to clean using a damp disposable cloth soaked in detergent and chlorine containing solution (e.g. Actichlor Plus).			

Nursing staff Responsibility
(ideally nursing tasks to be completed prior to housekeeping tasks)

Actions	Y	N	Signature
The patient must have vacated the bed space before cleaning commences.			
Wash hands before entering the isolation area.			
Put on single use gloves and yellow apron before entering the isolation area.			
Ensure good ventilation.			
The room or area should be cleared of miscellaneous items (e.g. discard magazines, used toiletries into an orange hazardous waste bag).			
Remove all linen from bed and place in an alginate bag, followed by infectious outer laundry bag, and tie securely.			
All disposable fittings and single use medical devices should be disposed of into an orange hazardous waste bag, e.g. oxygen tubing, suction tubing & suction drainage bags.			
All reusable medical equipment must be decontaminated according to manufacturer's instructions. Following decontamination, remove the equipment from the area.			

Cleaning: Use a detergent and chlorine containing solution e.g. Actichlor Plus, 1000ppm. Ensure tablets are dissolved before using. Always ensure good ventilation and correct personal protective clothing is worn when handling the chlorine releasing solution. (Refer to Actichlor Plus dilution poster for the general environment and for cleaning up any blood spillage).  Actichlor Plus BS Solution Only Souther  Actichlor Plus GE Southern Health NHS			
If commode or raised toilet seat present, thoroughly clean all areas with a detergent and chlorine solution, rinse and then dry.			
Thoroughly wipe the mattress, upper bed frame, bed head, bed rails, and plastic pillow cover with detergent and chlorine solution e.g. Actichlor Plus and dry with disposable paper towels. Discard paper towels into orange hazardous waste bag. Ensure good ventilation whilst cleaning within the room.			
Clean the patient wash bowl if non-disposable with detergent and chlorine solution e.g. Actichlor Plus and dry with disposable paper towels. If bedside entertainment system present, remove headset earpiece covers and discard into orange hazardous waste bag. Arrange for cleaning and replacement earpieces.			

Name of nurse (print): Date completed: Time:
Signature:

Housekeeping Staff Responsibility (Ideally nursing tasks should be completed prior to housekeeping tasks)			
Housekeeping Team to use detergent and chlorine containing agent e.g. Actichlor Plus 1000ppm for all cleaning tasks during this procedure.			
Actions	**Y**	**N**	**Signature**
Before starting: report to clinical staff to receive any specific instructions.			
Make up Chlorine based disinfectant solution: In the cleaning room, prepare all equipment needed. • Wearing gloves and aprons make up a chlorine solution by adding one tablet of Chlorine releasing agent e.g. Actichlor Plus to one litre of cold water. • When the tablet has fully dissolved, dose cloths and mops as per microfibre set up on trolley in yellow buckets. **NB:** Only personnel trained in use of Chlorine releasing agent e.g. Actichlor Plus, should use this product.			
Collect all materials and equipment: e.g. hand towels, toilet rolls, soap, pre-dosed yellow microfibre cloths or disposables & pre-dosed yellow microfibre mops, high dusting tool.			
Park cleaning trolley outside: Within reach of the door. Do not take the trolley inside the room.			
Clean hands before entering the isolation area.			
PPE: Put on single use gloves and yellow apron before entering the isolation area (discuss with nursing staff if any additional PPE is required).			

