

# **Infectious Disease**

Client Services Manual

## **Utah Public Health Laboratory**

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Taylorsville, Utah 84129

Phone: 801-965-2400

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Webpage: <https://uphl.utah.gov>

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

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### GENERAL INSTRUCTIONS

#### CONTACT US:

Utah Public Health Laboratory  
4431 S. 2700 W.  
Taylorsville, Utah 84129  
Phone: 801-965-2400  
Fax: 801-536-0473  
Webpage: <https://uphl.utah.gov>

#### KEY PERSONNEL

##### Administrative

Alessandro Rossi, PhD – CLIA Laboratory Director

##### Infectious Disease

Alessandro Rossi, PhD – Chief Scientist, Infectious Disease  
Kim Christensen – Biothreat Laboratory Coordinator

#### REPORTING:

Ensure the correct Submitter/Provider code is provided. Facility information must be kept current to protect patient information and guarantee test reports are sent to the correct location. Facility address, phone number, point of contact, and report destinations, can be updated by contacting 801-965-2400 or by sending this information to [uphlsrid@utah.gov](mailto:uphlsrid@utah.gov).

#### REQUISITIONS:

[ARLN Test Request Form](#)

[BT Environmental Specimen Form](#)

[Infectious Disease Test Request Form](#)

[Influenza Surveillance Request Form](#)

[Rabies Test Request Form](#)

All submitted specimens must be accompanied by a UPHL test requisition form including the provider/submitter code, patient first and last name or unique patient ID, patient date of birth, sample collection date/time, sample source, and the test requested. Certain testing may require additional information, all required information is identified on each test requisition. Submitting incomplete forms may result in testing delays, all required information should be provided on test requisitions when specimens are submitted. If the provider/submitter code is unknown, please call 801-965-2400 for assistance.

**SPECIMEN LABELING:** At least two unique identifiers must be provided on each sample submitted and must match the accompanying test request form. See individual requirements under specific tests.

\*\*\***Note:** Specimen containers from the Utah Public Health Lab have an “outdate” printed on the label. Do not collect any sample in an outdated container. New containers can be ordered using [Infectious Disease Collection Kit Order Form](#). We do not supply blood collection tubes. \*\*\*

**MANDATORY SPECIMEN SUBMISSION REQUIREMENTS:** Go to [Utah Public Health Laboratory \(UPHL\) specimen submission](#) for additional information.

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### Bacteriology

#### *Bacterial Pathogens in Food, Water, and Environmental Samples* Outbreak Testing Only

<b>TEST</b>	Detection of Bacterial Pathogens in Implicated Food or Water
<b>METHOD</b>	Culture
<b>AVAILABLE</b>	Please contact Local or State Epidemiology prior to submitting specimens. DHHS Epidemiology (801)538-6191. Schedule through UPHL: (801) 965-2400
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Suspect Foods collect 100-150 gm Raw milk collect 200-250 ml, Recreational Water collect 1 liter Environmental swabs Call Bacteriology section (801) 965-2400 ext 2598 for details
<b>COLLECT IN</b>	Original container or transfer to sterile containers
<b>PROCESSING</b>	Keep food at 2 to 8 degrees C, unless frozen (if frozen then keep it frozen)
<b>TRANSPORT</b>	At refrigerated or frozen temperature as appropriate
<b>SPECIMEN STABILITY</b>	Transport immediately
<b>REJECTION CRITERIA</b>	Specimens that have not been approved for testing
<b>LABEL</b>	Client name, type of food, date collected, and bacteria suspected
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Variable, depends on organism
<b>RESULTS</b>	Presence or absence
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	<b>Done for investigation of foodborne outbreaks only</b>
<b>CONTACT</b>	Bacteriology Section (801) 965-2400

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Bacteriology

*Stool for Enteric Bacterial Pathogens including CIDT positive specimens*

<b>TEST</b>	Stool for bacterial pathogens: <i>Salmonella</i> , <i>Campylobacter</i> , <i>Shigella</i> , <i>Escherichia coli</i> O157, and other <i>Shiga-toxin</i> producing <i>E. coli</i> . <i>Vibrio</i> , <i>Aeromonas</i> , <i>Yersinia</i> , and <i>Plesiomonas</i> may be tested upon request
<b>METHOD</b>	Culture, EIA, Serotyping of pathogen if applicable
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	If a patient has had a barium gastro/enteric procedure, wait at least 72 hours before collecting a specimen
<b>SPECIMEN</b>	Feces (stool), rectal swab
<b>COLLECT IN</b>	Cary Blair Medium, containers available from Technical Services. If CIDT submit in Cary Blair, MacConkey or GN broth
<b>PROCESSING</b>	Do not fill beyond the red line (“Add specimen to this line”). Mix well with pink medium (instruction sheet enclosed with collection kit). <b>Do not use the collection device past the expiration date printed on the label (i.e., EXP: 11/10)</b>
<b>TRANSPORT</b>	Best at 2 to 8 degrees C
<b>SPECIMEN STABILITY</b>	Sample should be received in our lab within 24-72 hours of collection. Specimens in transport media, kept at 4C, will keep for up to 7 days without significant loss of viability (with the exception of <i>Campylobacter</i> and <i>Shigella</i> species which should be transported and set-up as soon as possible)
<b>REJECTION CRITERIA</b>	Specimens received without collection media or in the wrong media, leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, and collection date (space provided on the container label)
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a> If identified through CIDT (Molecular testing) staple original testing slip to test request form
<b>TAT</b>	Variable, Negative usually within 2 working days of receipt. Positive 2-10 days depending on organism
<b>RESULTS</b>	Pathogen isolated (positive) or “No Pathogens [detailed] recovered” (negative)
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	<i>Shigella</i> identified and serotyped <i>Salmonella</i> identified and serotyped by WGS
<b>CONTACT</b>	Bacteriology Section (801) 965-2400, WGS (801) 965-2512: Jenni Wagner

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Bacteriology

#### *Stool and Food for Investigation of Foodborne Toxins - Referral*

<b>TEST</b>	Culture and toxin detection for <i>Bacillus cereus</i> , <i>Staphylococcus aureus</i> or <i>Clostridium perfringens</i>
<b>METHOD</b>	Culture, Toxin testing (referral to CDC) <i>Bacillus cereus</i> - <a href="https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10104">https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10104</a> <i>Clostridium perfringens</i> - <a href="https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10111">https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10111</a> <i>Staphylococcus aureus</i> - <a href="https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10113">https://www.cdc.gov/laboratory/specimen-submission/detail.html?CDCTestCode=CDC-10113</a>
<b>AVAILABLE</b>	State and Local Epidemiology and CDC pre-approval required
<b>PATIENT PREP</b>	If a patient has had a barium gastro/enteric procedure, wait at least 72 hours before collecting a specimen
<b>SPECIMEN</b>	Feces (stool) <i>Clostridium perfringens</i> - Direct toxin detection requires at least two raw stool specimens. If stool is placed in a transport medium prior to shipment, at least four specimens are required for toxin testing.
<b>COLLECT IN</b>	Cary-Blair Transport Medium containers available from Technical Services
<b>PROCESSING</b>	Do not fill beyond the red line ("Add specimen to this line"). Mix well with pink medium (instruction sheet enclosed with collection kit). <b>Do not use the collection device past the expiration date printed on the label (i.e., EXP: 11/10).</b>
<b>TRANSPORT</b>	Best at 2 to 8 degrees C
<b>SPECIMEN STABILITY</b>	Sample should be received in our lab within 24 hours of collection
<b>REJECTION CRITERIA</b>	Stool stored longer than two weeks are not acceptable
<b>LABEL</b>	Patient's full name or unique ID number, and collection date (space provided on the container label)
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	CDC - 13 weeks
<b>RESULTS</b>	Culture, Toxin detection
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Toxin testing usually available in outbreak situations only
<b>CONTACT</b>	Bacteriology Section (801) 965-2400



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**Bacteriology**

*Enteric Organism Identification and Serotyping*

<b>TEST</b>	<i>Salmonella, Shigella, Campylobacter, Vibrio, Yersinia (not pestis), Vibrio, and Shiga-toxin producing Escherichia coli</i>
<b>METHOD</b>	Maldi, Biochemicals, Serotyping of organism if applicable
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Pure isolate of the organism
<b>COLLECT IN</b>	Nutrient media slant or plate that supports organism growth
<b>PROCESSING</b>	Fresh subculture
<b>TRANSPORT</b>	2-8°C
<b>SPECIMEN STABILITY</b>	Campylobacter must be received in our lab within 24 hours of subculture, other organisms 24-48 hrs
<b>REJECTION CRITERIA</b>	Mixed isolate
<b>LABEL</b>	Patient's full name or unique ID number, Birthdate, and date of subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Variable (depends on organism)
<b>RESULTS</b>	Organism and serotype
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	<i>Shigella</i> identified and serotyped <i>Salmonella</i> identified and serotyped by WGS <i>E. coli</i> (shigatoxin producing) serotyped by WGS
<b>CONTACT</b>	Bacteriology Section (801) 965-2400, WGS (801) 965-2512: Jenni Wagner

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**Bacteriology**

*Haemophilus influenzae*

<b>TEST</b>	<i>Haemophilus influenzae</i> Identification and Serogrouping
<b>METHOD</b>	Maldi, Agglutination
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Pure culture of the organism
<b>COLLECT IN</b>	Appropriate media slant or plate (chocolate agar)
<b>PROCESSING</b>	Fresh subculture
<b>TRANSPORT</b>	2-8°C
<b>SPECIMEN STABILITY</b>	Transport to lab within 24 hours of subculture
<b>REJECTION CRITERIA</b>	Mixed isolate
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Three days from receipt in our lab
<b>RESULTS</b>	<i>Haemophilus influenzae</i> (with serotype) or other identification
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	<i>Haemophilus influenzae</i> isolates should be from sterile sites only
<b>CONTACT</b>	Bacteriology Section (801) 965-2400

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**Bacteriology**

*Legionella*

<b>TEST</b>	Identification of <i>Legionella</i>
<b>METHOD</b>	Culture, Identification by Maldi, Latex agglutination
<b>AVAILABLE</b>	All Clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Pure culture of the organism, Sputum
<b>COLLECTION</b>	Sterile container for sputum collection, Pure culture of organism growing on (BCYE)
<b>TRANSPORT</b>	2-8°C
<b>SPECIMEN STABILITY</b>	Transport to lab within 24 hr if sputum, 24-72 hours if an isolate
<b>REJECTION CRITERIA</b>	Mixed isolate
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	3-5 calendar days from receipt in our lab
<b>RESULTS</b>	<i>Legionella pneumophila</i> , <i>Legionella species</i> , No <i>Legionella</i> recovered
<b>REPORTED</b>	Email or fax, as established with provider
<b>CONTACT</b>	Bacteriology Section (801) 965-2400

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**Bacteriology**

*Listeria*

<b>TEST</b>	Identification of <i>Listeria</i>
<b>METHOD</b>	Maldi/Biochemicals
<b>AVAILABLE</b>	All Clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Pure culture of the organism
<b>COLLECT IN</b>	Appropriate media slant or plate
<b>PROCESSING</b>	Fresh subculture
<b>TRANSPORT</b>	2-8°C
<b>SPECIMEN STABILITY</b>	Transport to lab within 24 hours of subculture
<b>REJECTION CRITERIA</b>	Mixed isolate
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	3 days from receipt in our lab
<b>RESULTS</b>	<i>Listeria monocytogenes</i> or other identification
<b>REPORTED</b>	Email or fax, as established with provider
<b>CONTACT</b>	Bacteriology Section (801) 965-2400

