

# Specimen Collection Details

*Public Health Laboratories  
Public Health Ontario*

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## Specimen Collection Details

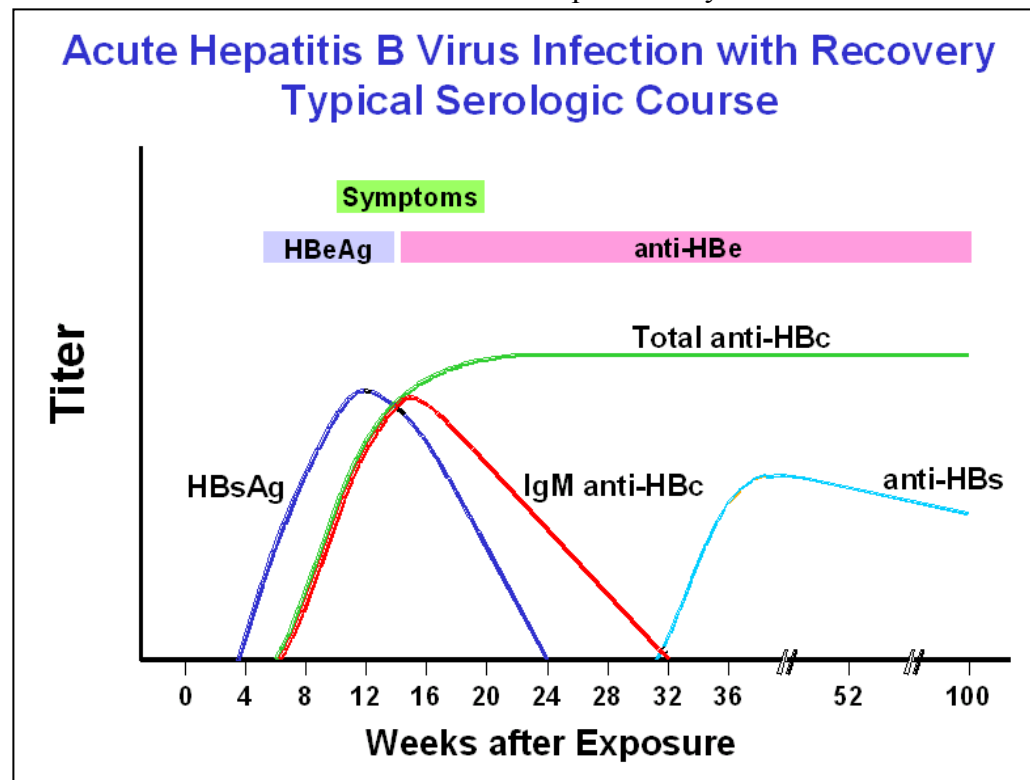
### Hepatitis B - Clinical Course and Antibody Response

- 1) Incubation period averages 60-90 days with the range being 45-180 days.
- 2) HBV is frequently asymptomatic. In those who do develop clinical symptoms, these may include anorexia, malaise, nausea, vomiting, abdominal pains, muscle or joint aches, mild fever, dark urine. Jaundice develops in 25-35 percent of patients with symptoms.
- 3) About 90–95 percent of HBV-infected adults will recover within six months and develop immunity.
- 4) Of those infected with HBV, 5-10 percent of adults, 30-50 percent of children (ages one to five years), and 80-90 percent of infants progress to chronic infection.

#### Abbreviations

HBsAg — Hepatitis B surface antigen  
 aHBs — Hepatitis B surface antibody  
 aHBc — Hepatitis B core antibody  
 HbcIgM — Hepatitis core IgM  
 HbeAg — Hepatitis B e antigen  
 aHBe — Hepatitis B e antibody

Ref., Manual of Clinical Microbiology, 8<sup>th</sup> Edition,  
 ASM Press 2003, Editors: P. Murray, E.J. Baron,  
 M. Pfaller, J. Jorgensen, R. Tenover, R. Tenover,  
 p. 1474.