Ensure good ventilation e.g. open a window			
Remove dirty curtains: Place into an alginate bag, then outer infectious linen stream bag.			
Damp dust: Using the pre-dosed yellow micro fibre 8 sided cloth technique. Clean all horizontal surfaces from:- High to low Clean to dirty Top to bottom Far end of room to the door			
Damp dust: Using the pre-dosed yellow micro fibre 8 sided cloth technique. • **High Dust** - Damp dust all areas to hand height level regularly rinsing cloth, allow to air dry. • **Bedside Lamp** - Extend the lamp, damp dust all areas, return to original position, allow to air dry. • **Hand held 'nurse call' device,** careful to clean around indented button, allow to air dry. • **Bedside Locker** - Thoroughly clean all areas inside and outside, and allow to air dry. • **Bedside Table** - Thoroughly clean all areas of table top, underside & stand, allow to air dry. • **Bedside Chair** - Thoroughly clean all wipeable areas of chair seat, back, top, underside and legs, allow to air dry. • **Bed Frame** (below top frame) - Raise bed and thoroughly clean all areas of underside and stand areas working from the top to the bottom, allow to air dry. • **Window Ledges** - Damp dust all areas, and allow to air dry. • **All Doors, Door Handles & Door Vents -** Thoroughly clean all areas paying attention to hand contact surfaces, allow to air dry. • **Skirting Boards** - Damp dust all areas, allow to air dry. • **Clinical Hand Wash Sink, Taps & Splash Back** Use two cloths one for taps and dispensers the other for the Basin. **Taps** should be cleaned first before the rest of the CHWB (ref HTM 04:01 2016). **Tiles** -Thoroughly clean the area working from the outside inwards, Allow to air dry. • **Mirrors** - Thoroughly clean the area then dry and buff with a second cloth/disposable paper towel to remove any smears.			
Bathroom facilities/ En Suite: Using a fresh cloth, clean the basin and shower cubicle paying attention to taps, shower heads, tiles and shower tray. **For any wash hand basins:** Use two cloths one for taps and dispensers the other for the basin **Taps** should be cleaned first before the rest of the CHWB (ref HTM 04:01 2016) Clean the areas working from the outside inwards, allow to air dry. **Shower Cubicle, Shower Tray & Wall Tiles/Cladding (if present)** - Thoroughly clean the area working from shower head/hose/controls outwards to the tiles and tray, allow to air dry.			
Hand Towel, Soap & Toilet Roll Dispensers - Damp dust all areas, allow to air dry.			

Replacement Consumables - Replenish hand soap, toilet roll, paper hand towels and opened packets of Clinell wipes. (No need to replace hand towels or toilet rolls that are in an enclosed dispenser, just clean/wipe over the external container). Throw away toilet brushes.			
Toilet & Toilet Seat - Flush then apply descaler if required. Using a fresh yellow microfibre cloth thoroughly clean all areas with a chlorine releasing solution e.g. Actichlor plus, working from the highest point to the lowest and from the outside inwards (clean to dirty method), scrub toilet bowl and finish with toilet seat and a final flush.			
Damp dust: Using the pre-dosed yellow micro fibre 8 sided cloth technique. **Floors** **Hard floors**: Damp mop (using yellow mop heads or disposable), working from the furthest point to the door. Display floor signs. **Soft floors:** Vacuum debris using an exhaust filtered vacuum cleaner then carpeted floors'/ any rugs to be steam cleaned.			
Soft furnishings e.g. chairs or sofas: Steam clean any non wipeable surfaces within the room.			
Discard all disposable cleaning cloths / mop heads into the orange bag for infectious waste. **Ensure used microfibre cloths and mop heads** have been placed into linen bags directly on the cleaning trolley ready for laundry.			
Waste Bin/Bags – Pick up any items of rubbish e.g. locker bag, discard in orange waste bag. Remove Orange healthcare waste bags, and clean the bin.			
Replace waste bags as appropriate in the lidded bins for the next patient.			
Before leaving the room: Remove PPE and discard into orange waste bag. Swan neck tie and secure orange bag with ward identification tape. Thoroughly clean hands with soap and water Close door as you leave the room.			
Outside of room: • Clean hands with alcohol sanitizer • Store mop handle and buckets in the cleaning cupboard • Place microfibre laundry bags into dedicated washing machine, on hot wash • Take orange waste bag to storage area			
Replace curtains with clean ones, if no available curtains please discuss steam cleaning with the IPCT before the infectious terminal clean commences. **Blinds - Clean /Steam / Actichlor blinds as appropriate.**			

Comments from housekeeping staff

Comments from nursing staff

On completion of the Terminal Clean please sign the box below confirming that you are satisfied with the standard of cleanliness.

