



How Well Does Physician Selection of Microbiologic Tests Identify *Clostridium difficile* and other Pathogens in Paediatric Diarrhoea? Insights Using Multiplex PCR-Based Detection.

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This study compared the diagnostic yield of FilmArray® Gastrointestinal (GI) Panel testing to that for standard of care microbiologic testing ordered by physicians.

Stool samples were collected during August 2010 through December 2012 from children and young adults with symptoms of acute gastrointestinal illness. Testing included a convenience sample of 378 stool specimens. In addition to FilmArray® GI Panel testing, a median of three (range 1–10) standard microbiologic tests were performed by the clinical laboratory for each specimen.

The FilmArray® GI Panel identified potential pathogens in 65% of specimens, while standard testing microbiological testing identified potential pathogens in 46% of specimens. Multiple pathogens were detected in 20% of specimens, the most common pathogens including *C. difficile* (22%), norovirus (11%), enteropathogenic *E. coli* (10%) and Shiga toxin-producing *E. coli* (8%). For those patients who only had *C. difficile* testing requested, the FilmArray® GI Panel identified an alternative pathogen in 29% of cases. In patients who had *C. difficile* testing ordered in combination with other tests, an additional pathogen was identified in 57% of stool specimens with the FilmArray® GI Panel. For patients who had no *C. difficile* testing performed, the FilmArray® GI Panel identified a pathogen in 63% of cases, including *C. difficile* in 8%.

Overall, data from this study support use of the FilmArray® GI Panel to simultaneously detect multiple gastrointestinal pathogens. However, the study had the following limitation: it was a convenience sample of specimens designed to look at ordering patterns, rather than a random or sequential sample. For this reason, the detection of pathogens by standard methods was higher in this study than would be expected in routine testing. This study was laboratory based and analyzed de-identified samples with limited clinical data available for review.

“Physician-specified laboratory testing may miss important diarrhoeal pathogens. Additionally, standard laboratory testing is likely to underestimate co-infections with multiple infectious diarrhoeagenic agents.”

KEY POINTS

- The FilmArray® GI Panel showed a higher diagnostic yield than standard laboratory methods.
- The FilmArray® GI Panel detected a high number of additional viral, parasitic and bacterial infections compared to what the clinicians were ordering.
- The FilmArray® GI Panel helped identify additional bacterial infections, where treatment adjustments would be useful, and additional viral infections which could facilitate infection control efforts.