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### Bacteriology

#### *Neisseria gonorrhoeae*

<b>TEST</b>	<i>Neisseria gonorrhoeae</i> Confirmation, Susceptibility Testing
<b>METHOD</b>	Maldi, Nucleic Acid Amplification Testing (NAAT), Susceptibility testing performed by E-test
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Pure culture of the organism
<b>COLLECT IN</b>	Appropriate media slant or plate (MTM, chocolate agar)
<b>PROCESSING</b>	Fresh subculture <24 hrs old or frozen sample in 10-20% glycerol for identification. See instructions for susceptibility testing
<b>TRANSPORT</b>	RT or 2-8°C for isolate, on dry ice if frozen
<b>SPECIMEN STABILITY</b>	Transport to the lab within 24 hours of subculture if not frozen
<b>REJECTION CRITERIA</b>	Mixed or nonviable organism
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of subculture
<b>TESTING REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Identification: 1-2 calendar days. Susceptibility Testing: 10 calendar days from receipt in our lab
<b>RESULTS</b>	<i>Neisseria gonorrhoeae</i> recovered or not recovered plus susceptibility results if requested
<b>REPORTED</b>	Email or fax, as established with provider
<b>CONTACT</b>	Bacteriology Section (801) 965-2400

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**Bacteriology**

*Neisseria meningitidis*

<b>TEST</b>	<i>Neisseria meningitidis</i> Identification and Serogrouping
<b>METHOD</b>	Maldi, Agglutination
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Pure culture of the organism
<b>COLLECT IN</b>	Appropriate media slant or plate (MTM, chocolate agar)
<b>PROCESSING</b>	Fresh subculture
<b>TRANSPORT</b>	RT or 2-8°C
<b>SPECIMEN STABILITY</b>	Transport to lab within 24 hours of subculture
<b>REJECTION CRITERIA</b>	Mixed isolate
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	3 days from receipt in our lab
<b>RESULTS</b>	<i>Neisseria meningitidis</i> (with serogroup) or other identification
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	<i>Neisseria meningitidis</i> isolates should be from sterile sites only
<b>CONTACT</b>	Bacteriology Section (801) 965-2400

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Bacteriology

#### *Carbapenem Resistant Enterobacterales*, Extended Susceptibility Testing (exAST)

<b>TESTS</b>	Carbapenemase Testing, Susceptibility Testing, Extended Susceptibility Testing (exAST) for aztreonam/avibactam and ceftazidime/avibactam for IMP-, VIM- and NDM-producing metallo-beta lactamase CRE
<b>METHOD</b>	MALDI, Molecular testing for the presence of carbapenemase genes (KPC, IMP, NDM, VIM, and OXA-48) by CARBA-R, 3D printed plates using Hewlett-Packard D300e digital dispenser testing isolate susceptibility to aztreonam/avibactam, WGS
<b>AVAILABLE</b>	All clients, exAST requires <a href="#">preauthorization</a>
<b>PATIENT PREP</b>	Pre-approval required from filling out the pre-authorization form and emailing <a href="mailto:ARLNutah@utah.gov">ARLNutah@utah.gov</a>
<b>SPECIMEN</b>	Pure culture of the organism
<b>COLLECT IN</b>	Appropriate media slant or plate
<b>PROCESSING</b>	Fresh subculture
<b>TRANSPORT</b>	2-8°C
<b>SPECIMEN STABILITY</b>	Transport to lab within 24 hours of subculture
<b>REJECTION CRITERIA</b>	Mixed isolate
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of subculture
<b>REQUISITION</b>	ARLN States: <a href="#">ARLN Test Request Form</a>
<b>TAT</b>	2-3 working days for carbapenemase testing from receipt in our lab
<b>RESULTS</b>	Carbapenemase Detected or Not Detected, Carbapenemase gene identified, susceptibility
<b>REPORTED</b>	Email or fax, as established with provider
<b>CONTACT</b>	<a href="mailto:arlnutah@utah.gov">arlnutah@utah.gov</a> , 801-965-2400

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Bacteriology

#### *Carbapenem-resistant Enterobacterales (CRE) and Pseudomonas aeruginosa (CRPA) Colonization Screening*

<b>GOAL</b>	Detect the presence of carbapenemase-producing organisms in order to intervene and stop the spread
<b>TEST</b>	Detection of Carbapenemase genes KPC, NDM, VIM, OXA-48 like, and IMP)
<b>METHOD</b>	Xpert Carba–R Assay (Cepheid) and/or culture (for genes not detected by Carba-R)
<b>PATIENT PREP</b>	Pre-approval required. Must be approved by the submitter jurisdiction’s Healthcare-Associated Infections (HAI) Coordinator prior to submitting to ARLN. HAI will have most current recommendations
<b>SPECIMEN</b>	Rectal swabs for patients with possible exposure to the index patient (your state's HAI program epidemiologists should assist in determining the population at risk)
<b>COLLECTION</b>	<a href="#">Collection instructions</a>
<b>TRANSPORT</b>	Transport immediately at 2-8°C
<b>SPECIMEN STABILITY</b>	Samples must be tested within 5 days of collection
<b>REJECTION CRITERIA</b>	Leaking specimen, overly soiled swab, non-validated swab type
<b>LABEL</b>	Patient’s full name or unique ID number, birthdate, and date of collection
<b>REQUISITION</b>	<a href="#">ARLN Test Request Form</a>
<b>TAT</b>	24-48 hrs for carbapenemase testing from receipt in our lab
<b>RESULTS</b>	Carbapenemase gene(s) Detected Carbapenemase gene(s) Not Detected
<b>REPORTING</b>	Results will be returned to the submitting state's PHL, HAI program coordinator and submitting facility within 24-48 hours after completion of testing. If using Lab Web Portal results available in real time
<b>CONTACT</b>	<a href="mailto:arlnutah@utah.gov">arlnutah@utah.gov</a> , 801-965-2400



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## Utah Public Health Laboratory

### Bacteriology

#### *Carbapenem-resistant Acinetobacter baumannii (CRAB) Colonization Screening*

<b>GOAL</b>	Determine the presence of carbapenemase-producing or pan-resistant <i>Acinetobacter baumannii</i>
<b>TEST</b>	Culture based screening
<b>METHOD</b>	Culture
<b>PATIENT PREP</b>	Pre-approval required. Must be approved by the submitter jurisdiction's Healthcare-Associated Infections (HAI) Coordinator prior to submitting to ARLN. The HAI Coordinator will have most current recommendations
<b>SPECIMEN</b>	Axilla/groin, wound, and/or lower respiratory specimens on patients with possible exposure to the index patient (your state's HAI program epidemiologists should assist in determining the population at risk)
<b>COLLECTION</b>	<a href="#">Collection instructions</a>
<b>TRANSPORT</b>	Transport immediately at 2-8°C
<b>SPECIMEN STABILITY</b>	Samples must be tested within 5 days of collection
<b>REJECTION CRITERIA</b>	Leaking specimen, non-validated swab type
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of collection
<b>REQUISITION</b>	<a href="#">ARLN Test Request Form</a>
<b>TAT</b>	2-5 working days from receipt in our lab
<b>RESULTS</b>	<i>Acinetobacter baumannii</i> Recovered  <i>Acinetobacter</i> Not Recovered
<b>REPORTING</b>	Results will be returned to the submitting state's PHL, HAI program coordinator and submitting facility within 24-48 hours after completion of testing. If using Lab Web Portal results available in real time
<b>CONTACT</b>	<a href="mailto:arlnutah@utah.gov">arlnutah@utah.gov</a> , 801-965-2400

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Bacteriology

#### *Yeast Identification (not C. albicans)*

<b>TEST</b>	Identification/Confirmation of Any Yeast Isolate especially <i>Candida auris</i>
<b>METHOD</b>	Maldi/Biochemicals, Colonial morphology, Antifungal Susceptibility available on <i>Candida</i> isolates from sterile sites
<b>AVAILABLE</b>	All Clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Pure culture of the organism
<b>COLLECT IN</b>	SabDex agar or other appropriate media slant or plate
<b>PROCESSING</b>	Fresh subculture
<b>TRANSPORT</b>	Room Temperature
<b>SPECIMEN STABILITY</b>	Time not critical unless <i>C. auris</i> is suspected or test intended for clinical use
<b>REJECTION CRITERIA</b>	Mixed isolate
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of subculture
<b>REQUISITION</b>	<a href="#">ARLN Test Request Form</a>
<b>TAT</b>	2-3 Working days from receipt in our lab
<b>RESULTS</b>	Yeast identification Susceptibilities
<b>REPORTED</b>	Email or fax, as established with provider
<b>CONTACT</b>	<a href="mailto:arlnutah@utah.gov">arlnutah@utah.gov</a> , (801) 965-2400

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Bacteriology

#### *Candida auris* Colonization Screening

<b>Purpose</b>	Screening test to detect the presence of <i>Candida auris</i> yeast
<b>TEST</b>	<i>Candida auris</i> Colonization Screen
<b>METHOD</b>	Qualitative PCR
<b>PATIENT PREP</b>	Pre-approval required. Must be approved by the submitters jurisdiction Healthcare-Associated Infections (HAI) Coordinator prior to submitting to ARLN. HAI will have most current recommendations
<b>SPECIMEN</b>	Axilla/groin swabs
<b>COLLECTION</b>	eSwab <a href="#">Collection instructions</a>
<b>TRANSPORT</b>	Transport immediately at 2-8°C, refrigerated
<b>SPECIMEN STABILITY</b>	Samples must be tested within 4 days of collection
<b>REJECTION CRITERIA</b>	Non-validated swab, leaking sample, incorrect source
<b>LABEL</b>	Patient's full name or unique ID number, birthdate, and date of collection
<b>REQUISITION</b>	<a href="#">ARLN Test Request Form</a>
<b>TURN AROUND TIME</b>	Up to 7 business days from receipt in our lab (M-F)
<b>RESULTS</b>	<i>Candida auris</i> detected No <i>Candida auris</i> detected Indeterminate
<b>REPORTING</b>	Results will be returned to the submitting state's PHL, HAI program coordinator and submitting facility within 24-48 hours after completion of testing. If using Lab Web Portal results available in real time
<b>CONTACT</b>	<a href="mailto:arlnutah@utah.gov">arlnutah@utah.gov</a> , 801-965-2400

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### ***Biothreat Response***

*Bacillus anthracis (Anthrax)*

<b>TEST</b>	<i>Bacillus anthracis</i> (Anthrax)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Culture isolate, cutaneous lesions, stool, rectal swab, blood cultures, whole blood, sputum, CSF, tissue, nasal swab and environmental samples
<b>COLLECT IN</b>	See <a href="#">Bacillus anthracis</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Bacillus anthracis</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Bacillus anthracis</a> in Appendix A. Ship suspect isolates as Suspected Category A Infectious Substance.
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking sample
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 to 3 days
<b>RESULTS</b>	Recovered or not recovered Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