Ward Manager/shift leader	**Housekeeping supervisor**
Name: (print) Date completed: Time:	Name: (print) Date completed: Time:
Signature:	Signature:

Retain copies of this form:-

1. The person requesting final isolation clean must ensure that a copy is to be retained on the ward

2. One copy to be retained by Housekeeping

Appendix 15.3: Infectious Terminal Clean of Isolation Room / Bay

Mop and Bucket cleaning method

Site: …….. Ward/Dept: …….

Room number/name: ……

Date requested: …… Time requested:……

Requested by: …….

Requirement to remove radiator covers prior to terminal cleaning
Remove if:-

- Ward closure due to infection (e.g. D&V, MRSA, FLU outbreak)
- Single case of Clostridium difficile and C. diff carrier case if advised by IPCT
- On request of IPCT as part of management of a resistant organism

Removal not required if:-

- Bay closures due to infection e.g. D&V
- Single case of resistant organism e.g. MRSA or ESBL

Actions	Y	N	Signature
Radiator cleaning if covers removed:- **Estates department** to be contacted in advance of infectious terminal cleaning by the nurse in charge to remove radiator covers. Estates helpline telephone number: **0300 300 3636** (Mon - Fri 08:30 – 5pm) Arrange the date and time to coincide with terminal cleaning. **Estates department** to replace radiator covers when infectious terminal cleaning process completed.			
Cleaning of radiators: Outside and inside (if required) Facility staff to clean using a damp disposable cloth soaked in detergent and chlorine containing solution (e.g. Actichlor Plus).			
Nursing staff Responsibility **(ideally nursing tasks to be completed prior to housekeeping tasks)**			
Actions	**Y**	**N**	**Signature**
The patient must have vacated the bed space before cleaning commences.			
Wash hands before entering the isolation area.			
Put on single use gloves and yellow apron before entering the isolation area.			
Ensure good ventilation e.g. open a window			
The room or area should be cleared of miscellaneous items (e.g. discard magazines, used toiletries into an orange hazardous waste bag).			
Remove all linen from bed and place in an alginate bag, followed by infectious outer laundry bag, and tie securely.			
All disposable fittings and single use medical devices must be disposed of into an orange hazardous waste bag, e.g. oxygen tubing, suction tubing & suction drainage bags.			
All reusable medical equipment must be decontaminated according to manufacturer's instructions. Following decontamination, remove the equipment from the area.			

Actions	Y	N	Signature
Cleaning: Use a detergent and chlorine containing solution eg Actichlor Plus 1000ppm, Ensure tablets are dissolved before using. Always ensure good ventilation and correct personal protective clothing is worn when handling the chlorine releasing solution. (Refer to Actichlor Plus dilution poster for the general environment and for cleaning up any blood spillage). Actichlor Plus BS Solution Only Souther Actichlor Plus GE Southern Health NHS			
If commode or raised toilet seat present, thoroughly clean all areas with a detergent and chlorine solution, rinse and then dry.			
Thoroughly wipe the mattress, upper bed frame, bed head, bed rails, and plastic pillow cover with detergent and chlorine solution eg Actichlor Plus and dry with disposable paper towels. Discard paper towels into orange hazardous waste bag. Ensure good ventilation whilst cleaning within the room.			
Clean the patient wash bowl if non-disposable with detergent and chlorine solution e.g. Actichlor Plus and dry with disposable paper towels. If bedside entertainment system present, remove headset earpiece covers and discard into orange hazardous waste bag. Arrange for cleaning and replacement earpieces.			

Name of nurse (print): Date completed: Time:
Signature:

Housekeeping Staff Responsibility **(ideally nursing tasks should be completed prior to housekeeping tasks)**			
Housekeeping Team to use detergent and chlorine containing agent e.g. Actichlor Plus 1000ppm for all cleaning tasks during this procedure. Ensure tablets are dissolved before using. Always ensure good ventilation and correct personal protective clothing is worn when handling the chlorine releasing solution. (Refer to Actichlor Plus dilution poster for the general environment and for cleaning up any blood spillage).			
Actions	**Y**	**N**	**Signature**
Prepare all equipment needed. Park cleaning trolley outside infection room/bay.			
Wash hands before entering the isolation area.			
Put on single use gloves and yellow apron before entering the isolation area (discuss with nursing staff if any additional PPE is required).			
Ensure good ventilation.			
Whilst the chlorine containing tablets are dissolving, remove dirty curtains, place into alginate then outer infectious laundry bag.			

