

Appendix C: DSHS Laboratory Resources

rev Jan 2016

- Basic Health Department Recommendations
- Getting A Lab Submitter ID And Submission Forms
- How To Order Specimen Collection Supplies
- Basic Steps To Ship Specimens
- Preferred Specimen Summary Table

BASIC HEALTH DEPARTMENT RECOMMENDATIONS

Health departments should be prepared to collect or to assist with the collection of specimens to support public health investigations and outbreak response. While large hospitals and clinic systems may have supplies on hand and experience with shipping specimens, many small clinics and private provider offices do not. It can also take 24 to 72 hours to coordinate and ship specimen collection materials to a health department. Given the short time period for collecting certain priority specimens (e.g., measles, suspected variant/novel flu, etc.), it is essential for health departments to maintain at least a handful of supplies that can be used while additional supplies are being ordered.

Health Department Checklist

- Have a DSHS Laboratory submitter ID.
 - See ‘Getting a Lab Submitter ID and Submission Forms’ section.
- Have an electronic copy of each of the DSHS Laboratory submission forms with the health department’s submitter ID pre-filled (especially the G-2A, G-2B and G-2V).
 - See ‘Getting a Lab Submitter ID and Submission Forms’ section.
- Have at least 2 specimen shipping boxes on hand.
- Maintain a stock of viral transport media (VTM) and swabs for use in viral respiratory or VPD outbreaks.
 - Small health departments with a history of using little to no VTM should keep at least 2 unexpired VTM tubes on hand.
 - Larger health departments or health departments with a history of using the VTM should consider keeping more unexpired VTM tubes on hand.
 - Health departments with sub-offices should consider keeping at least 2 unexpired VTM tubes on hand at each sub-office unless the sub-office is located within 1 to 2 hours of another location with access to VTM.
- Maintain a stock of stool collection kits and transfer media (e.g., Cary-Blair transport media) for use in enteric pathogen outbreaks.
- Know how to ship specimens overnight using FedEx, Lone Star Overnight or an approved courier.
- Know how to request specimen collection kits.
 - See ‘How to Order Specimen Collection Supplies’ section.
- For health departments with a Laboratory Response Network (LRN) laboratory (other than the DSHS Lab in Austin) in their area:
 - Keep copies of the LRN-specific laboratory submission forms on hand in addition to the DSHS lab submission forms.
 - Know if your LRN can assist with shipping specimens that need to go to the DSHS laboratory in Austin or to the CDC.
 - Check with your LRN or EAIDB to see if certain specimens can be sent to the LRN or should be sent directly to the DSHS Laboratory in Austin.

GETTING A LAB SUBMITTER ID AND SUBMISSION FORMS

The procedure for getting a DSHS lab submitter ID is the same for healthcare providers/facilities and for health departments. Any entity that may need to submit a specimen to the DSHS Laboratory will need to have a submitter ID.

How to get a DSHS submitter ID

- Complete the Submitter Identification (ID) Number Request Form found at www.dshs.state.tx.us/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=8589956433.
- Fax the completed form to Lab Reporting at 512-776-7533 or email it to LabInfo@dshs.state.tx.us.
- If you are not sure if your agency has a submitter ID number, call DSHS Lab Reporting at 512-776-7578 to find out.

How to get electronic copies of your DSHS submission forms

- Contact Lab Reporting to request electronic copies of the forms by calling 512-776-7578 or emailing LabInfo@dshs.state.tx.us.
- A list of forms used by the DSHS lab is available at www.dshs.state.tx.us/lab/MRS_forms.shtm.
- Please note that new forms are usually distributed each September. Each fall, you should check that you have the most current form.

