



Adult *Clostridioides difficile* Management Guidelines
(formerly *Clostridium difficile*)

Terminology for *Clostridioides difficile* Infections (CDI)

Term	Definition
New primary episode	No episode of symptom onset with positive results within the previous 8 weeks
Recurrent CDI	An episode of symptom onset and positive assay result following an episode with positive assay result in the previous 2-8 weeks
Healthcare facility-onset (HO) CDI	Defined by the CDC and NHSN as positive stool culture >3 days after admission to the facility
Community-onset, healthcare facility-associated (CO-HCFA) CDI	CDI within 28 days after discharge from a healthcare facility
Community-associated (CA) CDI	Present on admission with no discharge from the same facility within the previous 4 weeks

CDC = Centers for Disease Control and Prevention; NHSN = National Safety Healthcare Network

Risk Factors for CDI

- Previous antibiotic exposure within the last 12 weeks (**see Table 1**)
- Use of proton-pump inhibitors (PPIs)
- Advanced age
- Recent healthcare exposure
- Cancer chemotherapy
- Gastrointestinal surgery or manipulation of gastrointestinal tract, including tube feeding
- Solid-organ and hematopoietic stem cell transplant
- Chronic medical conditions
 - Inflammatory bowel disease (IBD)
 - Chronic kidney disease (CKD) and End-Stage Renal Disease (ESRD)

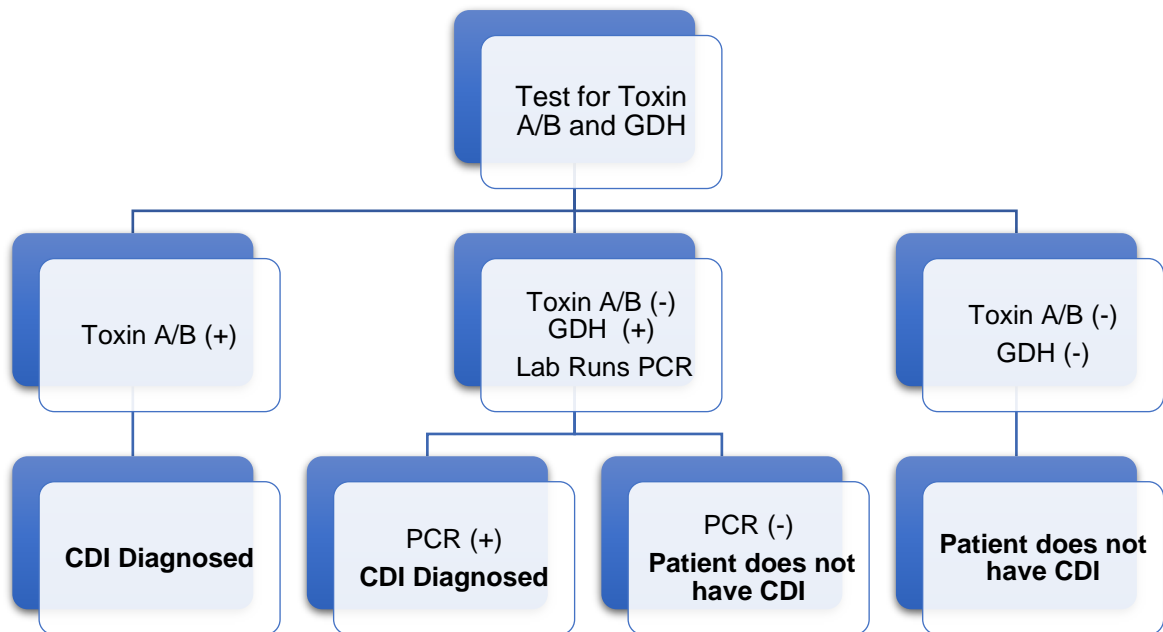
Table 1. Antibiotic Risk for CDI

High Risk	Medium Risk	Low Risk
<ul style="list-style-type: none"> • Clindamycin • Fluoroquinolones • 3rd generation cephalosporins (e.g., ceftriaxone, ceftazidime) • 4th generation cephalosporins (e.g., cefepime) • Carbapenems (e.g., meropenem) • Amoxicillin/clavulanate, Ampicillin/sulbactam 	<ul style="list-style-type: none"> • Macrolides (e.g., azithromycin) • Ampicillin, Amoxicillin • Aztreonam • 2nd generation cephalosporins (e.g., cefuroxime, cefotetan) • Piperacillin/tazobactam • Dalfopristin/quinupristin 	<ul style="list-style-type: none"> • Tetracyclines (e.g., doxycycline) • Aminoglycosides (e.g., amikacin) • Metronidazole • Vancomycin • Linezolid • Tigecycline • Rifampin • Rifaximin • Penicillin or anti-staphylococcal penicillins (e.g., nafcillin, penicillin G) • 1st generation cephalosporins (e.g., cefazolin, cephalexin) • Daptomycin • Polymyxins • Fosfomycin • Nitrofurantoin • Sulfamethoxazole/trimethoprim