Actions	Y	N	Signature
Use a detergent and chlorine containing solution e.g. Actichlor Plus, clean the following using a yellow disposable cloth and damp dusting bucket: • **High Dust** - Damp dust all areas to hand height level regularly rinsing cloth, allow to air dry. • **Bedside Lamp** - Extend the lamp, damp dust all areas, return to original position, allow to air dry. • **Hand held 'nurse call' device;** be careful to clean around indented button. • **Bedside Locker** - Thoroughly clean all areas inside and outside, and allow to air dry. • **Bedside Table** - Thoroughly clean all areas of table top, underside and stand area regularly rinsing cloth, allow to air dry. • **Bedside Chair** - Thoroughly clean all wipeable areas of chair seat, back top, underside and legs, allow to air dry. • **Bed Frame (below top frame)** - Raise bed and thoroughly clean all areas of underside and stand areas working from the top to the bottom, regularly rinsing cloth, allow to air dry. • **Window Ledges** - Damp dust all areas, and allow to air dry. • **All Doors, Door Handles & Door Vents -** Thoroughly clean all areas paying attention to hand contact surfaces, regularly rinsing cloth, allow to air dry. • **Skirting Boards** - Damp dust all areas, allow to air dry. • **Clinical Hand Wash Sink, Taps & Splash Back** Use two cloths one for taps and dispensers the other for the basin. **Taps** should be cleaned first before the rest of the CHWB (ref HTM 04:01 2016) • **Tiles** -Thoroughly clean the area working from the outside inwards, allow to air dry. • **Mirrors** - Thoroughly clean the area then dry and buff with a second cloth/disposable paper towel to remove any smears. • **Bathroom facilities/ En Suite,** use detergent and chlorine releasing solution contained in the 'Ensuite Cleaning Bucket' and disposable yellow cloths and clean taps & splash back tiles thoroughly. Clean the area working from the outside inwards, regularly rinsing cloth, allow to air dry. • **For any wash hand basins:** Use two cloths one for taps and dispensers the other for the basin. Clean the areas working from the outside inwards, allow to air dry. • **Taps** should be cleaned first before the rest of the CHWB (ref HTM 04:01 2016) • **Shower Cubicle, Shower Tray & Wall Tiles/Cladding (if present)** - Thoroughly clean the area working from shower head/hose/controls outwards to the tiles and tray, allow to air dry.			
Hand Towel & Toilet Roll Dispensers: • Damp dust all areas, allow to air dry. (No need to replace hand towels or towel rolls that are in an enclosed dispenser, just clean/wipe over the external container). • Throw away toilet brushes into infectious waste stream bag.			
Actions	**Y**	**N**	**Signature**
Toilet & Toilet Seat - Flush then apply descaler if required, thoroughly clean all areas using a yellow cloth and chlorine releasing solution e.g. Actichlor plus, working from the highest point			

to the lowest and from the outside inwards, scrub toilet bowl and finish with toilet seat and a final flush.			
Floors – Remove debris using an exhaust filtered vacuum cleaner OR dry mop. Follow this with, wet mopping using a yellow handled mop and chlorine releasing agent e.g. Actichlor plus from the yellow mop bucket (dispose/launder mop heads after use). If areas are carpeted, steam clean carpet and launder any rugs.			
Soft furnishings e.g. chairs or sofas: Steam clean any non wipeable surfaces within the room.			
Waste: Discard all disposable cleaning cloths in the orange bag for infectious waste. Pick up any items of rubbish e.g. locker bags, discard into orange waste bag Remove orange waste bag to clean the bin. **Replace waste bags** as appropriate in the lidded bin for the next patient.			
Replacement Consumables - Replenish hand soap, toilet roll, hand towels and opened packets of Clinell wipes. (No need to replace hand towels or toilet rolls that are in an enclosed dispenser, just clean/wipe over the external container). Throw away toilet brushes.			
Before leaving the room: Remove PPE and discard into the orange waste bag. Swan neck tie and secure with ward identification tag / tape. Thoroughly clean hands with soap and water. Close door as you leave the room.			
Outside the room: Clean hands with alcohol sanitiser Store cleaned and dry cleaning trolley, mop handle and bucket in the cleaning cupboard. Take orange bag waste to storage area.			
Replace curtains with clean ones, if no available curtains please discuss steam cleaning with the IPCT before the Infectious terminal cleaning process. **Blinds – Clean / Steam / Actichlor blinds as appropriate**.			