Most frequently used DSHS submission forms

- G-2A: Used for submitting serology specimens
- G-2B: Used for submitting bacteriology and parasitology specimens (also includes many molecular tests for bacterial and viral diseases)
- G-2V: Used for submitting virology specimens
- G-23: Used for submitting food samples
- G-27A: Used for submitting emergency preparedness specimens, including *Clostridium botulinum* and Ebola

HOW TO ORDER SPECIMEN COLLECTION SUPPLIES

The following specimen collection kits are available to be ordered

- Influenza/Influenza-like illness
- Pertussis (PCR)
- Fecal specimens for bacterial culture
- Fecal specimens for intestinal parasites
- Mumps/Measles/Rubella

Influenza/Influenza-like illness

- These supplies should be used for collecting specimens from someone suspected of having influenza. These supplies may also be used for collecting specimens from someone suspected of infection with parainfluenza virus, rhinovirus/enterovirus, respiratory syncytial virus, adenovirus, or human metapneumovirus.
- The provided supplies include:
 - DSHS or commercially prepared viral transport media (VTM)
 - Nasopharyngeal (NP) swab
 - Plastic tube with screw cap (secondary container)
- The following supplies are optional and can be included if requested:
 - Specimen shipping boxes (cold boxes)
 - Cold packs
 - DSHS Influenza Laboratory Surveillance Protocol
- Influenza collection supplies should be ordered by contacting the EAIDB Flu Team by email at flutexas@dshs.state.tx.us. An order form will be provided upon request.
- Note: Regional Influenza Surveillance Coordinators can assist with ordering supplies.

Pertussis (PCR)

- These supplies should be used for collecting specimens from someone suspected of having pertussis.
- The provided supplies include:
 - Nasopharyngeal (NP) swab (may be a urethral swab which can be used as an NP swab)
 - Specimen tube
 - Medium plastic bag
 - G-2B laboratory submission form
 - Collection information sheet
- The following supplies are optional and can be included if requested:
 - Specimen shipping boxes (cold boxes)
 - Cold packs
- Collection supplies should be ordered by contacting the EAIDB VPD Team at 512-776-7676.
- Notes:
 - No media is used for specimens submitted for pertussis PCR at DSHS.
 - Pertussis testing is not provided free of charge. Contact EAIDB for approval for DSHS payment.

Fecal specimens for bacterial culture

- These supplies should be used for collecting specimens from someone suspected of having a bacterial diarrheal illness.
- The provided supplies include:
 - Instruction sheet
 - Feces transport medium: Cary-Blair culturette kit
 - One tall plastic liner tube (with lid) for every 3 swabs ordered
- Collection supplies should be ordered by calling 512-776-7661.

Fecal specimens for intestinal parasites

- These supplies should be used for collecting specimens from someone suspected of having an intestinal parasite.
- The provided supplies include:
 - Tall mailer (can with lid, liner with lid)
 - O&P media with instructions
 - Mailing label (for Refugee program submissions)
- Collection supplies should be ordered by calling 512-776-7661.

Mumps/Measles/Rubella

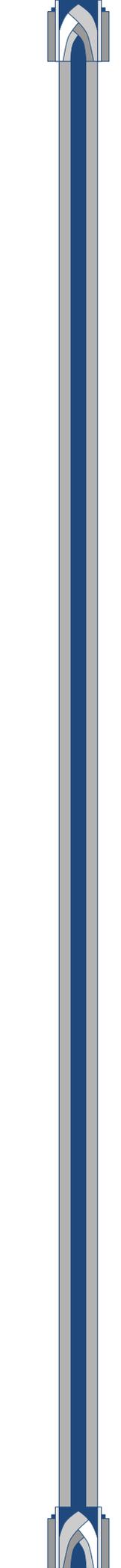
- These supplies should be used for collecting viral specimens from someone suspected of having mumps, measles or rubella.
- The provided supplies include:
 - DSHS or commercially prepared viral transport media (VTM)
 - Throat or nasopharyngeal (NP) swab
 - Mumps (buccal) testing uses a throat swab
 - A throat swab is preferred over an NP swab for rubella and measles but an NP swab is acceptable
 - Plastic tube with screw cap (secondary container)
 - Instruction sheet
- The following supplies are optional and can be included if requested:
 - Specimen shipping boxes (cold boxes)
 - Cold packs
- Collection supplies should be ordered by contacting the EAIDB VPD Team at 512-776-7676.
- Serology kits can be sent from DSHS, but only under emergency circumstances.

