

Infection Prevention and Control Practice Guidance Note		
Prevention and Control of Clostridium difficile in Hospital – V06		
Date issued Issue 1 – Jun 2018	Planned review Jun 2021	IPC-PGN-22 – Part of NTW(C)23 – IPC Policy
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Issue Notes		
This guidance replaces all similar guidance issued by the former organisations		
KEY POINTS		
<ul style="list-style-type: none">Practice Guidance Notes form part of the Trust's Infection Prevention and Control policy, and it is expected that staff will follow the guidance contained within them unless there is a compelling reason to deviate from it. Such reasons should be documented whenever the circumstance occurs and notified to the IPC team so that modifications to future editions can be made if necessary.Clostridium difficile can be found in the human gut where it normally causes no problems.C difficile infection (CDI) can be caused when the normal bacterial gut flora is disturbed and can be serious.Strict antibiotic stewardship by medical staff can substantially reduce the risk of developing CDI.Good infection control practices and clinical care can reduce the likelihood of Clostridium difficile infectionsWash hands with soap and water after each patient contact. Alcohol gel is not effective.		
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Appendix 1	Identifying and managing incidents of CDI:	1	Jun 18	Jun 21
Appendix 2	Bristol Stool Chart	1	Jun 18	Jun 21
Appendix 3	Treatment Algorithms	1	Jun 18	Jun 21
Appendices – listed separate to PGN				
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Appendix 4	Stool Record Chart	1	Jun 18	Jun 21
Appendix 5	Clostridium Difficile Nursing Care Plan	1	Jun 18	Jun 21

Abbreviations	
CDI	Clostridium Difficile Infection
CDT	Clostridium Difficile Toxin
DIPC	Director of Infection Prevention and Control
ICT	Infection Control Team

1 Introduction

- **Clostridium difficile** is an anaerobic, gram-positive spore forming bacilli that may be found in limited numbers in the gut of humans without causing any problems.
- **Clostridium difficile** infection (CDI) can cause serious illness and outbreaks amongst hospital inpatients.
- Spores of **C. difficile** are resistant to drying and heat and can survive in the care environment for long periods of time. They are also resistant to alcohol found in hand gel products and therefore, unlike most other infectious agents, alcohol hand gel has no place in the control of outbreaks of infection. **Thorough hand cleaning using soap products remains essential.**
- Environmental cleaning should be carried out daily using Chlorine cleaning agents.
- **C. difficile** can cause severe toxic diarrhoea called **Clostridium Difficile** infection (CDI) when the normal bacterial flora of the gut is disturbed **allowing C. difficile** to multiply in large numbers and produce large amounts of toxin.
- The main factor that promotes CDI is exposure to antibiotics, particularly where multiple antibiotics and broad-spectrum antibiotics are used. Cephalosporins, Clindamycin and Ciproflaxacin are particularly associated with CDI
- Enemas, gastrointestinal surgery and use of proton pump inhibitors for treating stomach complaints may also increase the risk. Long stay patients and immunocompromised patients are also at increased risk.
- 80% of cases occur in the elderly aged over 65 yrs, though any age group can be affected.
- The number of cases of CDI in UK hospitals is increasing. Also, a new strain CD 027 is becoming more common and is associated with more severe illness
- This document presents revised guidelines for the control of CDI within Northumberland, Tyne and Wear NHS Foundation Trust (the Trust/NTW). The aims of controlling CDI are to:
 - Reduce the risk of CDI as far as possible
 - Emphasise the need for high-quality routine infection control practices amongst staff at all times
- This guidance note applies to all healthcare professionals within the Trust, in the care and management of patients with C. difficile infection

