



CLOSTRIDIUM DIFFICILE (*C. DIFFICILE*)

What is Clostridium difficile?

C. difficile is a spore-forming, gram-positive anaerobic bacillus that produces two exotoxins: toxin A and toxin B. It is a common cause of anti-microbial associated colitis (AAC) or pseudomembranous colitis (PMC).

Which laboratory tests are commonly used to diagnose *C. difficile* associated disease?

- ♥ Stool culture for *C. difficile*: Since this organism may be isolated in the absence of any demonstrable disease, CULTURE OF STOOL HAS NOT BEEN PROVEN useful to either prove or disprove the diagnosis of PMC.
- ♥ Antigen detection for *C. difficile*: These are rapid tests that detect the presence of *C. difficile* antigen by latex agglutination or immunochromatographic assays. They MUST BE COMBINED WITH TOXIN TESTING to verify diagnosis.
- ♥ Toxin testing for *C. difficile*:
 1. Enzyme immunoassay detects toxin A, toxin B, or both A and B. It is a same day assay but less sensitive than the tissue culture cytotoxicity assay.
 2. Tissue culture cytotoxicity assay detects toxin B only and requires 24-48 hours for final result.

NOTE:

Specimens for testing *C. difficile* toxin should be kept **refrigerated or frozen** until testing can be performed as the unstable toxins can be undetectable within 2 hours after collection of a stool specimen if stored at room temperature. This can result in a false-negative result.

What testing does ChildLab use to diagnose *C. difficile*-associated disease?

ChildLab uses the Cell Culture Neutralization method for detection of *C. difficile* toxin in stool. The presence of *C. difficile* toxin in the stool can be neutralized by *C. difficile* antitoxin. Examination of tissue cultures, which have been inoculated with dilutions of patient samples, is the method of choice for detection of *C. difficile* toxin in stool specimens and has proven useful to the clinician in the diagnosis of *C. difficile* PMC.

How can ChildLab help you?

ChildLab offers *C. difficile* toxin testing Monday through Friday with results reported in 1-3 days. At ChildLab, almond size stool specimens may be submitted frozen to any of the convenient Nationwide Children's Hospital Close to Home or ChildLab centers. For times and locations of the nearest drop off facility closest to your patient's home, please call ChildLab Client Services at (614)722-5407 or (800)934-6575.

For More Information:

For questions regarding test availability, specimen requirements, or to order stool collection containers, please contact ChildLab Client Services.