*Brucella species (Brucellosis)*

<b>TEST</b>	<i>Brucella species</i> (Brucellosis) <i>Brucella Serology</i>
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens.
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Organism isolate, environmental samples, blood, serum, spleen, liver or abscess
<b>COLLECT IN</b>	See <a href="#">Brucella species</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Brucella species</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Brucella species</a> in Appendix A. Ship suspect isolates as Suspected Category A Infectious Substance.
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking sample
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	<i>Brucella species</i> : 1 to 7 days <i>Brucella Serology</i> : 3 days
<b>RESULTS</b>	<i>Brucella species</i> : Recovered or not recovered Detected or not detected <i>Brucella Serology</i> : Serum titer
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Biothreat Response**

*Burkholderia mallei* and *Burkholderia pseudomallei*

<b>TEST</b>	<i>Burkholderia mallei</i> (Glanders) and <i>Burkholderia pseudomallei</i> (Meliodosis)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens.
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Organism isolate, blood, serum, urine, abscesses, tissue aspirates, body fluids (throat, nasal, skin or sputum for intentional release exposures)
<b>COLLECT IN</b>	See <a href="#">Burkholderia mallei and Burkholderia pseudomallei</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Burkholderia mallei and Burkholderia pseudomallei</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Burkholderia mallei and Burkholderia pseudomallei</a> in Appendix A. Ship suspect isolates as Suspected Category A Infectious Substance
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking sample
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 to 7 days
<b>RESULTS</b>	Recovered or not recovered Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Biothreat Response**

*Clostridium botulinum*

<b>TEST</b>	<i>Clostridium botulinum</i> culture and toxin (Botulism)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All Clients – Contact Utah Public Health Laboratory prior to submitting specimens.
<b>PATIENT PREP</b>	If a patient has had barium administered, wait at least 72 hours before collecting a specimen. Do not use a glycerin suppository to collect stool sample
<b>SPECIMEN</b>	Stool, enema fluid (saline or water), gastric aspirate, vomitus, serum, tissue, wound, exudates, organism isolate, postmortem specimens, food and environmental samples
<b>COLLECT IN</b>	See <a href="#">Clostridium botulinum</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Clostridium botulinum</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Clostridium botulinum</a> in Appendix A. Ship suspect isolates as Suspected Category A Infectious Substance
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking sample, unapproved specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Toxin assay 96 hours, culture up to 14 days
<b>RESULTS</b>	Recovered or not recovered Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that DHHS Epidemiology be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Biothreat Response**

*Coxiella burnetii* (Q-fever)

<b>TEST</b>	<i>Coxiella burnetii</i> (Q-fever)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Environmental samples, blood, serum, nasopharyngeal swab, bronchial/tracheal washing or lesion exudate
<b>COLLECT IN</b>	See <a href="#">Coxiella burnetii</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Coxiella burnetii</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Coxiella burnetii</a> in Appendix A
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 day
<b>RESULTS</b>	Detected Not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson



# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

Ebola virus

<b>TEST</b>	Ebola virus (Ebola)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	<b>Patient must meet criteria for person under investigation (PUI) including patients with clinical signs, symptoms, AND epidemiologic risk factors for Ebola virus disease</b>
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Whole blood
<b>COLLECT IN</b>	See <a href="#">Ebola virus</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Ebola virus</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Ebola virus</a> in Appendix A
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking specimen, unapproved specimen
<b>LABEL</b>	Patient's full name or unique ID number, patient's date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 day
<b>RESULTS</b>	Detected Not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

#### Environmental Sample Multi-Agent Screen

<b>TEST</b>	Environmental Sample Multi-Agent Screen ( <i>Bacillus anthracis</i> , <i>Burkholderia mallei</i> & <i>pseudomallei</i> , <i>Francisella tularensis</i> , <i>Yersinia pestis</i> , Orthopox virus, and Ricin toxin)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Environmental samples; MUST be pre-screened for Explosives, Radiologicals, Flammables, Corrosives, and VOCs
<b>COLLECT IN</b>	Original container or sterile, non-glass container <b>DO NOT send:</b> glass containers, calcium alginate or cotton swabs, swabs with wooden shaft or dry swabs
<b>PROCESSING</b>	MUST be pre-screened for Explosives, Radiologicals, Flammables, Corrosives, and VOCs. Chain of custody should accompany samples
<b>TRANSPORT</b>	Room temperature. Package and transport according to safe handling, packaging and shipping guidelines
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>LABEL</b>	Unique ID number/Case ID number, date of collection
<b>REQUISITION</b>	<a href="#">BT Environmental Specimen Form</a>
<b>TAT</b>	1 day for preliminary results, 7 days for culture results
<b>RESULTS</b>	Recovered or not recovered Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

*Francisella tularensis* (Tularemia)

<b>TEST METHOD</b>	<i>Francisella tularensis</i> (Tularemia) LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Organism isolate, environmental samples, blood cultures, biopsied tissue, ulcer or lesion scraping or aspirate, lesion swabs, sputum, bronchial/tracheal wash
<b>COLLECT IN</b>	See <a href="#">Francisella tularensis</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Francisella tularensis</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Francisella tularensis</a> in Appendix A. Ship suspect isolates as Suspected Category A Infectious Substance.
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	<i>Francisella tularensis</i> : 1 to 7 days
<b>RESULTS</b>	<i>Francisella tularensis</i> : Recovered or not recovered Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

Middle Eastern Respiratory Virus Syndrome Coronavirus (MERS-CoV)

<b>TEST</b>	Middle Eastern Respiratory Virus Syndrome Coronavirus (MERS-CoV) or 2012 Novel Coronavirus
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact DHHS Epidemiology prior to submitting specimens: (801)538-6191
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Nasopharyngeal or Oropharyngeal swabs, sputum, lower respiratory tract aspirates/washes, serum <b>DO NOT send</b> calcium alginate or cotton swabs, swabs with wooden shafts or dry swabs.
<b>COLLECT IN</b>	Swabs must be placed in Viral Transport Media. Sputum, lower respiratory tract aspirates/washes and serum may be placed in a sterile collection container
<b>PROCESSING</b>	A minimum specimen volume of 500µL is required for testing
<b>TRANSPORT</b>	Keep at 2-8°C for up to 48 hours of collection. If delay is expected, store specimens at -70°C. Samples should be received at UPHL within 48 hours of collection. If this is not possible, specimens may be frozen at -70°C and transported on dry ice
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible, specifically within 48 hours of collection
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 day
<b>RESULTS</b>	Detected Not detected Equivocal
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that DHHS Epidemiology be contacted prior to submitting samples for testing
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

Orthopox viruses

Variola virus, Vaccinia virus, Non-variola Orthopoxvirus

<b>TEST</b>	Orthopox viruses
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All Clients – Contact DHHS Epidemiology prior to submitting specimens: (801)538-6191
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	<b>Lesion Material</b> (Skin or crust from roof of vesicle or pustule, slide (touch prep), VTM, EM grid or swab from vesicular or pustular fluid, punch biopsy) <b>Ocular impressions or swabs</b> (if conjunctivitis is present) <b>Serum</b> (serum alone should never be used to diagnose an orthopox infection if rash is still present)
<b>COLLECT IN</b>	See <a href="#">Orthopox virus</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Orthopox virus</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Orthopox virus</a> in Appendix A
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 day
<b>RESULTS</b>	Detected Not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL or DHHS Epidemiology be contacted prior to submitting samples for testing
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

#### Ricin Toxin

<b>TEST</b>	Ricin toxin
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	Ordered by Epidemiology, Local Health, Local Law, or FBI
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Environmental samples
<b>COLLECT IN</b>	Original container or sterile, non-glass container
<b>PROCESSING</b>	Use universal precautions – all manipulations under a Biosafety Cabinet
<b>TRANSPORT</b>	Refer to Safe Handling, Packaging, and Shipping Guidelines
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>LABEL</b>	Identification, sample description, date of collection
<b>REQUISITION</b>	<a href="#">BT Environmental Specimen Form</a>
<b>TAT</b>	1 day
<b>RESULTS</b>	Reactive Not reactive
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

*Variola virus* (Smallpox)

<b>TEST</b>	<i>Variola virus</i> (Smallpox)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All Clients – Contact DHHS Epidemiology prior to submitting specimens: (801)538-6191
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Microscope slide touch preps, scabs, dried vesicular fluid, vesicular swabs, vesicular tissue
<b>COLLECT IN</b>	See <a href="#">Orthopox virus</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Orthopox virus</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Orthopox virus</a> in Appendix A. Ship all samples as Suspected Category A Infectious Substance.
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Call for details
<b>RESULTS</b>	Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL or DHHS Epidemiology be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Biothreat Response

#### *Yersinia pestis* (Plague)

<b>TEST</b>	<i>Yersinia pestis</i> (Plague)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Isolate of organism, environmental samples, bronchial wash, tracheal aspirate, sputum, nasopharyngeal swabs, lymph node aspirates, serum, lesion exudates, tissue smears, blood
<b>COLLECT IN</b>	See <a href="#">Yersinia pestis</a> in Appendix A
<b>PROCESSING</b>	See <a href="#">Yersinia pestis</a> in Appendix A
<b>TRANSPORT</b>	See <a href="#">Yersinia pestis</a> in Appendix A. Ship suspect isolates as Suspected Category A Infectious Substance.
<b>SPECIMEN STABILITY</b>	Should be received in our laboratory as soon as possible
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection or subculture
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	<i>Yersinia pestis</i> : 1 to 7 days
<b>RESULTS</b>	<i>Yersinia pestis</i> : Recovered or not recovered Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson



**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Biothreat Response**

*NGDS Warrior Panel*

<b>TEST</b>	<i>Bacillus anthracis, Coxiella burnetii, Francisella tularensis, Yersinia pestis, Ebola virus, and Marburg virus.</i>
<b>METHOD</b>	FilmArray/PCR
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Human Whole Blood - Minimum 0.5mL
<b>COLLECT IN</b>	EDTA tube via venipuncture
<b>PROCESSING</b>	Keep at 2 to 8 degrees C for up to 7 days
<b>TRANSPORT</b>	As soon as possible on cold packs
<b>SPECIMEN STABILITY</b>	Refrigerated up to 7 days
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Two identifiers - Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 - 2 days
<b>RESULTS</b>	Detected or Not Detected for each organism
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	It is mandatory that UPHL or DHHS Epidemiology be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Immunology

#### *Hantavirus Referral Testing*

<b>TEST</b>	Hantavirus IgG and IgM (Sin Nombre Virus)
<b>METHOD</b>	Enzyme-linked Immunosorbent Assay (ELISA)
<b>AVAILABLE</b>	All clients. Prior to submitting specimen, contact DHHS Epidemiology at 801-538-6191
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 1 mL serum, 2.5mL preferred. Serum draws near admission and if available a convalescent serum approximately 21 days after first specimen
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 minutes to remove lipids and bacterial contaminants. You may submit the blood sample as is if you do not have a centrifuge. <b>Do not freeze whole blood</b>
<b>TRANSPORT</b>	Room temperature or refrigerated (do not freeze glass tubes)
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 7 days of collection
<b>REJECTION CRITERIA</b>	Referred: <a href="#">CDC Hantavirus Testing</a>
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Specimens are referred to CDC for testing.
<b>RESULTS</b>	Negative Indeterminate Positive
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	<b>No specimens are accepted at CDC without prior consultation. Please contact DHHS Epidemiology at 801-538-6191 to begin the referral testing process.</b>
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Immunology