2 Diagnosis and clinical features of CDI.

- The illness can range from mild, self –limiting diarrhoea to severe watery and foul smelling diarrhoea. There is often associated cramps and fever. Severe CDI is indicated by a high leucocytosis and creatinine levels
- The Infection Control team must adhere to strict definitions for managing incidents of CDI (**Appendix 1**). Also refer to Outbreak Policy.
- Rarely severe infection can lead to an illness called pseudo-membranous colitis which can be life threatening and perforate the bowel.
- Diagnosis is clinical, combined with the identification of toxin in stool samples. Any patient who is on, or has recently received a course of antibiotics and complains of diarrhoea or liquid stool should be considered as possibly having Clostridium difficile infection (CDI)
- A stool sample should be obtained from symptomatic patients and sent to the laboratory requesting testing for **C.difficile** toxin testing as well as the usual culture and sensitivity. Such tests should be done as soon as infective diarrhoea is suspected.
- Diarrhoeal stool samples from patients aged over 65 are routinely tested for **C. difficile** toxin testing. **C. difficile** toxin testing must be requested on the laboratory form for service users under the age of 65 years in whom CDI is suspected. Stools will only be tested if they “take the shape of the pot”, which is Bristol Stool Chart type 5 – 7 (**Appendix 2**) **Formed stools will NOT be tested.**
- If the first test is negative, but CDI is suspected submit a **second sample** 24 hours later

S	Suspect that a case may be infective where there is no clear alternative cause for diarrhoea
I	Isolate the patient and consult with the Infection Control team (ICT) while determining the cause of the diarrhoea
G	Gloves and aprons must be used for all contacts with the patient and their environment
H	Hand washing with soap and water should be carried out before and after each contact with the patient and the patient's environment
T	Test the stool for toxin, by sending a specimen immediately.

- Once a diagnosis has been confirmed, **repeat stool specimens are not required** unless there is a relapse following treatment. The toxin remains detectable in stool specimens for some time after the start of treatment even when symptoms have resolved.

3 Routes of acquisition

- 2-3% of healthy adults and up to 36% of patients in hospitals can carry **Clostridium difficile** in their gut without having any symptoms of illness
- **C. difficile** can be spread directly from patient/staff to patient through faecal-oral contamination and indirectly via inanimate objects (also called fomites), for example
 - Direct spread via hands due to poor compliance of hand hygiene by either health care workers and or the individual (patient, carer, relative)
 - Equipment that has not been appropriately decontaminated
 - Environmental contamination –spores can survive for long periods in the environment

4. Prevention

- The risks of developing CDI can be reduced by restrictive antibiotic usage by medical staff. For guidance on antibiotic prescribing refer to [IPC-PGN-15 – Antimicrobial Prescribing Guidance](#)
- Measures which can be taken include:
 - Avoid the use of antibiotics unless there is a good indication for using them. Do not use them where simple viral infections are likely
 - Where antibiotics are indicated, use narrow spectrum antibiotics wherever possible. Avoid the use of broad-spectrum antibiotics -"just in case"- or as a substitute for proper microbiological investigation
 - Ensure that courses of antibiotics are only given for as long as necessary and avoid prophylactic use of antibiotics unless there is a clear benefit to the patient
 - Ensure that courses of antibiotics are completed to reduce the risk of resistant strains emerging. [Refer to IPC-PGN-15 – Antimicrobial Prescribing Guidance](#)
 - With stop dates clearly documented
- Other measures include ensuring a high standard of hand and environmental hygiene

5 Roles and Responsibilities

- **Each individual** has a responsibility to inform the Infection Prevention Control Nurse (IPC Modern Matron) of a known or suspected case of infection with **C difficile**

- Each case must be reported using the Safeguard or IR1 System
- **The Infection Prevention Control Modern Matron** will provide specific individualised patient advice
- **Doctors** should consider CDI as a diagnosis. Grading each confirmed case for severity, treating accordingly, and reviewing each patient daily, monitoring bowel function using the Bristol Stool Chart
- **All staff** must adhere to the [IPC-PGN-2.1 - Standard Precautions Practice Guidance](#) at all times when delivering patient care
- **Consultants** should review antibiotic prescribing on all their ward rounds, stopping unnecessary prescriptions and changing those that do not apply with guidelines, as should their juniors
- The ICT with the ward team will conduct a root cause analysis which will be feedback to the clinical team and reported through the Infection Control Committee. Depending on the level of risk, this can be escalated through patient safety
- The Trust will provide Personal Protective Equipment (PPE) ([see Trust's NTW\(O\)20 – Health and Safety Policy, practice guidance note HS-PGN-04 - Personal Protective Equipment](#)) to be worn when performing hands-on patient care or handling blood/body fluids
- The Trust will provide sufficient capacity to isolate or cohort all known CDI patients
- NTW solutions domestic staff will be responsible for maintaining agreed standards of environmental cleanliness, including the audit/monitoring process
- Managers will ensure that all staff are aware of and follow this policy and are aware of their own roles and responsibilities to ensure safe practice
- All outbreaks are to be reported as serious untoward incidents. Consultants should review antibiotic prescribing on all their ward rounds. Stopping unnecessary prescriptions and changing those that do not apply with guidelines, as should their juniors
- The Trust should support the control and reduction of CDI from Board level to Clinical level