Comments from housekeeping staff

Comments from nursing staff

On completion of the Terminal Clean please sign the box below confirming that you are satisfied with the standard of cleanliness.

Ward Manager/shift leader	**Housekeeping supervisor**
Name: (print) Date completed: Time:	Name: (print) Date completed: Time:
Signature:	Signature:

Retain copies of this form:-

1. The person requesting final isolation clean must ensure that a copy is to be retained on the ward

2. One copy to be retained by Housekeeping

Appendix 15.4: *Clostridium difficile* Information Leaflet

Clostridium difficile fact sheet:
Information for service users, visitors and relatives.

What is *Clostridium difficile (C. diff)*?

A bacteria (germ), which is present in the gut of approx 3% of healthy adults. It is more common in babies/infants, but rarely causes problems. People over the age of 65 are more susceptible to contracting this infection.

How do you catch it?

It is possible for this infection to spread from person to person because C. diff spores are shed in the faeces they can survive for long periods of time in the environment (bedpans, toilets, surfaces etc.) and can be transported on hands and equipment.
Clostridium difficile may be acquired by transferring the bacteria from contaminated hands or equipment to the mouth.

In most healthy people the C. diff will not cause disease, however more vulnerable people particularly those whose normal gut bacteria have been disrupted by antibiotic treatment, may go on to develop C. diff infection.

What are the symptoms?

The effects of C. diff can vary from no apparent symptoms to diarrhoea (mild to severe) and more unusually severe inflammation of the intestines which can cause death.
Other symptoms can include fever, loss of appetite, nausea and abdominal pain or tenderness.

You should report any diarrhoea and or vomiting to health care staff immediately.

Who does this affect? Are some people more at risk?

- Advanced age, 80% of cases reported are in the over 65 age group.
- Those with a lowered immunity
- Those service users with underlying medical conditions
- Service users who have had long length of stay in healthcare settings
- Antibiotic treatment
- Repeated enemas and or gut surgery increases a person's risk.

How is *Clostridium difficile* diagnosed?

Initial diagnosis can be on the symptoms and service user history (e.g. previously taken a course of antibiotics). Followed up with carrying out laboratory testing of a faecal specimen which shows the presence of the C. diff toxins, (poisons produced by the bacteria).

How can it be treated?

In most service users the C. diff can be treated with specific antibiotics.

There is a relapse rate of 20 – 30% of service users; other treatments may be tried with the aim of re-establishing the balance of flora in the gut. Most cases make a full recovery.
More complex cases, associated with other underlying medical conditions may have a more severe infection. Occasionally, infection in these circumstances may be life threatening.

If I have *Clostridium difficile,* what should I do to prevent the spread to others?

In order to reduce the chance of spreading the infection to others it is advisable to wash hands with soap and water, especially after using the toilet/commode and before eating.
Encourage your visitors to wash their hands with soap and water before they leave.

How can hospitals prevent the spread of *Clostridium difficile?*

Ensure antibiotics are used only when really necessary.

Clinical staff will identify service users in the early stages of this disease and introduce enhanced infection control measures such as;-

- Isolation in a single room with en-suite or dedicated toilet/commode, which helps to limit the spread of infection.
- Clinical staff will wear disposable gloves and aprons when caring for infected service users
- Performing hand hygiene using soap and water prior to and after contact with the service user who has the infection.
- *Clostridium difficile* contamination will be removed from the environment by daily thorough cleaning using a chlorine based cleaning agent.
- Visitors will be required to wear disposable aprons and gloves if participating in the care of their relatives.