## 2009 Specimen Collection Guide

### Specimen Collection Details - Hepatitis

### Hepatitis B - Clinical Course and Antibody Response

## Specimen Collection Details - Hepatitis

### Hepatitis B DNA - Specimen Collection Guidelines

**Test is useful for:**

- Monitor or assess drug therapy for chronic Hepatitis B.
- Monitor at 12 week intervals (eg.12, 24, 48 weeks)

**Test is not useful for:**

- Diagnosis

**Collection:**

- 1) Collect a tiger-top or red top tube
- 2) Centrifuge blood within 4 hours of collection
- 3) Remove serum from clot (2.5 mL serum is required)
- 4) Freeze within 4 hours of collection in a screw cap cryovial tube
- 5) Individually package specimens in a biohazard bag according to TDG requirements
- 6) Complete the information requested on the OPHL Lab Information Form (F-C-HE-036). Attach the information form to the requisition form. Place both forms in the biohazard bag pouch.
- 7) Ship on dry ice or on an ice pack
- 8) Transport specimen in accordance with the Transportation of Dangerous Goods Regulations.

**Note:** If unable to centrifuge and separate the whole blood specimen, ensure that the sample will be received by your local Public Health Laboratory within 4 hours of the collection of the blood. Whole blood received after this time frame will not be processed for PCR testing.

## Specimen Collection Details - Hepatitis

### Hepatitis C RNA - Specimen Collection Guidelines

**This test is useful for:**

- 1) Determining HCV infection in antibody negative patients who have been exposed to a positive HCV source (collect 6-10 weeks post exposure).
- 2) Resolving antibody indeterminate results for symptomatic patients
- 3) Testing for HCV infection in HIV immunosuppressed, antibody negative patients
- 4) Monitoring or assessing patient's quantitative levels for treatment

**This test is not useful and will not be performed for:**

- 1) Assessing disease "activity". Patients may be intermittently PCR negative even with active liver disease (elevated liver enzymes). Liver enzymes testing is the preferred method for assessing disease activity
- 2) Assessing "infectivity" of patient - all Hepatitis C antibody positive patients are considered potentially infectious
- 3) Monitoring therapy by performing multiple PCR (NAA) assays. (To monitor therapy, submit tests pretreatment, at 12 weeks and at end of treatment.)

**Collection:**

- 1) Collect a tiger-top or red top tube
- 2) Centrifuge blood within 4 hours of collection
- 3) Remove serum from clot (2.5 mL serum is required)
- 4) Freeze serum within 4 hours of collection in a screw cap cryovial tube

- 5) Individually package specimens in a biohazard bag according to Transportation of Dangerous Goods (TDG) Regulations requirements
- 6) Complete the information requested on the OPHL Lab Information Form (F-C-HE-036). Attach the information form to the requisition form. Place both forms in the biohazard bag pouch.
- 7) Ship on dry ice or on an ice pack.
- 8) Transport specimen in accordance with the TDG Regulations.

**Note:** If unable to centrifuge and separate the whole blood specimen, ensure that the sample will be received by your local Public Health Laboratory within 4 hours of collection of the blood. Whole blood received after this time frame will not be processed for PCR testing.

## Specimen Collection Details

### HIV PCR Collection Guidelines

#### Summary

HIV polymerase chain reaction (PCR) testing has been authorized by Health Canada (Health Protection Branch, Bureau of Medical Devices) on Clinical Trial Status (CTS). Under CTS, designated laboratories may use PCR to assist in the diagnosis of HIV infection under specific conditions.

These conditions include:

- Diagnosis of HIV in infants born to HIV infected mothers
- The resolution of HIV antibody indeterminate cases
- The diagnosis of HIV infection in individuals who are likely to be in the pre-antibody seroconversion window
- Other circumstances as discussed with the laboratory

It is useful only when results are considered together with other licensed serological markers such as HIV-1/2 antibody screen and supplemental EIA, Western Blot and p24 antigen.