6. Management of Patients with C. difficile infection

- **Isolation**
- Patients with suspected potentially infected diarrhoea should be moved into a single side room with a self-contained toilet and own hand wash basin. On confirmation

of CDI the patient must be allocated a single room, with en-suite facilities if possible. If en-suite facilities are not available then a commode used only for that patient must be provided. Where this is not possible on the ward where the patient is being cared for there should be a discussion with the IPC team to determine if there would be a clear benefit in the patient temporarily being cared for elsewhere. However, the moving of infected patient between wards carries its own risks and must not be undertaken lightly. Mental Health Act requirements must be considered.

- In the event of an outbreak within Northumberland, Tyne and Wear NHS Foundation Trust (the Trust/NTW) it is permissible to cohort affected patients, but the advice of the IPC team must be sought.
- Symptomatic patients should avoid visiting communal areas e.g. dining room, television room, gym etc though the problems associated with prolonged isolation in patients with mental illness must be considered. Where symptomatic patients are sharing facilities they, and the staff, must continue to observe high standards of hand and personal hygiene.

IMPORTANT!

Every effort should be made for patients to remain in isolation until they have been free from symptoms for 48 hours. If this is not possible contact the IPC matron for advice.

- **Daily Monitoring**
- Patients must be monitored daily for frequency and severity of diarrhoea (Appendix 4)
- **Standard Precautions** (see below)
- All body fluids must be treated as potentially infectious; therefore, safe working practices must be followed at all times. Standard enteric precautions are required, bearing in mind that alcohol based hand gels are not effective against spores.
- **Hand Hygiene**
- Good hand hygiene is essential before and after patient contact using liquid soap (**refer to IPC-PGN-4.1 Hand Hygiene**). Hands must be decontaminated immediately before and after every episode of direct contact with patients/clients and after any potential activity or contact that potentially results in hands becoming contaminated.

NB Hands must be washed with soap and water when caring for patients/clients with diarrhoea. Hands also need to be decontaminated before and after glove use after the removal of gloves.

- **Use of Personal Protective Equipment (PPE)**
- **Gloves-** Gloves must be worn if contact with blood, body fluids, secretions, excretions or hazardous substances are likely. Disposable vinyl must be discarded after each procedure. Household gloves may be used for cleaning the environment and must be correctly colour coded. Discard any gloves that are punctured or torn. **(ICNA, May 2002, A Comprehensive Glove Choice).**
- **Plastic aprons** - Disposable plastic aprons are single-use items and must be worn as single-use items for one procedure or episode of patient/client care and then discarded and disposed of as clinical waste.
- **Masks, spectacles or visors** - Masks, spectacles or visors must be worn whenever there is a risk of body fluid splashing to the eyes or mouth.
- **Visitors** – Should also wear disposable gloves and aprons for contact with the patient and the environment and wash hands with soap and water after contact.
- **Laundry**
- Follow Trust laundry procedures for the laundering of sheets, towels etc. Place into red alginate bag then into a red linen bag and handle as infected linen. The red bag must be placed inside a laundry skip for collection.
- If relatives wish to take home personal items home to launder they can do so. They should be advised to wash them separately and at the hottest temperature the clothes will allow. Place soiled clothes in to a patient's soluble laundry bag (Order code MVF080 available from IPC or supplies)
- **Clinical waste**
- All contaminated waste should be disposed of as hazardous clinical waste (**refer to Trust's policy NTW(O)24 - Waste Policy for further details**). All hazardous clinical waste, i.e. waste contaminated with body fluids, must be discarded into an orange waste bag securely sealed and labelled with the name of the clinical area/environment for disposal. Clinical waste must not be decanted from one bag to another and must be stored safely and separate from other waste for collection. Black bags are for household waste only, fasten with swan neck and tie.
- **Decontamination**
- Equipment must be cleaned and decontaminated between patient/client use. All equipment sent for repair must be accompanied by a decontamination certificate available as Appendix in **IPC-PGN 10 – Disinfection and Decontamination Practice**.
- **Environmental cleaning**
- Ensure that general cleaning of a patient's room / bed area is maintained to a high standard and completed daily. Hotel Services must be informed that isolation

