Overview of the Manual:
The Arizona Department of Health Services Office of Infectious Disease Outbreak Manual of Laboratory Tests and Services contains a listing of tests performed at the Arizona State Public Health Laboratory.

The manual describes how to collect quality samples for testing and properly package them to ensure safe transport to the laboratory in the event of an outbreak.

SECTION I contains listings and contact numbers for epidemiology programs, specific laboratories, and emergency preparedness contacts for biological, chemical or radiological response.

SECTION II is a listing of reportable diseases. This list serves as a reminder to report diseases/medical conditions to the appropriate agency within a specified time.

SECTION III is an alphabetized index of tests, which lists all tests performed along with the corresponding page numbers.

SECTION IV is an alphabetized list of testing services. Each test entry contains information pertaining to the collection, submission and analysis of samples. The entries reflect current testing capabilities and provide information for Sample, Sample and Volume, Sample Container, Sample Test Kit, Shipping Requirements and Special Instructions.

SECTION V contains the Arizona State Public Health Laboratory’s (ASHL) Specimen Rejection policy, ASHL Microbiology Submission Form and Collection Kit request instructions

For a complete list of testing available at ASHL for routine and outbreak testing, refer to the Guide to Laboratory Services at http://www.azdhs.gov/lab/micro/labguide.pdf
SECTION I- CONTACT NUMBERS FOR LABORATORY AND INFECTIOUS DISEASE EPIDEMIOLOGY

Arizona Department of Health Services
Bureau of State Laboratory Services
Laboratory Programs and Sections

<table>
<thead>
<tr>
<th>Department</th>
<th>Phone Number</th>
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<tr>
<td>Receiving &amp; Stockroom</td>
<td>602 542-1190</td>
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<tr>
<td>Bacteriology &amp; Environmental FERN Microbiology</td>
<td>602 542-6131</td>
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<tr>
<td>Tuberculosis (TB)</td>
<td>602 542-6132</td>
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<tr>
<td>Bioemergency Detection &amp; Response</td>
<td>602 542-1150</td>
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<td>Serology</td>
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<td>Newborn Screening</td>
<td>602 542-1184</td>
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<tr>
<td>Chemical Detection &amp; Response</td>
<td>602 542-3753</td>
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</tbody>
</table>
IMPORTANT NOTICE:

The After Hours Emergency Telephone Number for the Bureau of Epidemiology and Disease Control Services, Office of Infectious Disease Services is **602-839-5040**

Call this number to report disease outbreaks, including food-borne outbreaks, cases of emerging infectious disease, exposures to select agents or toxins or other questions regarding infectious disease emergency situations that occur after hours.

<table>
<thead>
<tr>
<th>Department</th>
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<tbody>
<tr>
<td>Main Number</td>
<td>602-364-3676</td>
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<tr>
<td>Program Manager, Surveillance Epidemiology and Investigations</td>
<td>602-364-3385</td>
</tr>
<tr>
<td>Foodborne/ Waterborne Epidemiologist</td>
<td>602-364-3675</td>
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<td>Hepatitis B Epidemiologist</td>
<td>602-364-0246</td>
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<tr>
<td>Influenza Epidemiologist</td>
<td>602-319-9397</td>
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<tr>
<td>Investigations Epidemiologist (Unexplained Deaths, Antibiotic Resistance, Nosocomial Infections)</td>
<td>602-364-4561</td>
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<td>Laboratory Surveillance Epidemiologist</td>
<td>602-364-1442</td>
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<tr>
<td>Vaccine-Preventable Disease Epidemiologist</td>
<td>602-364-3685</td>
</tr>
<tr>
<td>Vaccine-Preventable Disease Epidemiologist</td>
<td>602-364-3817</td>
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</table>
SECTION II- LISTING OF REPORTABLE DISEASES IN ARIZONA

COMMUNICABLE AND OTHER INFECTIOUS DISEASE REPORTABLE IN ARIZONA BY HEALTHCARE PROVIDERS

Arizona Administrative Code* Requires Providers To:

Report Communicable Diseases to the Local Health Department

- Amebiasis
- Anthrax
- Aseptic meningitis: viral
- Bacillodermatitis
- Botulism
- Brucellosis
- Campylobacteriosis
- Chagas disease (American trypanosomiasis)
- Chancroid
- Chlamydia infection, sexually transmitted
- Cholera
- Coxsackievirus infection
- Cysticercosis
- Dengue
- Diarrhea, nausea, or vomiting
- Diptheria
- Ehrlichiosis and Anaplasmosis
- Emerging or exotic disease
- Encephalitis, viral or parasitic
- Enterohemorrhagic Escherichia coli
- Enterotoxicogenic Escherichia coli
- Giardiasis
- Gonorrhea
- Haemophilus influenzae, invasive disease
- Hansen’s disease (Leprosy)
- Hantavirus infection
- Hemolytic uremic syndrome
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Hepatitis E
- Herpes genitalis
- HIV infection and related disease
- Influenza-associated mortality in a child
- Kawasaki syndrome
- Legionnaires’ disease
- Leptospirosis
- Listeriosis
- Lyme disease
- Lymphocytic choriomeningitis
- Malaria
- Measles (rubella)
- Meningococcal invasive disease
- Mumps
- Parapox (whooping cough)
- Plague
- Poliomyelitis
- Pneumococcal (neutropenic)
- Q fever
- Rabies in a human
- Relapsing fever (borreliosis)
- Rocky Mountain spotted fever
- Rubella (German measles)
- Rubella syndrome, congenital
- Salmonellosis
- Seabees
- Severe acute respiratory syndrome
- Shigellosis
- Smallpox
- Streptococcal Group A: invasive disease
- Streptococcal Group B: invasive disease in infants younger than 90 days of age
- Streptococcus pneumoniae (pneumococcal invasive disease)
- Syphilis
- Taeniasis
- Tetanus
- Toxin shock syndrome
- Trichinosis
- Tuberculosis, active disease
- Tuberculosis latent infection in a child 5 years of age or younger (positive screening test result)
- Tularemia
- Typhoid fever
- Typhus fever
- Unexplained death with a history of fever
- Vascular-related adverse event
- Vancomycin-resistant or Vancomycin-intermediate Staphylococcus aureus
- Vancomycin-resistant Staphylococcus epidermidis
- Varicella (chickenpox)
- Vibrio infection
- Viral hemorrhagic fever
- West Nile virus infection
- Yellow fever
- Yersiniosis

* Submit a report by telephone or through an electronic reporting system authorized by the Department within 24 hours after a case or suspect case is diagnosed, treated, or detected or an occurrence is detected.
* If a case or suspect case is a food handler or works in a child care establishment or a health care institution, instead of reporting within the general reporting deadline, submit a report within 24 hours after the case or suspect case is diagnosed, treated, or detected.
* Submit a report within five working days after a case or suspect case is diagnosed, treated, or detected.
* Submit a report within 24 hours after detecting an outbreak.

