

Mount Sinai's Guide to the Gastrointestinal Panel PCR

What is the Test:

- Nucleic acid amplification test, culture-free
- Tests for organisms that cause community-acquired diarrhea, including bacteria, viruses and parasites (see table below for complete list)
- Replaced stool culture and stool ova and parasite tests
- Positive tests are automatically reflexed for culture

When to Send the Test:

- Patients with community-acquired diarrhea in whom the results of the test may change management
- Diagnostic testing is NOT recommended in most cases of uncomplicated traveler's diarrhea (i.e. immunocompetent patients with non-bloody diarrhea and no associated fever or hemodynamic instability)¹⁻³
- Inpatient testing after hospital day 3 is low yield and requires ID approval⁴
- The test has high sensitivity (94.5%-100%) and can remain positive for ≥4 weeks; repeat testing for the same clinical syndrome should not be done and requires ID approval^{5,6}

Stool Pathogens NOT included on GI PCR Panel: Testing for these pathogens needs to be ordered separately when clinically indicated as below.

- *Clostridioides difficile*: see “*Clostridioides difficile* Infection Treatment Guidelines” on intranet for indications for testing; order as “*C. difficile* antigen and toxin by EIA”
- Roundworms and flatworms: consider sending in patients with community-onset diarrhea AND peripheral eosinophilia, travel history, or who are from endemic region; order as “worm identification”
- *Cystoisospora (Isospora)*/microsporidia: consider sending in patients with community-onset diarrhea and AIDS; order as “*Isospora* stain” and “microsporidium stain”

General Treatment Guidelines for Diarrheal Illnesses:

- Most gastrointestinal infections are self-limited and do not require antimicrobial therapy. For such pathogens, treatment should be considered only for severely immunocompromised patients or in those with severe disease (i.e. meeting sepsis criteria, high fever, severe abdominal pain, bloody stools, extra-intestinal disease or prolonged/worsening symptoms > 1 week).¹⁻³
- This guideline is intended to help providers make treatment decisions but should never substitute for clinical judgement.

Treatment Guidelines by Pathogen:

Pathogen:	Recommendations for Antibiotic Treatment:	Antibiotics (if indicated): **dosing is for normal CrCl; please adjust as indicated for reduced CrCl
<i>Campylobacter</i>	Antibiotics not typically recommended. Consider treating those with severe disease or immunocompromised.	Azithromycin 500mg PO daily (preferred) or Ciprofloxacin 500mg PO BID x3 days (consider prolonging therapy to 7-14 days in immunocompromised)
Nontyphoidal <i>Salmonella</i>	Antibiotics not typically recommended and may prolong carriage. Consider treating those with severe disease or immunocompromised.	Azithromycin 500mg PO daily or Ciprofloxacin 500mg PO BID x7 days **Consider ID consultation for severe disease and/or immunocompromised
<i>Salmonella enterica</i> serotype Typhi	Antibiotics recommended.	Severe infections: Ceftriaxone 2g IV daily, ID consultation recommended Uncomplicated infections/step-down therapy: Azithromycin 500mg PO daily or Ciprofloxacin 500mg PO BID x7 days ** Check local resistance patterns when choosing empiric therapy as there are high rates of antibiotic resistance.
<i>Plesiomonas shigelloides</i>	Antibiotics not typically recommended. Consider treating those with severe disease or immunocompromised.	Ciprofloxacin 500mg PO BID (preferred) or TMP-SMX [†] 1DS tab PO BID x3 days

<i>Yersinia enterocolitica</i>	Antibiotics not typically recommended. Consider treating those with severe disease or immunocompromised.	Recommend ID consult if considering treatment.
<i>Vibrio</i> spp. (not <i>cholerae</i>)	Antibiotics not typically recommended. Consider treating those with severe disease.	Azithromycin 1g PO or Doxycycline 300mg PO x1 dose
<i>Vibrio cholerae</i>	Antibiotics recommended.	Azithromycin 1g PO or Doxycycline 300mg PO x1 dose
Enteroaggregative <i>E. coli</i> (EAEC) Enteropathogenic <i>E. coli</i> (EPEC) Enterotoxigenic <i>E. coli</i> (ETEC)	Antibiotics not typically recommended. Consider treating in severely immunocompromised or those with prolonged otherwise unexplained symptoms.	Azithromycin 1g PO x1 dose or Ciprofloxacin 500mg BID x3-5 days
Shiga-Like Toxin Producing <i>E. coli</i> (STEC), <i>E. coli</i> O157	Antibiotics NOT recommended because of association with hemolytic uremic syndrome.	Do not use.
Shigella/Enteroinvasive <i>E. coli</i> (EIEC)	Consider not giving antibiotics to low risk patients. Would treat those with severe disease or immunocompromised.	Ciprofloxacin 500mg PO BID x3 days (preferred) or TMP-SMX [†] 1DS tab PO BID x5 days ** Check local resistance patterns when choosing empiric therapy as there are high rates of antibiotic resistance.
<i>Cryptosporidium</i>	Antimicrobials not typically recommended. Consider treating	Nitazoxanide 500mg PO BID x3 days (non-formulary)

	those with severe disease or immunocompromised.	
<i>Cyclospora cayetanensis</i>	Treatment recommended.	TMP-SMX* 1DS tab PO BID x7-10 days
<i>Entamoeba histolytica</i>	Treatment recommended.	Metronidazole 500mg PO TID x7-10 days
<i>Giardia lamblia</i>	Treatment recommended.	Metronidazole 500mg PO TID x5-7 days or Nitazoxanide 500mg PO BID x3 days (non-formulary)

*TMP-SMX = Trimethoprim-sulfamethoxazole

Viral Gastroenteritis: (Adenovirus F 40/41, Astrovirus, Norovirus GI/GII, Rotavirus A, Sapovirus I, II, IV, V)

Generally, these are acute and self-limited diseases that do not require pharmacotherapy. Supportive care, including adequate hydration, is the mainstay of treatment.

References:

1. Shane AL, Mody RK, Crump JA, et al. 2017 Infectious Diseases Society of America Clinical Practice Guidelines for the Diagnosis and Management of Infectious Diarrhea. *Clin Infect Dis.* 2017;65(12):1963-1973.
2. Riddle MS, DuPont HL, Connor BA. ACG Clinical Guideline: Diagnosis, Treatment, and Prevention of Acute Diarrheal Infections in Adults. *Am J Gastroenterol.* 2016;111(5):602-622.
3. Gilbert DN, Chambers HF, Eliopoulos GM, Saag MS, Pavia A. *Sanford guide to antimicrobial therapy 2018.* 48th edition ; library edition. ed.
4. Hitchcock MM, Gomez CA, Banaei N. Low Yield of FilmArray GI Panel in Hospitalized Patients with Diarrhea: an Opportunity for Diagnostic Stewardship Intervention. *J Clin Microbiol.* 2018;56(3).
5. Buss SN, Leber A, Chapin K, et al. Multicenter evaluation of the BioFire FilmArray gastrointestinal panel for etiologic diagnosis of infectious gastroenteritis. *J Clin Microbiol.* 2015;53(3):915-925.
6. Park S, Hitchcock MM, Gomez CA, Banaei N. Is Follow-Up Testing with the FilmArray Gastrointestinal Multiplex PCR Panel Necessary? *J Clin Microbiol.* 2017;55(4):1154-1161.