Clostridium difficile Infection (CDI) Management Guideline

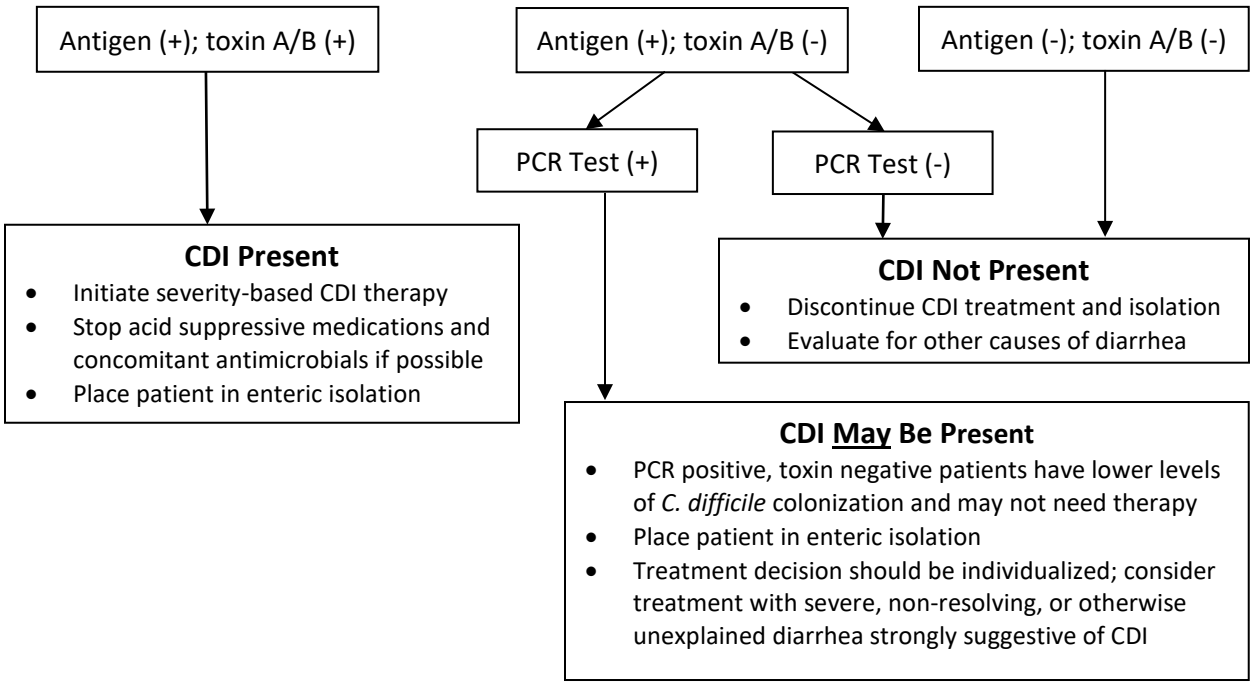
- **Do not test all patients with loose or watery stools for CDI**
  - CDI is responsible for <10% of nosocomial diarrhea
  - Consider other causes of diarrhea first (e.g. tube feeds, oral contrast, bowel regimens, antibiotic side effects, etc.) unless symptoms strongly suggest CDI
- Patients with mild-moderate nosocomial diarrhea without other CDI features (see below) should have non-CDI causes treated (stop inciting meds especially laxatives, add fiber to tube feeds, etc.) and be monitored for resolution before CDI testing is considered
- Infants <12 mo. are likely to be colonized with *C. difficile* and should not be routinely tested
- **Never** test formed stool, asymptomatic patients, or perform a "test of cure"
- Unformed stool is the only acceptable specimen (i.e. stool conforms to shape of the container)
  - Non-liquid stool will not be processed by the microbiology lab
    - Order only one CDI test and await results before initiating therapy (exception: If severe disease with typical symptoms, reasonable to initiate therapy before results)

<u>Reserve CDI testing for patients who meet the following criteria</u>

1. Significant diarrhea (>3 watery bowel movements in <24 hours) and at least one feature suggestive of CDI including:
   a. Unexplained elevation in WBC count or fever
      i. Isolated leukocytosis without diarrhea is not an indication for CDI testing
   b. New onset abdominal pain and/or distention with diarrhea
2. Severe diarrhea (>7 bowel movements or >1.5L over 24 hours)
3. Persistent diarrhea = significant diarrhea for >24 hours which is not resolved with conservative treatment and does not have another explanation

***Clostridium difficile* test interpretation algorithm:**

Interpret test results and make treatment decisions after considering patient symptoms



Treatment Recommendations for CDI

Base treatment choice for CDI on an assessment of infection severity. It is reasonable in mild infections to discontinue the inciting antibiotics and monitor for diarrhea resolution over the next 24-48 hours without initiating antibiotic therapy.