www.azdhs.gov/phs/oids/hcp_rpt.htm

* A.A.C. R9-6-202
Effective 04/01/2008

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Arizona Department of Health Services
Outbreak Laboratory Manual
COMMUNICABLE AND OTHER INFECTIOUS DISEASE REPORTABLE IN ARIZONA BY ALL CLINICAL LABORATORIES

Arizona Department of Health Services
Infectious Disease Epidemiology
150 North 17th Avenue, Suite 140
Phoenix, AZ 85007
602-364-3676 or 602-364-3199 (fax)

ARIZONA LABORATORY REPORTING REQUIREMENTS

<table>
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<tr>
<th>Reports should be sent to:</th>
<th>Isolates should be sent to:</th>
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<tr>
<td>Arizona Department of Health Services</td>
<td>Arizona State Laboratory</td>
</tr>
<tr>
<td>Infectious Disease Epidemiology</td>
<td>250 North 17th Avenue</td>
</tr>
<tr>
<td>150 North 17th Avenue, Suite 140</td>
<td>Phoenix, AZ 85007</td>
</tr>
<tr>
<td>Phoenix, AZ 85007</td>
<td></td>
</tr>
<tr>
<td>602-364-3676 or 602-364-3199 (fax)</td>
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Arboviruses

Bacillus anthracis

Bordetella pertussis

Brucella spp.

Burkholderia mallei and B. pseudomallei

Campylobacter spp.

CD4+ lymphocyte count of fewer than 200 per microlitre of whole blood or CD8+T-lymphocyte percentage of total lymphocytes of less than 14%

Chlamydia trachomatis

Clostridium botulinum toxin (botulism)

Coccioides spp., by culture or serology

Coxella burnetii

Cryptosporidium spp.

Cyclospora spp.

Dengue virus

Emerging or exotic disease agent

Entamoeba histolytica

Escherichia coli O157:H7

Escherichia coli, Shiga-toxin producing

Francisella tularensis

Haemophilus influenzae, type b

Haemophilus influenzae, other, isolated from a normally sterile site

Hantavirus

Hepatitis A virus (anti-HAV-IgM serologies)

Hepatitis B virus (anti-Hepatitis B core-IgM serologies, Hepatitis B surface or envelope antigen serologies, or detection of viral nucleic acid)

Hepatitis C virus

Hepatitis D virus

Hepatitis E virus (anti-HEV-IgM serologies)

HIV (by culture, antigen, antibodies to the virus, or detection of viral nucleic acid)

HIV—any test result for an infant (by culture, antigen, antibodies to the virus, or detection of viral nucleic acid)

Influenza virus

Legionella spp. (culture or DFA)

Listeria spp., isolated from a normally sterile site

Measles virus and anti-measles-IgM serologies

Methicillin-resistant Staphylococcus aureus, isolated from a normally sterile site

Mumps virus and anti-mumps-IgM serologies

Mycobacterium tuberculosis complex and its drug sensitivity pattern

Neisseria gonorrhoeae

Neisseria meningitidis, isolated from a normally sterile site

Norovirus

Plasmodium spp.

Respiratory syncytial virus

Rubella virus and anti-rubella-IgM serologies

Salmonella spp.

SARS-associated corona virus

Shigella spp.

Streptococcus Group A, isolated from a normally sterile site

Streptococcus Group B, isolated from a normally sterile site in an infant younger than 90 days of age

Streptococcus pneumoniae and its drug sensitivity pattern, isolated from a normally sterile site

Treponema pallidum (syphilis)

Treponema cruzi (Chagas disease)

Vancomycin-resistant or Vancomycin-intermediate Staphylococcus aureus

Vancocin resistant Staphylococcus epidermidis

Varioila virus (smallpox)

Vibrio spp.

Viral hemorrhagic fever agent

West Nile virus

Yersinia spp. (other than Y. pestis)

Yersinia pestis (plague)

Submit a report immediately after receiving one specimen for detection of the agent. Report receipt of subsequent specimens within five working days after receipt.

Submit a report within 24 hours after obtaining a positive test result.

Submit a report within one working day after obtaining a positive test result.

Submit an isolate of the organism for each positive culture to the Arizona State Laboratory at least once each week, as applicable.

For each positive test result, submit a specimen to the Arizona State Laboratory within 24 hours after obtaining the positive test result.

When reporting a positive result for any of the specified tests, report the results of all other tests performed for the subject as part of the disease panel.

Submit a report only when an initial positive result is obtained for an individual.

Submit an isolate of the organism only when an initial positive result is obtained for an individual, when a change in resistance pattern is detected, or when a positive result is obtained ≥ 12 months after the initial positive result is obtained for an individual.

www.azdhs.gov/phs/oids/lab_rpt.htm

A.A.C. R9-6-204
Effective 04/01/2008

Arizona Department of Health Services
Outbreak Laboratory Manual
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<td>Intestinal Parasite Exam</td>
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<td>General Enteric Culture- Isolation and identification of <em>Shigella</em> spp., <em>Salmonella</em> spp., <em>Campylobacter</em> spp., and toxin producing <em>E.coli.</em></td>
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<td><strong>Escherichia coli</strong></td>
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<td><em>Measles</em>, IgM EIA</td>
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<td>Measles PCR</td>
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<td><strong>Mumps</strong></td>
<td><em>Mumps</em>, IgM EIA</td>
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<td>Mumps PCR</td>
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<td><strong>Neisseria meningitidis</strong></td>
<td><em>Neisseria meningitidis</em> Culture &amp; Serogrouping</td>
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<td><em>Vibrio</em> spp. Culture</td>
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<td><strong>Bacterial Typing</strong></td>
<td>Bacterial Typing, Pulsed Field Gel Electrophoresis (PFGE)</td>
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</table>
SECTION IV: LABORATORY TESTING SERVICES

*Bordetella pertussis*

**Test Name:** *Bordetella pertussis Culture*

**Use of Test:** Isolation and identification of *Bordetella pertussis.*

**Significant Result:** Culture positive for *Bordetella pertussis.*

**Limitations:**
- Culture is most sensitive for specimens collected within the first 3 weeks after cough onset.
- Beyond this point, false negative results become more common.

