Background. Acute viral gastroenteritis is one of the leading causes of diarrheal diseases. The FilmArray GI Panel is a PCR based assay that detects 22 different enteric diseases. The FilmArray GI Panel is a PCR based assay that detects 22 different enteric diseases.

Methods. Children with acute gastroenteritis were prospectively enrolled at emergency departments of five geographically different pediatric facilities during 2015–2016. Stool specimens were collected and tested by the FilmArray GI Panel.

Results. A total of 1157 subjects were enrolled in the study. Stool specimens from 961 subjects were collected. Subjects with viral, bacterial, and parasitic etiology as well as non- enteric infections were identified. Patient data, including gender, race, age, ABX use and duration, and the results of non-stool bacterial cultures (if obtained) were collated with GIP results.

Conclusions. The FilmArray GI Panel is a promising diagnostic tool for identifying etiology of acute gastroenteritis in pediatric patients.

Disclosures. All authors: No reported disclosures.

2056. Utilization of FilmArray Gastrointestinal Panel (GIP) Results on Altering Empiric Antibiotic (ABX) Use in Patients with Acute Diarrhea

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Session: 235. Diagnostics - Diarrheal Disease
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Background. Acute infectious diarrhea is a leading cause of hospitalizations, outpatient visits, and lost quality of life in the United States. Rapid diagnostic technology may provide an opportunity to quickly optimize ABX therapy for acute infectious diarrhea. The GIP is a multiplex PCR test that detects 13 bacteria, 5 viruses, and 4 parasites in approximately 1 hour of run time. Our objective was to determine the frequency of alterations in empiric ABX therapy for acute diarrhea within 48 hours of reporting of GIP results.

Methods. Patients that had the GIP performed on diarrheogenic stool while in our emergency department or an inpatient location from January 1 to June 30, 2016 were identified. Patient data, including gender, race, age, ABX use and duration, and the results of non-stool bacterial cultures (if obtained) were collated with GIP results.

Results. Complete patient information and GIP results were available on 517 patients. At least 1 positive result occurred in 220 patients; 45 patients (8.7%) had ≥ 2 positive results. There were 161, 73, and 2 positive results for bacteria, viruses, and parasites, respectively. Clostridium difficile (n = 99) was most commonly identified and it was the only organism identified in 80 patients. Within 48 hours of result availability in the electronic record, ABX was reduced in 47.3% of patients with any positive result and 24.2% of patients with negative results. Empiric ABX were stopped in 42.9% and 48.6% of patients with positive or negative results, respectively. ABX were altered (i.e., start, stop, dose change) in 55.9 and 38.4% of patients with positive or negative results, respectively.

Conclusion. GIP results appear to impact changes in ABX therapy, though these may not have been the sole driver of change in all cases. That there may be room for improvement suggests an opportunity for antimicrobial stewardship (AST) initiatives, such as prospective auditing of GIP results by AST staff who make recommendations to the treating team or, an empiric change to current gastroenteritis guidelines to include a clinical pathway for all organisms on the GIP to decrease inappropriate ABX use.

Disclosures. All authors: No reported disclosures.

2057. A New Enzyme-Linked Immunosorbent Assay (ELISA) for Vi Antigen as a Potential Diagnostic for Infections by Salmonella Typhi

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Background. Salmonella Typhi causes an estimated 22 million infections and 200,000 deaths worldwide annually. The lack of reliable diagnostic tests has significantly hindered disease control efforts. Detecting S. Typhi Vi antigen in urine using
polyclonal or monoclonal antibodies in an ELISA has been previously tested, with some promising results. The establishment of a typhoid human challenge model allows screening of novel diagnostics using longitudinally collected samples. Therefore, a new ELISA has been developed and validated at the Oxford Vaccine Group to detect Vi antigen with a view to testing it on clinical samples from our challenge model.

Methods. A sandwich ELISA design was conceived using monoclonal anti-Vi IgM, polyclonal anti-Vi IgG and HRP-conjugated IgG antibodies. A series of optimisation experiments was performed to optimise each component using phosphate buffered solution spiked with purified Vi antigen derived from Citrobacter freundii as a substrate. The optimised assay was validated using Vi antigen spiked urine from healthy volunteers. Stored urine samples from participants from a previous typhoid challenge study at the point of typhoid diagnosis (≥5 Typhi bacteria/ml and/or persistent fever ≥38°C) were also tested. These stored samples had been previously centrifuged and filtered to remove debris prior to freezing.