BASIC STEPS TO SHIP SPECIMENS

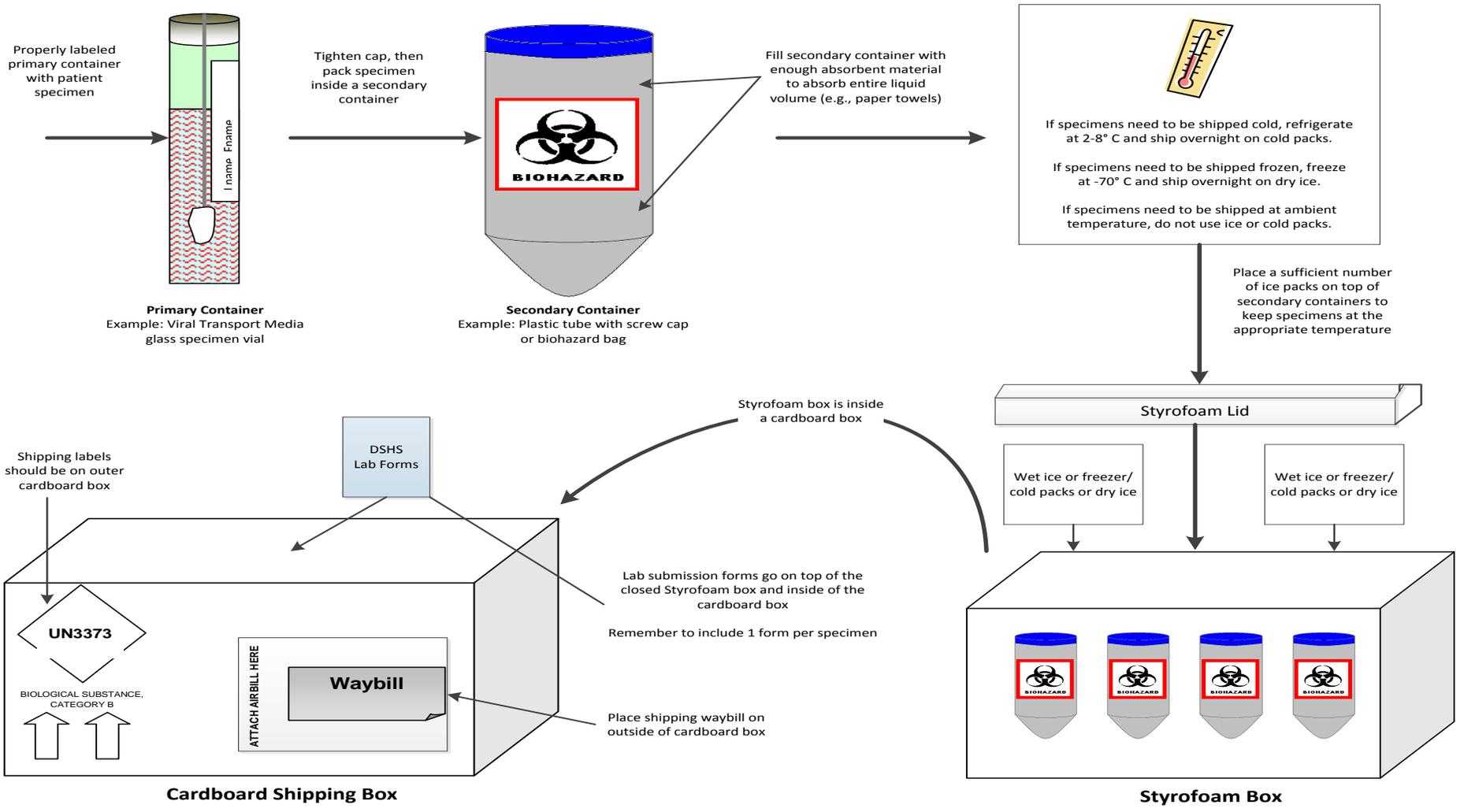
Make sure to review the disease-specific specimen submission guidance in each disease section. The disease-specific guidance covers which form to use, temperature requirements for storage and shipping, timeframes for submission and specimen types that are acceptable for submission. The following steps are basic and apply to most specimens submitted to the DSHS laboratory. More detailed information is available at http://www.dshs.state.tx.us/lab/mrs_shipping.shtm.