**Turnaround Time:** 11 days

**Sample and Volume:** Nasopharyngeal swab

**Sample Collection:** Nasopharyngeal swab: The pharynx is swabbed vigorously with a swab. **USE ONLY DACRON SWABS.** Specimens submitted should not be frozen. Post collection, push the swab into a tube of Regan-Lowe semi-solid transport agar or Amies with charcoal.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** The specimens should be shipped on ice. If transport to ASHL is delayed, specimens should be refrigerated. Use a triple packaging system for transporting by courier or USPS. Mark the outer packaging “UN3373- Biological Substances, Category B.”
Botulism

Test Name: Botulism Toxin Culture, Food or Stool

Special Instructions: ALL BOTULISM TESTING IS REFERRED TO ADHS, BUREAU OF EPIDEMIOLOGY AND DISEASE CONTROL PRIOR TO SENDING SPECIMENS IN ORDER TO ALERT STAFF. IF AFTER HOURS PLEASE CONTACT THE EPIDEMIOLOGY 24/7 ON-CALL NUMBER AT 602-920-3772 AND THE STATE LABORATORY 24/7 ON-CALL NUMBER AT 602-283-6277

Use of Test: To support a diagnosis of botulism, infant botulism.

Turnaround Time: Test performed at CDC

Sample and Volume:

Infant Botulism:
1. Stool for culture and toxin - 20 to 50 grams
2. Serum for toxin - 2.5 ml minimum
   - Toxin testing - 10 to 30 grams
   - Culture - 10 to 20 grams or 15 to 25ml of watery enema.
   - A rectal swab may be accepted, only if other stool specimens are not available.
3. Food for toxin and culture

Food borne Botulism- Adult:
1. Feces - 25 to 50 grams
2. Serum – 15 to 20 ml
3. Remainder of suspected food

Wound Botulism:
1. Feces - 25 to 50 grams
2. Serum – 15 to 20 ml
3. Tissue, exudates or swab samples from wound

Sample Container: Sterile, leak proof container and insulated box with coolant. DO NOT FREEZE.

Forms Required:
The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

Shipping Requirements: Shipment by courier as soon as possible is optimal. If necessary, ship overnight with coolant. DO NOT FREEZE. Triple package sample as an “UN3373-Biological Substances, Category B” for transport by Courier or USPS.
**Campylobacter**

**Test Name:** Campylobacter spp. Culture

**Use of Test:** To screen for bacterial cause of diarrheal illness

**Special Instructions:** Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. The time interval between collection of the specimen and receipt in the Lab must not be greater than 5 days.

**Test Includes:** Isolation and species identification of Campylobacter species. All Campylobacter isolates are sent to CDC for serotyping. Tests also include Pulsed-field gel electrophoresis (PFGE).

**Turnaround Time:** 5 days

**Sample and Volume:** Stool specimen (approximately one gram). Stool swab and rectal swab are acceptable but less desirable than stool.

**Sample Collection:** In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture on a suitable nutrient agar slant. TSI is not to be used for Campylobacter spp.

**Specimen:** Collect a small portion of feces, approximately the size of a marble, or a swab coated with feces and place in Cary-Blair transport media. Inoculate a small amount of stool below the surface of the medium.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Specimens held in Cary-Blair Medium should be refrigerated until examined. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.

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**Test Name:** Campylobacter spp. Isolation, Food

**Use of Test:** To support epidemiologic evidence implicating a food as a possible source of illness.

**Special Instructions:** Food samples must be submitted through local or state public health agencies as part of an outbreak investigation (one or more ill consumers). All food items must clearly be labeled with the name of the food source and date of collection.

**Test Includes:** Isolation and identification of Campylobacter species

**Turnaround Time:** 3 to 7 days.

**Sample and Volume:** At least 200 grams of the solid product or 100 ml of liquid.

**Sample Container:** Original sample container as submitted by inspector or other sterile leak proof container.

**Sample Collection:** Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except those samples received frozen which should be maintained in the frozen state.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Triple package samples. Transport samples on ice or on prefrozen cold packs, in appropriate packaging.
Cryptosporidium

Test Name: Cryptosporidiosis spp. Detection
Use of Test: Detection of Cryptosporidium oocysts in stool.
Special Instructions: Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. Because the host passes parasites intermittently, multiple specimens should be examined. These irregularities emphasize the need to collect at least three specimens over 10-14 days.
Test Includes: The detection of 1 or more Cryptosporidium oocysts microscopically.
Turnaround Time: 5 days
Sample and Volume: Stool specimen (approximately one gram).
Sample Collection: Specimen: Collect the stool in a clean container or on a clean paper and transfer to the Ova and Parasite transport containers supplied by the State Laboratory. The collection kit provided includes a container with PVA fixative and one container with 10% formalin fixative. A portion of the specimen, approximately 1 tablespoon, is added to the fixative in a ratio of 1 part specimen to 3 parts fixative. Mix thoroughly to assure adequate fixation. Do not contaminate specimen with dirt or urine.
TREATMENT WITH ANY OF THE FOLLOWING BEFORE COLLECTION WILL MAKE SPECIMENS UNSUITABLE FOR TESTING: ANTACIDS, BISMUTH, ANTI-DIARRHEAL MEDICATIONS, ANTIBIOTICS, AND/OR OILY LAXATIVES.
Forms Required: The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.
Shipping Requirements: Mailed stool specimens require use of a preservative, and a two-vial method of collection. One vial should contain 10% formalin and the other contains PVA fixative. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.

Arizona Department of Health Services
Outbreak Laboratory Manual
Enteric culture

Test Name: Enteric culture
Use of Test: To screen for bacterial cause of diarrheal illness
Test includes: Isolation and identification of *Shigella* spp., *Salmonella* spp., *Campylobacter* spp., and toxin producing *E.coli*. If isolate is identified and problematic then isolates are submitted to CDC for serotyping. Tests also include pulsed-field gel electrophoresis (PFGE).

Special Instructions: Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. The time interval between collection of the specimen and receipt in the Lab must not be greater than 5 days.

Turnaround Time: 10 days
Sample and Volume: Stool specimen (approximately one gram)
Sample Collection: *Specimen*- If isolate not available, then collection of stool in Cary-Blair transport media is required for testing.
For Cary-Blair Medium, inoculate a small amount of stool below the surface of the medium. The ASHL will provide agencies with Cary-Blair Medium.

Forms Required: The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

Shipping Requirements: Specimens held in Cary-Blair Medium should be refrigerated until examined. Samples older than 3 days will not be accepted. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.
**Escherichia coli (E.coli)**

**Test Name:** Enterohemorrhagic *E.coli* (EHEC) O157:H7 Culture

**Use of Test:** To screen for bacterial cause of diarrheal illness

**Test includes:** Isolation and identification of Enterohemorrhagic *E.coli*. Tests include identification of *E.coli* O157:H7 serogroup. Problematic isolates are submitted to CDC for serotyping. Tests also include pulsed-field gel electrophoresis (PFGE).

**Special Instructions:** Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. The time interval between collection of the specimen and receipt in the Lab must not be greater than 5 days.

