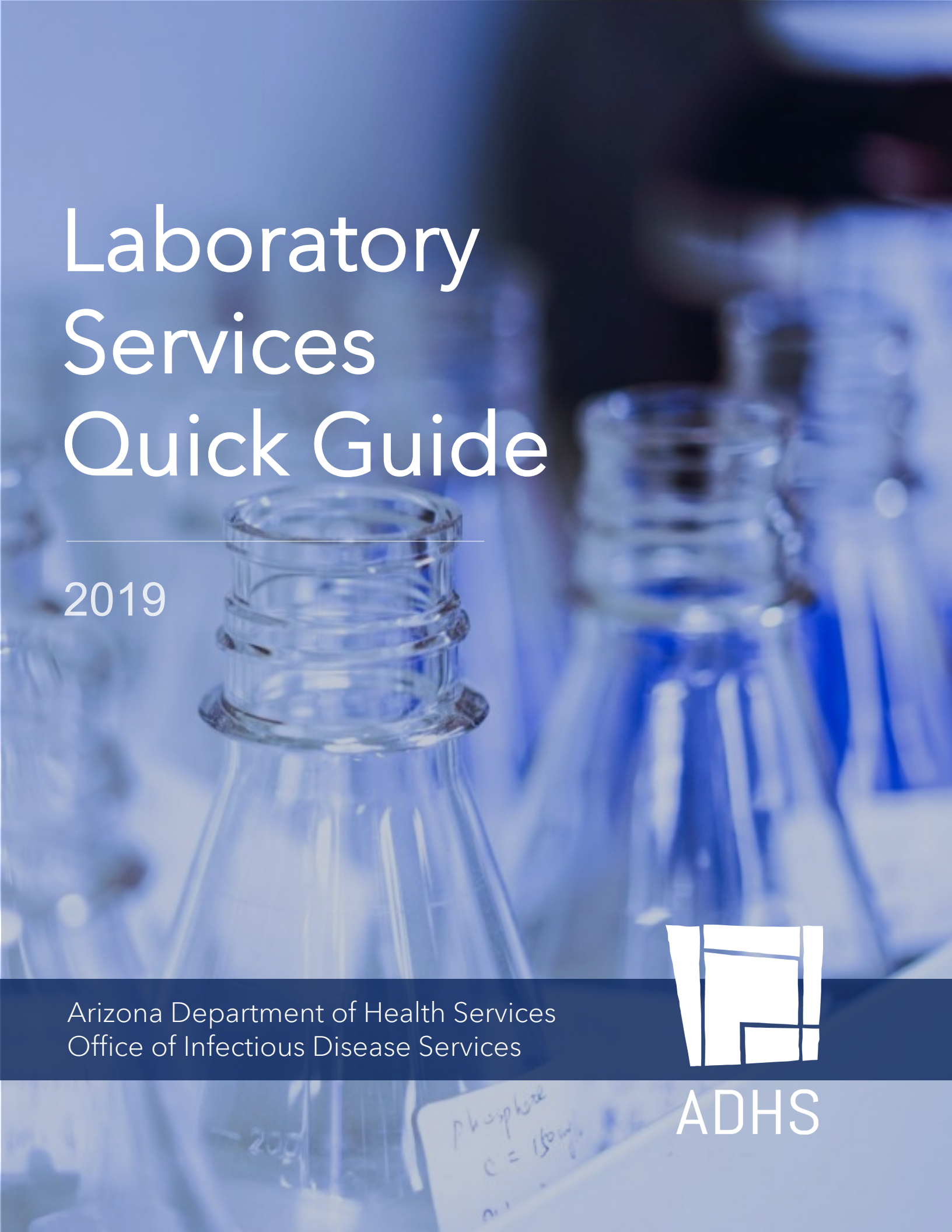
Laboratory Services Quick Guide

2019



Arizona Department of Health Services
Office of Infectious Disease Services

ADHS

Every state, territory, and the District of Columbia has a central public health lab that performs services for the jurisdiction. These labs perform multiple tests from newborn screening to identifying new and emerging diseases. Public health labs are more focused on surveillance than diagnostics, though when there are emerging or rare diseases the state lab is able to offer testing that other labs are unable to do. Public health labs look beyond the individual scale of diagnosing one person and instead focus on keeping communities safe and healthy. Some of the duties of a public health lab include: screening newborns, monitoring communities for foodborne or waterborne pathogens, testing for newly emerging diseases, testing drinking and recreational water for substances and organisms that can cause harm, identifying suspect agents, as well as other duties.

