***Clostridioides difficile* Infection (CDI) TIP Sheet, Children’s Healthcare of Atlanta**

***C. difficile infection background***

* *C. difficile* infection (CDI) is caused by toxins released from the bacteria, typically during periods of *C. difficile* overgrowth after exposure to antibiotics.
* Any perturbation of intestinal flora – a gastrointestinal infection, chemotherapy, radiation, reduced gut motility, may result in diarrhea (defined was 3 or more unformed stools above baseline stooling pattern in a 24-hour period) and contribute to *C. difficile* toxin production.
* Children’s Healthcare of Atlanta microbiology laboratory currently uses the Cepheid Xpert toxin B gene PCR assay. This highly sensitive assay detects the presence of a strain of *C. difficile* that contains the gene for toxin B. The assay does NOT detect the presence of toxin B released from the bacteria. Thus, PCR detects strains with the ***potential*** to produce toxins but does not indicate whether there is active toxin production. Thus, while this test is very sensitive, it is not specific. In other words, PCR does not differentiate between infection and colonization.
* Asymptomatic colonization is common, particularly among young patients (under age 24 months) and those with recent healthcare exposures, but also among high-risk patients, such as children with cancer and inflammatory bowel disease. Treatment for colonization is not indicated.
* To avoid misdiagnosis of symptomatic CDI, unnecessary isolation of patients, and inappropriate treatment of colonization, testing is recommended for those with a reasonable pre-test probability of having CDI.
* Post treatment testing is not recommended. Patients with *C. difficile* infection can have detectable testingin their stool for over a month after resolution of symptoms. Therefore, repeat testing after resolution of symptoms to ensure “clearance” of the organism is not appropriate.
* Without restrictions, approximately 10% of tested CHOA samples tested are in the under 2-year-old age group
* To avoid unnecessary antibiotics, best practice is to ensure that unnecessary testing is avoided.

***Diagnostic Stewardship For CDI***: Avoid routine testing in the following situations:

* Patients < 24 months
* Patients without diarrhea (unless they have other non-diarrheal signs of fulminant CDI, such as ileus or toxic megacolon). Diarrhea is 3 or more stools in a 24 hour period that take the shape of the container they are in.
* Patients with diarrhea who have another more likely cause of diarrhea, such as a viral syndrome
* Use of stool softeners or laxatives within 48 hours
* Patients who had a negative *C. difficile* PCR from the same episode of diarrhea
* As a test of cure

***Rejection criteria for stool in the CHOA laboratory:*** Formed stool, testing done in the last 7 days, children under the age of 24 months without ID approval

***Management of CDI: for all patients, remove other antimicrobials whenever possible.*** Treatment is not recommend for asymptomatic colonization or a patient whose diarrhea is unlikely to be caused by *C. difficile*.

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|  | **Isolation** | **Treatment** | **Additional considerations** |
| Initial, non-severe CDI | Contact with handwashing | Vancomycin PO 10 mg/kg/dose (max 125 mg) QID for 10 days *Option for first episode of CDI in non-immunocompromised host*: Metronidazole PO 7.5 mg/kg/dose (max 500 mg) TID for 10 days | * Remove offending agents if possible
* Consider narrowing antibiotics if feasible
* Discontinue or limit duration of gastic acid suppression
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| Recurrent CDI | **First line**If patient has NOT previously received PO vancomycin: Vancomycin PO 10 mg/kg/dose (max 125 mg) QID for 10 daysIf patient HAS previously received PO vancomycin: * Vancomycin pulse/taper- PO 10 mg/kg/dose (max 125 mg) QID for 14d, then 10 mg/kg/dose (max 125 mg) BID for 7d, then 10 mg/kg/dose (max 125 mg) once daily for 7d, then 10 mg/kg/dose (max 125 mg) every 2-3d for 2-8w
* Fidaxomicin 16 mg/kg/dose (max 200 mg) PO BID x 10 days (fidaxomicin requires infectious diseases or antimicrobial stewardship approval).
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| Severe or fulminant CDI | Vancomycin PO 10 mg/kg/dose (max 500 mg) QID (can also be given PR [with PO] if decreased GI motility, such as ileus or megacolon) **PLUS** Metronidazole IV 10 mg/kg/dose (max 500 mg) TIDConsideration of adjunct agents will be considered with ID consultation | * Infectious Diseases consultation
* Urgent pediatric surgery consultation if hemodynamic instability and/or a surgical abdomen
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**Definitions: *Recurrent CDI:*** CDI recurrence is a second episode within ~8 weeks of previous. A repeat episode well beyond 8 weeks should be considered analogous to a first episode. *Severe CDI* is associated with WBC >15,000 or with significant acute kidney injury. *Fulminant CDI* is associated with any of the following: Sepsis, Hypotension requiring pressors Toxic megacolon
Need for ICU, Ileus, Gastrointestinal Perforation, Surgery for CDI-related complication (megacolon, perforation, refractory colitis).