Microbiology

Arbovirus Molecular Detection

Method: Real-time PCR

Specimen Type: Serum, CSF and Urine (See below)

Container: Sterile collection container; 5 mL vial; Serum separator tube or Red top tube

Storage (Time of Collection):

- Refrigerate the sample at ≤8°C if it is tested within 48 hours of collection
- Freeze the sample at ≤0°C if it is stored for more than 48 hours after collection

Specimen Amount: ≥ 1 mL/test request

Reference Value: Normally Not Detected

Transport:

- Transport ≤48 hours: Samples must be maintained at ≤8°C with frozen cold packs
- Transport >48 hours: Samples must be maintained at ≤0°C, with dry ice preferred

Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected

Dengue virus (1-4) - Serum and/or cerebrospinal fluid

Chikungunya virus - Serum and/or cerebrospinal fluid

Zika virus - Serum, cerebrospinal fluid and/or urine. **Urine is accepted for Zika testing only.** Serum is the preferred diagnostic specimen. Cerebrospinal fluid and urine may only be tested alongside a patient-matched serum specimen. Use the Zika Virus Test Submission Form.

Arbovirus collection and submission instructions and form: DOH BOL Arboviral Collection and Submission Form

Please contact DOH 1-877-PA-HEALTH (877-724-3258) for permission to submit any arbovirus.

Arbovirus Serology

Method: ELISA IgG and IgM

Specimen Type: Serum and cerebrospinal fluid (CSF)

Container: Sterile tube; 5 mL vial; Serum separator tube or Red top tube

Storage (Time of Collection):

- Refrigerate the sample at ≤8°C if it is tested within 48 hours of collection
- Freeze the sample at ≤0°C if it is stored for more than 48 hours after collection

Specimen Amount: ≥ 1 mL/test request

Reference Value: Normally Not Detected

Transport:

- Transport ≤48 hours: Samples must be maintained at ≤8°C with frozen cold packs
- Transport >48 hours: Samples must be maintained at ≤0°C, with dry ice preferred

Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected

The Bureau of Laboratories tests serum and/or cerebrospinal fluid for West Nile Virus (WNV) IgG/IgM.

St. Louis encephalitis (SLE), Eastern Equine Encephalitis (EEE), Jamestown Canyon Virus(JCV), Powassan, La Crosse, Yellow fever, Oropouche, Dengue, Zika, Chikungunya, and other arboviruses will be sent to CDC. Serum and/or CSF should be submitted. Use the Arbovirus collection and submission instructions and form: DOH BOL Arboviral Collection and Submission Form. Please contact DOH 1-877-PA-HEALTH (877-724-3258) for permissions to submit any other arboviruses other than WNV testing.

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Bacterial Pathogens – Food Testing

Methods: Real-time PCR and culture

Sample Types: Food or beverage **Container:** Any **Storage:** Refrigerate (2 - 8°C)	**Specimen Amount:** Solids ≥ 25 g, Liquids ≥ 30 mL **Reference Value**: Normally Not Detected **Transport:** Refrigerate (2 - 8°C) with cold packs

The Bureau of Laboratories tests food and beverage samples for *Campylobacter*, *E. coli*, *Salmonella*, Shiga Toxin, and *Shigella*. Call 484-870-6398 to request testing for *Listeria*, *Vibrio*, and *Yersinia* before submitting samples.

Bioterrorism Agents - Clinical

Approval before Submission is required. Call 484-885-3579

Agent: *Bacillus anthracis*

Methods: PCR and Culture

Sample/Specimen Testing Available: 1. Whole Blood (EDTA or Sodium Citrate) 2. Clinical Swabs 3. Serum 4. Plasma 5. Pleural Fluid 6. Cerebrospinal Fluid 7. Respiratory Specimens (Sputum, Bronchial Lavage, Transtracheal Aspirates) 8. Stool	**Specimen Amount:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Reference Value**: Normally Not Detected **Container:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Storage:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Transport:** Sample/specimen dependent. Call 484-885-3579 for further guidance

Agent: Brucellosis-causing *Brucella* spp

Methods: PCR and Culture

Sample/Specimen Testing Available: 1. Whole Blood 2. Serum 3. Bone Marrow 4. Joint Fluid 5. Cerebrospinal Fluid 6. Abscess Fluid 7. Tissue Masses (Spleen or Liver) **8.** Breast Milk	**Specimen Amount:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Reference Value**: Normally Not Detected **Container:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Storage:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Transport:** Sample/specimen dependent. Call 484-885-3579 for further guidance

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Bioterrorism Agents - Clinical