The PCR assay is a patented (Hoffman LaRoche) molecular technique which amplifies and detects specific HIV DNA gene segments that may be present in infected patient's lymphocytes. Specimen integrity is of critical importance as contaminated specimens may cause a false positive reaction in the assay, and older specimens may degrade to falsely negative results.

Some divergent genetic variants of HIV, such as subtype "A" may not be successfully amplified and detected by the current assay.

Ordering a PCR Test ...

1) **Call the HIV Laboratory 416-235-6227**

It is not recommended that you submit specimens on Fridays.

2) **Collect blood**

One lavender (EDTA) topped tube. An additional tiger topped or red-topped tube is required for standard HIV serology, which is carried out with each PCR assay. Green topped (heparin) tubes are not acceptable.

3) **Package**

Package the specimens in an approved shipping container, i.e. a “Virus-H” kit.

4) **Temperature**

Do not freeze whole blood

5) **Send**

Ship the specimens to the HIV Laboratory as soon as possible, as early in the week as possible. Use a same-day or overnight courier if necessary to ensure delivery.

## Specimen Collection Details

### HIV Viral Load

Note: HIV Viral Load testing is available only for patients known to be HIV positive.

#### Test is performed at:

- Toronto OPHL at 416-235-6023
- Hospital for Sick Children, Toronto at 416-813-6267
- Mt Sinai Hospital, Toronto at 416-586-4800 x4184
- Children's Hospital of Eastern Ontario at 613-737-7600 x3989

#### 1) Information Required

The information requested on the OPHL HIV Viral Load Requisition is required for interpretation of the results and for epidemiology and surveillance purposes. Specimens will not be processed if the information is incomplete.

Information that is required and often not completed includes:

- HIN / OHIP number and patient name as it appears on the OHIP card
- CD4 and current viral therapy information
- Specimen collection information at the bottom of the requisition.

## 2) Specimen Collection and Transportation

Option	Type of Sample	Stability of Specimen	Transportation
<b>A</b>	Whole blood in EDTA tubes  - One 10 ml tube or two 7 ml tubes	4 hours	Deliver the specimen and requisition to local PHL or designated hospital within 4 hours of collection (before 2:00 p.m. Monday to Friday).
<b>B</b>	Whole blood in PPT tubes  - Two 7 ml tubes	24 hours at room temperature in PPT tube when PPT tube is centrifuged within 4 hours of collection (separation is not necessary)	Deliver the specimen and requisition to local PHL or designated hospital within 24 hours of collection (before 2:00 p.m. Monday to Friday).
<b>C</b>	Separated plasma (from EDTA or PPT)  - 5 ml	24 hours at room temperature  or 3 months if frozen	Deliver separated plasma (4°C) and requisition to HIV Viral Load Laboratory within 24 hours of collection,  Or freeze plasma and ship frozen if delivery will require more than 24 hours.

## 3) Supplies

Viral Load Requisitions, EDTA tubes, PPT tubes, and Leak-Proof Polypropylene Screw-capped Vials (8.0ml) are available from CPHL (416)-235-6022

## 4) Questions

Contact the HIV laboratory, Public Health Laboratory 416-235-6022.

## Specimen Collection Details

### Mycobacteriology

#### Specimen Collection and Transportation for Mycobacteriology Specimens

##### 1) Principle

The quality of specimens collected and the proper transport of those specimens to the laboratory are critical to the successful isolation of etiological agents.

##### 2) Collection of Specimens

- a) Use a sterile, leak proof, disposable plastic container. Do not use waxed containers. Swabs are not recommended for the isolation of mycobacteria.
- b) Label the container with the patient's name, specimen type, and date and time of collection.
- c) Collect initial specimens before antimicrobial therapy is started.
- d) Collect specimens aseptically, minimizing contamination with indigenous microbiota.
- e) Collect sufficient material (see table below).
- f) Screw cap on container securely. Place in the OPHL biohazard bag and seal.
- g) Place requisition form in side pouch of bag.
- h) Submit one specimen and one form per bag.
- i) Do not freeze or use any fixatives or preservatives.