**Turnaround Time:** 5 days

**Sample and Volume:** Stool specimen (approximately one gram)

**Sample Collection:** Isolate or Broth- In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture on TSI or nutrient agar slant or culture plate

Specimen- If isolate not available, then collection of stool in Cary-Blair transport media is required for testing.

For Cary-Blair Medium, inoculate a small amount of stool below the surface of the medium. The ASHL will provide agencies with Cary-Blair Medium.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Specimens held in Cary-Blair Medium should be refrigerated until examined. Samples older than 3 days will not be accepted. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.

**Test Name:** Enterohemorrhagic *E.coli* (EHEC) NON-O157:H7 Serogrouping

**Use of Test:** Confirm presence of Shiga toxin. Isolate Shiga-toxin producing organism(s) for subsequent identification.

**Test Includes:** Test for Shiga toxin(s) by Polymerase chain reaction (PCR). Isolation of Shiga-toxin producing organism from positive specimens for subsequent identification. Confirmation of suspected Shiga toxin-producing *E.coli* (STE) or other suspected Shiga toxin producing organism and subsequent serotyping.

**Turnaround Time:** 5-7 days for confirmation of culture and/or stool specimen. Successful isolation of the Shiga-toxin producing organism can take a few days longer. For final confirmation and serotyping, the isolates may be sent to CDC. Results maybe over a month from time specimen submitted to CDC.

**Sample and Volume:** Stool specimen (5-25 grams)

**Sample Collection:** Isolate or Broth- In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture, collect on an agar slant or plate.

Specimen- If isolate not available, then collection of stool in Cary-Blair transport media is required for testing. For Cary-Blair Medium, inoculate a small amount of stool below the surface of the medium. The ASHL will provide agencies with Cary-Blair Medium.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Ship pure cultures at room temperature. Specimens held in Cary-Blair Medium should be refrigerated until examined. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.
Giardia

**Test Name:** Giardiasis spp. Detection

**Use of Test:** Detection of Giardia oocysts in stool.

**Special Instructions:** Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. It is important to collect at least three specimens over 10-14 days.

**Test Includes:** The detection of 1 or more Giardia oocysts microscopically.

**Turnaround Time:** 5 days

**Sample and Volume:** Stool specimen (approximately one gram).

**Sample Collection:** *Specimen:* Collect the stool in a clean container or on a clean paper and transfer to the Ova and Parasite transport containers supplied by the State Laboratory. The collection kit provided includes a container with PVA fixative and one container with 10% formalin fixative. A portion of the specimen, approximately 1 tablespoon, is added to the fixative in a ratio of 1 part specimen to 3 parts fixative. Mix thoroughly to assure adequate fixation. Do not contaminate specimen with dirt or urine.

**TREATMENT WITH ANY OF THE FOLLOWING BEFORE COLLECTION WILL MAKE SPECIMENS UNSUITABLE FOR TESTING:** ANTACIDS, BISMUTH, ANTI-DIARRHEAL MEDICATIONS, ANTIBIOTICS, AND/OR OILY LAXATIVES.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Mailed stool specimens require use of a preservative, and a two-vial method of collection. One vial should contain 10% formalin and the other contains PVA fixative. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.

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Arizona Department of Health Services
Outbreak Laboratory Manual
**Haemophilus influenzae**

<table>
<thead>
<tr>
<th>Test Name:</th>
<th><strong>Haemophilus influenzae Biotyping &amp; Serotyping</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Includes:</td>
<td>Biotyping and serotyping of <em>Haemophilus influenzae</em></td>
</tr>
<tr>
<td>Limitations:</td>
<td>Testing performed only on organisms isolated from normally sterile sites.</td>
</tr>
<tr>
<td>Turnaround Time:</td>
<td>5 days</td>
</tr>
<tr>
<td>Sample:</td>
<td>Pure culture on chocolate agar slant or culture plate.</td>
</tr>
<tr>
<td>Specimen Collection:</td>
<td>Isolate- In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture on suitable chocolate agar slant or culture plate.</td>
</tr>
</tbody>
</table>

**Forms Required:**
The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipment Requirements:**
Ship at room temperature. Using the triple packaging system for courier or USPS, mark outer packaging as “UN3373-Biological Substances, Category B.”
**Hepatitis A**

**Test Name:** *Hepatitis A IgM (EIA)*

**Use of Test:** Detection of antibody to Hepatitis A IgM antibody

**Test Includes:** Qualitative testing by a commercial enzyme immunoassay (EIA) procedure.

**Turnaround Time:** 4 days

**Sample Collection:** Routine blood draw. Minimum of 1mL serum or plasma needed. Serum separator tube preferred, though red top serum tubes are acceptable.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.
**Influenza**

**Test Name:** Influenza Culture & Typing/Subtyping

**Test Includes:** Isolation and typing of influenza virus by shell vials.

**Turnaround Time:** 14 days

**Specimen:**
- Preferred: Nasopharyngeal swab
- Acceptable: Nasopharyngeal wash or aspirate, throat swab, tracheal aspirate, sputum, bronchoalveolar lavage (BAL).

**Specimen Collection:**
Virus isolation is most successful if specimen collected within 3 to 5 days of illness. The pharynx is swabbed vigorously with a cotton swab moistened with collection medium free of serum such as Hanks, and then placed in a transport container containing Hanks Buffered Saline Solution (HBSS). Specimens submitted should not be frozen.

**Forms Required:**
The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Shipment by courier or transport to the ASHL within 24 hours on prefrozen ice packs to keep refrigerated. Use a triple packaging system for transporting by courier. Mark the outer packaging as “UN3373-Biological Substances, Category B.”

**Test Name:** Influenza, Molecular Typing PCR

**Test Includes:** Identification of influenza types A, B and subtypes H1, H3, H5, and 2009 H1N1 by Polymerase Chain Reaction (PCR).

**Turnaround Time:** 2 days

**Specimen:**
- Preferred: Nasopharyngeal swab
- Acceptable: Nasopharyngeal wash or aspirate, throat swab, tracheal aspirate, sputum, bronchoalveolar lavage (BAL).

**Specimen Collection:**
Virus isolation is most successful if specimen collected within 3 to 5 days of illness. Nasopharyngeal swab: The pharynx is swabbed vigorously with a cotton swab moistened with collection medium free of serum such as Hanks, and then placed in a transport container containing Hanks Buffered Saline Solution (HBSS). Specimens submitted should not be frozen.

**Forms Required:**
The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Shipment by courier or transport to the ASHL within 24 hours on prefrozen ice packs to keep refrigerated. Use a triple packaging system for transporting by courier. Mark the outer packaging as “UN3373-Biological Substances, Category B.”
Legionellosis (Legionnaires’ Disease)

Test Name: **Legionella Culture & Serogrouping**

Use of Test: Identification and serogrouping of *Legionella* spp.

