

Arizona State Health Laboratory (ASHL) Services Guide for Unexplained Death (UNEX) Investigations

Unexplained Death (UNEX) investigations are reportable to the Arizona State Department of Health (ADHS) within 24hrs of receipt of report.

Laboratory assistance is available through the Arizona State Health Laboratory (ASHL) to rule out agents of public health significance: diseases that can be transmitted person-to-person, infectious diseases that require an intervention, a new/emerging infectious disease, or an act of terrorism.

The table below is a post-mortem specimen guide for medical examiners (ME) and local health departments to assist them when specimens need to be submitted to the ASHL for further infectious disease laboratory testing.

Testing at the ASHL **MUST** be approved by the UNEX epidemiologist at ADHS (Tel: 602-364-3676).

Based on the specimens available, testing may only be available at the Centers for Disease Control (CDC). If such testing is necessary to rule out an infectious agent of public health significance, the ADHS UNEX epidemiologist can help coordinate CDC testing. In this case, please send the specimens to the ASHL and they will forward the specimens to the appropriate section at the CDC.

All specimens must be labeled and each specimen **MUST** be submitted with a laboratory submission form: <http://azdhs.gov/lab/micro/submissionform3.pdf>.

Specimen Rejection

ASHL does have a policy for rejection of laboratory specimens and will **NOT** examine clinical specimens if the following circumstances exist:

1. The quantity of specimen is not sufficient for examination
2. The specimen was broken or leaked in transit
3. Clinical/epidemiological information submitted with specimen is incomplete or insufficient.
4. Specimen was submitted in an improper medium for requested test
5. The identifier on the specimen does not match the identifier on the submission form, or there is not identification on the specimen.
6. Tissues not submitted in individual containers

Shipment Address:

<p>Arizona State Health Laboratory 250 N 17th Ave. Phoenix, AZ 85007-3231</p>

ASHL Hours of Operation: 8am-5pm, Monday to Friday

If you have any questions please call the ADHS UNEX Epidemiologist (Tel: 602-364-3676).

DISCLAIMER: Results and interpretation of the ASHL laboratory findings for postmortem specimens are subject to several variables including: the quality and quantity of the specimen, the technique used for specimen collection, the length of time in transit, and the transit conditions. In addition, these laboratory reports may contain results for organisms that are present due to postmortem decomposition.

Arizona State Laboratory Services – UNEX Investigations – Post Mortem Specimen Guide

Disease or Agent	Culture	Antigen Detection	Toxin	Smear	Serology	Specimen	Optimal Volume	Transport	Other
BACTERIOLOGY									
<i>B. anthracis</i> (Anthrax)		PCR				Blood in EDTA, pleural fluid, transtracheal aspirate, tissue (fresh or frozen)	Blood: 5mL Pleural fluid: 10-15mL	Blood in purple top tube Fresh tissue in 0.9% saline	
<i>B. anthracis</i> (Anthrax)	X					Vesicular fluid, swab of eschar material, blood, feces	Blood: 5mL Feces: 5-25g	Blood in blood culture bottle	
Botulism toxin	X	ELISA	X			Feces or colon contents, wound biopsy, gastric content	Feces: 25-50 grams	Refrigerate	Referred to CDC
<i>Brucella spp.</i>	X	PCR (whole blood)				Whole blood, bone marrow, tissue (spleen, liver), abscess	Blood: 5mL	Blood: red top vacutainer tube Fresh tissue in 0.9% saline & refrigerate	
<i>Burkholderia spp.</i>		PCR				Whole blood	Blood: 5mL	Blood: red top vacutainer tube Refrigerated during shipment	
Campylobacter	X					Rectal swab, fecal swab, feces	Feces: 5-25g	Cary-Blair medium Refrigerate	
Cholera	X					Rectal swab, fecal swab, feces	Feces: 5-25g	Cary-Blair medium Refrigerate	
<i>E. coli</i> 0157	X					Rectal swab, fecal swab, feces	Feces: 5-25g	Cary-Blair medium Refrigerate	
Enteric Culture	X					Rectal swab, fecal swab, feces	Feces: 5-25g	Cary-Blair medium Refrigerate	
<i>Haemophilus</i>	X					CSF, blood, joint fluid, pleural fluid, middle ear aspirate	CSF: 2.5mL Pleural fluid: 10-15mL	Blood in blood culture bottle CSF: Send in sterile screw capped tube with NO transport medium	
Legionella	X					Lung tissue, lung swab		Transport on ice Tissue is higher quality specimen and is preferred over a swab Fresh tissue in 0.9% saline Lung swab: sterile saline	
Listeria	X					Blood , CSF	Blood: 5mL CSF: 2.5mL	Blood in blood culture bottle Blood/CSF: Ship at 4°C CSF: Send in sterile screw capped tube with NO transport medium	If storage exceeds 48hrs, store specimen at -20°C