### 3) Specimen requirements for mycobacterial isolation and acid-fast stain.

Specimen type	Specimen requirements	Special instructions	Unacceptable specimens
Abscess contents, aspirated fluid	As much as possible in sterile plastic container.	Cleanse skin with alcohol before aspirating sample. If volume is insufficient for aspiration by needle and syringe, collect specimen on swab and place in multi organism (Amico or Stuarts) aerobic transport medium.	Dry swab  Swabs in anerobic transport medium.
Blood	<ul style="list-style-type: none"> <li>• 7mL SPS (yellow top) or</li> <li>• 7mL heparin (green top) blood collection tube or</li> <li>• 10mL Isolator tube or</li> <li>• 5mL inoculated directly into Myco/F Lytic Medium.</li> </ul>	Disinfect site as for routine blood culture. Mix tube contents immediately after collection.	Blood collected in EDTA, which greatly inhibits mycobacterial growth even in trace amounts; coagulated blood; serum or plasma.
Body fluids (pleural, pericardial, peritoneal, etc.)	As much as possible (10–15mL minimum) in sterile container.	Disinfect site with alcohol if collecting by needle and syringe.	
Bone	Bone in sterile container without fixative or preservative.		Specimen submitted in formalin.
Bone marrow	As much as possible in sterile collection tube or SPS or heparin tube	Collect aseptically. Mix heparinised or SPS tube contents immediately following collection.	

Specimen type	Specimen requirements	Special instructions	Unacceptable specimens
Bronchoalveolar lavage or bronchial washing	≥ 5mL in sterile container.	Avoid contaminating bronchoscope with tap water. Saprophytic mycobacteria may produce false-positive culture or slide results.	
Bronchial brushing	Sterile container. If small amount of specimen then add sterile saline.		
Corneal Scrapings	Physician to inoculate cultures during procedure	Contact the laboratory before the procedure. Laboratory to send one MGIT tube, two LJ slants and a microscope slide to the physician's office	Specimen submitted in formalin
CSF	≥ 2mL in sterile container.	Send maximum volume attainable.	< 0.5mL
Gastric lavage fluid	≥ 5 – 10mL in gastric lavage container. Collect in the morning soon after patient awakens in order to obtain sputum swallowed during sleep.	Collect fasting early-morning specimen on three consecutive days. Use sterile saline. Adjust to neutral pH with 100 mg of sodium carbonate immediately following collection. The OPHL provides collection jars for gastric lavage (N-0043).	Specimen that has not been neutralized.
Lymph node	Node or portion in sterile container without fixative or preservative. A small amount of sterile saline may be added.	Collect aseptically. Select caseous portion if available. Do not wrap in gauze. Do not freeze.	Specimen submitted in formalin.

Specimen type	Specimen requirements	Special instructions	Unacceptable specimens
Skin lesion material	Submit biopsy specimens in sterile containers without fixative or preservative.  Submit aspirate in syringe with needle removed and Luer lock cap in place.	Swabs in transport medium (Amies or Stuarts) are acceptable only if biopsy sample or aspirate is not obtainable. For cutaneous ulcer, collect biopsy sample from periphery of lesion, or aspirate material from under margin of lesion.  If infection was acquired in Africa, Australia, Mexico, South America, Indonesia, New Guinea, or Malaysia, note on requisition, because <i>Mycobacterium ulcerans</i> may require prolonged incubation for primary isolation.	Dry swab.  Swabs in anerobic transport medium.
Sputum	5 – 10mL in sterile, wax-free, disposable container. Collect an early morning specimen from deep, productive cough on three consecutive days. Do not pool specimens. To obtain a sufficient volume of specimen (5mL) the patient may expectorate several times per collection. For follow-up of patients on therapy, submit three specimens after two months and again on completion of therapy.	Saprophytic mycobacteria in tap water may produce false-positive culture or slide results.  For <u>expectorated sputum</u> , instruct patient on how to produce sputum specimen as distinct from saliva or nasopharyngeal discharge. Do not have patient rinse mouth with tap water which may contain environmental mycobacteria.  For <u>induced sputum</u> , use sterile hypertonic saline. Avoid sputum contamination with nebulizer reservoir water. Indicate on request if specimen is induced sputum, as these watery specimens resemble saliva and risk rejection as inadequate.	24 hour pooled specimens; saliva.
Faeces	≥ 1g in sterile, wax-free, disposable container	Collect specimen directly into container, or transfer from bedpan or from plastic wrap stretched over toilet bowl.	Frozen specimen. Specimen that has been in contact with water in toilet.

