



**Date:** April 7, 2011  
**To:** Medical Staff, Laboratory, and Key Personnel  
**From:** John G. Newby, M.D., Director of Laboratories  
**Subject:** Changes in Testing for Clostridium difficile Toxin Assay

Effective April 18, 2011, the Microbiology Laboratory will start performing *Clostridium difficile* toxigenic testing by Polymerase Chain Reaction (PCR) using the Cepheid *C. difficile* real-time PCR. The *Clostridium difficile* toxin A/B Enzyme Immunoassay (EIA) will be discontinued. The Cepheid *C. difficile* toxigenic assay is a qualitative test which detects the toxin B gene (tcd B). The testing time for this assay is 50 minutes. This assay has been extensively evaluated in the literature and all reports corroborate findings of sensitivity ranging from 95% to 99%. The PCR assay is more sensitive than EIA; therefore duplicate testing is not necessary nor is it recommended.

#### **Guidelines for Submitting *Clostridium difficile* Testing**

- **Specimen Container-** Stool specimens should be collected in a clean container with a secure lid, labeled appropriately.
- **Acceptable Specimen-** Stool specimens that are **liquid or soft**, that is, take the shape of the container, are acceptable. *Specimens not meeting these criteria will be rejected.*
- **Transport Temperature-** Specimen should be immediately forwarded to the laboratory. If transport is delayed, specimen should be refrigerated at 2- 8° C for up to 24 hours; if there is a delay greater than 24 hours, specimen must be kept frozen -20° C or below.
- **Rejection Criteria-** **Specimens will be rejected if they are not liquid or soft (i.e. take the shape of the container). Mixtures of urine and stool from a bedpan should not be submitted for testing. Rectal swabs and fluid obtained at colonoscopy are not acceptable.**
- **Frequency Limits-** Testing will be restricted to one specimen in 7 days. Duplicate specimens submitted within 7 days will be cancelled. *Consultation with Infectious Disease or a pathologist is required for those rare instances when a second specimen is necessary.*

Patients with *Clostridium difficile* Infection (CDI) almost always have **diarrhea**, defined as at least **3 unformed or watery stools** in a 24-hour period. Most patients have more than 3 episodes of watery, foul-smelling, stools per day. Other clinical features consistent with CDI include abdominal cramps, fever, leukocytosis, and hypoalbuminemia.

Suspected cases of CDI should be placed on contact isolation per the Infection Control Policies.

*Clostridium difficile* continues to challenge clinicians, epidemiologists, and microbiologists. It is the cause of 15-25% of cases of antibiotic-associated diarrhea and about 95-100% of cases of antibiotic-associated pseudomembranous colitis. CDI has increased substantially in the last decade, with the greatest increases observed among elderly populations. In addition, the emergence of severe and fatal disease among otherwise healthy persons with minimal risk factors has also been reported.

There are likely many reasons for the increased incidence, including an aging population, widespread use of broader spectrum antimicrobials, and the emergence of strains such as Nap1 (toxintype III) that are more virulent. Nap1 has been shown to be quinolone-resistant and to have deletions in regulatory genes (tcdC) that result in more toxin production. There is also data to suggest that Nap1 produces more spores and hence may be more transmissible in hospitals and other healthcare facilities.

We welcome your comments on this and other laboratory issue; you can contact me at (301)665-4900.