#### *Hepatitis B viruses*

<b>TEST</b>	Hepatitis B surface antigen (HBsAg), Hepatitis B surface antigen Confirmation (HBsAg Conf), Hepatitis B surface antibody (HBsAb)
<b>METHOD</b>	Chemiluminescent Microparticle Immunoassay (CMIA)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 1 mL serum <b>per test</b>
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 mins to remove lipids and bacterial contaminants. You may submit the blood sample as is if you do not have a centrifuge. <b>Do not freeze whole blood</b>
<b>TRANSPORT</b>	Room temperature or refrigerated
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 6 days of collection (7 days for HBsAb)
<b>REJECTION CRITERIA</b>	Heparinized plasma. Specimens containing particulate material or obvious microbial contamination. Heat-inactivated, severely hemolyzed, or lipemic specimens.
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Tests run on Tuesdays and Thursdays only, 5 days TAT
<b>RESULTS</b>	Negative Grayzone (Indeterminate) Positive
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTE</b>	Performance has not been established for the use of cadaveric specimens
<b>CPT CODES</b>	HBsAb 86317, HBsAg 87340, HBsAg Conf 87341
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Immunology

#### *Hepatitis C antibody*

<b>TEST</b>	Hepatitis C viral antibody (HCVAb)
<b>METHOD</b>	Chemiluminescent Microparticle Immunoassay (CMIA)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 1 mL serum
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 mins to remove lipids and bacterial contaminants. You may submit the blood sample if you do not have a centrifuge. <b>Do not freeze whole blood</b>
<b>TRANSPORT</b>	Room temperature or refrigerated
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 7 days of collection
<b>REJECTION CRITERIA</b>	Heparinized plasma. Specimens containing particulate material or obvious microbial contamination. Heat-inactivated, severely hemolyzed, or lipemic specimens
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Test run Tuesdays and Thursdays, 5 days TAT
<b>RESULTS</b>	Non-reactive Grayzone (Indeterminate) Reactive
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTE</b>	HCV Quantitative RNA testing is available as a referred test, however samples must be (1) centrifuged within 24 hours of collection, (2) received within 3 days of collection, (3) ideal volume 2.0mL, or submit additional specimens. Mark "HCV RNA testing if Positive" on test request form or submit additional specimen. Performance has not been established for the use of cadaveric specimens
<b>CPT CODES</b>	86803
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Immunology**

*Hepatitis C Quantitative RNA Referral Testing*

<b>TEST</b>	Hepatitis C virus RNA Quantitative Assay
<b>METHOD</b>	Nucleic Acid Amplification Test (NAAT)
<b>AVAILABLE</b>	All clients (reflex from HCVAb test or with previously positive HCVAb patients)
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 1 mL serum
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Serum or EDTA plasma are acceptable for testing. Whole blood can be stored at 2°C to 25°C and must be centrifuged, according to manufacturer’s instructions for the tube used, within 24 hours of specimen collection.
<b>TRANSPORT</b>	Room temperature or refrigerated
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 3 days of collection after centrifugation
<b>REJECTION CRITERIA</b>	Heparinized specimens.
<b>LABEL</b>	Patient’s full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Testing is completed by the Michigan Department of Health and Human Services-Bureau of Laboratories
<b>RESULTS</b>	Negative or Detected with Quantitative RNA result
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTE</b>	This test can be performed as a reflex test with the HCVAb test (mark both tests) or a test can be performed with a new sample from a previously positive HCVAb patient (mark “HCV RNA Testing if Positive”). Samples must be (1) centrifuged within 24 hours of collection, (2) received within 3 days of collection, (3) ideal volume 2.0mL, or submit additional specimens.
<b>CPT CODES</b>	87522
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Immunology

#### *Human immunodeficiency virus*

<b>TEST</b>	HIV Ag/Ab Combo screening test
<b>METHOD</b>	Chemiluminescent Microparticle Immunoassay (CMIA)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Use aseptic blood collection technique
<b>SPECIMEN</b>	2 mL serum
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 minutes to remove lipids and bacterial contaminants. You may submit the blood sample as is if you do not have a centrifuge. <b>Do not freeze whole blood.</b>
<b>TRANSPORT</b>	Room temperature or refrigerated
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 7 days of collection
<b>REJECTION CRITERIA</b>	Specimens containing particulate material. Heat-inactivated, severely hemolyzed.
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Test run Monday, Wednesday and Friday, 3 days TAT
<b>RESULTS</b>	Non-reactive, Reactive
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTE</b>	<p>All specimens that are CMIA repeatedly reactive are confirmed positive by Bio-Rad Geenius HIV 1/2 Supplemental Assay.</p> <p>If a repeatedly reactive CMIA assay cannot be confirmed positive by the Geenius assay, or any HIV Indeterminate result, the sample will be referred to a reference laboratory for a HIV-1 RNA test.</p> <p>Performance has not been established for the use of cadaveric specimens</p>
<b>CPT CODES</b>	87389
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Immunology**

*Human immunodeficiency virus*

<b>TEST</b>	Geenius HIV 1/2 Supplemental Assay (HIV confirmation test)
<b>METHOD</b>	Immunochromatographic assay
<b>AVAILABLE</b>	All clients with a positive HIV Ag/Ab Combo (screening) test
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 2 mL serum
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 minutes to remove lipids and bacterial contaminants. You may submit the blood sample as is if you do not have a centrifuge. <b>Do not freeze whole blood</b>
<b>TRANSPORT</b>	Room temperature or refrigerated
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 7 days of collection
<b>REJECTION CRITERIA</b>	Specimens containing particulate material. Heat-inactivated, severely hemolyzed
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Test run Monday, Wednesday and Friday, 3 days TAT
<b>RESULTS</b>	Non-reactive HIV-1 (or HIV-2) Positive HIV antibodies not confirmed HIV-1 (or HIV-2) Indeterminate HIV Positive - untypable
<b>REPORTED</b>	E-mail or fax as established with provider
<b>CPT CODES</b>	86701 & 86702
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Immunology

#### *Syphilis (Treponema pallidum)*

<b>TEST</b>	Syphilis TP IgG/IgM
<b>METHOD</b>	Chemiluminescent Microparticle Immunoassay (CMIA)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 1 mL of serum
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 mins to remove lipids and bacterial contaminants. You may submit the blood sample as is if you do not have a centrifuge. <b>Do not freeze whole blood</b>
<b>TRANSPORT</b>	Refrigerated 2-8°C
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 5 days of collection
<b>REJECTION CRITERIA</b>	Contaminated, hemolyzed, or severely lipemic specimens
<b>LABEL</b>	Patient's full name or unique ID number and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Test run on Monday, Wednesday and Friday (3 days TAT)
<b>RESULTS</b>	Reactive Nonreactive
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTES</b>	Specimens with reactive results will be tested by RPR
<b>CPT CODES</b>	86780
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584



**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Immunology**

*Syphilis (Treponema pallidum)*

<b>TEST</b>	Syphilis Rapid Plasma Reagin (RPR)
<b>METHOD</b>	Nontreponemal flocculation test
<b>AVAILABLE</b>	All clients as part of the Syphilis algorithm (samples that are reactive for TP IgG/IgM CMIA)
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 1 mL serum
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 minutes to remove lipids and bacterial contaminants. You may submit the blood sample if you do not have a centrifuge. <b>Do not freeze whole blood</b>
<b>TRANSPORT</b>	Refrigerated 2-8°C
<b>SPECIMEN STABILITY</b>	Must be received in our lab within 5 days of collection
<b>REJECTION CRITERIA</b>	Contaminated, hemolyzed, or severely lipemic specimens.
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Test run on Monday, Wednesday and Friday (3 days TAT)
<b>RESULTS</b>	Negative Reactive with dilution titer (i.e. reactive 1:4)
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTE</b>	Specimens with discrepant IgG/IgM & RPR results will be confirmed by TP-PA. Additional fee will apply.
<b>CPT CODES</b>	86592, 86593 (Titer)
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Immunology**

*Syphilis (Treponema pallidum)*

<b>TEST</b>	<i>Treponema pallidum</i> Particle Agglutination (TP-PA)
<b>METHOD</b>	Qualitative gelatin particle agglutination
<b>AVAILABLE</b>	All clients as part of the Syphilis algorithm (samples with discrepant IgG/IgM & RPR results only)
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Minimum of 1 mL serum
<b>COLLECT IN</b>	Vacutainer tube (gold, tiger or red top only)
<b>PROCESSING</b>	Allow blood to completely clot, spin at 3200 rpm for 10 minutes to remove lipids and bacterial contaminants. You may submit the blood sample as is if you do not have a centrifuge. <b>Do not freeze whole blood</b>
<b>TRANSPORT</b>	Refrigerated 2-8°C
<b>SPECIMEN STABILITY</b>	Must be received in our lab within 5 days of collection
<b>REJECTION CRITERIA</b>	Contaminated, hemolyzed, or severely lipemic specimens
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Test run Monday, Wednesday and Friday (3 days TAT)
<b>RESULTS</b>	Nonreactive Reactive Indeterminate
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTE</b>	For indeterminate test results, it is recommended that the patient be retested in 2 weeks
<b>CPT CODES</b>	86780
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Immunology

#### *Tuberculosis (Mycobacterium tuberculosis)*

<b>TEST</b>	Quantiferon TB-Gold Plus
<b>METHOD</b>	ELISA
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	Blood
<b>COLLECT IN</b>	High-altitude collection tubes made by the manufacturer (QIAGEN) supplied by Utah Public Health Laboratory. Must draw 1 Nil (Grey), 1 TB Antigen 1 (Green), TB Antigen 2 (Yellow), and 1 Mitogen (Purple) tube per patient
<b>PROCESSING</b>	Fill tubes within the black mark provided on the side of the collection tube Shake immediately and firmly 10 times after filling
<b>TRANSPORT</b>	Send to the laboratory with accompanying paperwork within 16 hours of collection at room temperature
<b>SPECIMEN STABILITY</b>	Specimen must be received in our lab within 16 hours of collection
<b>REJECTION CRITERIA</b>	Whole blood
<b>LABEL</b>	Patient's full name or unique ID number, and date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Test run on Fridays, 7 days TAT
<b>RESULTS</b>	Negative Positive Indeterminate
<b>REPORTED</b>	E-mail or fax as established with provider
<b>NOTE</b>	Samples cannot be tested if the sample volume does not fall within the black mark on the side of the tube. Additional processing, transport, and time-critical options are available upon request for qualified sites. Please contact the Immunology Laboratory for details.
<b>CPT CODES</b>	86480
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Molecular Laboratory

#### *Bordetella pertussis* PCR Referral Test

<b>TEST</b>	<i>Bordetella pertussis</i> PCR (pertussis, whooping cough) Referral Test See also <a href="#">Virus Identification – Respiratory Panel</a> which includes <i>Bordetella pertussis</i> , <i>Chlamydophila pneumoniae</i> , and <i>Mycoplasma pneumoniae</i>
<b>METHOD</b>	Polymerase Chain Reaction (PCR)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Best if collected following a coughing spasm
<b>SPECIMEN</b>	Nasopharyngeal swab, aspirate, or isolate
<b>COLLECT IN</b>	Nasopharyngeal Swab: Dacron or polyester swab in Universal/Viral Transport Media. Refrigerated as soon as possible after collection Aspirate: sterile, leak-proof container, refrigerated or frozen Isolate: send in Regan-Lowe Transport Media, refrigerated, or on Cryobeads, frozen
<b>PROCESSING</b>	Do not use calcium alginate swabs, swabs with wooden shaft or charcoal based medium
<b>TRANSPORT</b>	Cold packs or dry ice. Refrigerated specimens should be shipped on cold packs. Frozen specimens should be shipped frozen
<b>SPECIMEN STABILITY</b>	Send to UPHL as soon as possible after collection
<b>REJECTION CRITERIA</b>	Leaking specimen, throat and nasal swabs
<b>LABEL</b>	Patient’s full name or unique ID number, and date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Specimens are referred to Minnesota Department of Health-Public Health Laboratory for <i>Bordetella</i> species PCR testing
<b>RESULTS</b>	<i>Bordetella</i> species Detected <i>Bordetella</i> species Not Detected
<b>REPORTED</b>	Results emailed or faxed, as established with provider
<b>NOTE</b>	Throat and nasal swabs are unacceptable samples
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584: Jesse Harbour or Annette Atkinson

