

The BioFire® FilmArray® Gastrointestinal Pathogen (GIP) Panel Frequently Asked Questions

This document is intended to provide general information about the technology for patients with suspected infectious diarrhea or gastroenteritis at DUHS. For detailed patient selection and management recommendations, see our diagnostic algorithm and management table documents on CustomID. Questions? Page 970-GERM or the Antimicrobial Stewardship Evaluation Team (ASET) Pharmacist at 970-6666 for questions regarding adult patients. Page 970-7420 or the Pediatric ASET Pharmacist at 206-9609 for questions regarding pediatric patients.

- **What is BioFire GI Panel?**
 - The BioFire GI Panel is a multiplex PCR test for common pathogens causing infectious diarrhea, which detects nucleic acid targets from 10 bacteria, 5 viruses, and 4 parasites directly from stool samples
- **Why is the Duke Clinical Microbiology Lab moving to the Biofire GI Panel instead of stool cultures and parasite screens?**
 - The BioFire GI Pathogen Panel is expected to increase sensitivity and reduce turnaround time for pathogen detection in patients with community-onset gastroenteritis with signs of or at risk for severe disease, and who are ≤ 3 days from hospital admission, as well as immunocompromised hosts when compared with traditional stool cultures
- **When is BioFire GI Panel Used?**
 - Testing is appropriate in the following clinical scenarios [See DUHS Infectious Diarrhea Testing Algorithm and DUH Infectious Diarrhea Diagnostic Guidance for Pediatric Providers]:
 - Severe, community-onset diarrheal disease requiring hospitalization:
 - Symptoms may include fever, bloody diarrhea, dysentery, severe abdominal pain, dehydration
 - Test should be sent **within 3 days** of hospital admission. If patients have been admitted > 3 days, refer to *Clostridioides difficile* infection testing pathway
 - Epidemiologic risks for infectious diarrheal pathogens, including recent travel or known outbreak
 - Vulnerability for severe disease, including immunocompromised host
 - Testing **should be avoided** for mild/moderate diarrheal illness in immune competent hosts. For example, patients with mild/moderated diarrhea sent home from the ED should receive supportive care. Testing is not indicated, and may instead lead to logistical complications, patient confusion, and possibly unnecessary treatment.
- **When can results be expected and who will receive them?**
 - BioFire GI Panel results will be available within 24 hours from receipt in the lab.
 - Salmonella serotyping is a send-out test with long turn-around times. Susceptibility testing is, however, available by clinician request. See *FAQ: Typhoidal versus Non-typhoidal Salmonella? How do I know and what do I do?*
- **What are important considerations for appropriate pathogen-directed therapy for infectious diarrhea?**

- Detailed management recommendations are outlined in tables in the DUHS Inpatient Adult BioFire GI Panel Interpretation and Management Guidance and the DUH Pediatric BioFire GI Panel Interpretation and Management Guidance.
- Recommendations are **pathogen-** and **patient** specific (i.e. immunocompromised host). If treatment is indicated, recommendations include standard dosing and durations.
- Treatment for several bacterial pathogens identified on the panel (e.g. STEC) does **not** decrease duration of illness or provide benefit. For other bacterial pathogens, treatment is recommended **only in special circumstances** (e.g. severe disease, immune compromise).
- Shigella-like toxin producing E. coli (STEC), including specific identification of E. coli O157 serogroup within STEC, will be reported by the microbiology lab when detected; empiric treatment is **not** recommended.
- **Typhoidal versus Non-typhoidal Salmonella? How do I know and what do I do?**
 - The BioFire GI Panel can identify Salmonella by genus, but not species or serotype level.
 - *Salmonella* Typhi and *Salmonella* Paratyphi infections require treatment. However, IDSA recommendations for non-typhoidal salmonella includes supportive care only to minimize prolonged shedding associated with treatment.
 - Salmonella isolates are sent to the State Lab for serotyping following a positive BioFire GI Panel for Salmonella. However, this send-out test may take up to 4 weeks for results, which is unlikely to impact clinical management decisions in the short term.
 - Due to inability to get timely serotyping, the benefit of receiving therapy for potential typhoidal infection outweighs the risk of prolonged shedding associated with treatment of non-typhoidal strains. Thus, DUHS guidelines recommend empiric treatment for patients with positive result for Salmonella on the BioFire GI Panel.
 - All patients with infectious diarrheal illness should receive education on disease transmission risks and the importance of hand hygiene. Due to the possibility of prolonged shedding, such infection prevention education is very important for patients diagnosed with Salmonella species.
- **Do I need antibiotic susceptibility testing (AST)?**
 - For a majority of pathogens on the BioFire GI Panel, AST is not recommended. Preferred empiric treatment, when appropriate, is outlined in the management guideline.
 - For Salmonella species, susceptibility testing may be requested at the provider's discretion by calling the microbiology laboratory (919-684-2089).
 - *Shigella*/enteroinvasive E. coli (EIEC) will automatically reflex to culture and susceptibility testing.