Specimen type	Specimen requirements	Special instructions	Unacceptable specimens
Tissue biopsy sample	1g of tissue, if possible, in sterile container without fixative or preservative.	Collect aseptically, and avoid indigenous microbiota. Select caeous portion if available. Do not wrap in gauze. Do not freeze	Specimen submitted in formalin.
Transtracheal aspirate	As much as possible in syringe with needle removed and Luer Lock cap in place. Aspirate can be sent in sterile container.	Do not submit specimens in endotracheal tubes; these are unsuitable for processing.	
Urine	Catheter or midstream urine as much as possible (minimum, 40mL) of first morning specimen.  For suprapubic tap, as much specimen as possible with needle removed and Luer Lock cap in place. Aspirate can be sent in sterile container.	Collect first morning specimen on three consecutive days. OPHL will accept only one specimen/day. Organisms accumulate in bladder overnight, so first morning void provides best yield. Specimens collected at other times are dilute and are not optimal.	24 hour pooled specimens; urine from catheter bag; Specimens of <40mL unless larger volume is not obtainable. Urine specimens should only be tested if renal TB is suspected, not used for as routine screen.
Wound material	(See biopsy or aspirate)	(See biopsy or aspirate)	Dry swabs in anaerobic transport medium.

**4) Transport of Specimens**

- a) Transport specimen in accordance with the Transportation of Dangerous Goods Regulations.
- b) Transport specimens to the laboratory in as short a time as is practical to avoid overgrowth by contaminating indigenous microbiota.
- c) Do not refrigerate blood for mycobacterial culture, hold at room temperature. Refrigerate all other specimens whenever possible if transport to the laboratory or specimen processing will be delayed more than one hour.
- d) Submit specimens, sealed individually in biohazard bags, to the local Public Health Laboratory in blue transport packs provided.

**5) Unacceptable Specimens**

- a) Dry swabs or swabs in anaerobic transport medium are not processed.
- b) Swabs are not recommended for the isolation of mycobacteria, since they provide limited material. They are acceptable only if a specimen cannot be collected by other means. Place swabs in aerobic Amies or Stuarts transport medium. Negative results obtained from specimens submitted on swabs are not reliable.
- c) Waxed containers may produce false-positive slide results.
- d) 24 hours collections; they are likely to be diluted and contaminated.
- e) Frozen specimens as it will decrease the yield.

Note: Specimens obtained for initial diagnosis after the initiation of antimicrobial therapy may produce false-negative results. Even a few days of antimicrobial therapy may kill or inhibit sufficient numbers of mycobacteria so as to leave laboratory confirmation of disease in doubt.

## Specimen Collection Details

### Mycoplasma Culture

#### 1) Requisition

Request code # B07 Mycoplasma pneumoniae – Culture or code # B09 for Urogenital Mycoplasma/Ureaplasma –Culture or specify the test requested. Include as much clinical information as possible on the requisition form.

