Guideline for the Management of Adults with *C. difficile* Infection (CDI)

University Hospitals of Leicester NHS
NHS Trust

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1 Introduction & Scope

Clostridioides difficile (C difficile, formerly called *Clostridium difficile)* is a spore forming, gram positive, anaerobic bacterium that causes infections of the gastrointestinal tract and is associated with significant morbidity and mortality. There is a strong association between the use of antibacterial drugs and the development of *C difficile* infection (CDI). Users of this guideline are directed to the UHL Antimicrobial Prescribing Policy (available on INsite) and the Antimicrobial Stewardship: Start Smart Then Focus guidance (available from UK HSA).

These guidelines are for the treatment of adult patients with suspected or confirmed CDI.

2 Guideline Standards and Procedures

2.1 Suspecting CDI

Consider CDI in any patient who has diarrhoea (passage of type 6 or 7 stool, or ≥3 episodes of type 5 stool in 24h) during, or within 3 months of, antibiotic administration UNLESS THERE IS A LIKELY ALTERNATIVE CAUSE

DO NOT TEST

- samples from patients receiving laxatives; stop laxatives and review after 24-48h, as laxatives have a purgative action[1]
- samples from patients with faecal impaction; diarrhoea is likely overflow
- small bowel (eg. ileostomy) samples unless there are features of severe disease and after discussion with Microbiology; CDI is a very uncommon cause of small bowel pathology
- samples within 28 days of a positive CDT result

2.2 Review and consider stopping

- **Antibiotics for infections other than CDI** (consult Microbiology for advice if required)
- **Proton pump inhibitors (PPI)**
- **Laxatives, prokinetic agents** (e.g. metoclopramide), **and other drugs affecting intestinal motility** (eg. opioids, loperamide or other antidiarrhoeal medications)
- **Medicines that may cause problems if people are dehydrated**, such as non-steroidal anti-inflammatory drugs, angiotensin-converting enzyme inhibitors, angiotensin-2 receptor antagonists, diuretics, metformin

2.3 Assessing severity

- **Mild (nonsevere) disease** no features of severe or life threatening disease
- **Severe disease** any of the following clinical data: white blood cell count >15,000 cells/ml, raised serum creatinine (>132 µmol/l, or 50% above baseline), temperature ≥38.5˚C
- **Life threatening infection (fulminant colitis)** hypotension, peritonism, ileus, or megacolon

2.4 Treating CDI

Follow the treatment algorithm in 2.4.2 for the assessment and initial management of patients with suspected CDI. More information on the use of the recommended antimicrobial agents is given in 2.4.1.

2.4.1 Therapeutic options for CDI

Vancomycin

- 125-500mg (dose according to disease severity; see treatment algorithm) ENTERALLY every 6 hours for 10 days (the intravenous [IV] route is NOT effective for the treatment of CDI)
- Oral capsules are available from pharmacy and on selected wards and locations at LRI and GGH (contact ward or on-call pharmacist if further advice needed)
- Vancomycin oral solution is available from pharmacy only, as this medicine is not licensed in the UK. Contact ward or on-call pharmacist for supplies. Vancomycin oral solution has a 14 day expiry
- Dose reduction is not needed in renal impairment
- Levels are not needed as it is little absorbed from the gastrointestinal tract **but** consider levels if GFR <10, severe colitis and treatment >10 days

Fidaxomicin

- 200 mg ENTERALLY every 12 hours for 10 days
- Available as granules for use via enterostomy
- Dose reduction is not needed in renal impairment
- Prescription can only be authorised by an approved infection specialist. Document the antimicrobial authorisation code on the prescription

Metronidazole

- 500mg INTRAVENOUSLY every 8 hours
- Dose reduction is not required in renal impairment

For further advice on drug interactions and patient monitoring speak to your ward pharmacist or see BNF

2.4.2 CDI Treatment Algorithm

CONSIDER ALTERNATIVE CAUSES OF DIARRHOEA BEFORE TESTING/TREATING see 2.1

Send a faecal sample to Microbiology for *C.difficile* toxin (CDT), C&S and OCP
Samples must be unformed (taking the shape of the container). Do not send formed stool

ISOLATE THE PATIENT IN A SINGLE ROOM WITH CONTACT PRECAUTIONS

STOP UNNECESSARY MEDICATIONS see 2.2

ASSESS SEVERITY see 2.3

TREATMENT OF MILD OR SEVERE CDI

On clinical suspicion of CDI with features of severe disease, whilst awaiting CDT result OR in mild or severe CDT positive disease