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Molecular Laboratory**  
Norovirus PCR Referral Testing

<b>TEST</b>	Norovirus PCR (Outbreak related) Referral Testing
<b>METHOD</b>	Polymerase Chain Reaction (PCR)
<b>AVAILABLE</b>	Local and State Health Department clients. Contact Utah Public Health Laboratory prior to submitting specimens
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Stool – A minimum of 2-4 specimens per outbreak required. Each specimen must be from a unique patient
<b>COLLECT IN</b>	Sterile container or Cary-Blair Transport Medium
<b>PROCESSING</b>	A minimum of 0.5mL of stool is required for processing Keep stool refrigerated 2-8°C until transport
<b>TRANSPORT</b>	Cold packs
<b>SPECIMEN STABILITY</b>	Should be received at UPHL within 72 hours of collection
<b>REJECTION CRITERIA</b>	Leaking specimen, unapproved specimen
<b>LABEL</b>	Patient’s full name or unique ID number, and date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Specimens are referred to California Public Health Laboratory
<b>RESULTS</b>	Norovirus RNA detected No Norovirus RNA detected
<b>REPORTED</b>	Results are emailed or faxed, as established with provider
<b>NOTE</b>	Please contact UPHL prior to sending specimens Minimum of 2-4 specimens per outbreak required
<b>CONTACT</b>	(801) 965-2512: Jenni Wagner

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### **Arbovirus Laboratory**

*Rickettsia rickettsii* (Rocky Mountain spotted fever)

*Rickettsia prowazekii* (epidemic typhus)

<b>TEST</b>	<i>Rickettsia rickettsii</i> (Rocky Mountain spotted fever) <i>Rickettsia prowazekii</i> (epidemic typhus)
<b>METHOD</b>	LRN Procedures
<b>AVAILABLE</b>	All clients – Contact Utah Public Health Laboratory prior to submitting specimens.
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Venous whole blood preserved in EDTA or acid citrate dextrose Solution A.
<b>COLLECT IN</b>	EDTA or Acid citrate dextrose Solution A
<b>PROCESSING</b>	Keep refrigerated 2-8°C
<b>TRANSPORT</b>	Cold packs
<b>SPECIMEN STABILITY</b>	NA
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient’s full name or unique ID number, patient’s date of birth and date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 day
<b>RESULTS</b>	Detected or not detected
<b>REPORTED</b>	Phone, fax, or email, as established with provider
<b>NOTE</b>	It is mandatory that UPHL be contacted prior to submitting samples for testing.
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Arbovirus Laboratory

West Nile Virus (Human) IgM

<b>TEST</b>	West Nile Virus IgM, (Human)
<b>METHOD</b>	CDC West Nile MAC-ELISA
<b>AVAILABLE</b>	All clients. Prior to submitting specimen, contact DHHS Epidemiology at (801)538-6191
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Serum or CSF; a minimum specimen volume of 150µL is required for testing
<b>COLLECT IN</b>	Sterile container
<b>PROCESSING</b>	Serum: separate from red blood cells and refrigerate (freeze if transport delayed) CSF: refrigerate
<b>TRANSPORT</b>	Cold packs or dry ice. Refrigerated specimens should be shipped on cold packs. Frozen specimens should be shipped frozen
<b>SPECIMEN STABILITY</b>	NA
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient's full name or unique ID number, date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	Within 10 business days
<b>RESULTS</b>	WNV IgM antibody detected by MIA WNV IgM antibody not detected by MIA Inconclusive
<b>REPORTED</b>	Fax, or email, as established with provider
<b>CPT CODES</b>	86788 (CSF), 86789 (Serum)
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Arbovirus Laboratory

West Nile Virus, St. Louis Encephalitis Virus, or Western Equine Encephalitis Virus PCR

<b>TEST</b>	West Nile Virus, St. Louis Encephalitis Virus, or Western Equine Encephalitis Virus PCR
<b>METHOD</b>	Polymerase Chain Reaction (PCR)
<b>AVAILABLE</b>	Mosquito Abatement Districts
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Mosquitos = 10-100 insects, pooled by species
<b>COLLECT IN</b>	Mosquitoes = tubes from Mosquito Abatement District
<b>PROCESSING</b>	Keep mosquitoes at 2-8°C
<b>TRANSPORT</b>	On cold packs
<b>SPECIMEN STABILITY</b>	As soon as possible after collection
<b>LABEL</b>	Location and date of collection. Species of source animal. Number of insects per tube and species
<b>REQUISITION</b>	<a href="#">Mosquito Abatement Worksheet</a>
<b>TAT</b>	7 days
<b>RESULTS</b>	Virus RNA detected by PCR Virus RNA not detected by PCR
<b>REPORTED</b>	Email
<b>CONTACT</b>	(801) 965-2561: Kim Christensen or Annette Atkinson



# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Arbovirus Laboratory

Zika virus (Human) IgM

<b>TEST</b>	Zika virus IgM, (Human)
<b>METHOD</b>	ELISA IgM
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	A minimum of 1 ml serum must be submitted
<b>COLLECT IN</b>	Serum separator tube; sterile container
<b>PROCESSING</b>	Serum: separate from red blood cells and refrigerate (freeze if transport delayed)
<b>TRANSPORT</b>	Cold packs or dry ice. Refrigerated specimens should be shipped on cold packs. Frozen specimens should be shipped frozen
<b>SPECIMEN STABILITY</b>	Sample can be kept at 2-8°C for up to 48 hours and then frozen until testing can be completed
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient's full name or unique ID number, date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	7 days
<b>RESULTS</b>	Negative – No evidence of recent Zika virus infection detected Presumptive positive – Serological evidence of possible recent Zika virus infection identified. Additional testing required Inconclusive – Presumptive Other Flavivirus Positive (non-Zika). Specimen sent to CDC for confirmatory testing.
<b>REPORTED</b>	Fax, or email, as established with provider
<b>CPT CODES</b>	86794
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Arbovirus Laboratory

Chikungunya, Dengue and Zika virus PCR

<b>TEST</b>	Chikungunya, Dengue and Zika virus PCR
<b>METHOD</b>	CDC Trioplex PCR Assay (PCR)
<b>AVAILABLE</b>	All clients. Prior to submitting the specimen, contact DHHS Epidemiology at (801)538-6191 for testing approval
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Serum or serum + urine; urine specimens must be accompanied by a matched serum specimen. Urine will only be tested for Zika virus
<b>COLLECT IN</b>	Serum – Serum separator tube, a minimum of 1 ml volume must be submitted Urine – sterile container, a minimum of 1 ml volume must be submitted
<b>PROCESSING</b>	Serum: Separate from red blood cells and refrigerate (freeze if transport delayed) Urine: Refrigerate 2-8°C (only Zika virus)
<b>TRANSPORT</b>	On cold packs
<b>SPECIMEN STABILITY</b>	As soon as possible after collection
<b>REJECTION CRITERIA</b>	Leaking specimen, unapproved specimen
<b>LABEL</b>	Patient’s full name or unique ID number, date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	3 days
<b>RESULTS</b>	Virus RNA detected by PCR Virus RNA not detected by PCR
<b>REPORTED</b>	Fax, or email, as established with provider
<b>NOTE</b>	Testing urine samples for Zika virus requires a patient matched serum sample.
<b>CPT CODES</b>	87662 (Zika serum), 87662 (Zika urine), 86803 (Chikungunya)
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Mycobacteriology

#### *Acid-fast bacilli (AFB)*

<b>TESTS</b>	AFB Stain with Reflex
<b>METHOD</b>	Comprehensive panel includes acid-fast bacillus culture and stain
<b>AVAILABLE</b>	All clients, a fee is charged for specimens from private laboratories
<b>COLLECT IN</b>	<b>Sputum or Bronchial washing/lavage:</b> Collect in sterile 50mL screw cap conical tube (available from Tech Services, <a href="#">Collection Kit Order Form</a> ) <b>CSF, body fluids, tissue, urine:</b> Collect in sterile, leak proof containers
<b>ACCEPTABLE SPECIMENS</b>	<b>Sputum:</b> Optimal volume = 5 - 10 mL, Collect early-morning specimens from deep, productive coughs. Three sputum specimens should be collected at 8-24 hour intervals (24 hours when possible). An individual order must be submitted for each specimen. <b>Induced sputum:</b> use sterile hypertonic saline. Indicate on request if specimen is induced, as these watery specimens resemble saliva <b>Bronchial washing, lavage</b> = >5 mL <b>Tissue:</b> Collect using aseptic collection technique. Swabs are unacceptable for testing <b>Urine:</b> 40 ml Collect first morning specimen with clean catch technique <b>CSF:</b> ≥ 5 mL For other specimen types or for drug level testing please contact the TB laboratory
<b>REJECTION CRITERIA</b>	Specimens older than 5 days Samples leaking Samples that are spit or saliva Sputum samples less than 1 mL Samples discolored (not bloody) Samples without two unique identifiers that match the test request form
<b>TRANSPORT</b>	Refrigerated 2-8°C. It is recommended that specimens be delivered to the public health laboratory <b>within 24</b> hours of collection. They <b>must be</b> received in our lab within <b>5</b> days of collection. Specimens over 5 days old will be rejected. <b>Do not collect samples that will arrive at the lab after 10:00 AM on Fridays.</b> Those samples will be processed on Monday and risk being rejected.
<b>LABEL</b>	<b>Two identifiers needed.</b> Patient's full name or unique ID number and birthdate, plus the collection date.
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	<24 hrs
<b>RESULT</b>	No Acid Fast Bacilli observed on smear or 1+ to 4+ Acid Fast Bacilli observed on smear
<b>REPORTED</b>	Email or fax, as established with the provider
<b>CONTACT</b>	TB section (Bacteriology/Mycobacteriology) (801) 965-2400