LABORATORY SUBMISSION FORM

It is required to send a submission form for each clinical specimen that is sent to the Arizona State Public Health Lab (ASPHL) for testing, this includes virology, serology, bacteriology, and select agents. The submission form must accompany the specimen or isolate that is being submitted to ASPHL. If the identifier on the specimen does not match the identifier on the submission form a specimen will be rejected.

The laboratory submission form can be found here:
http://www.azdhs.gov/lab/documents/microbiology/clinical-microbiology-submission-form.pdf

Certain pathogens require prior notification to the Arizona Department of Health Services (ADHS) Office of Infectious Disease Services (OIDS) **before** they are shipped to ASPHL:

- Avian Influenza
- Middle East Respiratory Syndrome (MERS)
- Hantavirus
- Measles
- Mumps
- Rubella
- *Bordetella pertussis*
- *Clostridium botulinum* toxin
- *Corynebacterium diphtheriae*
- *Bacillus anthracis*
- *Brucella* spp.
- *Burkholderia* spp.
- *Francisella tularensis*
- *Orthopox*
- Q Fever
- *Yersinia pestis*

For food and environmental samples, a Food Analysis Submittal Form must accompany each individual sample. Before submitting or shipping any samples for analysis, please call OIDS at 602-364-3676 or the after-hours number: 480-303-1191.

Contact Information and Hours of Operation

Shipping and Receiving: 602-542-1190
Virology/Serology: 602-542-0968
Bioemergency: 602-364-0999
Bacteriology: 602-542-6132
Environmental Micro: 602-542-6130

The hours of operation are 8:00AM to 5:00PM Monday through Friday. The Receiving section only is open from 9:30AM to 4:30PM on Saturday.

SPECIMEN REJECTION

Specimens may be rejected based on the following circumstances:

- Test is routinely available at a hospital or a private independent laboratory
- The identifier on the specimen did not match the identifier on the submission form, or there was no identification on the specimen
- The quantity of specimen was 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 or expired container, transport media or preservative
- Blood specimens were hemolyzed or contaminated
- Only acute blood specimen was submitted, no convalescent specimen (if applicable)
- Material for rabies examination was too decomposed or desiccated to test
- Reference cultures were mixed or contaminated; only pure cultures are acceptable
- Tissues were not submitted in individual containers
- Test request deemed unnecessary by the Bureau of Epidemiology and Disease Control

Exceptions to this policy will be considered due to extenuating circumstances; however, final approval to make an exception can only be made by the Laboratory Director, Bureau Chief, Assistant Bureau Chief, or Technical Supervisor.

LABORATORY REPORTING REQUIREMENTS

When certain pathogens are isolated or identified, they must be reported to ADHS. A list of laboratory reportable pathogens can be found here:
http://www.azdhs.gov/phs/oids/pdf/labrptlist.pdf

For certain morbidities, an isolate must be sent to ASPHL:

- *Bacillus anthracis*
- *Bordetella pertussis*
- *Brucella* spp.
- *Burkholderia*
- *E. coli,* shiga-toxin producing
- *Francisella tularensis*
- *Listeria* spp., from a normally sterile site
- *Haemophilus influenzae* from a normally sterile site
- *Neisseria meningitidis*, from a normally sterile site
- *Streptococcus pneumoniae*, from a normally sterile site
- *Legionella* spp. (culture or DFA)
- Mycobacterium
- *Salmonella* spp.
- *Shigella* spp.
- VISA
- VRSA
- VRSE
- *Vibrio* spp.
- *Yersinia* spp.
- *Yersinia* pestis

For certain morbidities, a specimen must be sent to ASPHL:

- Hepatitis E Virus
- Measles
- Mumps
- Rubella

SPECIMEN TYPE

The disease-specific manual will state what specimen types are accepted for testing at ASPHL.

TRANSPORT MEDIA

Bacteria – Refer to disease-specific manual as to what transport media should be used.