Start enteral vancomycin 125 mg x 4/day

- **If enteral administration is not possible:** give IV metronidazole 500 mg q8h until the enteral route is available
- **Review disease severity daily and if life threatening CDI develops escalate as below**
- **Consider abdominal imaging, especially in severe disease**
- **If CDT is positive, complete a 10 day course**
- **If initial CDT is negative, normally CDI treatment should be stopped. If there is a strong clinical suspicion of CDI, despite a negative initial CDT result, continue treatment and send another stool sample after 3-7 days. If 2 consecutive samples are negative, this gives considerable reassurance that CDI is not present. Consider alternative causes, and stopping CDI treatment**
- **If the patient requires non CDI antibiotic treatment during treatment for CDI**: continue vancomycin for 7 days after the completion of the antibiotic course (up to a maximum of 6 weeks)

TREATMENT OF LIFE THREATENING CDI
Suspected or confirmed life threatening CDI

Start enteral vancomycin 500mg x 4/day AND metronidazole IV 500mg x 3/day

- **If there is ileus, or if enteral vancomycin administration is not possible:** give intracolonic vancomycin 500mg in 500ml normal saline as a retention enema every 6 hours (18F Foley catheter with 30-cc balloon inserted into the rectum, balloon inflated, solution instilled, and catheter clamped for 60 minutes)
- Measure blood lactate, perform urgent abdominal CT, refer to Surgery. Early surgical consultation and intervention for life threatening CDI has been advocated by multiple society guidelines[5]
- Discuss with microbiology

CDT MDT AND ONGOING TREATMENT

All patients with positive CDT results will be reviewed by the CDI MDT who will advise on further management. MDT review is an automatic process and referral is not required.
Treatment advice and any relevant authorisation will be documented in the physical or electronic medical notes (eg. Nervecentre) for the patient's medical team to follow up

3 Education and Training

No additional education or training is required.

4 Monitoring Compliance

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Adherence to the guidance algorithm and prescribing guidance.	PII audits and outbreak RCA meetings	*C difficile* liaison nurse	Ad hoc	Via RCA reports

5 Supporting References

1. El-Assasif Medical Papyrus of Thebes/Papyrus Ebers (c1536 BCE). Universitätsbibliothek, Leipzig
2. Public Health England. (2013) *Clostridium difficile* infection: guidance on the management and treatment [https://www.gov.uk/government/publications/clostridium-difficile-infection-guidance-on-management-and-treatment]
3. Clostridioides difficile infection: antimicrobial prescribing. NICE guideline [NG199] (2021) https://www.nice.org.uk/guidance/ng199/chapter/Recommendations
4. McDonald. L.C., *et al*. (2018) Clinical Practice Guidelines for Clostridium difficile Infection in Adults and Children: 2017 Update by the Infectious Diseases Society of America (IDSA) and Society for Healthcare Epidemiology of America (SHEA), Clinical Infectious Diseases, Volume 66, Issue 7, 1 April 2018, Pages e1–e48, https://doi.org/10.1093/cid/cix1085
5. Clostridium difficile disease: Diagnosis, pathogenesis, and treatment update. Surgery. 2017;162(2):325.

6 Key Words

Clostridium, clostridioides, difficile, diarrhoea, metronidazole, vancomycin, fidaxomicin

7 Review Record

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) Dr David Bell - Consultant in Infectious Disease	**Executive Lead** Medical Director
Antimicrobial Working Party Review Ratified: Review Due: Reference:	**Policy and Guideline Committee 16.2.24**
Reviewers Dr David Bell – Consultant in Infectious Disease	

Details of Changes made during review:		
Date	**Issue No.**	**Description of change (if any)**
9.07	2	• Treatment to continue if clinician suspects CDI even if initial test result is negative
1.09	3	• Differentiation depending on the severity of disease
10.09	4	• Addition of metronidazole interaction warning
11.10	5	• No changes
10.11	6	• Addition of information about the possibility of colonisation. Addition of CDI MDT statement
6.13	7	• Addition of fidaxomicin
6.19	8	• Reformatted as per Trust requirements

		• Addition of drug-specific information to support prescribing • Updated algorithm on current evidence
11.23	9	• Updated treatment on current evidence • Indications for surgical consultation