Disease or Agent	Culture	Antigen Detection	Toxin	Smear	Serology	Specimen	Optimal Volume	Transport	Other
Meningococcus	X					Blood, CSF, brain swab, biopsy samples	Blood: 5mL CSF: 2.5mL	Blood in blood culture bottle Do not refrigerate CSF: Send in sterile screw capped tube with NO transport medium	
Pertussis	X	X				NP swab, lung swab		Reagan-Lowe medium. Use Dacron or calcium alginate swabs Transport on ice	
<i>Y. pestis</i> (Plague)	X	PCR (whole blood)				Bronchial wash, transtreacheal aspirate, NP swab, lymphoid aspirate and tissue, whole blood, bone, tissue (lung, liver, spleen, skin lesion material, kidney)	Blood: 5mL	Blood in blood culture bottle Whole blood: red top vacutainer tube NP swab: No transport medium Fresh tissue in 0.9% saline & refrigerate Previously frozen tissue: send frozen on dry ice	CDC: fresh lung, liver, spleen, lymph node, skin lesion material, kidney (keep refrigerated) <u>IHC</u> : formalin fixed tissue.
Salmonella	X					Blood, rectal swab, fecal swab, feces	Blood: 5mL Feces: 5-25g	Blood in blood culture bottle Fecal or rectal swab: Cary-Blair medium Refrigerate	
Shigella	X					Blood, rectal swab, fecal swab, feces	Blood: 5mL Feces: 5-25g	Blood in blood culture bottle Fecal or rectal swab: Cary-Blair medium Refrigerate	
Staphylococcus	X					Blood, CSF	Blood: 5mL CSF: 2.5mL	Blood in blood culture bottle CSF: Send in sterile screw capped tube with NO transport medium	
Streptococcus	X					Blood, CSF	Blood: 5mL CSF: 2.5mL	Blood in blood culture bottle CSF: Send in sterile screw capped tube with NO transport medium	
<i>F. tularensis</i> (Tularemia)		PCR			X	Whole blood	Blood: 5mL	Fresh tissue in 0.9% saline & refrigerate Previously frozen tissue: send frozen on dry ice Blood: red top vacutainer tube	CDC: fresh lung, liver, spleen, lymph node, skin lesion material, kidney (keep refrigerated) <u>IHC</u> : formalin fixed tissue.