Results. The final optimised ELISA assay produced a reliable standard curve replicable across multiple assays with a lower Vi antigen detection limit of 0.24 ng/mL. Validation of the assay demonstrated accurate quantification of Vi antigen in urine samples spiked with known concentrations of Vi antigen. In contrast, Vi antigen was not detectable in stored urine samples from participants diagnosed with typhoid fever collected in a previous challenge study (n = 21).

Conclusion. These experiments demonstrate an ELISA for Vi antigen that has potential to be utilised as a diagnostic tool for typhoid using urine specimens. The absence of detectable Vi antigen in urine samples could be due to the processing methods, low bacterial load in the challenge setting or technical limitations of the assay. The assay will be used prospectively on fresh urine from future challenge studies to better characterise assay performance.

Disclosures. All authors: No reported disclosures.

2058. Vibriosis Detection by the FilmArray® Gastrointestinal (GI) Panel

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Background. Vibriosis can be food-borne or acquired through exposure to affected bodies of water, marine wildlife, or seafood. We found two rare cases, one with the non-cholerae species Vibrio alginolyticus or Vibrio diabolicus by gyrB gene sequence and possessed a 100% homolog to the V. cholerae specific toxR gene. The third sample was confirmed to contain two species of Vibrio: V. cholerae and V. parahaemolyticus. This sample was also confirmed to have the V. cholerae specific toxR gene sequence. The remaining 11 samples resulted in a negative V. cholerae result upon retesting.

Conclusion. The investigation confirmed that the FilmArray GI Panel can detect low level V. cholerae organism not recovered by culture. Studies have shown that isolating V. cholerae through specialized media can prove difficult. V. cholerae causing vibriosis can be food-borne or acquired through exposure to affected bodies of water, marine wildlife, or seafood. We found two rare cases, one with the non-cholerae Vibrio species possessing a V. cholerae specific homolog to the toxR region and the one novel detection of a co-infection involving two Vibrio species. These data suggest that there will be an increase in Vibrio detections as molecular methods are more sensitive than culture and become much more common for gastrointestinal pathogen testing.

Disclosures. K. Clarke, BioFire Diagnostics, LLC: Employee, Salary; M. Rogatcheva, BioFire Diagnostics, LLC: Employee, Salary; A. Demogines, BioFire Diagnostics, LLC: Employee, Salary; D. Henderson, BioFire Diagnostics, LLC: Employee, Salary; D. Saif, BioFire Diagnostics, LLC: Employee, Salary; K. Kanack, BioFire Diagnostics, LLC: Employee, Salary

2059. Comparison of Perianal Swab and Stool Samples for Detection of Gastrointestinal Colonization with Cetraxone-Resistant and Fluoroquinolone-Resistant Enterobacteriaceae

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Background. The purpose of this study was to investigate reported false positive FilmArray GI Panel detections of V. cholerae in clinical patient samples. The gold standard for recovery of V. cholerae is routine stool culture. The FilmArray GI Panel contains two sensitive PCR assays for the detection of V. cholerae, one targets the gyrB gene for genus-level Vibrio identification (focused on detection of V. parahaemolyticus, V. vulnificus, and V. cholerae) and the second targets the toxR gene for specific identification of V. cholerae.

Methods. Clinical samples with discordant V. cholerae detections were requested from source laboratories and then tested on the FilmArray GI Panel. Amplicons from positive samples were extracted, sequenced, and assessed using BLAST search.

Results. A total of 14 samples were tested during this study. Three re-tested samples were reported positive for V. cholerae. One sample was confirmed as V. cholerae by the presence of V. cholerae specific gyrB and toxR gene sequences. A second sample was confirmed to be either Vibrio alginolyticus or Vibrio diabolicus by gyrB gene sequence and possessed a 100% homolog to the V. cholerae specific toxR gene. The third sample was confirmed to contain two species of Vibrio: V. cholerae and V. parahaemolyticus. This sample was also confirmed to have the V. cholerae specific toxR gene sequence. The remaining 11 samples resulted in a negative V. cholerae result upon retesting.

Conclusion. The investigation confirmed that the FilmArray GI Panel can detect low level V. cholerae organism not recovered by culture. Studies have shown that isolating V. cholerae through specialized media can prove difficult. V. cholerae causing vibriosis can be food-borne or acquired through exposure to affected bodies of water, marine wildlife, or seafood. We found two rare cases, one with the non-cholerae Vibrio species possessing a V. cholerae specific homolog to the toxR region and the one novel detection of a co-infection involving two Vibrio species. These data suggest that there will be an increase in Vibrio detections as molecular methods are more sensitive than culture and become much more common for gastrointestinal pathogen testing.

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Figure 2 Results of two-step algorithm testing of 3518 stool samples for C difficile.