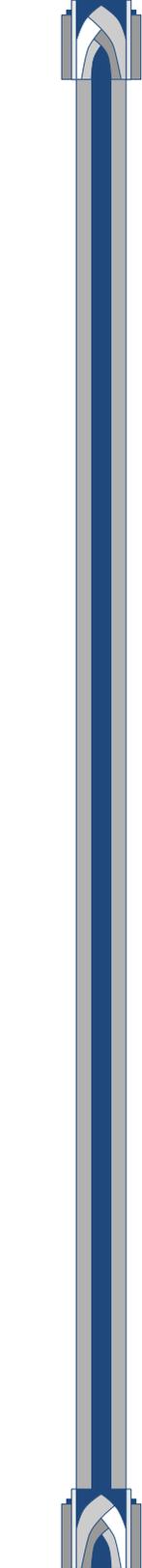
Basic Steps to Ship Specimens

- 1) Verify that the correct transport media was used for the specimen/pathogen you want tested.
 - a. Verify the transport media is not expired.
 - b. Check the disease-specific guidance for approved transport media.
- 2) Verify that all specimens are labeled correctly.
 - a. Most specimens require at least two identifiers on the specimen tube/container such as patient name and date of birth.
 - b. Multiple specimen types from the same person may also require the tube to be labeled with the specimen type or time of collection.
- 3) Verify that one specimen submission form is completed for each specimen submitted.
 - a. If 5 specimens are collected from the same person then complete 5 forms.
 - b. Make sure that the forms are completely filled out. Specimens could be rejected if key information is missing such as date of collection.
 - c. Make sure that the information on the form exactly matches the information on the specimen.
- 4) Verify whether the specimens need to be shipped at room temperature, cold or frozen.
 - a. Check the disease-specific guidance for approved transport temperatures.
 - b. If a specimen needs to be cold upon arrival at the DSHS Laboratory, make sure that a sufficient amount of wet ice or cold packs is included especially during the summer.
 - c. If a specimen needs to be frozen upon arrival at the DSHS Laboratory, make sure dry ice is used. Use as much as will fit but no more than 5 pounds. Blocks are better than pellets. Check with the shipping company to verify dry ice limits.
- 5) Specimens should be triple contained.
 - a. The primary container is typically the tube or bottle in which the specimen is placed (e.g., the VTM tube for influenza specimens). It must be leak proof. It must also be labeled with patient identifiers (name and date of birth).
 - b. The secondary container may be a larger plastic tube with a screw cap or even a zipper storage bag. The secondary container should be filled with absorbent material (e.g., paper towels or absorbent pads) to fully absorb the contents of the primary container if it leaks. The secondary container should have a biohazard sticker on it and must be leak proof.
 - c. The tertiary container is the shipping box which must be clearly labeled for shipping biological substances.