Approval before Submission is required. Call 484-885-3579

Agent: ***Burkholderia mallei & Burkholderia pseudomallei***

Methods: PCR and Culture

Sample/Specimen Testing Available: 1. Whole Blood 2. Serum 3. Bone Marrow 4. Sputum 5. Tissue Specimens (Biopsies & Abscess Aspirates) 6. Wound Swabs 7. Urine	**Specimen Amount:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Reference Value**: Normally Not Detected **Container:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Storage:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Transport:** Sample/specimen dependent. Call 484-885-3579 for further guidance

Agent: ***Francisella tularensis***

Methods: PCR and Culture

Sample/Specimen Testing Available: 1. Whole Blood 2. Serum 3. Bone Marrow 4. Respiratory Secretions 5. Tissue Specimens (Biopsies, Ulcer Scrapings, & Conjunctival Swabs) **6.** Aspirates (Lymph Node & Lesion)	**Specimen Amount:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Reference Value**: Normally Not Detected **Container:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Storage:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Transport:** Sample/specimen dependent. Call 484-885-3579 for further guidance

Agent: ***Yersinia pestis***

Methods: PCR and Culture

Sample/Specimen Testing Available: 1. Blood 2. Respiratory Specimens (Bronchial Wash, Nasopharyngeal Swab, Sputum, Transtracheal Aspirate) **3.** Aspirate, Tissue, or Biopsy	**Specimen Amount:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Reference Value**: Normally Not Detected **Container:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Storage:** Sample/specimen dependent. Call 484-885-3579 for further guidance **Transport:** Sample/specimen dependent. Call 484-885-3579 for further guidance

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Bioterrorism Agents – Environmental

Approval before Submission is required. Call 484-885-3579

Agents: *Bacillus anthracis,* Brucellosis-causing *Brucella* spp.*, Burkholderia mallei, Burkholderia pseudomallei, Francisella tularensis*, and *Yersinia pestis.*

Methods: PCR and Culture

Sample/Specimen Type: Variable **Container:** Sample/specimen dependent **Storage:** Sample/specimen dependent	**Specimen Amount:** Sample/specimen dependent **Reference Value**: Normally Not Detected **Transport:** Sample/specimen dependent

Bioterrorism Agents – Food

Approval before Submission is required. Call 484-885-3579

Agents: *Bacillus anthracis,* Brucellosis-causing *Brucella* spp.*, Burkholderia mallei, Burkholderia pseudomallei, Francisella tularensis*, and *Yersinia pestis.*

Methods: PCR and Culture

Sample/Specimen Type: Variable **Container:** Sample/specimen dependent **Storage:** Sample/specimen dependent	**Specimen Amount:** Sample/specimen dependent **Reference Value**: Normally Not Detected **Transport:** Sample/specimen dependent

Bioterrorism Agents – Reference Culture

Approval before Submission is required. Call 484-885-3579

Agents: *Bacillus anthracis,* Brucellosis-causing *Brucella* spp., *Burkholderia mallei, Burkholderia pseudomallei, Francisella tularensis,* and *Yersinia pestis***.**

Methods: PCR, Culture, and DFA

Sample/Specimen Type: Bacterial isolate or Positive Blood Culture Bottle **Container:** Agar plate or slant **Storage:** Ambient temperature (15-30 °C)	**Specimen Amount:** N/A **Reference Value**: Normally Not Detected **Media:** Blood, Chocolate, Tryptic Soy, or Liquid Media **Transport:** Category A Shipping Parameters at Ambient temperature (15-30 °C)

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Bordetella Detection

Methods: PCR and culture	
Specimen Types: Nasopharyngeal swab **Specimen Amount:** >1 mL **Storage:** Refrigerate (2 - 8°C)	**Reference Value**: Normally Not Detected **Media:** Eswab® Amies bacterial collection **Transport:** ≤ 4 days and refrigerate (2 - 8°C) with cold packs
Specimen Type: Bacterial isolate **Container:** Agar slant **Storage:** Ambient temperature (15-30 °C)	**Specimen Amount:** NA **Reference Value**: Normally Not Detected **Media:** Blood or Chocolate agar **Transport:** Ambient temperature (15-30 °C)

Botulinum Toxin Detection

Method: Mouse bioassay for *Clostridium botulinum* toxin	
Specimen Type: Stool and/or serum **Container:** Sterile container **Storage:** Refrigerate (2 - 8°C)	**Specimen Amount:** 10 g or 10 mL stool or minimum 5mL of serum **Reference Value**: Normally Not Detected **Transport:** Refrigerate (2 - 8°C) with cold packs