Viruses – Unless otherwise stated in disease-specific investigation manual, use Hanks, Viral Transport Media (VTM), Universal Transport Media (UTM), or Sterile Saline.

TRANSPORT TEMPERATURE

Unless otherwise stated in the investigation manual, clinical samples should be shipped between 2°C and 8°C.

Unless otherwise stated in the investigation manual, environmental samples should be shipped at <10°C.

SPECIMENS FOR SEROLOGY

Blood – Collect 10-15 mL in a lavender top vacutainer with EDTA anticoagulant and do not freeze. Store sample refrigerated.

Serum – Collect 2-3 mL in a red top, tiger top, or gold vacutainer. Store sample refrigerated.

CSF – Pleural, or joint fluid, collect 2 mL and do not freeze. Store sample refrigerated.

Urine – Collect 10-20 mL. Store sample refrigerated.

SPECIMENS FOR VIROLOGY

NP Swabs – Store at 4°C and if testing cannot be performed within 72 hours of collection, store at -70°C. Best to collect within 3-5 days of onset of illness. Swabs with calcium alginate or cotton tips with wooden shafts are unacceptable for submission of specimens for viral culture.

Rectal Swab – Store at 4°C and if testing cannot be performed within 48 hours of collection, store at -70°C. Collect the specimen no later than 7-10 days after onset of illness. Use polyester, nylon, or synthetic tipped swabs moistened with Hanks or viral transport media.

CSF – Collect 3-4 mL and store at 4°C, if testing is delayed, store at -70°C. Should be collected no later than 7 to 10 days after the onset of illness.

Vesicular Lesions – Store at 4°C and dilute fluid in 2-3 mL of Hanks or VTM, if testing cannot be performed within 48 hours of collection, store at -70°C. Collect during the first three days of eruption.

Autopsy or ***Biopsy Specimens*** – Store at 4°C. Collect within 24 hours after death.

Urine – Collect 10-20 mL and store at store at 4°C. Collect the specimen as soon as possible after onset of illness.

Stool – Collect 3 to 4 grams in a sterile container.

Blood – Collect 8 mL.

SPECIMENS FOR PARASITOLOGY

The state lab does not accept routine diagnostic samples, but in outbreak investigations ASPHL will offer screening for Giardia and Cryptosporidium. All other samples sent to the state lab for parasitology screening will be forwarded to the CDC.

Include travel history with the request for blood parasite identification.

Fecal Specimens – Collect stool in a clean container or on clean paper and then transfer to the Ova & Parasite transport containers supplied by ASPHL. Follow instructions provided with the container. Do not contaminate specimen with urine or dirt. Each vial should be labeled with the patient's name and address. Because the host passes parasites intermittently, multiple specimens should be examined. At least three specimens should be collected over 10-14 days.

Blood Parasites – Blood smears should be made from blood that does not contain anticoagulants. Both thick and thin films should be submitted.

Free Living Amoebae – Unfixed specimens for culture (CSF or tissue) should be sent overnight at ambient temperature. Fixed specimens, including those in 70-90% ethanol, should be sent overnight on icepacks.

ENVIRONMENTAL MICROBIOLOGY

For food specimens:

- Collect approximately 200 grams of solid product, **OR**
- Collect approximately 100 mL of liquid

Specimens should be collected in a sterile whirl-pak plastic bag or a sterile urine collection cup. ASPHL does not provide sterile collection containers for food collection. Each individual sample must be shipped with a completed Food Analysis Submittal Form which can be found here: http://www.azdhs.gov/documents/preparedness/state-laboratory/public-health-microbiology/food-analysis-form.pdf. Each sample must also be identified by a unique number that corresponds to the identification number written on the submission form.

SHIPPING

There is no charge for testing done at the state lab. Specimens should be shipped to:

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

Category A and B shipping examples can be found here:
http://www.azdhs.gov/documents/preparedness/state-laboratory/category-a-and-b-shipping-examples.pdf

Category B shipping checklist can be found here:
http://www.azdhs.gov/documents/preparedness/state-laboratory/category-b-shipping-checklist.pdf

COURIER SERVICE

ASPHL has contracted a courier service called EZ Messenger. The courier picks up samples from organizations across Arizona and delivers them to ASPHL. The courier schedule provides a list of the organizations at which EZ Messenger picks up and whether they are a Routine/Daily pick up or a Will Call pick up. The courier schedule can be found here: http://www.azdhs.gov/documents/preparedness/state-laboratory/lsip/courier-schedule.pdf

Samples should be packaged according to ASPHL shipping requirements and can be left in a green EZ Messenger bin where they are picked up and transported to the state lab. If your organization is not on the list, contact an organization that is on the list to see if it is acceptable for you to use their bin.