- 
- 6) Specimens should be shipped according to International Air Transport Association (IATA) standards.
 - a. Most specimens that a health department will ship are considered Category B (infectious substance that does not meet criteria for Category A) and will need the following on the outside of the shipping box:
 - i. UN 3373/Category B Biological Substances label
 - ii. Directional arrows labels
 - iii. Submitter's address and contact person's information
 - iv. Shipping address and contact person's information
 - v. Dry ice label (if applicable)
 - b. Isolates (pure cultures) or specimens from patients suspected of having an exotic, newly emerging or extremely rare pathogen may be classified as Category A agents. Check with the DSHS Laboratory directly for shipping Category A agents.
 - 7) Most specimens should be shipped overnight to arrive at DSHS Monday through Friday.
 - a. Do not ship a specimen to arrive on Saturday, Sunday or a state holiday.
 - b. If testing outside of normal business hours is needed, approval from EAIDB or the DSHS lab must be obtained before the specimen is shipped.
 - 8) Notify EAIDB and/or the DSHS lab when specimens for these diseases are being shipped:
 - a. Acute Flaccid Myelitis (AFM)
 - b. Botulism
 - c. Coronavirus, Novel (MERS)
 - d. Diphtheria
 - e. Ebola
 - f. Gastroenteritis outbreaks
 - g. Influenza, Novel/variant
 - h. Measles
 - i. Mumps
 - j. Polio
 - k. Rubella
 - l. Varicella
 - m. VISA/VRSA
 - n. Other rare pathogens

Example Packaging Diagram for Category B Specimens





PREFERRED SPECIMEN SUMMARY TABLE

Table Notes:

- This table only includes the preferred specimen. Additional specimens may also be acceptable. Check the disease-specific sections for additional acceptable specimens and the appropriate media, transport temperature and timeframe for those specimens.
- The timeframe for receipt by the lab is for the preferred specimen shipped as recommended. Some specimens may be received after the recommended time period if **shipped on different media or shipped frozen**. **Refer to the disease-specific sections** to see if that is possible.

Condition/Pathogen	Send specimens to DSHS lab	Collection kit available	Preferred specimen	Media	Transport temp.	Time period for receipt	DSHS lab Form	Note
Amebiasis	Outbreaks or by request only	Yes	Raw stool	PVA & Formalin	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See amebiasis section for additional details
Ascariasis	Yes	Yes – Stool	Raw stool or Adult Worm	Raw Stool - PVA & Formalin Adult Worm - Formalin or Ethanol	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See ascariasis section for additional details
Botulism	Isolate required by law	No	Raw stool (>10g)	None	Cold		G-27A	See botulism section for additional details
Campylobacteriosis	Yes	No	Isolate	Agar slant	Ambient	Not specified; within expiration date of media	G-2B	See campylobacteriosis section for additional details
Cryptosporidiosis	Outbreaks or by request only	Yes	Raw stool	PVA & Formalin	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See cryptosporidiosis section for additional details
Cyclosporiasis	Yes	Yes	Raw stool	PVA & Formalin	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See cyclosporiasis section for additional details
Diphtheria	Yes	Yes	Swab beneath membrane	Amies or Stuart's transport or Loeffler's Slant	2 – 25°C	Within 48 hours of collection	G-2B	
Ebola	DSHS/LRN Pre-approval required.	No	Blood	Two plastic EDTA purple tops with ≥ 2 ml	Cold	Send by courier for over-night or more rapid delivery	G-27A	Testing must be approved by EAIDB and CDC prior to shipping. Call 512-221-6852