Treatment Recommendations for All Patients with CDI:

- Replace fluids and electrolytes as needed
- Discontinue acid suppressive medications (ASM) if possible. Continued use is associated with increased risk of CDI and recurrence
- Discontinue concomitant antibiotics if possible. Continued antibiotic use is associated with prolonged time to CDI symptom resolution and CDI recurrence. Narrow antibiotic spectrum as much as possible and discontinue necessary antibiotics as early as medically safe.
- Discontinue both anti-motility and pro-motility medications
- Monitor for clinical worsening and adjust therapy as needed

Mild-Moderate Infection: Diarrhea that does not meet criteria for severe or complicated

- Vancomycin 125mg PO q6h x 10 days (preferred)
- Metronidazole 500 mg PO q8h x 10 days
    - Avoid IV metronidazole as data suggests inferior to PO.
    - If no improvement by day 5 change to vancomycin

Severe Infection: CDI associated with the development of any of the following: WBC > 15,000, SCr ≥ 1.5 X baseline, acute decrease in albumin <3.0 g/dl, severe abdominal tenderness/pain, or requires ICU care for CDI:

- Vancomycin 125 mg PO q6h x 10 days (DO NOT treat with IV vancomycin)

Severe, Complicated Infection: (i.e., hypotension or shock, ileus, toxic megacolon, fulminant colitis):

- Consult ID Service to assist with therapy management
- Consult GI and General Surgery for evaluation for possible colectomy
- Vancomycin 500 mg PO q6h + metronidazole[Ŧ] 500 mg IV q8h +/- vancomycin enema 500 mg in 100 mL of 0.9% NaCl; instill via Foley catheter q6h and retain for 1h

Recurrent CDI: CDI recurrence defined as the re-appearance of signs/symptoms of CDI with a positive *C. difficile* test within 8 weeks of a previous CDI episode for which signs/symptoms had resolved. Recurrence of diarrhea is frequent in patients with previous CDI, reserve testing for those meeting previously described testing thresholds. In early, mild diarrhea, it is reasonable to hydrate and monitor symptoms for 24-48 hours to determine if they resolve spontaneously. If symptoms worsen or do not resolve, initiate CDI testing.

- All Patients with recurrence:
    - Stop acid suppressive medications and concomitant antibiotics if possible
- First Recurrence:
    - Vancomycin 125mg PO X 10 days
    - Consider fidaxomicin 200mg BID X 10 days in high risk outpatients (elderly, stem cell transplant, early solid organ transplant) as decreased risk of recurrence (**expensive**)
- Second Recurrence:
    - Vancomycin 125 mg PO q6h x 10 days followed by, vancomycin taper of 125 mg PO q12h x 7 days, 125 mg PO q24h x 7 days, then 125 mg PO every 3 days x 14 days

- >2 Recurrences:
    - If has not received vancomycin taper attempt this first (cure rate ~60%); if CDI recurs after vancomycin taper proceed as below
    - Referral to ID or GI for evaluation for fecal microbiota transplant (FMT) or Bezlotoxumab
        1. **FMT preferred** – cure rate 70-90%
        2. Bezlotoxumab 10 mg/kg IV once
            - Decreases recurrence roughly 40%
            - Consider where FMT is not an option
                - i.e. likely to receive additional courses of antibiotics in near future or unsafe/unwilling to undergo FMT
            - No benefit in resolution of acute symptoms, avoid inpatient use

CDI Test Interpretation

GDH Result	Toxin Assay Result	Interpretation	Recommendations
Negative	Negative	No *C. difficile* present	No further action. Repeat testing is discouraged.
Positive	Positive	Toxigenic *C. difficile* is present	Utilize enteric isolation precautions and begin therapy according to management algorithm. Repeat testing is discouraged.
Positive	Negative	Non-toxigenic *C. difficile* or false-negative toxin assay	DNA confirmatory test for toxin performed. Interpret based on this result and symptoms
Negative	Positive	Indeterminate	Repeat test x 1.

Testing Interpretation:

GDH and toxin negative: No *C. difficile* is present (Negative Predictive Value ~99%)

- Repeat testing is not recommended
- Repeat testing could be considered if ≥5 days and the clinical syndrome changed significantly

GDH and toxin positive: Toxigenic *C. difficile* is present (Positive Predictive Value ~99%)

- Treat if symptoms suggestive of CDI are present (refer to guidelines above)
- Repeat testing is not recommended and no test of cure should be performed

GDH positive, toxin negative: *C. difficile* may be present, reflex PCR will be performed.

- Repeat testing is **NOT** recommended
- **PCR Test (+)**
    - *C. difficile* with toxin gene is present and symptoms may be due to CDI (see guideline for treatment decisions)
    - PCR positive, toxin negative patients have low levels of *C. difficile* colonization and may not require therapy but should be placed in enteric isolation regardless of treatment
- **PCR Test (-)**
    - No toxigenic CDI present with positive GDH test due to one of 2 possibilities:
        - 1) Non-toxigenic *C. difficile* detected or 2) false positive GDH
    - No treatment or isolation indicated

CDI Isolation/Infection Control

- All patient care units will use the same procedures for testing, treatment, and isolation
- Presumptive isolation upon testing for CDI is recommended
- GDH and toxin negative **AND** GDH positive, toxin negative, PCR test negative patients = No isolation necessary
- GDH and toxin positive **AND** GDH positive, toxin negative, PCR test positive patients = Initiate enteric isolation precautions
    - Isolation procedures include: Glove and gown use upon room entry and soap and water hand hygiene preferred after patient and/or environment contact
    - Patients will remain in isolation for 1 week after treatment is completed and they are asymptomatic (no diarrhea), whichever is longer
- Environmental Services will perform routine bleach cleaning of rooms of all patients with *C. difficile* infection (CDI) weekly and at patient discharge along with terminal UV disinfection

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