#### 2) Specimen Collection

Clinical Condition	Preferred Specimen Type
Neonatal pneumoniae, neonatal systemic infection, premature infants	<ul style="list-style-type: none"> <li>Respiratory tract (e.g. aspirates, auger suction)</li> <li>CSF, blood</li> <li>Autopsy tissue (e.g. lung, liver, spleen)</li> </ul>
Postpartum infection, spontaneous abortion, history of spontaneous abortion	<ul style="list-style-type: none"> <li>Blood</li> <li>cervical swab</li> <li>Products of conception</li> </ul>
Immunocompromised patients	<ul style="list-style-type: none"> <li>Biopsy tissue or needle aspirate</li> <li>Blood and body fluids (e.g. peritoneal, pleural, joint)</li> </ul>
Genitourinary tract infections, PID, prostatitis, epididymitis, urethritis, UTI, pyelonephritis, etc.	<ul style="list-style-type: none"> <li>Aspirates, surgical specimens</li> <li>Urine</li> <li>Urethral swabs, cervical swabs etc.</li> </ul>
Extragenital infections, pneumonia, surgical wound infections, septicemia	<ul style="list-style-type: none"> <li>Respiratory specimens (excluding sputum)</li> <li>Wound swabs, aspirates</li> <li>Blood</li> </ul>
Male infertility specimens	<ul style="list-style-type: none"> <li>Mycoplasma screen for IVF programs or infertility screens will not be processed.</li> </ul>

Specimen Type	Kit / Medium Required
• Blood	Blood culture broth
• Swabs or $\leq 1$ ml Body fluid	Mycoplasma multiorganism transport media (N-0064)
Large volumes $> 1$ mL • Tissues • Body Fluids	Mycoplasma multiorganism transport media (N-0064) Sterile Container (N-0042) Place 1 ml in transport media and any remaining sample in sterile container. Submit both together.

### 3) Packaging and Transportation

- a) Package and transport specimens in accordance with the Transportation of Dangerous Goods Regulations.
- b) Ship as soon as possible at 2-8°C
- c) If transportation is delayed, then store specimens at -70°C and ship on dry ice or ice pack.

## Specimen Collection Details

### Syphilis by Direct Fluorescence

#### 1) Requisition

Include as much clinical information as possible on the requisition form.

#### 2) Specimen Collection

##### Specimens Unsuitable for Testing

- Swabs sent in charcoal or antibiotic transport medium.
- Any condition which affects the integrity of a specimen in regards to readability must be considered (e.g. gross contamination, smear too thick, presence of blood cells etc.).
- Synovial fluid is unacceptable.

##### Kit Contents

- 1 Biohazard bag
- 2 glass slides
- 1 slide holder
- 1 PHL Laboratory Test Requisition
- Instruction form for the Collection of Material

Submit 1 slide for examination.

The extra slide is supplied in case of breakage. Please discard if not required

**Collection**

- a) Label the frosted edge of the smear side with the patient's name and date of birth.
- b) Draw a circle 1 cm<sup>2</sup> in the center of the slide.
- c) Wear gloves and take necessary precautions to avoid accidental infection
- d) Remove the superficial layer of the lesion with the aid of sterile gauze.
- e) Cleanse the lesion with sterile saline without preservatives. Dry the area. Wipe away any blood, which may collect.
- f) Gently press the tissue surrounding the sore, until sufficient serous exudate is available for collection using a 1 mL syringe with needle removed.
- g) For smear preparation:
  - Prepare smear by expelling the exudate into the circle.
  - DO NOT spread the exudate more than 1 cm<sup>2</sup> on pre-drawn circle on the slide.
  - Air dry.

**3) Packaging and Transportation**

- h) Place the dry slide in a slide holder and then into the blue sealable portion of the biohazard bag that is provided. Place completed patient requisition in a separate pouch.
- i) Store at 2 - 8°C until ready for shipment. Avoid extreme temperatures.
- j) Send the specimen to the Central Public Health Laboratory, 81 Resources Road, Etobicoke M9P 3T1.

## Specimen Collection Details

### Parasitology

For kit information please refer to the List of Kits and Components in the Specimen Collection Guide – Supplies section.