Turnaround Time: 7 days for species identification. Sent to CDC for serotyping

Specimen: Pleural fluid, transtracheal aspirate, respiratory secretions (sputum, bronchial wash, bronchoalveolar lavage (BAL), and normally sterile sites.

Specimen Collection: *Isolate*-In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture on BCYE agar plate

*Specimen*-Collect 5 to 30mL of secretions. Specimens should be held at 4-8°C and should not be allowed to dry out. DO NOT use sterile saline for specimen collections as *Legionella* spp. are inhibited by saline.

Forms Required: The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

Shipping Requirements: The specimens should be shipped on ice the same day. If transport to ASHL is delayed, specimens should be frozen (-70°C) and transported in the frozen state (dry ice). Use a triple packaging system for transporting by courier or USPS. Mark the outer packaging “UN3373- Biological Substances, Category B.”
Listeria

Test Name: Listeria spp. Culture
Use of Test: Identification of Listeria spp.
Special Instructions: Clinical specimens from normally sterile sites such as blood, cerebrospinal fluid (CSF), amniotic fluid, placenta, or fetal tissue do not require special procedures for collection or transport. Specimens from non-sterile sites, such as meconium, feces, vaginal secretions, respiratory, skin or mucous swabs require prompt handling to prevent overgrowth of contaminants.

Test Includes: Confirmation of isolates. Tests also include pulsed-field gel electrophoresis (PFGE). All isolates of Listeria spp. are sent to CDC for serotyping

Turnaround Time: 5 days for species identification. Sent to CDC for serotyping

Sample Collection: Isolate- In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture from a sterile site that can be plated directly on tryptic soy agar containing 5% sheep, horse, or rabbit blood. Samples for blood culture can be inoculated directly into conventional blood culture broth.

Specimen- If isolates not available, then collection of Blood or CSF is required for testing. No transport media is required, but specimens should be shipped at 4°C

Forms Required: The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

Shipping Requirements: Specimens from sterile sites should be shipped as soon as possible. If processing is delayed, specimens should be held at 35°C in an incubator for no longer than 48 hours. Ship at 4°C. Specimens from non-sterile sites require prompt handling. If processing is delayed, the materials should be kept at 4°C or frozen at -20°C if testing delays are to exceed 48 hours. Ship at 4°C. Stools should be shipped frozen on dry ice. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.

Test Name: Listeria monocytogenes Isolation, Food
Use of Test: To support epidemiologic evidence implicating a food as a possible source of illness.

Special Instructions: Food samples must be submitted through local or state public health agencies as part of an outbreak investigation (one or more ill consumers). Epidemiology needs to be notified of any food samples being sent for testing. ASL has limited media available on hand and needs to be notified by Epidemiology. All food items must clearly be labeled with the name of the food source and date of collection

Test Includes: Isolation and identification of Listeria monocytogenes.

Turnaround Time: 3 to 7 days.

Sample and Volume: At least 200 grams of the solid product or 100 ml of liquid.

Sample Container: Original sample container as submitted by inspector or other sterile leak proof container.

Sample Collection: Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except those samples received frozen which should be maintained in the frozen state.

Forms Required: The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

Shipping Requirements: Triple package samples. Transport samples on ice or on pre-frozen cold packs, in appropriate packaging.
### Measles

**Test Name:** Measles Antibody IgM (EIA)

**Use of Test:** Determination of measles infection.

**Significant Result:** Positive IgM indicates current or recent measles infection.

**Limitations:** IgM may be negative if the specimen is collected prior to the appearance of or before the third day after rash onset. Cannot distinguish between antibody produced in response to vaccine versus wild strain measles.

**Turnaround Time:** 3 days

**Sample and Volume:** Whole blood (10-15mL) collected aseptically in a red top vacutainer tube or single serum (2-3mL).

**Sample Collection:** Serum collected 3-7 days after the appearance of rash.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Due to the intense heat in the summertime, it is advisable to ship the specimens cold to prevent damage to the specimen. Whole blood samples may be sent on cool packs and not frozen. Serum samples, if not tested within 7 days or already frozen, should be shipped frozen to ASHL on dry ice.

**If sent by courier:**
1. Blood and blood products sent in vacutainer tubes should first be placed in a plastic falcon tube.
2. The specimen should then be placed in a plastic specimen bag with separate compartments for the submission form and the specimen.
3. Pack the specimen and its form in absorbent material
4. Mark the outer packaging "UN3373- Biological Substances, Category B."

**If sent by mail:**
1. Blood and blood products sent in vacutainer tubes should first be placed in a plastic falcon tube.
2. Check with the Post Office for current postage requirements.
3. Wrap the submission form around the falcon tube, and place the falcon tube inside a Styrofoam container or cardboard mailer. Pack the specimen in absorbent material.
4. Mark the outer packaging “UN3373- Biological Substances, Category B.”

### Mumps

**Test Name:** Measles, Molecular Typing PCR

**Use of Test:** Detection of measles RNA virus

**Turnaround Time:** 2 days

**Sample:** Nasopharyngeal swab, throat swab, whole blood, and urine (5mL).

**Sample Collection:** Nasopharyngeal swab: The pharynx is swabbed vigorously with a cotton swab moistened with collection medium free of serum such as Hanks, and then placed in a transport container containing Hanks Buffered Saline Solution (HBSS). Specimens submitted should not be frozen.

   Throat Swab: The pharynx is swabbed vigorously with a cotton swab moistened with collection medium free of serum such as Hanks, and then placed in a transport container containing Hanks Buffered Saline Solution (HBSS). Samples submitted should not be frozen.

   Urine: Clean catch urine collected in a sterile container.

**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:** Use a triple packaging system for transporting by courier. Mark the outer packaging as “UN3373- Biological Substances, Category B.” **Ship cold**
**Test Name:** Mumps Antibody IgM (EIA)

**Use of Test:**
Determination of mumps infection.

**Significant Result:**
Positive IgM indicates probable current or recent mumps infection.

**Limitations:**
1. 30% of primary mumps may be sub-clinical.
2. Mumps infection can occur without parotitis.
3. Parotid swelling may have other viral/bacterial causes (Coxsackie, Echo, Parainfluenza, Influenza A, HSV, and S. aureus).
4. Parotid pain or swelling may have a non-infectious cause.

**Turnaround Time:** 3 days

**Sample and Volume:**
Whole blood (10-15mL) collected aseptically in a red top vacutainer tube or single serum (2-3mL).

**Sample Collection:**
Serum collected 2-14 days post onset.

**Forms Required:**
The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:**
Due to the intense heat in the summertime, it is advisable to ship the specimens cold to prevent damage to the specimen. Whole blood samples may be sent on cool packs and not frozen. Serum samples, if not tested within 7 days or already frozen, should be shipped frozen to ASHL on dry ice.

