

Not all tests are created equal: Identifying *C. diff* in hospital labs

July 5 2011

A study from the microbiology lab at the Lifespan hospitals has found that some lab tests are much more accurate in identifying *Clostridium difficile* Toxin (*C. diff*) infection (CDI), which causes diarrhea. The findings indicate that a molecular method detects up to 50 percent more cases of *C. diff* than other methods. While molecular technology is more expensive, it allows for more cases to be identified and assists in patient safety efforts within the hospital in terms of preventing hospital-acquired *C. diff* infections. The study is published online the July issue of the Journal of Molecular Diagnostics.

C. diff is a bacterium that produces toxins that cause diarrhea. A 2009 article in the [American Journal of Infection Control](#) reported an estimated 13 in every 1,000 hospital inpatients had *C. diff* -- 20 times more than previous estimates. In Rhode Island, that number is estimated to be closer to 29 per 1,000 patients, and is among the highest in the country. In her paper, lead author Kimberle Chapin, M.D., director of the microbiology lab at Lifespan, reports that across the country, *C. diff* results in 9,000 hospital deaths each year, along with 3,000 post-discharge deaths and 16,500 deaths in nursing homes. To prevent the spread of *C. diff*, it is critical that it be identified and both appropriate treatment and proper infection control methods be implemented to prevent the spread to others.

In Chapin's study, she compared five different assays used in the laboratory for identifying *C. diff*. Her labs at Rhode Island Hospital/Hasbro Children's Hospital, The Miriam Hospital and Newport

Hospital perform 15,000 *C. diff* assays each year. The study evaluated the results of molecular versus non-molecular tests. Chapin says, "The molecular methods we tested detected between 35 and 54 percent more patients who were positive for *C. diff* than the non-molecular methods."

Chapin says these findings bring up concerns in the number of unconfirmed cases of *C. diff* in hospitals that are not using molecular methods. "Through the use of molecular testing in our lab, combined with astute physicians and nurses requesting the tests, we were able to detect 50 percent more patients than we did prior to using molecular methods. Knowing the non-molecular tests did not find as many cases lead to patient safety concerns and the drive to implement the new method," she says.

The principle affiliation of Chapin is Lifespan, a health system in Rhode Island, and direct financial and infrastructure support for this project was received through the Lifespan Office of Research Administration. The researcher also has an academic appointment at The Warren Alpert Medical School of Brown University. Chapin's lab is fully supported by the Lifespan health system.

Provided by Lifespan

Citation: Not all tests are created equal: Identifying *C. diff* in hospital labs (2011, July 5)
retrieved 25 April 2024 from

<https://medicalxpress.com/news/2011-07-equal-diff-hospital-labs.html>

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