Campylobacter Species Identification

Approval before Submission is required. Call 484-885-3579	
Method: Conventional biochemical tests	
Specimen Type: Stool specimen **Container:** Media transport container **Storage:** Refrigerate (2 - 8°C)	**Specimen Amount:** Add until medium reaches fill line **Reference Value**: Normally Not Detected **Media:** Cary Blair **Transport:** Overnight - Refrigerate (2 - 8°C) with cold packs
Specimen Type: Bacterial isolate **Container:** Agar slant **Storage:** Ambient temperature (15-30 °C)	**Specimen Amount:** NA **Reference Value**: Normally Not Detected **Media:** Blood or Chocolate agar **Transport:** Ambient temperature (15-30 °C)

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Candida auris Molecular Detection

Method: PCR

Specimen Type: Axilla-groin Eswab®	**Specimen Amount:** Collected swab into the Eswab® collection tube
Container: Eswab® collection tube	**Reference Value**: Normally Not Detected
Storage: Refrigerate (2 - 8°C)	**Transport:** ≤4 days ambient temperature (15-30 °C)

Testing is provided to the PA Department of Health program only. Testing is not available to the public. Contact BOL at 610-280-3464, select the prompt for Microbiology, and then the prompt for Bacteriology to obtain approval for testing and specimen collection materials before submitting specimens.

Carbapenemase Detection

Method: PCR and Modified Carbapenem Inactivation Method (mCIM)

Specimen Type: Bacterial isolate	**Specimen Amount:** NA
	Reference Value: Normally Not Detected
Container: Culture tube or plate	**Media:** General growth media agar slant or plate
Storage: Ambient temperature (15-30 °C)	**Transport:** Ambient temperature (15-30 °C)

The Bureau of Laboratories tests bacterial isolates for the presence of Carbapenem resistance genes: *IMP*, *KPC*, *NDM*, *OXA* and *VIM*. Testing is only performed to support public health surveillance and response. Contact BOL at 610-280-3464, select the prompt for Microbiology, and then the prompt for Bacteriology to obtain approval for testing before submitting isolates.

Chlamydia trachomatis (CT) and Neisseria gonorrhoeae (NG) Detection

Method: Real-Time PCR

Specimen Type: Endocervical, vaginal and Urine	**Specimen Amount:** > 1mL of transport medium; 5mL Urine
	Reference Value: Normally Not Detected
Container: Xpert CTNG Vaginal/Endocervical Specimen Collection Kit, Xpert CT/NG Urine Specimen Collection Kit or Sterile Container	**Media:** Transport Medium
Storage: Keep the sample refrigerated or ambient (2 - 30°C)	**Transport:** Urine samples: • ≤3 days old: Transport at 2–30°C • >3 days old: Transport at 2–15°C Swab samples: • Transported at 2–30°C for up to 60 days

Testing is provided to the PA Department of Health program only. Testing is not available to the public.

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Haemophilus influenzae Identification

Method: MALDI-TOF and serotyping

Specimen Type: Identified *Haemophilus influenzae* bacterial isolate from sterile sites	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected
Container: Culture tube	**Media:** Chocolate slant
Storage: Ambient temperature (15-30 °C)	**Transport:** Ambient temperature (15-30 °C)

Pennsylvania regulations require that all *H. influenzae* isolates obtained from sterile sites be submitted to the Bureau of Laboratories within 5 workdays of isolation.

Influenza Detection

Method: Real-time PCR

Specimen Types: Nasal, Nasopharyngeal, Throat or Oropharyngeal, Conjunctival swab (only for H5)	**Specimen Amount:** > 1mL of transport medium **Reference Value**: Normally Not Detected
Container: VTM or UTM	**Media:** Viral transport medium
Storage (Time of Collection): • Refrigerate the sample at ≤8°C if it is tested within 72 hours of collection. • Freeze the sample at ≤0°C if it is stored for more than 72 hours after collection.	**Transport:** • Transport ≤72 hours: Samples must be maintained at ≤8°C with frozen cold packs • Transport >72 hours: Samples must be maintained at ≤0°C, with dry ice preferred **Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.**

Influenza-associated pediatric deaths and novel Influenza A virus infections are nationally notifiable. Laboratory-confirmed cases of Influenza are reportable in Pennsylvania.

Legionella spp. Identification

Methods: PCR

Specimen Type: Bacterial isolate	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected
Container: Culture tube	**Media:** BCYE slant
Storage: Ambient temperature (15-30 °C)	**Transport:** Ambient temperature (15-30 °C)

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Listeria monocytogenes Identification

Methods: Conventional biochemical tests; MALDI-TOF; Whole genome sequencing (WGS)

Specimen Type: Bacterial isolate	**Specimen Amount:** Not applicable
	Reference Value: Normally Not Detected
Container: Culture tube	**Media:** Blood, chocolate, or TSA slant
Storage: Ambient temperature (15-30 °C)	**Transport:** Ambient temperature (15-30 °C)

Pennsylvania DOH requests that all *L. monocytogenes* isolates obtained from sterile sites be submitted to the Bureau of Laboratories for surveillance.