Condition/Pathogen	Send specimens to DSHS lab	Collection kit available	Preferred specimen	Media	Transport temp.	Time period for receipt	DSHS lab Form	Note
<i>E. coli</i> , shiga toxin-producing	Isolate required by law	No	Isolate	Agar slant	Ambient	Not specified; within expiration date of media	G-2B	See STEC section for additional details
Fascioliasis	Yes	Yes	Raw stool	PVA & Formalin	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See fascioliasis section for additional details
<i>Haemophilus influenzae</i>	Yes (required on patients under 5 years old)	No	Isolate	Chocolate agar slant	Ambient temp	Within 48 hours of subculture	G-2B	Isolates from sterile sites only
HAV	No	N/A	N/A	N/A	N/A	N/A	N/A	Widely available commercially
HBV	No	N/A	N/A	N/A	N/A	N/A	N/A	Widely available commercially
HCV	No	N/A	N/A	N/A	N/A	N/A	N/A	Widely available commercially
Hookworm (ancylostomiasis)	Yes	Yes – Stool	Raw stool or Adult Worm	Raw Stool - PVA & Formalin Adult Worm - Formalin or Ethanol	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See hookworm (ancylostomiasis) section for additional details
Influenza	Specimens of interest or surveillance specimens only	Yes	NP swab	Viral Transport Media approved for influenza viruses	Cold	Within 72 hours of collection	G-2V	See Flu Surveillance Protocol for list of specimens of interest, additional specimens acceptable, and for specimens > 72 hours after collection
Legionellosis	Outbreaks or by request only	No	isolate	BCYE slant	Ambient		G-2B	See legionellosis section for other acceptable specimen types

Condition/Pathogen	Send specimens to DSHS lab	Collection kit available	Preferred specimen	Media	Transport temp.	Time period for receipt	DSHS lab Form	Note
Listeriosis	Isolate required by law	No	Isolate	Non-glucose containing agar slants	Ambient	Not specified; within expiration date of media	G-2B	See listeriosis section for additional details
Measles - PCR	Yes	Yes	Pharyngeal swab	Viral Transport Media	Cold	Within 48 hours of collection	G-2V	See measles section for additional acceptable specimens and for specimens > 48 after collection
Measles - Serology	Yes	No	Spun down serum	Red or tiger top tube	Cold	Within 48 hours of collection	G-2A	
Meningitis, Amebic	Testing done by CDC	No	Multiple	Varies	Varies	Varies	Call 512-776-7560	See amebic meningitis section for details
Meningococcal (<i>Neisseria meningitidis</i>)	Isolate required by law	No	Isolate	Blood or chocolate agar	Ambient temp		G-2B	Isolates from sterile sites or purpuric lesions required to be sent; if isolate not available, EAIDB requests specimen from sterile site for PCR at CDC
Mumps - Serology	No	N/A	N/A	N/A	N/A	N/A	N/A	DSHS no longer offers mumps IgM testing. Commercially available.
Mumps - PCR	If needed	Yes	Buccal swab (use throat swab on cheek)	Viral Transport Media	Cold	Within 48 hours of collection	G-2V	
Norovirus	Yes	No	Raw Stool	None	Cold	As soon as possible	G-2B	Only raw stool accepted; do not freeze; See norovirus section for details

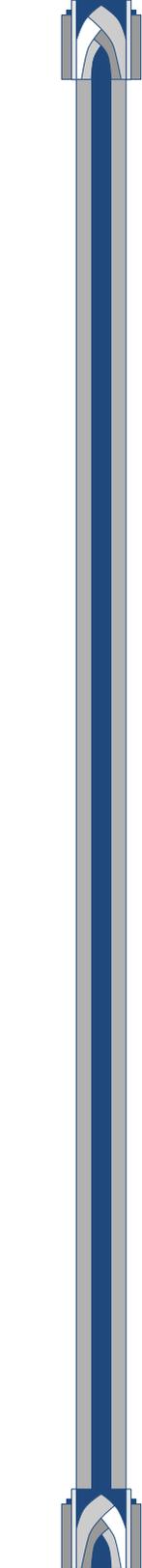
Condition/Pathogen	Send specimens to DSHS lab	Collection kit available	Preferred specimen	Media	Transport temp.	Time period for receipt	DSHS lab Form	Note
Paragonimiasis	Yes	Yes	Raw stool	PVA & Formalin	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See paragonimiasis section for additional details
Pertussis - PCR	Outbreaks or by request only	Yes	NP swab	Dry tube/no media	Cold	Within 48 hours of collection	G-2B	See pertussis section for additional details
Polio	Testing done by CDC	No	Multiple	Varies	Cold	Within 48 hours of collection	G-2V	Call EAIDB VPD team at 512-776-7676
Rubella PCR	Yes	Yes	Pharyngeal swab	Viral Transport Media	Cold	Within 48 hours of collection	G-2V	Specimens will be forwarded to CDC or another state public health lab for PCR
Rubella - Serology	If needed	No	Spun down serum	Red or tiger top tube	Cold	Within 48 hours of collection	G-2A	Specimens may be submitted for serology if serology is not available from a commercial lab
Salmonellosis	Yes- strongly encouraged	No	Isolate	Agar slant	Ambient	Not specified; within expiration date of media	G-2B	See Salmonellosis section for additional details
Shigellosis	Yes	No	Isolate	Agar slant	Ambient	Not specified; within expiration date of media	G-2B	See shigellosis section for additional details