Agent	Test & Preferred Specimens	Transportation
All helminths, <i>Entamoeba histolytica/dispar</i> , <i>Giardia lamblia</i> , <i>Dientamoeba fragilis</i> , <i>Cryptosporidium</i> spp. <i>Cyclospora cayetanensis</i> <i>Isospora belli</i> <i>Sarcocystis hominis</i> All non-pathogenic parasites	<ul style="list-style-type: none"> <li>• P04 Parasites – Intestinal</li> <li>• Use a PARA kit</li> <li>• SAF-preserved faeces - for routine examination</li> <li>• Quantity: Fill to the fill-line indicated on bottle; submit a series of 3 specimens, 1-2 days apart</li> </ul>	Maintain at room temperature  Transit Time: 1 - 3 days Not urgent
<i>Entamoeba histolytica</i>	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a sterile container</li> <li>• Unpreserved faeces for ELISA (tested if SAF-preserved faeces positive for <i>E. histolytica/dispar</i>)</li> <li>• Quantity: At least 1 g</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Within 1 day
	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container</li> <li>• Suctioned material from hepatic abscess</li> <li>• If in SAF (microscopy)</li> <li>• Quantity: 5-10 ml</li> </ul>	Maintain at room temperature  Transit Time: 1 -3 days

For kit information please refer to the List of Kits and Components in the Specimen Collection Guide – Supplies section.

Agent	Test & Preferred Specimens	Transportation
<i>Giardia lamblia</i> , <i>Cryptosporidium</i> spp.	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a PARA kit</li> <li>• SAF-preserved small bowel aspirate (biopsy not recommended)</li> <li>• Quantity: Fill to the fill-line indicated on bottle Reduce amount of SAF if quantity of aspirate is small</li> </ul>	Maintain at room temperature  Transit Time: 1 - 3 days
<i>Plasmodium</i> spp. (Malaria), <i>Babesia</i> spp.	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use an EDTA tube (purple top)</li> <li>• Finger-prick blood slides collected at admittance to hospital, at the height of paroxysm and ~12 hours later; EDTA blood</li> <li>• Quantity: 2 thick and 2 thin unstained blood slides; tube with ~ 1mL of EDTA blood</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Urgent, submit immediately after collection
<i>Leishmania</i> spp (visceral form)	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container and slides</li> <li>• Bone marrow slides, biopsy material and Specimen Collection Guide for Cutaneous Leishmaniasis form (F-C-PA-038)</li> <li>• Quantity: 2 thick and 2 thin unstained blood slides; tube with at least 2 ml of blood; biopsy material as collected</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Within 1 day

For kit information please refer to the List of Kits and Components in the Specimen Collection Guide – Supplies section.

Agent	Test & Preferred Specimens	Transportation
<i>Leishmania</i> spp (cutaneous form)	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container and slides</li> <li>• Biopsy or aspirated material from base or edge of skin lesion; slide from the same site</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Within 1 day
<i>Trypanosoma</i> spp.	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use an EDTA tube (purple top), sterile container and slides</li> <li>• Blood slides; EDTA blood; aspirated material from lymph node</li> <li>• Quantity: 2 thick and 2 thin unstained blood slides ; tube with at least 2 ml of blood; biopsy material as collected</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Within 1 day
<i>Wuchereria</i> , <i>Brugia</i> , <i>Loa</i> and <i>Mansonella</i> spp.	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use an EDTA tube (purple top) and slides</li> <li>• Blood slides; EDTA blood</li> <li>• Quantity: 2 thick and 2 thin unstained blood slides; tube with at least 2 ml of blood</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Within 1 day

For kit information please refer to the List of Kits and Components in the Specimen Collection Guide – Supplies section.

