COLLECTION AND PRESERVATION OF STOOL SPECIMENS

Introduction

The generation of clinically meaningful test results must begin with stringent criteria for specimen acceptance or rejection and specimen handling. Unless specimens are properly labeled, collected and processed, time and reagents will be wasted and the test results may mislead the physician. Ensuring proper specimen collection and processing is part of the laboratory "Continuous Quality Improvement Program".

PATIENTS SHOULD BE GIVEN WRITTEN AND VERBAL INSTRUCTIONS TO FACILITATE PROPER COLLECTION OF SAMPLES (See Appendix* XXII*).

Factors Affecting Samples

Fecal samples should be collected in clean specimen containers with tight fitting lids to prevent accidental spillage. The specimens should not be contaminated with water or urine, or retrieved from the toilet bowl because the motile forms of protozoa will be destroyed. In addition, free living organisms may be present in the water and would cause contamination of the specimen. Samples contaminated in this manner are not suitable specimens and would not be accepted by the laboratory. These specimens would be canceled in the computer with a comment stating the reason why they were not suitable.

Criteria for Rejection:

- There is *any* sign of leakage
- They are not correctly labeled
- Requests for more than examination of more than one sample collected on the same day (unless a clinical consult is obtained from lab director)
- Requests for more than 3 stool examinations for a single episode of diarrhea or clinical syndrome (unless a clinical consult is obtained from lab director)
- There is any sign of contamination (water, urine, non-fecal debris)
- There is evidence of barium
- It is known that the patient had been taking nonabsorbable anti-diarrheal drugs, mineral oil based laxatives, or antimicrobials within 1 week.

- If the sample comes from an inpatient who develops nosocomial diarrhea (has been admitted >3 days prior to onset of symptoms) without a clinical consultation with a Tropical Disease physician or lab director.
- Liquid fecal samples greater than 60 minutes after passage before processing or fixation.
- Formed stools greater than 24 hours after passage before processing or fixation.

Nonabsorbable antidiarrheal drugs and antimicrobials may interfere with the detection of intestinal protozoa. Specimen collection should be delayed for at least 7 days after Barium, mineral oil, or antibiotics. Specimens showing the presence of substances such as barium will result in specimen rejection by the laboratory and the order being canceled in the computer.

Number of Specimens and Collection Time

Because of the intermittent passage of certain parasites, the possibility of finding organisms is increased by examining multiple specimens.

- It is suggested that 3 specimens, collected at 2 to 3 day intervals, should be examined both pretreatment and post treatment (to ensure eradication of documented pathogenic protozoa).
- Post therapy examinations should be performed 3-4 weeks after therapy for protozoa and 5-6 weeks after therapy for Taenia (gut tapeworm) infections.
- Examination of more than 3 stools is rarely useful and requests for > 3 stools should be referred to lab director before processing.

Occasionally specimens may be obtained following the use of a cathartic such as magnesium sulfate or normal saline enemas.

Type and Stability of Stool Specimens

Fresh stools are essential for the recovery of motile trophozoites which are most likely to be found in the order of liquid > soft > formed stools.

- Liquid and soft stools should be examined and/or preserved in SAF fixative within 30 minutes and one hour of passage respectively.
- Formed stools should be examined and/or preserved in SAF fixative within 12 hours of passage.

Fresh stool only is a suboptimal specimen. It will be accepted and processed (provided it is within time limits) but a request should be made for additional SAF preserved specimens.

Preservation of Stools, and Fixatives

Because of the workload within the laboratory or transit distance/time for the specimen to reach the laboratory, most laboratories recommend preservation of the specimens. Sodium acetate acetic-acid formalin (SAF) is the fixative currently used in our laboratory because it is useful

for both concentration and permanent stains and is relatively safe and easy to use compared to other fixatives. The SAF kit is available from the Central Supply.

Transport and Mailing of Specimens

Double mailing containers should be used in shipping any parasitological specimens other than microscope slides. The specimen vials/tubes in an inner aluminum container should be packed in cotton or tissue papers to absorb any moisture or material that might result from leakage or breakage. The screw-capped inner container is put into an outer cardboard screw-capped mailing container. Patients' and other information sheets may be wrapped around the inner cylinder before it is placed in the outer cardboard mailer. Alternatively commercially available "Saf-T-Pacs" can be used. Prepared slides may be packed in boxes, cardboard slide holders or any container that will prevent damage or breakage.

Health Canada, Transport Canada and Transport companies have regulations concerning the shipment of dangerous goods such as liquid nitrogen, dry ice, and biological samples. It is your responsibility to know the rules and comply with them. Courier companies employ experts in the transport of dangerous goods. Please consult them and the Microbiology Manager to facilitate appropriate and safe shipping.

Sending Samples to Reference Laboratories

Any parasitic specimens that cannot be identified by our staff can be sent to the **Provincial Health Lab, Parasitology Dept**. for identification. The following guidelines should be followed:
- If there is a question about the identification of the parasite, split the sample and send a portion to the Provincial Laboratory for confirmation. If the result is urgently required phone the PHL and inform them.
-Tapeworm segments and other worms: if at all possible submit specimens alive in saline (0.85% NaCl). If a long delay is anticipated (5+ days) submit the specimen in SAF.
- Mites, ticks, fleas, lice, fly maggots, etc. can be sent "dry" in a leak proof double bagged container. Try not to crush the specimen and a live sample may be the best choice (particularly for a fly maggot).
- Microscope slides should be shipped in a cardboard slide container and should be clearly labeled as to their origin.
- Complete a PHL Special Parasitology form 245-44 (84/08), note the sample is being sent in the appropriate log book and arrange for pick up and transport.
- When results are received and entered on-line, the name and address of the testing laboratory must appear on the report.
- In the case of a positive result, the lab number of the referring lab must also appear on the report.