- If sent by courier:
  1. Blood and blood products sent in vacutainer tubes should first be placed in a plastic falcon tube.
  2. The specimen should then be placed in a plastic specimen bag with separate compartments for the submission form and the specimen.
  3. Pack the specimen and its form in absorbent material.
  4. Mark the outer packaging “UN3373- Biological Substances, Category B.”

- If sent by mail:
  1. Blood and blood products sent in vacutainer tubes should first be placed in a plastic falcon tube.
  2. Check with the Post Office for current postage requirements.
  3. Wrap the submission form around the falcon tube, and place the falcon tube inside a Styrofoam container or cardboard mailer. Pack the specimen in absorbent material.
  4. Mark the outer packaging “UN3373- Biological Substances, Category B.”

**Test Name:** Mumps, Molecular Typing PCR

**Use of Test:**
Detection of mumps RNA virus

**Turnaround Time:** 2 days

**Sample:**
Nasopharyngeal swab, throat swab, CSF, buccal, sputum and urine (5mL).

**Sample Collection:**
Nasopharyngeal swab: The pharynx is swabbed vigorously with a cotton swab moistened with collection medium free of serum such as Hanks, and then placed in a transport container containing Hanks Buffered Saline Solution (HBSS). Specimens submitted should not be frozen.

Throat Swab: The pharynx is swabbed vigorously with a cotton swab moistened with collection medium free of serum such as Hanks, and then placed in a transport container containing Hanks Buffered Saline Solution (HBSS). Samples submitted should not be frozen.

Urine: Clean catch urine collected in a sterile container.

**Forms Required:**
The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:**
Use a triple packaging system for transporting by courier. Mark the outer packaging as “UN3373-Biological Substances, Category B.” **Ship cold**

**Neisseria meningitidis**

**Test Name:** Neisseria meningitidis Culture & Serogrouping

**Use of Test:**
Confirmation and serogrouping of Neisseria meningitidis.

**Limitations:**
Testing performed only on organisms isolated from normally sterile sites.

**Turnaround Time:** 5 days

**Sample:**
Pure culture on chocolate agar slant or culture plate.
**Specimen Collection:**

*Isolate* - In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure young culture on chocolate agar slant or culture plate. If the report is after hours, the county epidemiologist should also notify ADHS through the emergency after hours number.

**Sample Container:**

It is recommended that the containers be insulated during very hot or very cold weather.

**Forms Required:**

The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:**

All cultures must be transported with minimum delay since viability is readily lost. Use a triple packaging system for transporting by courier or USPS. Mark the outer packaging “UN3373-Biological Substances, Category B.” Mark “DO NOT REFRIGERATE” on the outside of the package.
Norovirus

Test Name: **Norovirus, Molecular Typing PCR**

Use of Test: Detection of norovirus RNA in stool or vomitus specimens

Turnaround Time: 7 days

Sample: Vomitus or stool. 10-15 mL in volume

Sample Collection: Specimens should be collected as soon as possible after symptom onset, preferably within the first 24 hours of collection. Vomitus 10-15mL must be submitted fresh in a sterile container. Stool 10-15mL can be submitted fresh, in a sterile container. DO NOT FREEZE. DO NOT PUT IN PRESERVATIVES OR ANY OTHER MEDIA.

**Forms Required:**

The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:**

Use triple packaging system for transporting by courier only. Mark the outer packing “UN3373-Biological Substances, Category B”. **Ship cold**
# Rubella

**Test Name:** Rubella Antibody, IgM  
**Use of Test:** Determination of rubella infection  
**Test Includes:** Rubella IgM EIA  
**Significant Result:** Positive IgM indicates current or recent rubella infection.  
**Limitations:** IgM may be negative if the specimen is collected prior to the appearance of or before the third day after rash onset.  
**Turnaround Time:** 5 days  
**Sample and Volume:** Whole blood (10-15mL) collected aseptically in a red top vacutainer tube or single serum (2-3mL).  
**Sample Collection:** Serum collected 3-7 days after appearance of rash.  
**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.  
**Shipment Requirements:** Due to the intense heat in the summertime, it is advisable to ship the specimens cold to prevent damage to the specimen. Whole blood samples may be sent on cool packs and not frozen. Serum samples, if not tested within 7 days or already frozen, should be shipped frozen to ASHL on dry ice.  

If sent by courier:  
1. Blood and blood products sent in vacutainer tubes should first be placed in a plastic falcon tube.  
2. The specimen should then be placed in a plastic specimen bag with separate compartments for the submission form and the specimen.  
3. Pack the specimen and its form in absorbent material.  
4. Mark the outer packaging “UN3373 - Biological Substances, Category B.”  

If sent by mail:  
1. Blood and blood products sent in vacutainer tubes should first be placed in a plastic falcon tube.  
2. Check with the Post Office for current postage requirements.  
3. Wrap the submission form around the falcon tube, and place the falcon tube inside a Styrofoam container or cardboard mailer. Pack the specimen in absorbent material.  
4. Mark the outer packaging “UN3373 - Biological Substances, Category B.”
Salmonella

Test Name: Salmonella spp. Culture and Serotyping
Use of Test: To screen for bacterial cause of diarrheal illness
Special Instructions: Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. The time interval between collection of the specimen and receipt in the Lab must not be greater than 5 days.
Test Includes: Isolation and species identification of Salmonella species. Tests include serotyping for Salmonella spp. Problematic isolates are submitted to CDC for serotyping. Tests also include pulsed-field gel electrophoresis (PFGE).
Turnaround Time: 14 days
Sample: Isolate- In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture on TSI or nutrient agar slant or culture plate
   Specimen- If isolate not available, then collection of one of the following specimens is required for testing: Stool, Rectal swab in Cary-Blair media or blood.
Forms Required: The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.
Shipping Requirements: Package and ship with label on outer packaging as “UN3373-Biological Substances, Category B”.