Additional infection control measures may be introduced for staff, service users and relatives if an outbreak
(2 or more service users) with Clostridium difficile infection is suspected.

Does somebody who has had a *Clostridium difficile* infection pose a risk to others after they have been discharged?

There should be no restriction on the discharge home or transfer of service users' to other healthcare facilities when they have recovered from C. diff diarrhoea. Once recovered there is no clinical risk to others even if they continue to carry the organism in their gut provided they observe normal personal hygiene precautions e.g. hand washing with soap and water after using the toilet and before eating.

For more information speak to a member of the clinical team, alternatively you can contact the Infection Prevention and Control Team on 02380 874291.

Additional information is available via the Department of Health website and links:

www.gov.uk

www.hpa.org.uk

Appendix 15.5: Proforma letter for GPs

Date:

Dear Doctor

Regarding your service user, named:
DOB:
NHS number:
Hospital number:
Address:

The above was recently an in-service user on ward……..

During their hospitalisation, your service user was diagnosed as having *Clostridium difficile* infection and was treated with……
……
……
……

This infection is almost exclusively associated with the use of antibiotics. Infection may become manifest while on antibiotics, but a significant number of cases occur following cessation of therapy, the incubation period extending to several weeks.
Symptoms may include fever, abdominal pain and diarrhoea (with or without blood or mucus).

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

- Your service user could relapse with the infection. If this happens, please discuss their treatment with the medical microbiologist. If concerned about the severity of the infection, hospital admission should be considered.
- Future administration of broad spectrum antibiotics could precipitate infection.

(If antibiotics are required, a short course of a narrow-spectrum agent is preferable as per HIOW antibiotic guidelines).

Once the service user has recovered, follow-up samples for clearance are not required.

For further advice, contact the medical microbiologist at your nearest acute trust.

Yours sincerely,

Appendix 15.6: C. diff RCA Tool
RCA Form to be completed for:

1. **Patients who test CDT positive 72 hours or more after admission to SHFT Community Hospital *or***
2. **C.difficile related death within 72 hours after admission to Acute Trust**

RCA: Clostridium difficile

Date of C difficile specimen:	**Location:** **Business Unit:**
48hr panel: date	**Divisional panel: date**
Ulysses No:	
Executive Summary	

1. Demographics	
Patient identifier (Ulysses Case Number)	
Patient Name	
Date of Birth	
Gender	
Date of specimen	
Date of current admission	
Ward or Department	

Reason for Admission (*state if patient admitted with diarrhoea*)
Brief description of any underlying condition, treatment, previous CDI episode and current progress

2. Clostridium difficile infection spec taken: (date)		
Inflammatory markers at time of specimen collection		
White cell count		
CRP		
Temperature		
Risk factors for developing diarrhoea identified on admission or at the time of specimen collection		
Recent laxatives / enemas		
Anti-emetics		
Proton pump inhibitors (PPI)		
Enteral nutrition		
Inflammatory bowel disease		
Previous gastrointestinal surgery		
Gastrointestinal malignancy		
Ileostomy / colostomy		
Other gastrointestinal infection such as norovirus		
Chemotherapy / graft versus host disease		
Other immunosuppressive illness or therapies such as steroids		
Other risk factors		
On review was it felt that this reflected a case of CDI?		
Was the diagnosis communicated to the patient?		
Did the patient demonstrate an understanding of the condition?		
Was the infection measured by severity? (mild/moderate/severe/life threatening		

3. Chronology of patient pathway		
State previous admissions to any healthcare institution in the previous three months		
Did the patient have any contact with known CDI cases in the locations you have listed above?		
Has the patient had any previous confirmed episodes of CDI?		
Has ribotyping/MLVA typing been performed on the current episode of CDI?		
If the latest episode is a suspected recurrence, were previous episode(s) treated as per local CDI treatment guidelines?		
Was the patient treated with any other antimicrobials between this and the previous episode(s)?		
Was treatment in line with local guidelines?		
Has the patient received other treatment / medication listed in section 2 relevant to the development of this episode of CDI?		
Were these in line with local guidelines?		