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Mycobacteriology

#### *Acid-fast bacilli (AFB)*

<b>TESTS</b>	Mycobacterium tuberculosis Complex Detection and Rifampin Resistance by PCR and Acid-Fast Bacillus (AFB) Culture
<b>METHOD</b>	PCR amplification of M. tuberculosis complex species and rifampin resistance by GeneXpert <sup>®</sup>
<b>AVAILABLE</b>	All clients, a fee is charged for specimens from private laboratories
<b>COLLECT IN</b>	<b>Sputum or Bronchial washing/lavage:</b> Collect in sterile 50mL screw cap conical tube (available from Tech Services, <a href="#">Collection Kit Order Form</a> ) <b>CSF, body fluids, tissue, urine:</b> Collect in sterile, leak proof containers
<b>ACCEPTABLE SPECIMENS</b>	<b>Sputum:</b> Optimal volume = 5 - 10 mL, Collect early-morning specimens from deep, productive coughs. Three sputum specimens should be collected at 8-24 hour intervals (24 hours when possible). An individual order must be submitted for each specimen. <b>Induced sputum:</b> use sterile hypertonic saline. Indicate on request if specimen is induced, as these watery specimens resemble saliva. <b>Bronchial washing, lavage</b> = >5 mL <b>Tissue:</b> Collect using aseptic collection technique. Swabs are unacceptable for testing <b>Urine:</b> 40 ml collect first morning specimen with clean catch technique <b>CSF:</b> ≥ 5 mL For other specimen types or for drug level testing please contact the TB laboratory
<b>REJECTION CRITERIA</b>	Specimens older than 5 days, leaking, spit or saliva, Sputum samples less than 1 mL, Samples discolored (not bloody), Samples without two unique identifiers that match the test request form
<b>TRANSPORT</b>	Refrigerated 2-8°C. It is recommended that specimens be delivered to the public health laboratory within 24 hours of collection. They must be received in our lab within 5 days of collection. Specimens over 5 days old will be rejected. Do not collect samples that will arrive at the lab after 11:00 AM on Fridays. Those samples will most likely be too old to be processed on Monday.
<b>LABEL</b>	Patient's full name and unique ID number, and collection date and time.
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	<b>GeneXpert:</b> 1-2 working days <b>Negative culture</b> results available after 7 weeks of incubation <b>Positive culture</b> depends on organism isolated (preliminary positive reports sent when AFB growth is detected)
<b>RESULTS</b>	<b>GeneXpert MTB:</b> MTB Detected or Not Detected Rifampin Resistance Detected or Not Detected <b>Culture:</b> No Acid Fast Bacilli Recovered (negative), or Genus and species/complex (positive)
<b>REPORTED</b>	Email or fax, as established with the provider
<b>CONTACT</b>	TB section (Bacteriology/Mycobacteriology) (801) 965-2400

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Virology**

*Chlamydia trachomatis and Neisseria gonorrhoeae*

<b>TEST</b>	<i>Chlamydia trachomatis</i> and <i>Neisseria gonorrhoeae</i> NAAT
<b>METHOD</b>	Transcription-Mediated Amplification (TMA)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Endocervical, male urethral, rectal, pharyngeal, oral (use unisex swab collection kit) Urine (first catch urine, use urine specimen collection kit) Vaginal (use vaginal swab specimen collection kit - clinician or self-collected) Liquid Pap = specimen transfer kit
<b>COLLECT IN</b>	APTIMA collection kits: Urine volume must fall between the two black lines on the tube. Samples that do not fall within this range canceled
<b>PROCESSING</b>	Keep specimens at 2 to 30°C
<b>TRANSPORT</b>	Transport at 2 to 30°C in Aptima Specimen Collection Tube
<b>SPECIMEN STABILITY</b>	Urine samples, kept 2 to 30°C, must be transferred to the APTIMA urine specimen transport tube within 24 hours of collection. Test must be performed within 30 days of collection Swab samples must be tested within 60 days after collection
<b>REJECTION CRITERIA</b>	Specimens in any transport media other than indicated above. Specimens in swab transport media without a swab. Patient's age is less than 14 years old.
<b>LABEL</b>	Patient's full name or unique ID number, and collection date. Do not cover the black lines on the urine collection tubes with labels
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>APTIMA TUBES</b>	<a href="#">To order Aptima Collection and Transport tubes</a>
<b>TAT</b>	Monday - Friday, 3 days TAT
<b>RESULTS</b>	Negative, Indeterminate, or Positive
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Both chlamydia and gonorrhea tests are performed from the same specimen
<b>CPT CODES</b>	87491
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Virology**

*Mycoplasma genitalium*

<b>TEST</b>	<i>Mycoplasma genitalium</i> NAAT
<b>METHOD</b>	Transcription-Mediated Amplification (TMA)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Endocervical, male urethral, swabs (Unisex Swab Collection kit for Endocervical & Male Urethral Swab Specimens) Urine (first catch urine, Urine Collection Kit) Vaginal (Multitest Swab Specimen Collection kit - clinician or self-collected)
<b>COLLECT IN</b>	APTIMA collection kits: Urine volume must fall between the two black lines on the tube. Samples that do not fall within this range canceled
<b>PROCESSING</b>	Keep specimens at 2 to 30°C
<b>TRANSPORT</b>	Transport at 2 to 30°C in Aptima Specimen Collection Tube
<b>SPECIMEN STABILITY</b>	Urine samples, kept 2 to 30°C, must be transferred to the APTIMA urine specimen transport tube within 24 hours of collection. Test must be performed within 30 days of collection Swab samples must be tested within 60 days after collection
<b>REJECTION CRITERIA</b>	Urine volume outside the two black lines of the urine transport tube. Swab specimen transport tube with no swab, two swabs, a cleaning swab.
<b>LABEL</b>	Patient's full name or unique ID number, and collection date. Do not cover the black lines on the urine collection tubes with labels
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>APTIMA TUBES</b>	<a href="#">To order Aptima Collection and Transport tubes</a>
<b>TAT</b>	Tests done Wednesday, 7 days
<b>RESULTS</b>	Negative, INVALID, or Positive
<b>REPORTED</b>	Email or fax, as established with provider
<b>CPT CODES</b>	87491
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Virology

#### *Influenza virus PCR Surveillance*

<b>TEST</b>	<i>Influenza virus PCR</i>
<b>METHOD</b>	Polymerase Chain Reaction (PCR)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Positive influenza samples Nasopharyngeal swabs, nasal swabs, throat swabs, dual nasopharyngeal/throat swabs, nasal aspirates, nasal washes, bronchoalveolar lavage, bronchial wash, tracheal aspirate, sputum, lung tissue, and virus culture isolates
<b>COLLECT IN</b>	Swabs must be placed in Viral Transport media. The following may be placed in a sterile collection container: nasal aspirates, nasal washes, bronchoalveolar lavage, bronchial wash, tracheal aspirate, sputum, and lung tissue.
<b>PROCESSING</b>	Keep at 2-8°C for up to 72 hours
<b>TRANSPORT</b>	Transport at 2-8°C or if frozen, transport frozen (do not thaw).
<b>SPECIMEN STABILITY</b>	Samples must be received at UPHL within 72 hours of collection. If it is not possible to transport specimens within 72 hours of collection, specimens may be frozen at ≤ -70°C and transported on dry ice
<b>REJECTION CRITERIA</b>	Swabs not in Viral Transport Media. Swabs with calcium alginate/cotton tips, wooden shafts. Dry swabs
<b>LABEL</b>	Patient's full name or unique ID number, and date of collection
<b>REQUISITION</b>	<a href="#">Influenza Surveillance Request Form</a>
<b>TAT</b>	1-7 business days
<b>RESULTS</b>	Influenza A: Not Detected, Detected (will indicate subtype detected), Inconclusive. Influenza B: Not Detected, Detected (will indicate genotype detected), Inconclusive.
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Do not use calcium alginate or cotton swabs, swabs with wooden shaft, or dry swabs A minimum specimen volume of 500µl is required for testing.
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Virology**

*Mumps PCR*

<b>TEST</b>	<i>Mumps PCR</i>
<b>METHOD</b>	Polymerase Chain Reaction (PCR)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Please see <a href="#">CDC's Illustration and instructions</a>
<b>SPECIMEN</b>	Buccal or Oral swab.
<b>COLLECT IN</b>	Swabs must be placed in at least 2 ml Viral Transport media
<b>PROCESSING</b>	Keep at 2-8°C
<b>TRANSPORT</b>	Transport on cold pack within 72 hours
<b>SPECIMEN STABILITY</b>	Samples must be received at UPHL within 72 hours of collection on cold packs. If it is not possible to transport specimens within 72 hours of collection, specimens may be frozen at $\leq -70^{\circ}\text{C}$ and transported on dry ice
<b>REJECTION CRITERIA</b>	Swabs with calcium alginate/cotton tips, wooden shafts, dry swabs.
<b>LABEL</b>	Patient's full name or unique ID number, and date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1-7 business days
<b>RESULTS</b>	Negative Positive Indeterminate
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Do not use calcium alginate or cotton swabs, swabs with wooden shaft, or dry swabs A minimum specimen volume of 500 $\mu\text{l}$ is required for testing.
<b>CPT CODES</b>	87798
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584



# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Virology

#### *Herpes simplex virus and Varicella zoster virus*

<b>TEST</b>	Herpes simplex virus Type 1/Type 2 (HSV-1/HSV-2) and Varicella Zoster (VZV) by PCR
<b>METHOD</b>	Qualitative Polymerase Chain Reaction
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	Use aseptic collection technique
<b>SPECIMEN</b>	HSV: Buccal mucosa, eye, genital, rectal, throat or vesicle swabs VZV: CSF, body fluid, buccal mucosa, eye, genital, rectal, throat or vesicle swabs, or vesicle fluid.
<b>COLLECT IN</b>	Swab or body fluid in viral transport media
<b>PROCESSING</b>	Refrigerate immediately after collection
<b>TRANSPORT</b>	2-8°C
<b>SPECIMEN STABILITY</b>	Must be received in our lab within 10 days of collection refrigerated
<b>REJECTION CRITERIA</b>	Swabs not transported in Viral Transport Media
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	4 days TAT
<b>RESULTS</b>	Detected Not Detected
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Specimens collected using wood swabs will not be accepted
<b>CPT CODES</b>	87529
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

**INFECTIOUS DISEASE CLIENT SERVICES MANUAL**  
Utah Public Health Laboratory

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**Virology**

*Rabies*

<b>TEST</b>	Rabies (animal specimens only)
<b>METHOD</b>	Direct Fluorescent antibody (DFA)
<b>AVAILABLE</b>	Local health departments, animal control agencies and state veterinary diagnostic laboratories only
<b>PATIENT PREP</b>	Animal must be euthanized
<b>SPECIMEN</b>	Bats = entire animal Other animals = head only if >12 inches
<b>COLLECT IN</b>	Absorbent material and leak proof container
<b>PROCESSING</b>	Keep at 2-8°C
<b>TRANSPORT</b>	Keep at 2-8°C
<b>SPECIMEN STABILITY</b>	Must be received in our lab within 24 hours
<b>REJECTION CRITERIA</b>	Severely decomposed tissue, chemical fixation (e.g., formalin)
<b>LABEL</b>	Unique identification number or victim name and collection date
<b>REQUISITION</b>	<a href="#">Rabies Test Request Form</a>
<b>SHIPPING</b>	<a href="#">To order packing and shipping containers</a>
<b>TAT</b>	1-3 days
<b>RESULTS</b>	Negative, positive or inconclusive
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Testing will incur a fee when national guidelines for submission are not followed
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584 Zoonotic Disease Epidemiologist (801) 538-6191