Test Name: Salmonella Isolation, Food
Use of Test: To support epidemiologic evidence implicating a food as a possible source of illness.
Special Instructions: Food samples must be submitted through local or state public health agencies as part of an outbreak investigation (one or more ill consumers). All food items must clearly be labeled with the name of the food source and date of collection
Test Includes: Isolation and identification of Salmonella species
Turnaround Time: 3-7 days.
Sample and Volume: At least 200 grams of the solid product or 100 ml of liquid.
Sample Container: Original sample container as submitted by inspector or other sterile leak proof container.
Sample Collection: Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except those samples received frozen which should be maintained in the frozen state.
Forms Required: The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.
Shipping Requirements: Triple package samples. Transport samples on ice or on prefrozen cold packs, in appropriate packaging.
**Shigella**

**Test Name:** *Shigella species Culture and Serotyping*

**Use of Test:** To screen for bacterial cause of diarrheal illness.

**Special Instructions:**
- Stool specimens must be properly submitted, with transport containers not overfilled and with transport medium not removed. Specimen jars must be tightly closed and not leaking when received. The time interval between collection of the specimen and receipt in the Lab must not be greater than 5 days.
- Isolation and species identification of *Shigella* spp. Tests include serotyping for *Shigella* spp. Problematic isolates are submitted to CDC for serotyping. Tests also include Pulsed-field gel electrophoresis (PFGE)

**Test Includes:**
- Isolation and species identification of *Shigella* spp.
- Problematic isolates are submitted to CDC for serotyping. Tests also include Pulsed-field gel electrophoresis (PFGE)

**Turnaround Time:** 5 days

**Sample:**
- *Isolate:* In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture on TSI or nutrient agar slant or culture plate
- *Specimen:* If isolate not available, then collection of one of the following specimens is required for testing: Stool, Rectal swab in Cary-Blair media or blood.

**Forms Required:**
- The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:**
- Package and ship with label on outer packaging as “UN3373-Biological Substances, Category B”.

**Test Name:** *Shigella Isolation, Food*

**Use of Test:** To support epidemiologic evidence implicating a food as a possible source of illness.

**Special Instructions:**
- Food samples must be submitted through local or state public health agencies as part of an outbreak investigation (one or more ill consumers). All food items must clearly be labeled with the name of the food source and date of collection

**Test Includes:**
- Isolation and identification of *Shigella* species.

**Turnaround Time:** 3-7 days.

**Sample and Volume:** At least 200 grams of the solid product or 100 ml of liquid.

**Sample Container:** Original sample container as submitted by inspector or other sterile leak proof container.

**Sample Collection:** Collect food aseptically and place in sterile whirlpack bags or other sterile, leak proof container. Keep all samples refrigerated except those samples received frozen which should be maintained in the frozen state.

**Forms Required:**
- The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.

**Shipping Requirements:**
- Triple package samples. Transport samples on ice or on prefrozen cold packs, in appropriate packaging.
**Vibrio**

**Test Name:** Vibrio spp. Culture  
**Use of Test:** To screen for bacterial cause of diarrheal illness.  
**Special Instructions:** Cultures suspected to contain *Vibrio cholera* are tested with commercial biochemical systems. Cultures presumptively identified as *Vibrio cholera* will be tested against specific antisera to determine the serogrouping of the isolate. *Vibrio cholera* strains will fall into two groups based on this testing. Serogroup O1 is associated with epidemic cholera; non-O1 strains may cause cholera-like illness, but are not involved in epidemics. Serogroup O1 isolates are typed at ASHL and sent to CDC for confirmation.  
**Turnaround Time:** 5 days. If sent to CDC for Serogroup O1 confirmation turnaround time may vary  
**Sample and Volume:** Stool specimen (approximately one gram)  
**Sample Collection:** Isolate- In the event of an outbreak, the hospital or commercial laboratory, should forward the isolate to ASHL. The isolate should be a pure culture on TSI or nutrient agar slant or culture plate  
Specimens- Stool specimens should be collected early, preferably within 24 hours of onset of illness, and before the administration of antibiotics. Rectal swabs or fecal material should be placed in Cary-Blair transport medium. The Arizona State Public Health Laboratory will provide agencies with Cary-Blair Medium.  
**Forms Required:** The ASHL Microbiology Submission Form must be submitted with each specimen. The fields that are required for specimen processing include: Patient first and last name, age, sex, date of birth, submitting agency name, specimen collection date, and specimen type.  
**Shipping Requirements:** Specimens held in Cary-Blair Medium should be transported at 5-25°C. DO NOT REFRIGERATE. Use triple packaging system for courier or USPS. Mark outer packaging as “UN3373-Biological Substances, Category B”.
**Bacterial Typing**

**Test Name:** Bacterial Typing, Pulsed Field Gel Electrophoresis (PFGE)

**Use of Test:** To determine if isolates from different patients or sources (i.e. patient and environmental isolates) have a common origin. Test is very discriminatory, and is primarily used in food related outbreaks.

ASHL bacteriology laboratory can currently perform PFGE on all confirmed isolates of *Salmonella* spp., *Shigella* spp., *E.coli* O157:H7, *Campylobacter* spp. and *Listeria* spp.

AHSL routinely performs PFGE on all isolates if these organisms have been identified. PFGE for all other organisms isolated would be sent to CDC for PFGE.

In the event of a Nosocomial outbreak, and by request only, ASHL can conduct PFGE on *Acinetobacter* spp., *Pseudomonas* spp., *Burkholderia* spp.

PFGE is not a diagnostic test and is used in conjunction with epidemiological findings that result from intense investigation.

Accurate identification of all isolates must be confirmed prior to PFGE testing.

Results are interpreted based on banding patterns.

**Test Includes:**

- Bacterial strain typing using restriction endonucleases (enzyme) digestion of bacterial chromosomal DNA.

**Turnaround Time:**

- 1 week for pure cultures. Turn around time is delayed if patient specimens are submitted or if the isolate submitted is contaminated.

**Sample:**

- Pure isolates must be received on agar slants.
SECTION V: ARIZONA STATE PUBLIC HEALTH LABORATORY MISCELLANEOUS DOCUMENTS

SPECIMEN REJECTION POLICY

The State Laboratory currently has the following policy for rejection of laboratory specimens and/or requested examinations. The State Laboratory will usually NOT examine clinical/reference specimens if the following circumstances exist:

- The quantity of the specimen is not sufficient for examination
- The specimen was too long in transit between the time of collection and receipt in the laboratory
- The specimen was broken or leaked in transit
- Clinical/epidemiological information submitted with the specimen was either insufficient or incomplete
- Specimen was submitted in an improper container, transport media or preservative
- Blood specimens are hemolyzed or contaminated
- The identifier on the specimen does not match the identifier on the submission form, or there is no identification on the specimen
- Materials for rabies examination are too decomposed to test
- Test is available at a hospital/independent laboratory and has been discontinued by the State Laboratory
- Reference cultures are contaminated

Exceptions to this policy will be considered due to extenuating circumstances; however, final approval to make an exception will only be made by the Laboratory Director, Bureau Chief or Assistant Bureau Chief delegated this responsibility.
ASHL MICROBIOLOGY SUBMISSION FORM


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**PATIENT INFORMATION**

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
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<tr>
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<td>First name</td>
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<tr>
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<tr>
<td>Patient ID</td>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>State</td>
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<tr>
<td>Zip</td>
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<tr>
<td>County</td>
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</tr>
<tr>
<td>Ethnicity</td>
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<tr>
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<tr>
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<td>Asian</td>
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**SUBMITTING AGENCY INFORMATION**