cleaning is required and follow the National Colour Coding Scheme All horizontal surfaces must be cleaned with chlorclean. Cleaning should be carried out at least daily with a chlorine containing agent (1,000ppm available Chlorine).

- Following patient discharge the room should be thoroughly cleaned and disinfected using a chlorine releasing agent e.g. Chlorclean at 1,000ppm the curtains should be changed and laundered. Use the environmental cleaning checklist.
- All mattresses should have impermeable covering to allow thorough cleaning and disinfection. If this is not the case then specific advice on cleaning and disposal should be sought from the IPC team.
- All commodes, toilets and bathroom areas of CDI patients should be cleaned after each use with 1,000ppm available Chlorine.
- If the patient has been nursed on a dynamic mattress it must be sent to Pegasus for industrial decontamination. This is arranged through the Supplies Department. It must be securely bagged.

- **Specific Patient Management**

- An IPC care plan to help with the management of a patient must be used. Request from your IPC matron
- Give the service user or relative an information booklet on Clostridium difficile. Clear communication is essential, so ensure they can understand the information. If required request the IPC matron to visit
- Complete IR1 form
- Any treatment required will be on an individual patient basis following discussion with the clinician, or IPC nurse and incorporating a full risk assessment
- All broad spectrum antibiotics should be stopped – especially cephalosporins and clindamycin -and consideration given to stopping proton pump inhibitors. Check that no laxatives or other diarrhoea promoting drugs are being prescribed
- Assess the severity of CDI each day as follows:
 - **Mild CDI** is not associated with a raised WCC; it is typically associated with <3 stools of types 5-7 on the Bristol Stool Chart per day
 - **Moderate CDI** is associated with a raised SWCC that is <15 x 10⁹/L; it is typically associated with 3-5 stools per day
- **Medical treatment**
- **Step 1**
 - Treat according to severity (see also the treatment algorithms.(Appendix 5)
 - **Mild and moderate CDI** – oral metronidazole 400-500 mg tds for 10-14 days

- **Multi-disciplinary review – Request need for acute hospital admission. (See Appendix 3)**

- **Step 2 – Seek advice**

- If the service user relapses or fails to respond to treatment, advice must be sought from the Consultant Microbiologist.
 - There is a risk of a relapse of symptoms in 20-30% of individuals and further courses of these antibiotics may be required. The patient remains infective while symptomatic
 - Monitor skin condition and implement an appropriate skin care regime if required
 - Medical and Nursing staff should closely monitor client fluid balance and nutrition review by dietician and ensure close monitoring of observations (T.P.R and BP)
 - A multi-disciplinary clinical review must take place weekly

7. Visits to Outpatient Department within Northumberland, Tyne and Wear NHS Foundation Trust (the Trust/NTW)

- A patient with C difficile infection should avoid attending an outpatient clinic unless absolutely necessary
- Wherever possible, and where there is an urgent need, the patient should be seen on the ward by a visiting doctor
- **Transfer to other departments/areas**
 - Transfer and movement of patients should be reduced to an operationally effective minimum. Where patients need to attend departments for essential investigations, they should be 'last on the list' unless earlier investigation is clinically indicated. In advance of the transfer, the receiving area should be notified of the patient's CDI status. Arrangements should be put in place to minimise the patient's waiting time and hence contact with other patients. Transfer to other healthcare facilities should, if possible, include notification of the individual's CDI status and be appropriate, i.e. the patient should be called for when the department is ready for them and their transfer planned so that they are not held in communal waiting areas. Staff, including ambulance personnel, should adopt appropriate infection control precautions when in contact with the patient.
 - Any person admitted from home with diarrhoea must be admitted to a single room and a specimen of faeces taken as soon as possible for testing.
 - It is important that information about the patient's **C difficile** status is documented within the patient transfer information and handed to the receiving department on arrival.