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Virology

#### SARS-CoV-2

<b>TEST</b>	SARS-CoV-2 NAAT
<b>METHOD</b>	Transcription-Mediated Amplification (TMA)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Nasal swabs, and saliva
<b>COLLECT IN</b>	Swabs must be placed Hologic Direct Load Tube Collection Kits media. The following may be placed in a sterile collection container: saliva <a href="#">Form to request PCR collection kits, Saliva and NP swabs.</a>
<b>PROCESSING</b>	Keep swab at 2-30°C for up to 6 days. Saliva specimens up to 25°C
<b>TRANSPORT</b>	Saliva specimens are stable at temperatures up to 25°C for 72 hours. Diagnostic respiratory specimens should be transported and stored at 2-30°C up to 6 days after collection or the specimens may be stored at ≤ -70°C and tested at a later time
<b>SPECIMEN STABILITY</b> transport	Swab samples must be received at UPHL within 6 days of collection. If it is not possible to specimens within 6 days of collection, specimens may be frozen at ≤ -70°C and transported on dry ice. Saliva samples must be received within 3 days of collection or frozen at ≤ -70°C and transported on dry ice
<b>REJECTION CRITERIA</b>	Swabs with calcium alginate/cotton tips, wooden shafts, dry swabs, leaking specimens, not refrigerated, older than 72 hours from collection, insufficient specimen (<250 uL), incomplete specimen labeling/documentation
<b>LABEL</b>	Patient's full name or unique ID number, and date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	24-48 hours
<b>RESULTS</b>	Not Detected, Detected, Invalid
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Hologic Swabs must be placed Hologic Direct Load Tube Collection Kits
<b>CPT CODES</b>	39448
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Virology

*SARS-CoV-2, Influenza A, Influenza B, RSV*

<b>TEST</b>	SARS-CoV-2, FluA, FluB, RSV PCR
<b>METHOD</b>	Polymerase Chain Reaction (PCR)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN COLLECT IN</b>	Nasopharyngeal, anterior nares swabs Swabs must be placed in Viral Transport media or Universal Transport Media <a href="#">Form to request PCR collection kits, Saliva and NP swabs.</a>
<b>PROCESSING</b>	Keep at 2-8°C for up to 72 hours
<b>TRANSPORT</b>	Diagnostic respiratory specimens should be transported at 2-30°C and stored refrigerated 2-8°C within 48 hours after collection or the specimens may be stored at ≤ -70°C and tested at a later time
<b>SPECIMEN STABILITY</b>	Samples must be received at UPHL within 6 days of collection. If it is not possible to transport specimens within 6 days of collection, specimens may be frozen at ≤ -70°C and transported on dry ice
<b>REJECTION CRITERIA</b>	Swabs with calcium alginate/cotton tips, wooden shafts, dry swabs, leaking specimens, not refrigerated, older than 6 days from collection, insufficient specimen (<500 uL), incomplete specimen labeling/documentation
<b>LABEL</b>	Patient's full name or unique ID number, and date of collection
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	24-48 hours
<b>RESULTS</b>	SARS-CoV2: Not Detected, Detected; Influenza A: Not Detected, Detected; Influenza B: Not Detected, Detected; RSV: Not Detected, Detected
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Do not use calcium alginate or cotton swabs, swabs with wooden shaft, or dry swabs A minimum specimen volume of 1000µl is required for testing.
<b>CPT CODES</b>	87637
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Virology

#### *Virus Identification – Respiratory Panel*

<b>TEST</b>	Respiratory Screen (Adenovirus; Coronavirus (229E, HKU1, NL63, OC43); Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2); Human Metapneumovirus; Rhinovirus/Enterovirus; Influenza A and B; Parainfluenza 1-4; Respiratory Syncytial Virus [RSV]; <i>Bordetella pertussis</i> ; <i>Bordetella parapertussis</i> ; <i>Chlamydia pneumoniae</i> ; <i>Mycoplasma pneumoniae</i> )
<b>METHOD</b>	FilmArray/PCR
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Nasopharyngeal swab (NPS)
<b>COLLECT IN</b>	Viral transport Medium (VTM), Universal Transport Medium (UTM), and saline
<b>PROCESSING</b>	Keep at 2-8°C for up to 3 days, or frozen (<-15°C) for up to 30 days
<b>TRANSPORT</b>	On Cold packs if not frozen, on dry ice if frozen
<b>SPECIMEN STABILITY</b>	Must be received in our lab within 72 hrs of collection if not frozen and within 30 days if frozen
<b>REJECTION CRITERIA</b>	Leaking specimen
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 - 2 days
<b>RESULTS</b>	Detected or Not Detected for each organism
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Specimens collected using wood swabs will not be accepted.
<b>CPT CODES</b>	87632
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

# INFECTIOUS DISEASE CLIENT SERVICES MANUAL

## Utah Public Health Laboratory

### Virology

#### *Trichomonas vaginalis*

<b>TEST</b>	Trichomonas vaginalis NAAT
<b>METHOD</b>	Polymerase Chain Reaction (PCR)
<b>AVAILABLE</b>	All clients
<b>PATIENT PREP</b>	N/A
<b>SPECIMEN</b>	Endocervical, and vaginal swabs, Urine (first catch urine)
<b>COLLECT IN</b>	Swabs: must be collected in Xpert Swab Specimen Collection Kit Urine: sample volume must fall on the dotted line of Xpert Urine Specimen Collection Kit
<b>PROCESSING</b>	Keep specimens at 2 to 30°C in Xpert Collection Kit
<b>TRANSPORT</b>	Transport at 2 to 30°C
<b>SPECIMEN STABILITY</b>	Unprocessed urine: 4 days at 2-8°C, or 4 hours at 15-30°C Urine in Xpert Urine Collection Kit: 28 days at 2-8°C or 14 days at 15-30°C Swabs: 60 days at 2-30°C
<b>REJECTION CRITERIA</b>	Leaking specimen, incomplete specimen labeling/documentation. Patient's age less than 14 years old or more than 78 years old.
<b>LABEL</b>	Patient's full name or unique ID number, and collection date
<b>REQUISITION</b>	<a href="#">Infectious Disease Test Request Form</a>
<b>TAT</b>	1 - 2 days
<b>RESULTS</b>	Detected or Not Detected for each organism, and INVALID
<b>REPORTED</b>	Email or fax, as established with provider
<b>NOTE</b>	Specimens collected using wood swabs will not be accepted.
<b>CPT CODES</b>	87491
<b>CONTACT</b>	<a href="mailto:viro-sero@utah.gov">viro-sero@utah.gov</a> or (801) 965-2584

## Appendix A: Biothreat Specimen Collection and Transport Guidelines

### *Bacillus anthracis*

**ACCEPTABLE SPECIMENS:** Specimens of choice will be determined by the clinical presentation. *Environmental or nonclinical samples and samples from announced events are not processed by Sentinel Laboratories. Please contact local law enforcement or DHHS directly.*

#### 1. Cutaneous lesions

a. Vesicular stage: aseptically collect vesicular fluid on sterile swabs from previously unopened vesicle.  
**NOTE:** The anthrax bacilli are most likely to be seen by Gram stain in the vesicular stage.

b. Eschar stage: collect eschar material by CAREFULLY lifting the eschar's outer edge. Insert a sterile swab, and then slowly rotate for 2-3 seconds beneath the edge of the eschar without removing it. Transport directly to the laboratory at room temperature. For transport time >1 h and < 24 h, transport at 2 to 8°C.

2. **Stool** – Transfer ≥5 grams of stool directly into a clean, dry, sterile, wide-mouth, leak-proof container. Transport unpreserved stool to laboratory within 1 h. For transport time >1h and <24h, refrigerate at 2 to 8°C. Cary-Blair or equivalent transport media is acceptable.

3. **Rectal swab** – For patients unable to pass a specimen, obtain a rectal swab by carefully inserting a swab 1 inch beyond the anal sphincter. Transport directly to the laboratory at room temperature. For transport time >2h and <24h, transport at 4°C.

4. **Blood culture** – Collect appropriate blood volume and number of sets per laboratory protocol. **Note:** In later stages of disease (2-8 days post-exposure), blood cultures may yield the organism, especially if specimens are obtained prior to antibiotic treatment. Transport directly to the laboratory at room temperature.

**Note:** Whole blood collected in a purple-top tube may be requested for additional tests.

5. **Sputum** – Collect >1 mL of a lower respiratory specimen into a sterile container. Inhalational anthrax usually does not result in sputum formation. Transport in sterile, screw-capped container at room temperature when transport time is <1 h. For transport time >1 h and <24 h, transport at 4°C.

6. **CSF, tissue, autopsy samples** – Collect aseptically and place in sterile containers. Transport directly to the laboratory at room temperature.

### *Brucella species*

**ACCEPTABLE SPECIMENS:** *Environmental/nonclinical samples and samples from announced events are not processed by Sentinel Laboratories. Please contact local law enforcement or the DHHS directly.*

1. **Blood or bone marrow** – These are the sources from which *Brucella* spp. is most often isolated. Standard blood culturing systems. Transport at room temperature.

**Note:** Whole blood collected in blue, purple or green top tubes may be requested for additional tests.

2. **Serum** – For serologic diagnosis, an acute phase specimen should be collected as soon as possible after onset of disease. A convalescent phase specimen should be collected >14 days after the acute specimen. Preferably send at least 1 mL, refrigerated.

3. **Spleen, Liver, or abscess** – *Brucella* spp. are occasionally isolated from these sources. Selected media can be used for isolation of *Brucella* spp. from specimens with mixed flora. Specimens should be refrigerated at 2-8° C until inoculation. Tissue must be kept moist. Add several drops of sterile saline if necessary.

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### ***Burkholderia mallei and Burkholderia pseudomallei***

**ACCEPTABLE SPECIMENS:** *Environmental/nonclinical samples and samples from announced events are not processed by Sentinel Laboratories. Please contact local law enforcement or the DHHS directly.*

1. **Blood** – Collect blood specimens before antibiotics are administered, when possible. Collect appropriate volume and number of sets per laboratory protocol.
2. **Urine** – Collect a midstream clean-catch specimen or a catheterization specimen.
3. **Abscesses, tissue aspirates, fluids** – Collect tissues and fluids rather than swabs, when possible.
4. **Special situations** – Throat, nasal, skin or sputum specimens may be helpful in screening exposed individuals if a release of *B. mallei* or *B. pseudomallei* has been confirmed.

### ***Clostridium botulinum***

**ACCEPTABLE SPECIMENS** – *Environmental/nonclinical samples and samples from announced events are not processed by Sentinel Laboratories. Please contact local law enforcement or DHHS directly.*

#### **Foodborne Botulism**

1. Clinical specimens – serum, gastric contents, vomitus, stool, return from a sterile water enema.
2. Autopsy samples – serum gastric and intestinal contents
3. Food samples and/or empty containers with the remnants of the food

#### **Infant Botulism: Child less than 12 months of age.**

1. Feces or return from a sterile water enema.
2. Serum – generally not useful since an infant's body mass is small and the toxin is quickly absorbed.
3. Autopsy samples – intestinal contents from different levels of the small and large intestine.
4. Food and environmental (soil and house dust) as appropriate per the investigation.