4. Isolation and sampling	
Was the patient's bowel habit recorded on admission?	
Was the patient monitored using the Bristol Stool chart (BSC) immediately when symptoms of diarrhoea (BSC -T5, T6 and T7) began?	
Date diarrhoeal symptoms were first documented in relation to the current episode of CDI?	
Was the patient isolated at the time of onset?	
If no, how soon after onset of diarrhoeal symptoms was the patient isolated?	
Date sample was taken	
Location of patient when sample taken	
Date/time the sample was received in the laboratory	
Date/time the result was reported to the sender	
Was there a delay in sampling according to local guidance	
Were isolation precautions discontinued in line with local policy	
Were sampling, testing and reporting arrangements clearly compliant with 2012 DH 'Updated guidance on the diagnosis and reporting of C. difficile'?	

If there was any non-compliance with above - explain why?	

5. Antimicrobials	
List all antimicrobials prescribed over the last three months with indication, duration and review dates	
Were all antimicrobials compliant with local guidelines or clinically justified and reasonable?	
Was/were the indication(s) for antimicrobial treatment, duration and a review date written in patient's notes/drug chart?	
Was initial empiric therapy appropriately modified in response to microbiological results?	
If there was any non-compliance to above, explain why	

6. Treatment of CDI and patient outcome		
Was the patient treated for CDI?	Yes	No
Was the treatment in line with local guidance?	Yes	No
What was the clinical outcome? Recovered; PMC; Toxic megacolon; Colectomy		
Did the patient die within 30 days of CDI diagnosis?		
If so, was this death linked to CDI?		
Did CDI appear on the Death Certificate?		
Provide details of all conditions listed on death certificate		

7. Environmental Factors	
What audit/monitoring measures were in place to assess the efficacy of environmental cleaning?	
What is the most recent environmental cleaning scores? Provide date	
Provide details of cleanliness/environmental issues reported in the area(s) in which the patient was cared for prior to the development of CDI	
What is the most recent hand hygiene audit results? Provide date	
If there was any non-compliance to above,	

explain why	

8. Organisational Issues	
Is there evidence that mandatory training and IPC training have been undertaken by staff relevant to this case?	
Is there evidence that communication and documentation related to this patient was adequate?	
Are staffing levels/skill mix in line with local agreements where this patient was managed?	
If there was any non-compliance above, explain why and how this could / could not be related to the development of CDI	

9. Optimisation of diarrhoea control in the organisation	
Does the organisation have a protocol for the management of patients with suspected infectious diarrhoea (BSC T5, T6 and T7)?	
Was this being followed in the clinical area relevant to this case?	
Was the documentation of patients with diarrhoea adequate/complete?	
Had the rate of diarrhoea increased in the clinical area relevant to the index case during the 1 month beforehand?	
Was this appropriately investigated and controlled?	
What measures were put in place to address this?	
If there was any non-compliance above – explain why	

10. Lessons Learned
Outline the lessons learned from this episode of CDI. Are there any recurring themes seen across this and other patient CDI assessments?
How has the learning been addressed?
Provide a commentary on any recurring themes from previous CDI case assessments. What is the hypothesis for why these cases are still happening?

What interventions has the organisation put in place to prevent further cases of CDI?
What factors appear to be responsible for their lack of success?