- Transfers to nursing/residential homes must not go ahead until the patient is 48 hours symptom free. This must be agreed with IPC Team
- If a patient is transferred to the community remember to inform their GP of recent infection

An inter-healthcare infection control transfer form must be completed for all transfers of patients known or suspected of having an infectious disease. This applies to transfers within the Trust as well as to units in other healthcare settings, such as acute Trusts, and ambulance journeys. (**See IPC-PGN-17 – Transferring Patients with known or suspected Infectious Disease**)

- **Transfer to another hospital outside Northumberland, Tyne and Wear NHS Trust**
- The receiving ward or department should be informed before the patient leaves the ward this would ensure that infection prevention control measures can be implemented. This must be documented within the patient's health care records
- It is important that information about the patient's **C difficile** status is documented within the patient transfer information and handed to the receiving department on arrival
- The ICT must inform the receiving Infection Control team, if available
- **Ambulance Transportation**
- The ward staff should notify the ambulance service in advance
- Normal procedures for transportation of the patient should be applied
- A separate ambulance is not required
- **Discharge Planning**
- It is essential to reduce any further infection risks within the care pathway
- Patients with symptomatic CDI must not be discharged from hospital until they have been free from symptoms for 48 hours. The place of discharge must be informed of recent infection so that they are in a position to quickly identify any reoccurrence
- The importance of communication with other agencies is vital for a well-planned discharge

8. Management of Deceased Patient – Refer to IPC-PGN 09 (Precautions to be taken after death of infected person (known or suspected))

- **The precautions taken should be the same as those observed during life**
- Any lesion should be covered with impermeable dressings
- Faecal soiling around the deceased patient should be cleaned first with detergent and then a Chlorine containing agent
- Inform the mortuary
- A body bag would only be necessary if there was leakage from the body
- If a patient with CDI dies, the death certificate should state whether CDI was part of the sequence of events leading directly to death or whether it was the underlying cause of death. If either case applies CDI should be mentioned in part one of the certificate. This is a legal duty
- If CDI was not part of the sequence of events leading directly to death but contributing in some way to this, should be mentioned in part 2

9. Communication with patients and relatives

Patients

- An explanation and should be provided and where necessary access to specialist advice via the Infection Prevention Control (IPC) Modern Matrons
- An information leaflet should also be given
- Copies of the information booklet are available via the IPC Modern Matrons and patient information services

Relatives / carers

With the patients consent relatives and carers can be provided with appropriate access to information and advice. If the patient does not want their relatives informed we still need to request that visitors wear gloves and aprons and wash their hands afterwards.

Copies of the information booklet are available from the IPC Modern Matrons and Patient Information services

Communications between Organisations

- Good communications is the key to effective management. It is important when transferring individuals with C difficile infection (CDI) to another setting, to inform the person in charge at the receiving establishment

- Laboratories are responsible for testing for CDI Seven days a week. Also for ensuring results are communicated to the ward as soon as they are available
- When high prevalence or outbreaks the HPA and SHA should be informed. Primary Care Team's (PCTs) need timely advice. Consideration should be given to issuing press statements. This will be advised by IPC Team








10. References

- Department of Health/Health Protection Agency (December 2008) Clostridium difficile infection: How to deal with the problem
- ICNA, May 2002, A comprehensive glove choice
- National Patient Safety Agency (2007c) The National Specifications for Cleanliness in the NHS: A framework for setting and measuring performance outcomes

The Infection Control Team should adhere to the following definitions for use in identifying and managing incidents of CDI:

- **C difficile infection:** one 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 (Appendix 2), that is not attributable to any other cause, including medicines , and that occurs at the same time as a positive toxin assay (with or without a positive C. difficile culture) and/or endoscopic evidence of pseudomembranous colitis (PMC)
- **A period of increased incidence (PII)** of CDI: two or more new cases (occurring >48 hours post admission, not relapses) in a 28 day period on a ward
- **An outbreak of C. difficile infection:** two or more cases caused by the same strain related in time and place over a defined period that is based on the date of onset of the first case