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</tr>
<tr>
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<td>Tel</td>
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**ORDERING PROVIDER INFORMATION**

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<td>County</td>
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**SPECIMEN INFORMATION & TYPE**

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<tbody>
<tr>
<td>Collection date</td>
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<tr>
<td>Serum</td>
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<td>CSF</td>
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<tr>
<td>Swab</td>
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<tr>
<td>Urine</td>
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<tr>
<td>Sputum</td>
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<tr>
<td>Stool</td>
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<td>Other</td>
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<tr>
<td>Clinical</td>
<td>Yes/No</td>
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<tr>
<td>Reference</td>
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<tr>
<td>Broth</td>
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<td>Reason for testing</td>
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<td>Outbreak</td>
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<td>Diagnostics</td>
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**VIROLOGY**

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<tr>
<td>CMV Culture</td>
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<td>Enferovirus Culture</td>
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<td>Herpes Culture</td>
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<td>Influenza</td>
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<td>Norovirus PCR</td>
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<td>Reference Virus Culture</td>
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<td>Respiratory Virus Culture</td>
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**BACTERIOLOGY**

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<th>Field</th>
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<tr>
<td><em>Bordetella pertussis</em></td>
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<tr>
<td>Campylobacter spp.</td>
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<tr>
<td><em>Clostridium botulinum</em></td>
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<tr>
<td><em>Corynebacterium diphtheriae</em></td>
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<tr>
<td>Encephalitis</td>
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<tr>
<td>Escherichia coli / Shigatoxin</td>
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<tr>
<td>Haemophilus influenzae</td>
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<tr>
<td>Legionella spp.</td>
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<tr>
<td><em>Leptospira</em></td>
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<tr>
<td><em>Listeria</em></td>
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<tr>
<td>Neisseria gonorrhoeae</td>
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<tr>
<td>Neisseria meningitidis</td>
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<tr>
<td>Salmonella spp.</td>
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<tr>
<td>Sphagnum spp.</td>
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<td>Streptococcus pneumoniae</td>
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<td>Vibrio</td>
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<td><em>Vibrio</em></td>
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<tr>
<td><em>Yersinia</em> (Non-pestis) Culture</td>
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<td>Other</td>
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**SELECTION AGENTS**

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<th>Field</th>
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<tr>
<td><em>Bacillus anthracis</em></td>
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<tr>
<td><em>Brucella</em> spp.</td>
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<tr>
<td><em>Burkholderia</em> spp.</td>
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<tr>
<td><em>Francisella tularensis</em></td>
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<td><em>Orthopox</em></td>
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<tr>
<td><em>Q</em> Fever</td>
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<tr>
<td><em>SARS</em></td>
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<tr>
<td><em>Yersinia pestis</em></td>
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**PARASITOLOGY†**

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<tr>
<td><em>Antiglial</em></td>
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<tr>
<td><em>Brain Tissue</em></td>
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<tr>
<td><em>Intestinal</em></td>
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<tr>
<td><em>Pinworm</em></td>
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<tr>
<td><em>Worm ID</em></td>
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**MYCOBACTERIOLOGY**

<table>
<thead>
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<th>Field</th>
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<tbody>
<tr>
<td><em>Cultured</em></td>
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<tr>
<td><em>ID (Refered Culture)</em></td>
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<tr>
<td><em>Nuclear Acid Amplification</em></td>
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<td><em>Smaar</em></td>
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<tr>
<td><em>Worm ID</em></td>
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</table>

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Submitted Lab Findings or Preliminary ID:

Prior notification is required for: *Bacillus anthracis, Bordetella pertussis, Brucella spp., Clostridium botulinum toxins, Coxiella burnetii*, emerging or exotic diseases, Francisella tularensis, *Hantavirus, Borrelia burgdorferi (Lyme), Measles, Mycobacteria NAA, Rubella*, or *Yersinia pestis* testing. Call: (602) 364-3676

ALL FIELDS HIGHLIGHTED IN YELLOW ARE REQUIRED FOR SPECIMEN PROCESSING. IN ADDITION, AT LEAST ONE TEST MUST BE REQUESTED.

Patient address and telephone number are required, when available, per R9-6-204(B3) [http://www.azdhs.gov/lab/micro/index.htm](http://www.azdhs.gov/lab/micro/index.htm)

Updated 10/20/2010
REQUESTING COLLECTION KITS AND MAILING CONTAINERS

Supplies ordered from the Arizona State Laboratory are to be used ONLY to submit specimens to the State Laboratory. There are two Request for Materials forms currently in use: a Newborn Screening Supplies Request Form and a Request Form for all other supplies available from the State Laboratory. Supplies can be requested by mailing, faxing, calling, or emailing the Receiving Section at:

Arizona Department of Health Services  
Bureau of State Laboratory Services  
ATTN: Receiving Section  
250 North 17th Avenue  
Phoenix, AZ 85007  
Fax (602) 364-0758  
Phone (602) 542-1190  
Email labreceiving@azdhs.gov

Please request materials before they are required as the expected turn around time per order is FIVE business days. Most materials do have a limited shelf life; therefore, only order what will be used before the expiration date. Please do not use expired kits or any kits in which the medium has changed characteristics. Dispose of the media properly and order replacement supplies. The following table provides information regarding submission forms, kit contents and expiration period of each kit. Submitters may use the Request for Materials Form to order entire kits, as well as individual components.
<table>
<thead>
<tr>
<th>KIT</th>
<th>CONTENTS</th>
<th>SHELF LIFE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteric Kit</td>
<td>Instruction Sheet, Baggie, Metal Container, Cardboard Mailer, Media: Cary Blair, Store +20 to +25°C</td>
<td>6 months</td>
</tr>
<tr>
<td>Influenza Kit</td>
<td>Microbiology Submission Form, Instruction Sheet, N/P Swab, Media: Hanks Blue Top, Store +2 to +8°C</td>
<td>2 months</td>
</tr>
<tr>
<td>Leptospira Culture Media</td>
<td>Leptospira Media Instructions</td>
<td>6-12 months</td>
</tr>
<tr>
<td>Ova &amp; Parasite Kit</td>
<td>Instruction Sheet, Baggie, Metal Container, Cardboard Mailer, Media: PVA &amp; Formalin, Store +20 to +30°C</td>
<td>1-2 years</td>
</tr>
<tr>
<td>Pertussis Kit</td>
<td>Microbiology Submission Form, Instruction Sheet, Polyester N/P Swab (metal handle), Media: Regan Lowe, Store +2 to +8°C</td>
<td>2 months</td>
</tr>
<tr>
<td>Tuberculosis Kit</td>
<td>Sputum Vial, Metal Container, Cardboard Mailer, Store +20 to +25°C</td>
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</table>