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Laboratory Services

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Positive *C. difficile* Reflex to Toxin Assay

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Clostridioides difficile (formerly *Clostridium difficile*) is a Gram-positive spore forming organism that is a leading cause of health-care associated diarrhea. It can also cause community-associated diarrhea, a condition more common in children. The number of cases of *C. difficile* associated disease (CDAD) in children has been increasing, with an estimated 20,000 cases reported each year. Colonization with *C. difficile* is also found in children and adults with organism detectable but not causing disease. It is estimated that upwards of 40% of children less than one year of age are colonized, with levels at 22% in toddlers 1-2 years of age before declining to

1-3% by greater than 3 years of age, similar to adults.

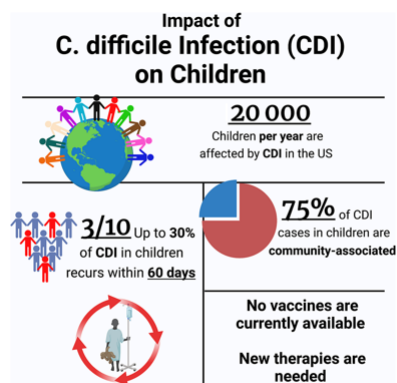
Testing for *C. difficile* focuses on detection of toxin A and/or B. The methods have evolved significantly over the years. Cytotoxin

detection, a cell culture-based assay, has been used to test for functional toxin A/B in the stool. This method is labor-intensive, subjective, and lacks sensitivity. Antigen detection tests for toxin were introduced in the 1980s. These tests are faster and less labor intensive. However, there was also concern about low sensitivity. Nucleic acid amplification tests (NAAT) have been developed to detect the toxin genes of *C. difficile* and have increased sensitivity. However, this increase in sensitivity has led to decreased specificity with detection in cases of colonization. The Infectious Disease Society of American (IDSA) and The Society for Healthcare Epidemiology of America (SHEA) published guidelines recommending using a two-step algorithm for diagnosis of CDAD. This allows better discrimination of those with CDAD versus colonization and prevents overuse of antibiotics. Based on the recommendations above and in cooperation with NCH Infectious Diseases, we have adopted a twostep algorithm for the detection of *C. difficile* and *C. difficile* associated disease (CDAD). This algorithm will include a reflex for *C. difficile* toxin antigen testing on all *C. difficile* positive stool samples identified by molecular methods. The goal of this algorithm is to increase the specificity for the detection of CDAD versus possible *C. difficile* colonization. (See chart below)

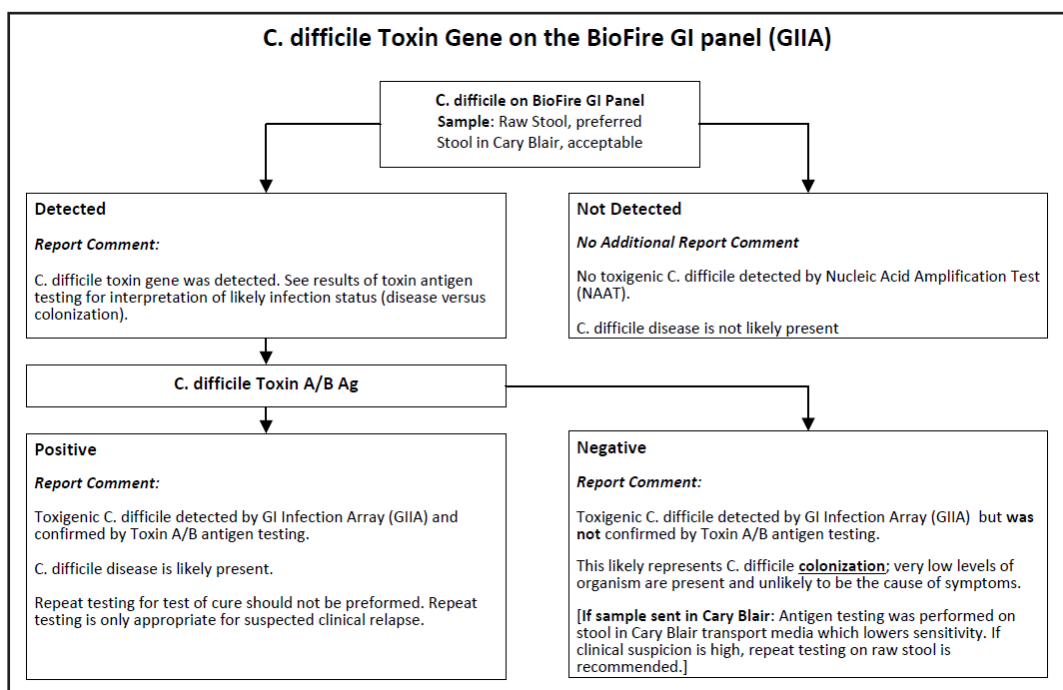
References:

McDonald LC, Gerding DN, Johnson S, Bakken JS, Carroll KC, Coffin SE, Dubberke ER, Garey KW, Gould CV, Kelly C, Loo V, Shaklee Sammons J, Sandora TJ, Wilcox MH. 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 Mar 19;66(7):e1-e48. doi: 10.1093/cid/cix1085. PMID: 29462280; PMCID: PMC6018983.