Condition/Pathogen	Send specimens to DSHS lab	Collection kit available	Preferred specimen	Media	Transport temp.	Time period for receipt	DSHS lab Form	Note
<i>Streptococcus</i> , Group A (<i>S. pyogenes</i>)	Clusters/outbreaks (if pre-approved) or by request only	No	Isolate	Agar slant	Ambient		G-2B	Commercial testing widely available for initial ID; PFGE testing at DSHS requires pre-approval from EAIDB IRID Team at 512-776-7676
<i>Streptococcus</i> , Group B (<i>S. agalactiae</i>)	Clusters/outbreaks (if pre-approved) or by request only	No	Isolate	Agar slant	Ambient		G-2B	Commercial testing widely available for initial ID; PFGE testing at DSHS requires pre-approval from EAIDB IRID Team at 512-776-7676
<i>Streptococcus pneumoniae</i>	Some (see notes)	No	Isolate	Agar slant	Ambient		G-2B	Isolates from invasive (sterile site) cases <5 years of age should be forwarded to DSHS

Condition/Pathogen	Send specimens to DSHS lab	Collection kit available	Preferred specimen	Media	Transport temp.	Time period for receipt	DSHS lab Form	Note
Tetanus	No	N/A	N/A	N/A	N/A	N/A	N/A	Lab confirmation is not necessary
Trichuriasis	Yes	Yes – Stool	Raw stool or Adult Worm	Raw Stool - PVA & Formalin Adult Worm - Formalin or Ethanol	Ambient	Not specified; within expiration date of PVA & Formalin vials	G-2B	See trichuriasis section for additional details
Varicella PCR	Yes or send directly to CDC	No	Lesion/scab scraping	NO media	Ambient temperature	Within 48 hours of collection	G-2V	DSHS will forward the specimen to MN PH lab. Specimens can also be submitted directly to CDC by providers.
Vibriosis	Isolates required by law	No	Isolate	Agar slant	Ambient	Not specified; within expiration date of media	G-2B	See vibriosis section for additional details
Viral Hemorrhagic Fever (non-Ebola)	Testing done by CDC	No	Multiple	Varies	Varies	Varies	Contact EAIDB	Approval from CDC is required before submitting specimen for testing. Contact EAIDB to arrange for testing.
VISA/ VRSA	Yes	No	Isolate	Blood agar or BHI medium	Ambient	Within 48 hours of collection	G-2B	Call DSHS HAI Epidemiologist for the appropriate region
Yersiniosis	Outbreaks or by request only	No	Isolate	Agar slant	Ambient	Not specified; within expiration date of media	G-2B	See shigellosis section for additional details

Cold = 2 – 8 °C

Ambient = room temperature



UPDATES

- In the table, for meningococcal disease, added statement about EAIDB requesting sterile site specimens from cases in which there is no isolate available to send to DSHS
- Added ascariasis, fascioliasis, hookworm (ancylostomiasis), paragonimiasis, trichuriasis, and viral hemorrhagic fever (non-ebola) to the Preferred Specimen Summary Table