- Specimens should be stored at recommended temperature and put into green bin shortly prior to the scheduled pick up time.
- It is acceptable to send more than one specimen together, as long as they are properly secured and identified.

For more information about the courier service, refer to the FAQ: http://www.azdhs.gov/documents/preparedness/state-laboratory/courier-service-faqs.pdf

If specimen is shipped by courier:

- Blood and blood products sent in vacutainer tubes should first be placed in a primary screw-cap leak proof container (such as a 50 mL plastic conical tube available from ASPHL) to reduce the risk of shattering in transit.
- The specimen should then be placed in a secondary container such as a plastic specimen bag with separate compartments for the submission form and specimen.
- All infectious material must be triple packaged and conform to U.S. Department of Transportation (DOT) requirements.
- Pack the specimen and its form in absorbent material to help prevent breakage.

If sent by mail:

- Blood sent in vacutainer tubes should first be placed in a leak proof primary container (such as a 50 mL conical tube available from ASPHL) to reduce the risk of shattering while in transit.
- All infectious material must be triple-packaged and conform to current shipping regulations. Consult the Domestic Mail Manual published by the US Post Office (USPS) for current USPS requirements, and the Hazardous Material Regulations (HMR) for current DOT requirements.
- Wrap the submission form around the secondary container and place inside the tertiary container or cardboard mailer. Package the specimen with enough absorbent material for entire contents and to help prevent breakage.
    - **DO NOT put submittal form around primary container**; it must be around the secondary container.
- Place appropriate biohazard label on the outside of the secondary container before transportation to ASPHL.

REQUESTING MATERIALS

Supplies can be ordered from ASPHL for specimen collection and shipment. Supplies ordered are to be used **ONLY** to submit specimens to ASPHL. To request materials, fill out this form: http://www.azdhs.gov/documents/preparedness/state-laboratory/request-for-materials.pdf and email labreceiving@azdhs.gov or fax to 602-364-0758. The turnaround time per order is about 5 days. Only order what will be used before the expiration date.

The following kits can be ordered from the state lab:

- **Enteric Kit**, which should be stored at 20-25°C, contains:
  - Instruction sheet, baggie, metal container, cardboard mailer, and Cary Blair media
  - Shelf life: 1-2 years
- **Influenza Kit**, which should be stored at 2-25°C, contains:
  - Instruction sheet, NP swab, and Universal Transport Media
  - Shelf life: 1-2 years
- **Pertussis Kit**, which should be stored at 2-8°C, contains:
  - Instruction sheet, NP swab, and Regan Lowe media
  - Shelf life: 4-6 months

REFERENCES

State Lab Shipping and Receiving:
https://www.azdhs.gov/preparedness/state-laboratory/index.php#shipping-receiving-home

Lab Guide:
http://www.azdhs.gov/documents/preparedness/state-laboratory/public-health-microbiology/lab-guide.pdf

Micro Submission Form:
http://www.azdhs.gov/documents/preparedness/state-laboratory/public-health-microbiology/clinical-microbiology-submission-form.pdf

Requesting Materials:
http://www.azdhs.gov/documents/preparedness/state-laboratory/request-for-materials.pdf

Courier Schedule:
http://www.azdhs.gov/documents/preparedness/state-laboratory/lsip/courier-schedule.pdf

Courier FAQ:
http://www.azdhs.gov/documents/preparedness/state-laboratory/courier-service-faqs.pdf

Category A and B Shipping:
http://www.azdhs.gov/documents/preparedness/state-laboratory/category-a-and-b-shipping-examples.pdf

Category B Shipping Checklist:
http://www.azdhs.gov/documents/preparedness/state-laboratory/category-b-shipping-checklist.pdf

Venous Blood Collection Tube Guide:
http://www.azdhs.gov/documents/preparedness/state-laboratory/venous-blood-collection-guide.pdf