Testing

- Criteria for Testing
 - Consider testing in patients with unexplained and new-onset > 3 unformed stools in 24 hours (preferred target population)
 - If diarrheal symptoms are not clearly attributable to underlying conditions (e.g., IBD, enteral tube feeding, intensive cancer chemotherapy, or laxatives), then testing for *C. difficile* is indicated
 - **DO NOT order *C. difficile* on formed stool**
 - **If diarrhea has resolved for >24 hours and stool not collected, discontinue laboratory test order**
 - **Repeat testing should not be performed for test-of-cure, or during the same episode of diarrhea or for asymptomatic patients**
 - **Microbiology lab will not repeat a specimen if within 1 week of a final result**
- Two diagnostic tests are recommended to diagnose CDI
 - *C. difficile* Toxin A+B (glutamate dehydrogenase [GDH] plus toxin)
 - *Clostridium difficile* Toxin B PCR (lab will automatically run if GDH is positive and toxin is negative)

Figure 1. *C. difficile* Diagnostic Algorithm



Management

- Once diagnosis of CDI is made, risk stratify patients and treat according to Table 2
- May initiate empiric treatment if clinical presentation is highly suggestive of *C. difficile* until confirmatory test results are finalized

Table 2. Pharmacologic Treatment of *C. difficile* Diarrhea in Adults

Clinical Definition	Supportive Clinical Data	Recommended Management
Initial episode, non-severe	<ul style="list-style-type: none"> ○ WBC \leq 15,000 cells/mL AND ○ SCr $<$ 1.5 mg/dL 	<ul style="list-style-type: none"> ○ Vancomycin 125 mg PO 4 times daily x 10 days
Initial episode, severe	<ul style="list-style-type: none"> ○ WBC \geq 15,000 cells/mL OR ○ SCr $>$ 1.5 mg/dL 	<ul style="list-style-type: none"> ○ Vancomycin 125 mg PO 4 times daily x 10 days
Initial episode, fulminant (previously known as severe-complicated)	<ul style="list-style-type: none"> ○ Hypotension or shock ○ Ileus ○ Megacolon 	<ul style="list-style-type: none"> ○ Vancomycin 500 mg PO/NGT 4 times daily* AND ○ Metronidazole 500 mg IV every 8 hours ○ *If ileus present, consider adding rectal administration of vancomycin (500 mg PR 4 times daily) ○ Duration of treatment: 10 to 14 days ○ Consider consulting surgery and Infectious Diseases ○ Consider imaging studies (i.e. CT abdomen)
First recurrence		<ul style="list-style-type: none"> ○ <u>If ONLY metronidazole was used in initial episode:</u> <ul style="list-style-type: none"> ○ Vancomycin 125 mg PO 4 times daily x 10 days OR ○ <u>If vancomycin was used for the initial episode:</u> <ul style="list-style-type: none"> ○ Prolonged tapered and pulsed vancomycin regimen <ul style="list-style-type: none"> ○ 125 mg PO 4 times daily x 10-14 days THEN ○ 125 mg PO 2 times daily x 1 week THEN ○ 125 mg PO once daily x 1 week THEN ○ 125 mg PO every 2 or 3 days x 2-8 weeks
Second or subsequent recurrence		<ul style="list-style-type: none"> ○ Vancomycin in a tapered and pulsed regimen <ul style="list-style-type: none"> ○ 125 mg PO 4 times daily x 10-14 days THEN ○ 125 mg PO 2 times daily x 1 week THEN ○ 125 mg PO once daily x 1 week THEN ○ 125 mg PO every 2 or 3 days x 2-8 weeks

Additional Management of Patients with *C. difficile* Diarrhea

- If clinically appropriate, discontinue any unnecessary antibiotics or de-escalate to an antibiotic with low-risk of causing *C. difficile* (see Table 1)
- Discontinue all laxatives and stool softeners
- Avoid the use of opioid agonists (i.e. oxycodone) if clinically feasible
- Consider discontinuing proton pump inhibitors
- Avoid antimotility agents (i.e. loperamide)

Infection Control

- Any patient who is suspected of having *C. difficile* should be placed in isolation until final results are received
- The order for *C. difficile* testing automatically generates an order for enteric precaution isolation
- Place patient in private room with a dedicated toilet
- Use disposable patient equipment (i.e. stethoscopes) when possible and ensure reusable equipment is thoroughly cleaned and disinfected with a sporicidal disinfectant that is equipment compatible
- Healthcare personnel must perform hand hygiene before and after contact of a patient with CDI and after removing gown and gloves with soap and water for 20 seconds
 - Hand washing with soap and water is more effective than alcohol-based cleansers in preventing the spread of *C. difficile*
- Healthcare personnel must use gloves and gowns on entry to a room of a patient with *C. difficile* and while caring for patients
- Continue enteric precautions until diarrhea has resolved for >48 hours
- Inform infection control when enteric precautions are discontinued
- When a patient is transferred to another facility, notify the new facility if the patient has a *C. difficile* infection

References

1. McDonald LC et al. 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). *Clin Infect Dis* 2018;66(7): 1-48
2. <https://ohiohospitals.org/OHA/media/Images/Patient%20Safety%20and%20Quality/Documents/Sepsis/ohiosepsis-kennedyfinal-pdf.pdf>. Kennedy Health C. *diff* task force. Accessed 3/1/2018
3. Matsumoto E et al. Management of Recurrent *Clostridium difficile* Infection: A Case-Based Approach. *Consultant*. 2017;57(10):583-587

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