1. Purpose
   1.1. To provide accurate specimen collection information to the units as part of our on-line collection manual.

2. Principles
   2.1. Proper selection, collection, and handling of specimens for microbiology is necessary to ensure quality results that have the greatest impact on patient care.

3. Procedure
   3.1. The following page(s) have been posted on the on-line collection manual:
Gastrointestinal Specimens

- A physician should perform any collection method requiring an invasive technique. Only a physician specialist with advanced training and skills should perform some specimen collection techniques.
- All patient specimens must be handled as containing potential biohazards.

1. General Considerations:
   a. Acute infectious diarrhea is caused by a number of different agents such as viruses, bacteria, and protozoa.
   b. Stool should be sent fresh within 1 to 2 hours of passage or placed in the appropriate preservative(s) and temperatures for prolonged transport time.
   c. A single stool cannot be used to rule out bacteria as the cause of diarrhea.
      1) Hospital patients that develop diarrhea after 72 hours and patients over 6 months of age with clinically significant diarrhea and a history of antibiotic exposure should be tested for *C. difficile*.
   d. *Campylobacter* spp. is the most common cause of bacterial gastroenteritis.
   e. Infectious Disease physician (ID) consult required on orders for *ova and parasite* orders on patients with greater than a 4 day length of stay.

2. Collection of GI samples
   a. Stool –
      1) Collect in a sterile bedpan, not contaminated with urine, soap, or disinfectant. Stool portions containing pus, blood, or mucus should be transferred into a sterile container or other transport mentioned below.
      2) Minimum of 1mL per test is required.
      3) Antacids, barium bismuth, anti-diarrhea medication or oily laxatives should not be used prior to collection of the specimen.
      4) Diapers are not acceptable. Stool should not be taken from the toilet bowl.
   b. Rectal swab – pass the swab through the anal sphincter, carefully rotate, and withdrawl. Swab of rectal wall lesions, sigmoid colon during proctoscopy, or sigmoidoscopy preferred.
   c. Scotch tape prep – collect this specimen when the patient gets up in the morning before bathing and defecating. Using a piece of transparent tape, pat the perianal area with the sticky side of tape. Attach the tape to a glass slide and place the slide in a specimen cup or slide holder.
   d. Duodenal aspirate or other invasive GI samples should be collected by physician.

3. Test Requirements
   a. Bacterial Culture – isolation, identification, and susceptibility (when applicable) of:
      • *Salmonella* spp., *Shigella* spp., *Campylobacter* spp., and *Yesinia* spp.,
      • *Vibrio* spp., during summer and upon request.
      • *E. coli* O157 is ruled out upon request and on visibly bloody samples.
      • Test results indicate which organisms have been cultured.
a) Stool should be sent fresh within 1 to 2 hours of passage or placed in Cary Blair preservative at refrigerator temperatures for prolonged transport time.

b) Rectal swab is acceptable, but may have lower recovery rates.

c) Most etiologic agents can be detected by two specimens on separate days. Samples that are watery or for other reasons, whose yield may be limited, may require a third sample.

b. Clostridium difficile Toxin A/B:
   1) Stools should be sent fresh in a sterile specimen cup within 1 to 2 hours of passage.
   2) Stools in formalin are not acceptable, stools in Cary Blair are acceptable as long as they arrive in the correct dilution (1:5), frozen samples are acceptable.
   3) Submit two or three specimens on separate days to increase the probability of isolating a pathogen. A single stool sample is inadequate to rule out the cause of diarrhea.
   4) Hospital patients that develop diarrhea after 72 hours and patients over 6 months of age with clinically significant diarrhea and a history of antibiotic exposure should be tested for C. difficile.

c. Fungal culture
   1) Send a gastric aspirate, gastric biopsy, esophageal rush, or esophageal biopsy in a sterile specimen cup within 1-2 hours of collection. Keep tissues moist with enough sterile saline to cover the tissue.

d. Helicobacter pylori
   a) Stool sent without preservative in a sterile cup for antigen testing. Non-approved containers will be rejected.
   b) Gastric material sent in a culturette for culture – contact lab prior to collection. Special arrangements must be made by the laboratory to transport this sample to our reference lab to maximize viability.

e. Mycobacterium (AFB) culture
   1) Send a gastric aspirate, gastric biopsy; or feces (minimum 1 mL of stool is necessary for this test) in a sterile container and transport to the laboratory within 1-2 hours of collection.

f. Neisseria gonorrhoeae (GC) – Rectal swab should be sent immediately to the laboratory after collection.

g. Ova and Parasite (OP)
   1) Stools should be sent fresh in a sterile specimen cup within 1 to 2 hours of passage. A minimum of 10 mL required for optimal recovery. In addition, the following specimens may be sent for the detection of specific organisms:
      • Duodenal aspirates for Giardia spp. and larvae of S. stercoralis and A. lumbricoides.
• Rectal biopsy for *E. histolytica* and *Entamoeba coli*
• Small bowel biopsy for *Giardia spp, Cryptosporidium spp*, and *Microsporidium spp*.

2) A minimum of three stool specimens collected over a 7 to 10 day period is recommended. Infections with *Entamoeba histolytica* or *Giardia lamblia* may require the examination of up to six stool specimens before the organism is detected.

3) Infectious Disease physician (ID) consult required on orders for ova and parasite orders on patients with greater than a 4 day length of stay.

4) Refer to the send out area (x24973) for specific collection requirements

h. **Pinworm (Enterobius vermicularis)**
   1) Send a scotch tape preparation to the laboratory within 1-2 hours of collection.
   2) One negative result does not rule out the possibility of *E. vermicularis* infestation.

i. **Viral culture**
   1) Enteroviruses and adenoviruses are routinely cultured from stool.
   2) Biopsy specimens may be submitted in viral media (M4 media) for CMV and HSV.
   3) Send feces in a sterile container without preservative. A minimum of 4-8 grams required (size of thumbnail). Send to the laboratory within 1-2 hours of collection.
4. References


Departments: Microbiology