Agent	Test & Preferred Specimens	Transportation
<i>Onchocerca volvulus</i>	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container</li> <li>• Skin snips in small amount of saline in a sterile bottle</li> <li>• Quantity: Enough material for a wet prep</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Within 1 day
<i>Pneumocystis carinii</i>	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a sterile container</li> <li>• Bronchial washings or brushing; biopsy in small amount of saline</li> <li>• Quantity: At least 1 ml; Biopsy as collected</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Urgent, submit immediately after collection
<i>Toxoplasma gondii</i>	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container</li> <li>• Biopsies from lymph node or other tissues believed to be infected</li> <li>• Quantity: Enough for preparing impression slide</li> </ul>	Maintain at room temperature  Transit Time: Within 1 day
<i>Schistosoma haematobium</i>	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container</li> <li>• Urine collected around midday, last portion voided into sterile bottle</li> <li>• Quantity: A series of 3 specimens, 1 day apart</li> </ul>	Maintain at room temperature  Transit Time: 1 - 3 days

For kit information please refer to the List of Kits and Components in the Specimen Collection Guide – Supplies section.

Agent	Test & Preferred Specimens	Transportation
Animal Schistosomes (Swimmer's itch)	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a sterile container</li> <li>• Snails from beaches in affected areas in clean bottles</li> <li>• Quantity: Several snails in 1 bottle from each area</li> </ul>	Maintain at room temperature  Transit Time: 1 - 3 days
<i>Echinococcus</i> (Hydatid fluid/sand)	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a PARA kit</li> <li>• SAF-preserved material from cyst</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: Within 1 day
<i>Trichinella spiralis</i>	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container</li> <li>• Biopsy from muscle in small amount of saline</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature (refrigerate if delayed)  Transit Time: Within 1 day
<i>Enterobius vermicularis</i>	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a Pinworm paddle</li> <li>• Plastic paddle or clear tape wrapped around wood applicator</li> <li>• Quantity: A series of 3 specimens, 1 day apart</li> </ul>	1 - 3 days  Transit Time: 1 - 3 days

For kit information please refer to the List of Kits and Components in the Specimen Collection Guide – Supplies section.

Agent	Test & Preferred Specimens	Transportation
<i>Strongyloides stercoralis</i>	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a PARA kit</li> <li>• SAF-preserved small bowel aspirate, bronchial aspirate, sputum, urine</li> <li>• Quantity: Preserved in ratio of 1 part of specimen to 2 part of SAF (reduce amount of SAF if specimen is small)</li> </ul>	Maintain at room temperature  Transit Time: Urgent, submit immediately after collection
<i>Ascaris</i> , <i>Enterobius</i> and other adult /immature worms, <i>Taenia</i> segments	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a PARA kit</li> <li>• Worm/segment, unpreserved, in small amount of saline or in SAF</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: Within 1 day
<i>Acanthamoeba</i> , <i>Naegleria</i> (Free-living amoeba)	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use a sterile container</li> <li>• Corneal slide or scrapings in small amount of saline</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: Within 1 day
	<ul style="list-style-type: none"> <li>• P03 Parasites – Blood &amp; Tissue</li> <li>• Use the contact lens casing</li> <li>• Contact lens casing with fluid</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: Within 1 day

For kit information please refer to the List of Kits and Components in the Specimen Collection Guide – Supplies section.

Agent	Test & Preferred Specimens	Transportation
Arthropods (ticks, mites, fleas, lice, etc.)	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a sterile container</li> <li>• Specimen collected in sterile container</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: 1 - 3 days
Fly larvae (maggot)	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a sterile container</li> <li>• Unpreserved larvae if live (or submit in 70% alcohol)</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: Within 1 day
<i>Sarcoptes scabiei</i>	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a sterile container or black paper</li> <li>• Skin scrapings at the edge of affected area in 1 to 2 ml of 70% alcohol</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: 1 - 3 days
<i>Demodex folliculorum</i>	<ul style="list-style-type: none"> <li>• P02 Parasites – Anthropods &amp; Miscellaneous</li> <li>• Use a sterile container or black paper</li> <li>• Skin scrapings in 1 to 2 ml of 70% alcohol</li> <li>• Quantity: As collected</li> </ul>	Maintain at room temperature  Transit Time: 1 - 3 days