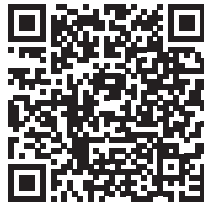
Shirley DA, Tornel W, Warren CA, Moonah S. *Clostridioides difficile* Infection in Children: Recent Updates on Epidemiology, Diagnosis, Therapy. *Pediatrics*. 2023 Sep 1;152(3):e2023062307. doi: 10.1542/peds.2023-062307. PMID: 37560802; PMCID: PMC10471512.



Pediatrics. 2023;152(3). doi:10.1542/peds.2023-062307



Blood Drive: Urgent Need For Blood!



SCAN ME

The Red Cross critically needs blood donors following a concerning trend over the past month – fewer donors rolling up a sleeve to give lifesaving blood. In fact, about 20,000 fewer blood donations were collected over the past month than needed to maintain the Red Cross national blood supply.

To schedule an appointment, visit RedCrossBlood.org/donate and enter Sponsor Code: ForEveryChild, or call 1-800-RED-CROSS.



Spotlight on Client Services:

Kandi has been with NCH for eight years. She began her career with us by working in our offsite laboratories and then became a part of

our COVID response team with our drive up testing sites before transitioning into Client Services. Kandi received her phlebotomy certification while attending Columbus Technical Institute for Medical Assisting and retired from OSU Wexner Medical Center with 32 years of service prior to coming to NCH.

Kandi is a mother to 5 beautiful children has 15 amazing grandchildren and 2 incredibly adorable great-grandchildren. Kandi's hobbies outside of work include spending time with family and friends, hosting cookouts, holiday gatherings, playing board games, dancing, traveling and going to summer yard sales. When Kandi was asked to share advice to our clients, she advised clinicians to take a few extra minutes to ensure that all the pertinent information is filled out correctly on requisitions that you are sending with the patient sample. Having incomplete or wrong information can either delay testing or result in no testing being performed due to samples being delayed as we work to clarify or obtain missing information. Ex: (D.O.B., correct spelling of first and last name, the desired test name, collection time, etc.).

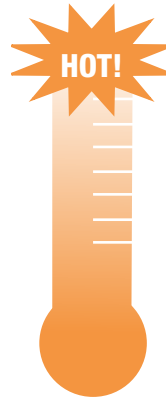
Did
You
Know?

Website Update

Our Laboratory and Pathology website has received a face lift!

The website has been updated with a simpler layout to assist with finding information about our services.

Visit our updated website at www.nationwidechildrens.org/lab.

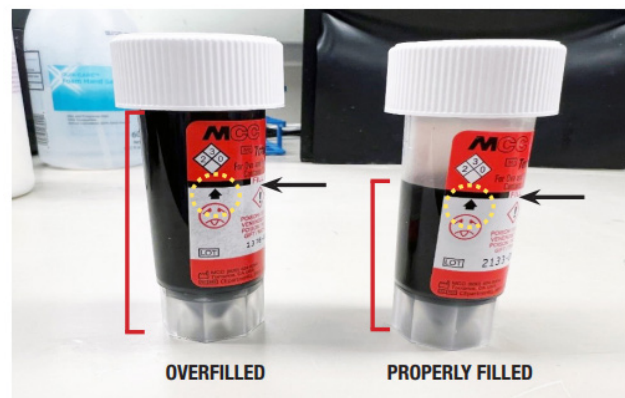


Warm Weather Reminder

Summer is here and it is important that samples placed in a lockbox prior to transport be maintained at the appropriate temperature. If refrigerated samples are stored in the lockbox, then a refrigerated cold pack should also be placed in the lockbox to maintain the samples at the appropriate temperature. The cold pack should not be frozen as this can cause whole blood samples to freeze. By following this lockbox practice, you will help insure the integrity of the samples and ultimately obtain reliable laboratory results.

Total Fix Collection Vials for Ova and Parasite Collection ("O&P")

Recently we have received a number of stool samples submitted for "O&P" testing in Total Fix vials that had been grossly overfilled. The photo below has an over-filled vial (left) and a properly filled vial (right). Note the black line on the vial indicating the fill line. Overfilling the vial may result in the sample not being properly preserved, leading to degradation of the organism and a potential false negative result being reported.





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If you would like to become a client or learn more information about Nationwide Children's Laboratory Services, contact us at (800) 934-6575 or visit our website at **NationwideChildrens.org/Lab**. Would you like to receive the Nationwide Children's Laboratory Services Newsletter electronically? Please e-mail us at **LaboratoryServices@NationwideChildrens.org** and let us know!

Lab Account Representatives are available via email to assist with any questions or concerns.

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