#### **Wound Botulism**

1. Serum
2. Exudate, tissue or swab samples of wound (transported in anaerobic transport media)
3. Isolate of suspect *Clostridium botulinum* submitted in an anaerobic transport vessel
4. Feces or return from a sterile water enema (wound may not be the source)

#### **Intentional toxin release or Laboratory Accident**

1. Serum, Nasal swab
2. Feces or return from a sterile water enema
3. Food
4. Environmental swabs

#### **MATERIALS**

1. **Media:** Anaerobic media (chopped meat or equivalent). Follow standard laboratory protocols.
2. Supplies
  - a. Port-A-Cul vials or equivalent
  - b. Leakproof containers (i.e., sealed plastic bags, plastic containers)
  - c. Petroleum jelly or petrolatum or equivalent (i.e., Vaseline)
  - d. Sterile, non-bacteriostatic water
  - e. Packaging materials



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### PROCEDURE

#### 1. Collection

- a. **Feces:** Place into sterile unbreakable container and label carefully. Confirmatory evidence of botulism may be obtained from 10-50 gram quantities (Walnut size); botulism has been confirmed in infants with only “pea-sized” stool samples. The specimen must be kept cool or refrigerated, do not freeze unless an unavoidable delay of several days is anticipated. Freezing does not affect the ability to detect toxin, but does affect the ability to detect the organism.
- b. **Enema:** Place approximately 20 ml into a sterile unbreakable container and label carefully. If an enema must be given because of constipation, a minimal amount of fluid (preferably non-bacteriostatic water) should be used to obtain the specimen so that the toxin will not be unnecessarily diluted. Transport in a Port-A-Cul vial to maintain anaerobiosis. Specimens must be kept cool or refrigerated.
- c. **Gastric aspirate or vomitus:** Place approximately 20 ml into a sterile unbreakable container and label carefully. Transport in a Port-A-Cul vial to maintain anaerobiosis. Specimens must be kept cool or refrigerated.
- d. **Serum:** Use red top or separator type tubes to obtain serum (no anticoagulant). Samples should be obtained as soon as possible after the onset of symptoms and before antitoxin is given. Enough blood should be collected to provide at least 10 mL of serum (approximately 20 mL of whole blood). Serum volumes less than 3 ml will provide inconclusive results. Whole blood should not be sent as it typically undergoes excessive hemolysis during transit. Specimen should be kept cool or refrigerated, do not freeze unless an unavoidable delay of several days is anticipated.
- e. **Tissue, wounds, or exudates:** Place into sterile unbreakable container and label carefully. Specimens should be placed in Port-A-Cul vials and sent to the appropriate laboratory, preferably without refrigeration, for attempted isolation of *C. botulinum*. Swabs of superficial wounds are not acceptable for anaerobic culture. Maintain specimens at room temperature.
- f. **Postmortem:** Obtain specimens of intestinal contents from different levels of small and large intestines. Place approximately 10 grams per specimen into a sterile unbreakable container and label carefully. Obtain gastric content, serum and tissue is/as appropriate.
- g. **Culture:** Ship suspicious isolates anaerobically (overlay liquid media with 2-inch layer of sterile petroleum jelly; melt/temper prior to overlaying culture). Cultures may be shipped at room temperature or refrigerated.
- h. **Food specimens:** Foods should be left in their original containers if possible, or placed in sterile unbreakable containers and labeled carefully. Place containers individually in leakproof containers (i.e., sealed plastic bags) to prevent cross-contamination during shipment. Empty containers with remnants of suspected foods can be examined. Foods most likely to allow growth of *C. botulinum* will have a pH of 3.5-7.0 (usually 5.5-6.5). Possible foods include:
  - Home canned products having a low acidity (pH of 4.6 or greater)
  - Foods with low salt or low sugar content
  - Foods that are held at temperatures that allow the organism to grow (optimal 35°C, but as low as 15°C)
  - Foods that are consumed without prior heating.Foods that are commercially processed are rarely incriminated; however, the threat to public health is much greater with a commercial foodstuff. Unopened containers are to be sent to the U.S. Food and Drug administration (FDA), with prior arrangement. Keep the samples cool or refrigerated, do not freeze.
- i. **Swab samples:** Send swabs in an anaerobic transport medium (e.g., Port-A-Cul tubes). For aerosolized botulinum toxin exposure, obtain nasal swabs for culture for *C. botulinum*. For toxin testing, serum should be used. Swabs may be shipped at room temperature or refrigerated.

**\*\*Specimens that are frozen must remain frozen until it is time to perform the test.**

#### 2. Transportation

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- a. If an unavoidable delay of several days is anticipated, the specimens (serum or stool) should be kept frozen and then packed in an insulated container with dry ice and proper cushioning material for shipment. Freezing does not affect the ability to detect botulinum toxin in specimens; freezing does reduce the probability of recovering *C. botulinum*. Since direct detection of toxin provides the best laboratory confirmation of botulism, priority should be given to preserving preformed toxin prior to transport.
- b. The receiving laboratory (UPHL) should be notified in advance by telephone as to when and how specimens will be shipped and when they will arrive.

### ***Coxiella burnetii***

**ACCEPTABLE SPECIMENS** Environmental/nonclinical samples and samples from announced events are not processed by Sentinel Laboratories. Please contact local law enforcement or the DHHS directly.

1. **Serum:** Collect serum (red-top or serum separator tube, tiger-top tube) as soon as possible after onset of symptoms (acute phase) and with a follow-up specimen (convalescent phase) at  $\geq 14$  days for serological testing.
2. **Blood:** Collect blood in EDTA (lavender) or sodium citrate (blue) Vacutainer tubes and maintain at 4°C for storage and shipping for PCR or special cultures. If possible, collect specimens prior to antimicrobial therapy.
3. **Tissue, body fluids, nasopharyngeal swabs, tracheal/bronchial washings, lesion exudates:** Specimens can be kept at 2-8°C if transported within 24 hours. Store frozen at -70°C or on dry ice.
4. **Bacterial isolates**

### **Ebola virus**

**NOTE: Patient must meet criteria for person under investigation (PUI) including patients with clinical signs, symptoms, AND epidemiologic risk factors for Ebola virus disease.**

**ACCEPTABLE SPECIMENS** Whole blood, serum, and plasma. Please contact UPHL or DHHS directly before sending specimens.

For adults, 2 vials with a minimum volume of 4 mL of whole blood per vial is preferable. For pediatric samples, a minimum of 1 mL of whole blood should be collected in pediatric-sized collection tubes. Blood must be collected in **plastic** collection tubes. Do not transport or ship specimens in glass containers or in heparinized tubes.

Whole blood preserved with EDTA is preferred, but whole blood preserved with sodium polyanethol sulfonate, citrate or with clot activator is also acceptable.

Do not separate or remove serum or plasma from the primary collection container.

Specimens should be packaged and transported at 2°-8°C with cold-packs to the final testing destination.

If necessary, short-term storage of specimens before shipping should be at 4°C or frozen.

Staff who collect specimens from PUIs should wear appropriate PPE and should refer to [Guidance on Personal Protective Equipment To Be Used by Healthcare Workers During Management of Patients with Ebola Virus in U.S. Hospitals, Including Procedures for Putting On \(Donning\) and Removing \(Doffing\)](#).

### **ADDITIONAL EBOLA VIRUS GUIDANCE**

For additional information regarding Ebola virus testing at UPHL, including specimen packaging and transport, please review the [Submitting Samples to UPHL for Ebola Virus Disease \(EVD\) Testing](#) document.

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### ***Francisella tularensis***

**ACCEPTABLE SPECIMENS:** Environmental/nonclinical samples and samples from announced events are not processed by Sentinel Laboratories. Please contact local law enforcement or the DHHS directly.

**Specimens of choice will be determined by the clinical presentation.**

1. **Blood Culture (Septicemic)** – Collect appropriate blood volume and number of sets per established laboratory protocols. Standard blood culturing system (10-20ml/bottle). Transport directly to Sentinel Laboratory at room temperature. Hold at room temperature until placed onto the blood culture instrument or incubator. Do not refrigerate. Follow established laboratory protocol for processing blood cultures.
2. **Biopsied tissue or scraping/aspirate of ulcer or lesion** – A swab of the ulcer is an acceptable alternative. Submit tissue, scraping, or aspirate in a sterile container. For small tissue samples, add several drops of sterile normal saline to keep the tissue moist. Transport at room temperature for immediate processing. If processing of specimen is delayed, keep the specimen chilled (2-8°C).
3. **Swabs:** Obtain a firm sample of the advancing margin of the lesion. If using a swab transport carrier, the swab should be reinserted into the transport package and the swab fabric moistened with the transport medium inside the packet. Transport at 2-8°C; room temperature is acceptable. If processing of specimen is delayed, keep the specimen chilled (2-8°C).
4. **Lower respiratory tract (pneumonic) sputum or aspirate** – Transport specimen (>1 ml) in a sterile, screw-capped container at room temperature if transport will be <2 hours. If transport will be 24 hours or less, store and transport at 4°C.
5. **Serum – for serological diagnosis** – An acute phase specimen should be collected as soon as possible after onset of disease. A convalescent phase specimen should be collected 21 days after the acute specimen. Collect blood (a minimum of 5 ml) by venipuncture into a tube without anticoagulant. Allow blood to clot and then separate serum into a separate tube. Refrigerate and transport as soon as possible.

### ***Orthopox virus***

**ACCEPTABLE SPECIMENS (for Variola, Vaccinia, Varicella and Non-variola Orthopox)** – Samples are not processed by Sentinel Laboratories. Please contact DHHS directly.

1. **Biopsy** – Aseptically place two to four portions of tissue into a sterile, leakproof, freezable container. If transport time will be ≤6 hours, transport at 4°C. Store specimens at -20°C to -70°C.
2. **Scabs** – Aseptically place scrapings/material into a sterile, leak-proof, freezable container. If transport time will be ≤6 hours, transport at 4°C. Store specimens at -20°C to -70°C.
3. **Vesicular fluid** – Collect fluid from separate lesions onto separate sterile swabs. Be sure to include cellular materials from the base of each respective vesicle. If transport time will be ≤6 hours, transport at 4°C. Store specimens at -20°C to -70°C.

### ***Yersinia pestis***

**ACCEPTABLE SPECIMENS** – Environmental/nonclinical samples and samples from announced events are not processed by Sentinel Laboratories. Please contact local law enforcement or DHHS directly.

**Specimens of choice will be determined by the clinical presentation.**

1. **Lower respiratory tract (pneumonic)** – Bronchial wash or transtracheal aspirate (≥1 ml). Sputum may be examined but it is not advised because of contamination by normal throat flora. Transport specimens in sterile, screw-capped

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containers at room temperature to the Sentinel Laboratory. If it is known that material will be transported within 2-24 hours after collection, then store the container and transport at 2-8°C.

2. **Blood (septicemic)** – Collect appropriate blood volume and number of sets per established lab protocol. **Note:** In suspected cases of plague, an additional blood or broth culture (general nutrient broth) should be incubated at room temperature (22-28°C), the temperature at which *Y. pestis* grows faster. Do not shake or rock additional broth culture so that the characteristic growth formation of *Y. pestis* can be clearly visualized. Transport samples directly to the Sentinel Laboratory at ambient temperature. Hold them at ambient temperature until they are placed onto the blood culture instrument or incubator. Do not refrigerate. Follow established laboratory protocol for processing blood cultures.
3. **Aspirate of involved tissue (bubonic) or biopsied specimen** – Liver, spleen, bone marrow, lung. **Note:** Aspirates may yield little material; therefore, a sterile saline flush may be needed to obtain an adequate amount of specimen. Syringe and needle of aspirated sample should be capped, secured by tape, and sent to the Sentinel Laboratory. Submit tissue or aspirate in a sterile container. For small samples, add 1-2 drops of sterile normal saline to keep the tissue moist. Transport the sample at room temperature for immediate processing. Keep the specimen chilled if processing of the specimen will be delayed.
4. **Swabs** – A swab of tissue is not recommended. However, if a swab specimen is taken, the swab should be reinserted into the transport package for transport.

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