Testing for CDI:
- Test liquid stool only (i.e. stool contains to the containers).
- Do not order multiple tests for C. difficile. Current methods are highly sensitive with negative predictive values of 98-99%.
- Do not send follow up C. difficile infection testing to document resolution of disease because the test can remain positive for weeks after successful treatment.

Prevention:3
- Take antibiotics only as prescribed by your doctor. Antibiotics can be life-saving medicines. When a person takes antibiotics, good germs that protect against infection are destroyed for several months. During this time, patients can get sick from C. difficile picked up from contaminated surfaces or spread from a healthcare provider’s hands. Older adults who take antibiotics and receive medical care are most at-risk.1

Treatment Recommendations for C. difficile infections6
- C. difficile treatment should be based on severity of symptoms and number of recurrences. See below for treatment recommendations.

Asymptomatic: Patients can test positive for C. difficile infection without diarrhea or complications. Do not treat asymptomatic carriers for C. difficile infection without diarrhea or complications.

Mild-Moderate Infection: Diarrhea that does not meet criteria for severe or complicated:
- Metronidazole 500 mg PO q6h x 10 days
- Pediatric dosing: 30 mg/kg/day PO divided q6-8h x 10 days; not to exceed 2 g/day

Severe Infection: C. difficile associated with the development of any of the following: WBC > 20,000, Segr ≥ 1.5 X baseline, albumin <0.3 g/dl, severe abdominal tenderness, or requires ICU for CDI:
- Patients with severe C. difficile should generally be cared for in the inpatient setting
- Vancomycin 125 mg PO q8h x 10 days (DO NOT treat with IV vancomycin)
- Pediatric dosing: 40 mg/kg/day PO divided q6-8h x 10 days; not to exceed 2 g/day

Recurrent C. difficile Recurrence is defined as reappearance of signs/symptoms of C. difficile with positive stool test within 2 months of previously resolved CDI episode. Treatment for first recurrence of C. difficile should be the same as initial episode.
- Vancomycin 125 mg PO q6h x 10 days followed by:
- Vancomycin 125 mg PO q12h x 7 days, 125 mg PO q4h x 7 days, then 125 mg PO every 3 days x 14 days
- Consider referral for fecal microbiota transplant if multiple recurrences (2-3 occurrences)

Discordant acid suppressive medications and other antimicrobials if possible:
- Acid suppressive medications (ASMs) and especially proton pump inhibitors (PPIs) are associated with increased risk of developing C. difficile, decreased response to therapy, and increased recurrence rates. ASM’s should be discontinued if medically possible.
- Concomitant antimicrobial use (other antimicrobial use in patients who have C. difficile) is associated with prolonged time to resolution and recurrence. Concomitant antibiotics should be discontinued if medically possible.

Role of Fidaxomicin: Fidaxomicin is equivalent to vancomycin for first episode of mild to moderate C. difficile and has lower recurrence rates in this population. Its utility in severe C. difficile and multiple recurrent disease is currently poorly defined. Fidaxomicin cost is significantly greater than both vancomycin and metronidazole.

Cost of 10 days of therapy:
- Metronidazole: $20
- Vancomycin (capsules): $375
- Fidaxomicin: $3100

*Approximate cost. Patient responsibility will vary based on insurance coverage.

Prevention and Lifestyle Modifications:
- While most of the risk factors for C. difficile are not avoidable, you may be able to reduce your risk by the following:
  - Minimizing antibiotic use has been successful in decreasing C. difficile infection in hospitalized patients.
  - Wash hands with soap and water
  - Isolate C. difficile patients

SUGGESTED TEACHING RESOURCES
Deadly Diarrhea: C. Difficile Causes Immense Suffering, Death

INSIDE
1. CLOSTRIDIUM DIFFICILE CARE GOALS
2. TEAM MEMBERS
3. CLOSTRIDIUM DIFFICILE TREATMENT ALGORITHM
4. PATIENT EDUCATION
5. TREATMENT RECOMMENDATIONS
6. REFERENCES AND RESOURCES

REFERENCES & RESOURCES

NEBRASKA HEALTH NETWORK

This Clinical Practice Guideline (CPG) and accompanying patient education were developed by a multidisciplinary team, under the leadership of Nebraska Health Network’s Gastroenterology Workgroup.

Based on national guidelines and emerging evidence and shaped by expert local opinion, this CPG provides practical strategies for early recognition, diagnosis, and effective treatment of Clostridium difficile.