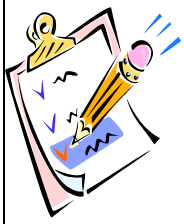
11. Preventability:
State whether you have identified any 'lapses in care' that could have contributed to the development of this CDI case
Missed opportunities to collect stool specimens
If you consider this CDI case occurred despite no lapses in care (and so was deemed not to be 'preventable'), outline your reason(s) why

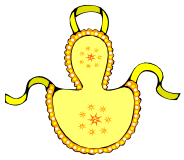
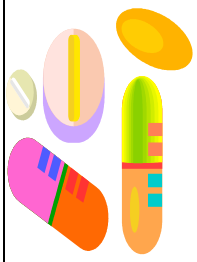
12. Summary of meeting with Commissioners

Report completed by: **On:**

On completion to be uploaded onto Ulysses system

Appendix 15.7: Infection Prevention and Control Action Card - Clostridium difficile diarrhoea

1.		**Identify symptomatic service users**	
		Action Does the service user have an increased frequency & fluidity of faeces, based upon what is normal for them? Use the 'Bristol' stool scale to assess this. Refer to appendix 15 & 13 of the overarching IPC policy for unexpected/unexplained diarrhoea &/or vomiting). Could it be infective or due to another cause (e.g. antimicrobials, aperients)? Follow mnemonic protocol (SIGHT) if infectious diarrhoea is suspected.	Rationale Early identification may help to reduce the duration of the service user's symptoms. To facilitate early implementation of appropriate management. To identify cause.
2.		**Complete an Isolation Risk Assessment for the service user**	
		Action Refer to the SHFT Isolation appendix 9.	Rationale To enable service user to be managed appropriately. To demonstrate risk assessment process. To reduce the risk of secondary spread.
3.		**Send a stool specimen to the laboratory for testing**	
		Action Send a stool specimen to the laboratory for testing, & document in the service user's notes. Mark the request form for M,C&S and C.diff. Document the results. Place *C.difficile* toxin positive service users on the C.difficile care pathway.	Rationale To confirm causative organism. To facilitate early implementation of appropriate treatment, thus reducing morbidity & mortality.
4.		**Maintain an accurate record of service user's bowel movements**	
		Action Maintain an accurate record of the service user's bowel movements using the 'Bristol' stool chart.	Rationale To provide an accurate record of service user's progress/recovery. To provide consistent information.
5.		**Wash hands with soap & water**	
		Action Hands should be washed with soap & water between every service user contact, as alcohol hand gel has very poor activity against bacterial spores	Rationale Evidence suggests washing with soap & water is most effective at removing C. diff spores. (Boyce & Pittet, 2002).

<table>
<tr><td rowspan="2">6.</td><td rowspan="2">  </td><td colspan="2">Select appropriate Personal Protective Equipment (PPE)</td></tr>
<tr><td><u>Action</u>
Implement infection control standard precautions. Gloves and aprons on entering the room if contact with the service user or their environment is anticipated. Ensure additional PPE selected is based on risk assessment.</td><td><u>Rationale</u>
To minimize the risk of secondary spread.
To reduce the risk to the healthcare worker of contamination with body fluids.</td></tr>
<tr><td rowspan="2">7.</td><td rowspan="2">  </td><td colspan="2">Ensure service user is receiving appropriate treatment</td></tr>
<tr><td><u>Action</u>
Ensure service user is receiving appropriate antimicrobial therapy, fluids and nutrition.
Ensure treatment is reviewed regularly.</td><td><u>Rationale</u>
To reduce duration of symptoms to a minimum.
To minimize suffering to service user.
To reduce morbidity & mortality.</td></tr>
<tr><td rowspan="2">8.</td><td rowspan="2">  </td><td colspan="2">Clean all dedicated equipment after every service user use</td></tr>
<tr><td><u>Action</u>
Ensure service user has dedicated equipment that is thoroughly cleaned after every use.
Follow protocol for cleaning of an isolation room/bedspace, using a chlorine based cleaning agent.</td><td><u>Rationale</u>
To reduce the risk of secondary spread.
To reduce the number of C. diff spores in the clinical environment.</td></tr>
<tr><td rowspan="2">9.</td><td rowspan="2">  </td><td colspan="2">Provide service user & relatives with appropriate information</td></tr>
<tr><td><u>Action</u>
Give service user &/or relatives (as appropriate) Trust C. difficile information leaflet.</td><td><u>Rationale</u>
To inform service user/relatives about their condition.
To minimize anxiety.
To maintain good levels of communication.
To enable service user/relatives to assume some ‘ownership’ of their condition.</td></tr>
</table>