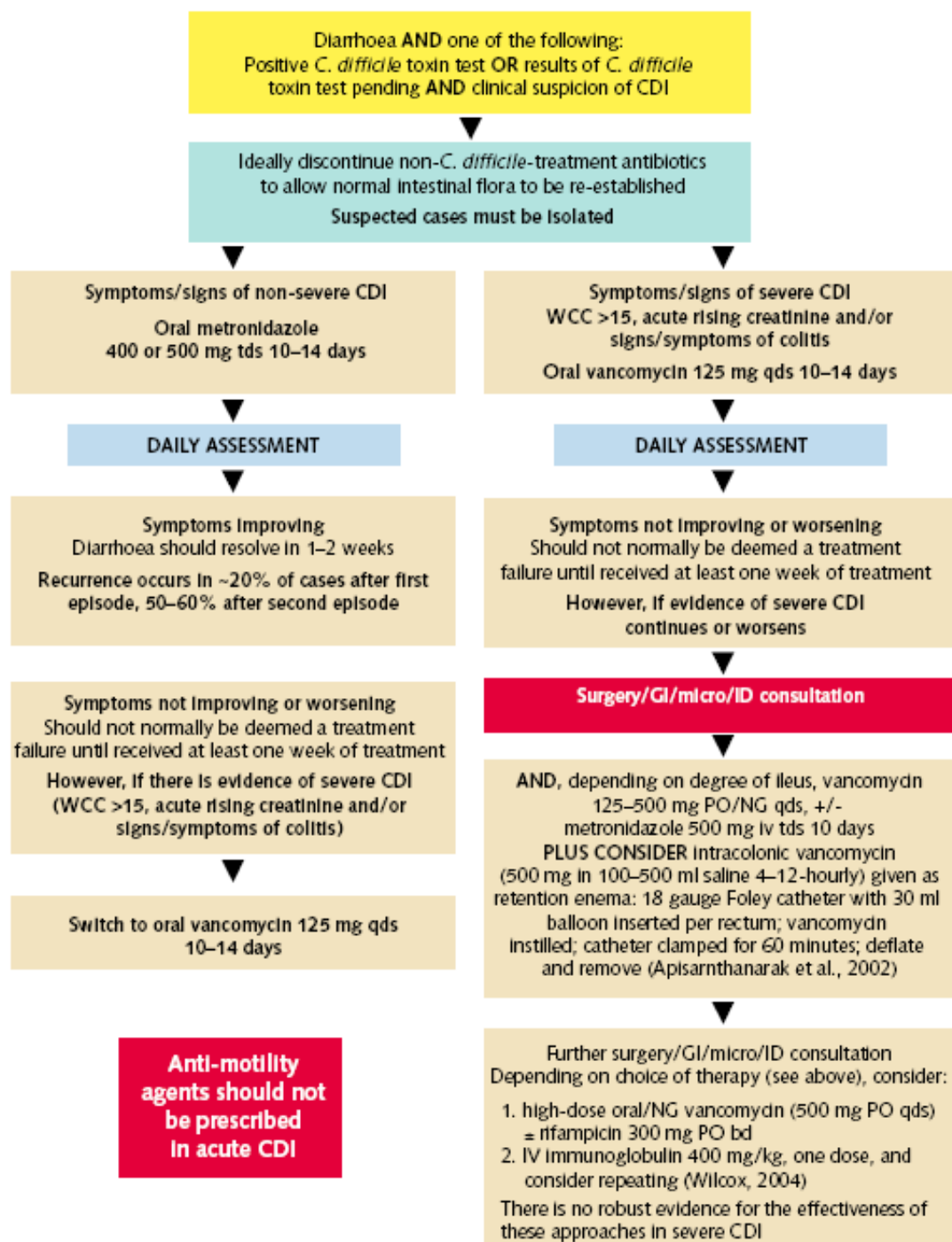
Bristol Stool Chart

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, a mushy stool
Type 7		Watery, no solid pieces ENTIRELY LIQUID

Treatment Algorithms

Treatment algorithms

Figure 3: First or second episode of *C. difficile* Infection



N.B. Multi-disciplinary request needed for acute admission

Treatment algorithms

Figure 4: Recurrent *C. difficile* infection (third or subsequent episode)

