

## ***Clostridium difficile* infection (CDI)**

### **Treatment**

- **STOP ALL ANTIMICROBIAL AGENTS WHENEVER POSSIBLE**
- Oral therapy must be used whenever possible as the efficacy of IV metronidazole is poorly established for CDI and there is no efficacy of IV vancomycin for CDI.

### **Treatment depends on clinical severity**

<b>Infection Severity</b>	<b>Clinical Manifestations</b>
Asymptomatic carriage	<i>C. difficile</i> NAAT positive without diarrhea, ileus, or colitis
Mild or moderate	<i>C. difficile</i> NAAT positive with diarrhea but no manifestations of severe disease
Severe	<i>C. difficile</i> NAAT positive with diarrhea and one or more of the following <u>attributable to CDI</u> : <ul style="list-style-type: none"> <li>● WBC <math>\geq</math> 15,000</li> <li>● Increase in serum Cr &gt; 50% from baseline</li> </ul>
Severe complicated	Criteria as above plus one or more of the following <u>attributable to CDI</u> : <ul style="list-style-type: none"> <li>● Hypotension</li> <li>● Ileus</li> <li>● Toxic megacolon or pancolitis on CT</li> <li>● Perforation</li> <li>● Need for colectomy</li> <li>● ICU admission for severe disease</li> </ul>

<b>Infection Severity</b>	<b>Treatment</b>
Asymptomatic carriage	Do NOT treat; treatment can promote relapsing disease
Mild or moderate	<ul style="list-style-type: none"> <li>● Metronidazole 500 mg PO/NGT q8h</li> </ul> Unable to tolerate oral therapy: <ul style="list-style-type: none"> <li>● Metronidazole 500 mg IV q8h (suboptimal, see note above)</li> </ul>
Severe	<ul style="list-style-type: none"> <li>● Vancomycin solution 125 mg PO/NGT q6h (preferred)</li> </ul> <b>OR</b> <ul style="list-style-type: none"> <li>● Vancomycin capsules 125 mg PO q6h</li> </ul>
Severe complicated	<ul style="list-style-type: none"> <li>● Consult Infectious Diseases and Surgery for evaluation for colectomy</li> <li>● Vancomycin solution 500 mg NGT <b>PLUS</b> metronidazole 500 mg IV q8h</li> </ul> Unable to tolerate oral therapy or complete ileus <ul style="list-style-type: none"> <li>● Vancomycin 500 mg in 100 ml NS q6h as retention enema via Foley catheter in rectum <b>PLUS</b> metronidazole</li> </ul>

	500 mg IV q8h
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**Other indications for oral vancomycin use**

- No response to oral metronidazole after 5 days of therapy
- Second episode of recurrent disease (first recurrence should be treated with metronidazole)
- Patients with significant side effects to metronidazole
- Patients who are pregnant
- Consider in patients > 80 years given reports of increased morbidity from CDI

**Treatment Duration**

- 10-14 days

**Recurrent disease**

- Resistance to metronidazole or vancomycin has not been conclusively documented
- Recurrent disease after a complete course of therapy occurs in ~25% of patients. Relapse is due to a failure to eradicate spores (60%) or acquisition of a new strain (40%). Recurrent disease documented by a positive NAAT test. Document recurrent disease with repeat stool testing.
- Some patients may develop irritable bowel syndrome after infectious colitis including CDI. This may be suggested by recurrent symptoms with negative stool testing.
- First recurrence should be treated the same as the initial episode.
- Second recurrence should be treated with vancomycin taper followed by pulse dosing.
- If serious or multiple recurrences, ID consult is advised.

<b>Vancomycin Taper Regimen</b>
125 mg 4 times daily x 10-14 days
125 mg BID x 7 days
125 mg daily x 7 days
125 mg every 2-3 days for 2-8 weeks (pulse dosing)

**TREATMENT NOTES**

**Diagnosis**

- Do not send stool for *C. difficile* testing if patients do not have diarrhea, ileus, or colitis.
- The microbiology laboratory will reject non-diarrheal stools submitted for *C. difficile* testing.
- The present NAAT assay is >99% sensitive. Empiric treatment for patients with negative NAAT should be avoided.
- Repeat samples are unnecessary, as the negative predictive value of a single test is >99%.
- Stool for *C. difficile* testing should be collected prior to starting treatment for *C. difficile*.

- Do NOT send follow-up *C. difficile* toxins to document resolution of disease, as the test can remain positive for weeks following successful treatment.
- The microbiology laboratory will only accept 1 stool specimen per patient per 7 day period, and will only retest patients if 10 days have elapsed since a previous positive result.

### Management

- Surgical intervention for total colectomy should be considered early if patient is clinically unstable secondary to CDI.
- Most patients with severe CDI should undergo abdominal CT to rule out toxic megacolon or pancolitis.
- Early therapy appears to be important, especially in elderly patients. It may be necessary to discontinue the offending agent and initiate therapy while the toxin assay is pending.
- Do not use antiperistalsis agents (e.g., imodium)
- The offending agents should be discontinued. If antimicrobials are necessary, it is preferable to avoid clindamycin, cephalosporins, or fluoroquinolones.
- Prophylactic use of oral metronidazole or vancomycin in patients receiving antimicrobial therapy for treatment of underlying infection (other than CDI) is not recommended and may increase the patient's risk for CDI.
- There are insufficient data to support the routine use of probiotics for CDI.
- Cholestyramine is of questionable efficacy and binds oral vancomycin. Its use is not advised.

### Infection control

- All patients with CDI require contact isolation with spore precautions (hand wash, no alcohol gel).
- *C. difficile* spores extensively contaminate environmental surfaces and gowns/gloves are required for room entry **even if the patient is not touched**.
- Patients should remain in contact isolation for the duration of their hospitalization (see policy HS IC-003).

### References:

Diagnosis of CDI: Clin Infect Dis 2008; 46:S12-8.

Treatment of CDI: Clin Infect Dis 2008; 46:S32-42.

Lack of utility of treating CDI carriers: Ann Intern Med 1992; 117:297-302.

Colectomy in CDI: Ann Surg 2007; 245:267-72.