RECOMMENDATIONS & RESOURCES

1. References
2. Resources
3. Patient Education
4. Clinical Practice Guidelines
5. CPGs
6. Inpatient Care
7. Outpatient Care
8. Nursing
9. Other

NEBRASKA HEALTH NETWORK

INSIDE
1. CLOSTRIDIUM DIFFICILE CARE GOALS
2. TEAM MEMBERS
3. CLOSTRIDIUM DIFFICILE TREATMENT ALGORITHM
4. PATIENT EDUCATION
5. TREATMENT RECOMMENDATIONS
6. REFERENCES AND RESOURCES

REFERENCES & RESOURCES

NEBRASKA HEALTH NETWORK

This Clinical Practice Guideline (CPG) and accompanying patient education were developed by a multidisciplinary team, under the leadership of Nebraska Health Network’s Gastroenterology Workgroup.

Based on national guidelines and emerging evidence and shaped by expert local opinion, this CPG provides practical strategies for early recognition, diagnosis, and effective treatment of Clostridium difficile.

INSIDE
1. CLOSTRIDIUM DIFFICILE CARE GOALS
2. TEAM MEMBERS
3. CLOSTRIDIUM DIFFICILE TREATMENT ALGORITHM
4. PATIENT EDUCATION
5. TREATMENT RECOMMENDATIONS
6. REFERENCES AND RESOURCES

REFERENCES & RESOURCES
**Clinical Suspicion of CDI:**
- Persistent diarrhea
- Recent antibiotic therapy (within last 30 days)
- Abnormal pain/discomfort
- Fever
- Leukocytosis
- Immunocompromised patients

**Order C. difficile Test:**
- Discontinue antidiarrheal
- Discontinue unnecessary antibiotics
- Maintain hydration/electrolyte replacement
- Empiric therapy not generally recommended

**CIDI Present: Mild to Moderate Infection**
- Begin treatment with Metronidazole
  - Adult: 500 mg PO q8h x 10 days
  - Pediatric: 30 mg/kg/day PO divided q6h x 10 days not to exceed 2 g/day
- Stop acid suppression therapy
- Stop other antimicrobials if possible

**CIDI Present: Severe Infection**
- WBC count > 20,000, SCD ≥ 1.5 X baseline, albumin < 3.0 g/dl, severe abdominal tenderness, or requires hospitalization
- Begin treatment with Vancomycin
  - Adult: 125 mg PO q6h x 10 days (not treat with IV Vancomycin)
  - Pediatric: 40 mg/kg/day PO divided q8h x 10 days not to exceed 2 g/day
- Stop acid suppression therapy
- Stop other antimicrobials if possible

**Symptoms Improved:**
- Complete therapy course
- No further testing (recommended NO test of cure)

**Symptoms Improved**

**Symptoms Ongoing:**
- Consult Gastroenterology

**GOALS**
1. Simplify communication and confirm understanding (teach-back).
2. Support patients’ efforts to improve their health (shared decision-making).

**Definition:**
People receiving medical care can acquire serious infections called healthcare-associated infections (HAIs). One type of HAI caused by C. difficile was estimated to cause almost half a million infections in the United States in 2011. Older adults who take antibiotics and receive medical care are most at-risk. Most C. difficile infections are hospital-acquired, but community-acquired infections have increased dramatically in the past decade. Community acquired C. difficile may now account for up to a third of all newly diagnosed cases. Community-acquired C. difficile is defined as disease onset in a person who had no overnight stay in a health care facility within 12 weeks before the infection; the definition does not rule out acquisition in a health care facility.

**Risk Factors:**
- The largest risk factor for C. difficile infection is antibiotic use. Amoxicillin, ampicillin, cephalosporins, clindamycin, and fluoroquinolones are the antibiotics that are most frequently associated with C. difficile; however almost all antibiotics have been connected with this infection.
- In hospitals and long-term care facilities, environmental contamination and frequent antibiotic usage are risk factors for infection. The risk of contracting C. difficile infection and the severity of infection increase as age increases. The risk of contracting C. difficile during an outbreak was 10 times higher among persons older than 65 years of age as compared to younger patients.
- Some investigators have reported an increased risk of infection in association with acid suppression medication. Other documented risk factors for the infection include advanced age, inflammatory bowel disease, organ transplantation, chemotherapy, chronic kidney disease, immunodeficiency, and exposure to an infant carrier or infected adult.

**Diagnosis:**
C. difficile infection is currently diagnosed either by enzyme immunoassay for toxins in stool or by DNA-based tests that identify the microbial toxin genes in unformed stool. Enzyme immunoassay used to be the mainstay of testing for C. difficile infection since it is rapid and easily performed.

Recently, many hospital laboratories have adopted DNA-based tests that detect toxigenic strains and provide higher sensitivity and specificity than does enzyme immunoassay.