

Gastrointestinal tract Specimens

1. Stool specimens for bacterial culture:

Submitted primarily for the detection of *Campylobacter* antigen, *Shigella*, and *Salmonella* species, *E. coli* 0157 and other enterohemorrhagic and shiga-toxin producing strains, *Clostridium difficile* and less commonly *Yersinia*, *Vibrio*, *Aeromonas* and *Pleisiomonas* species.

a. General considerations

- (1) Fecal lactoferrin assay can be ordered on liquid stools to detect presence of inflammation.
- (2) Stool specimen should be mixed with transport medium to maintain viability of pathogens which may be present.
- (3) Up to two specimens, collected on different days, are acceptable for detection of infectious diarrhea.
- (4) Stool specimens from patients in-house more than 3 days are not accepted due to low likelihood of a bacterial pathogen as the cause of diarrhea.
- (5) Testing for *C. difficile* needs to be submitted in sterile container.

b. Have patient obtain stool specimen by one of the following methods.

- (1) Pass stool directly into a sterile, wide-mouth, leak-proof container and transfer to C & S Parapak vial.
- (2) Pass stool into a clean, dry bedpan, and transfer stool into C & S parapak vial.

2. Stool specimens for detection of parasites

By far the most common parasite detected in our region is *Giardia species* followed by *Cryptosporidium species*. These organisms are tested for using a sensitive ELISA method. Unless the patient has a significant travel history outside New England or is immunosuppressed, other parasites will not be tested for as the likelihood of obtaining a positive result is extremely low.

- (1) Collect specimen as described in section 1 above, placing it into parapak pink and grey vials. Mix well.
- (2) If the full microscopic Parasitology exam is requested, travel history must be noted in an order comment.

3. Rectal swabs

Submitted primarily for the detection of *Neisseria gonorrhoeae*, *Shigella* species, enterovirus, and anal carriage of Group A or B strep. Consult Table 5 Specimen Transport Guide by Source to select correct method of sample collection for pathogen suspected.

- (1) Pass the tip of a sterile swab approximately 1 in. beyond the anal sphincter. Rotate the swab to sample the anal crypts.
- (2) Send the swab in correct transport system.

4. Gastric aspirates

The patient should fast prior to each of the following procedures. Consult Table 5, Collection of Gastrointestinal Specimens to for correct container selection.

a. Gastric lavage

Submitted primarily for the detection of *Mycobacterium tuberculosis* in patients (most frequently children) unable to produce quality sputum. Should be performed after the patient wakes in the morning so that sputum swallowed during sleep is still in the stomach.

Pass a well-lubricated tube orally or nasally through to the stomach of the patient, and perform the lavage. Before removing the tube, release the suction and clamp to prevent mucosal trauma and/or aspiration.

b. Duodenal aspiration

Submitted primarily for the detection of *Giardia* and larvae of *Strongyloides stercoralis* and *Ascaris lumbricoides*.

(1) Pass a tube orally through to the duodenum of the patient.

(2) To aspirate a sample for giardiasis, the tube should be at least in the third portion of the duodenum.

5. Gastric biopsies and washings

The patient should fast prior to each of the following procedures.

a. Esophageal, stomach, duodenal specimens

Esophageal specimens are primarily used to detect *Candida* species, cytomegalovirus (CMV), and HSV infections. Stomach and duodenal specimens are primarily used for the detection of *Helicobacter pylori*. Duodenal specimens can be used for the detection of *Giardia* species and the larvae of *S. stercoralis* and *A. lumbricoides*.

(1) Pass an endoscope orally.

(2) Obtain specimens through a channel in the endoscope by using one of the following procedures.

(a) Using biopsy forceps, obtain samples from the esophagus, stomach, or duodenum.

(b) Using a sheathed brush, brush suspicious areas several times to obtain adequate cellular material.

(c) Perform a wash by injecting approximately 25 to 30 ml of sterile, non-bacteriostatic 0.85% NaCl through the biopsy channel onto the lesion. Collect the specimen by aspirating the fluid through the scope into a sterile trap, which is connected to the suction tubing. *Note: If a gastric ulcer is seen, obtain biopsy samples from the base, the surroundings gastric mucosa, and each of the four quadrants of the margin.*

b. Rectal biopsy

Submitted primarily for the detection of *Entamoeba histolytica*, *Balantidium coli*, and HSV. If lesions are not evident, biopsy the posterior rectal mucosa below the peritoneal reflection (within 7 to 10 cm of the anal verge).

c. Small bowel biopsy

Submitted primarily for the detection of *Giardia*, *Cryptosporidium*, and *Microsporidium* species.

Biopsies of the small intestine provide the highest diagnostic yield for *Microsporidia* species. Biopsies from other gastrointestinal sites (stomach, colon, rectum) have a much lower yield in comparison. Obtain biopsy sample of lesion at surgery.

6. Sigmoidoscopy

Use in the detection of *E. histolytica* and *Mycobacterium* species and the diagnosis of pseudomembranous colitis associated with *C. difficile*.

- a. Perform flexible or rigid sigmoidoscopy.
- b. Obtain endoscopic pinch biopsy samples of any lesions seen.
- c. Alternatively, aspirate liquid from the inflamed bowel with a pipette passed through the sigmoidoscope.
- d. Transport specimens in a sterile screw-cap container. If biopsy samples are small, add a small amount of sterile non-bacteriostatic 0.85% NaCl to prevent the specimen from drying.

Table 5: Collection considerations for gastrointestinal specimens

Bacteria	Stools: 1-2 stool specimens recommended. Stool must be submitted in Parapak C & S transport vial collected on different dates
	Gastric biopsy: Rule out <i>Helicobacter pylori</i>
	Rectal swab: Rule out <i>Shigella</i> spp. and <i>Neisseria gonorrhoeae</i>
Fungi/yeast	Gastric aspirate, gastric biopsy, esophageal brush, esophageal biopsy
Pinworm	Use pinworm collection kit. Sample perianal area when patient gets up in the morning before patient bathes or defecates.
Mycobacteria	Gastric aspirate or gastric biopsy; feces
Parasites	Place stool specimen in preservative, pink and grey Parapak vials. Duodenal aspirates are useful for detecting <i>Giardia</i> spp. and larvae of <i>S. stercoralis</i> and <i>A. lumbricoides</i> .
	Use rectal biopsy specimens for <i>E. histolytica</i> and <i>B. coli</i> .
	Use small-bowel biopsy specimens for <i>Giardia</i> , <i>Cryptosporidium</i> , and <i>Microsporidium</i> spp.
Virus	Use esophageal specimens for CMV and HSV and rectal biopsy specimens for HSV. Send in viral transport