Disease or Agent	Culture	Antigen Detection	Toxin	Smear	Serology	Specimen	Optimal Volume	Transport	Other
<i>F. tularensis</i> (Tularemia)	X					Ulcer swab, aspirate, lymphoid tissue, tissue, blood, bone (even if desiccated)	Blood: 5mL	Blood in blood culture bottle Fresh tissue in 0.9% saline & refrigerate Previously frozen tissue: send frozen on dry ice	CDC: fresh lung, liver, spleen, lymph node, skin lesion material, kidney (keep refrigerated) <u>IHC</u> : formalin fixed tissue.
<u>VIROLOGY (in addition to a virus respiratory culture)</u>									
Adenovirus	X					NP swab, lung swab		Hanks medium	
Enterovirus	X					Stool, NP swab, CSF, lung swab	CSF: 2.5mL Stool: 5-25g	NP swab/Lung swab: Hanks medium CSF: Send in sterile screw capped tube with NO transport medium Stool: refrigerate	
Influenza	X	PCR				NP swab, lung swab		Hanks medium Do not freeze	
Norovirus		PCR				Gastric content, stool	Stool: 5-25g	Do not freeze Stool: refrigerate	
Rabies (CDC Only)								Ship to ASHL for forwarding to CDC	CDC: Brain tissue (brainstem & cerebellum): FREEZE and ship on dry ice CSF: 1mL Nuchal skin biopsy: 5-6mm
<u>MYCOBACTERIOLOGY</u>									
TB	X	HPLC (if +)		X		CSF, biopsy, tissues (prefer lung), pleural fluid NO blood	CSF: 2.5mL Pleural fluid: 10-15mL	Must be received at ASL within 7 days of collection <u>Tissue</u> : not in saline, 1gram without fixative/preservatives Send in sterile container Do not freeze	
<u>SEROLOGY</u>									
Coccidioidomycosis					X	CSF, body fluid	CSF: 2.5mL Body fluid: 2mL	CSF: refrigerate	

Disease or Agent	Culture	Antigen Detection	Toxin	Smear	Serology	Specimen	Optimal Volume	Transport	Other
Hantavirus					X (IgG)	Heart blood	Heart blood: 5mL	Red top vacutainer tube	IgM sent to the CDC Tissue specimens sent to CDC if warranted (fresh lung, kidney, liver, spleen shipped on DRY ICE). Other acceptable tissue specimens include pancreas, brain, pituitary, lymph nose. If time lapsed then formalin fixed and paraffin blocks ok.
Rickettsial Panel Spotted Fever Group Typhus Fever Group Q Fever					X	Serum/Heart blood	Serum/Heart blood: 5mL	Red top vacutainer tube	CDC: <u>PCR</u> : skin biopsy & fresh tissues (liver, spleen, kidney at minimum)-sterile gauze pads with sterile saline <u>IHC</u> : paraffin blocks
Measles	X	PCR			X	Culture/PCR: NP swab and urine	Urine: 5mL	NP Swab: Hanks medium	
Mumps	X	PCR			X	Culture/PCR: NP swab and urine	Urine: 5mL	NP Swab: Hanks medium	
Rubella	X				X	Culture: NP swab and urine	Urine: 5mL	NP Swab: Hanks medium	
West Nile Virus					X	CSF	CSF: 2.5mL	Send in sterile screw capped tube with NO transport medium	CDC: Brain tissue (cerebellum, brainstem, cerebral hemisphere sections right & left) <u>PCR</u> : fresh frozen <u>IHC</u> : formalin fixed
St. Louis Encephalitis					X	CSF	CSF: 2.5mL	Send in sterile screw capped tube with NO transport medium	CDC: Brain tissue (cerebellum, brainstem, cerebral hemisphere sections right & left) <u>PCR</u> : fresh frozen <u>IHC</u> : formalin fixed

Disease or Agent	Culture	Antigen Detection	Toxin	Smear	Serology	Specimen	Optimal Volume	Transport	Other
MYCOLOGY									
Coccidioidomycosis	X	PCR (whole blood)				Biopsy, tissue, blood, CSF, other body fluid	Blood: 5mL CSF: 1.0mL	Refrigerate Tissues: 4°C refrigerate Fresh tissue in 0.9% saline Blood in blood culture bottle Whole blood: red top vacutainer tube Blood/CSF: Store 30-37°C Send in sterile container	
PARASITOLOGY									
Blood/Tissue				X		Blood, tissue	Blood: 5mL	Blood: red top vacutainer tube Fresh tissue in 0.9% saline	
Intestinal				X		Feces	Feces: 5-25g	PVA and Formalin	
OTHER									
Creutzfeldt-Jakob Disease (CJD) – SEND DIRECTLY TO THE NATIONAL PRION DISEASE PATHOLOGY SURVEILLANCE CENTER (NPDPSC) (Please notify ADHS if sending)						CSF, frozen brain tissue	CSF: 2-5mL	FREEZE (-70°C) and ship on dry ice Brain Tissue: 5 grams CSF: 2-5mL	