Lyme Disease Serology: *Borrelia burgdorferi*

Methods: Borrelia (modified two-tiered testing) ELISA

Specimen Types: Serum	**Specimen Amount:** ≥ 1 mL
	Reference Value: Normally Not Detected
Container: Sterile tube; 5 mL vial; Serum separator tube or Red top tube	**Transport:** • Transport ≤48 hours: Samples must be maintained at ≤8°C with frozen cold packs • Transport >48 hours: Samples must be maintained at ≤0°C, with dry ice preferred
Storage (Time of Collection) : • Refrigerate the sample at ≤8°C if it is tested within 48 hours of collection • Freeze the sample at ≤0°C if it is stored for more than 48 hours after collection	**Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.**

Malaria and Babesia Confirmation

Methods: PCR

Specimen Type: Blood and stained blood smears	**Specimen Amount: ≥ 1mL**
	Reference Value: Normally Not Detected
Container: Blood in EDTA, Slides in crush-proof holder	
Storage: Refrigerate (2 - 8°C) for blood, Refrigerate to ambient for stained slides	**Transport:** Refrigerate (2 - 8°C) with cold packs. Refrigerate to ambient for stained slides

PCR panel includes *Babesia microti, Plasmodium falciparum, Plasmodium malariae, Plasmodium ovale,* and *Plasmodium vivax*. If stained blood smears only, transport the stained slides at an ambient temperature. Microscopy identification is performed by CDC at dpdx@cdc.gov

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Mumps Virus Detection

Method: Real-time PCR

Specimen Types: Oral or Buccal swab **Container:** VTM or UTM • Refrigerate the sample at ≤8°C if it is tested within 72 hours of collection. • Freeze the sample at ≤0°C if it is stored for more than 72 hours after collection. **Specimen amounts:** Oral/Buccal swab = 1 swab in VTM/UTM	**Specimen Amount:** >1mL **Reference Value**: Normally Not Detected **Transport:** • Transport ≤72 hours: Samples must be maintained at ≤8°C with frozen cold packs • Transport >72 hours: Samples must be maintained at ≤0°C, with dry ice preferred **Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.**

Mumps Virus Serology

Method: ELISA IgG and IgM

Specimen Type: Serum **Container:** Sterile tube; 5 mL vial; Serum separator tube or Red top tube **Storage (Time of Collection):** • Refrigerate the sample at ≤8°C if it is tested within 48 hours of collection • Freeze the sample at ≤0°C if it is stored for more than 48 hours after collection	**Specimen Amount:** ≥ 1 mL **Reference Value**: Normally Not Detected **Transport:** • Transport ≤48 hours: Samples must be maintained at ≤8°C with frozen cold packs • Transport >48 hours: Samples must be maintained at ≤0°C, with dry ice preferred **Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.**

Testing performed at CDC. Send buccal swab for PCR testing along with serology to the Bureau of Laboratories for forwarding to the CDC.

Mycobacteria Culture

Methods: Culture

Specimen Type: sputum, urine, and other body sites, not blood or stool **Container:** sterile container **Storage:** Refrigerate (2-8°C)	**Specimen Amount:** Sputum, ≥ 1 mL, Urine ≥ 50 mL **Reference Value**: Normally Not Detected **Media:** NA **Transport:** Refrigerate to ambient (≤25°C). Transport on cold packs is preferred.

Mycobacteriology Testing is provided to the PA Department of Health program only. Testing is not available to the public.

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Mycobacteria Identification	
Methods: Microscopy, PCR and MALDI-TOF	
Specimen Type: Mycobacteria culture **Container:** Medium tube **Storage:** Ambient temperature (15-30 °C)	**Specimen Amount:** NA **Reference Value**: Normally Not Detected **Media:** Middlebrook, LJ, or positive broth culture **Transport:** Ambient temperature (15-30 °C)

Mycobacterium tuberculosis Drug Susceptibility	
Methods: Primary drugs: MGIT 960 broth culture	
Specimen Type: *M. tuberculosis* complex culture **Container:** Medium tube **Storage:** Ambient temperature (15-30 °C) **Primary Drugs:** Ethambutol, isoniazid, pyrazinamide, and rifampin	**Specimen Amount:** NA **Reference Value**: Susceptible **Media:** Middlebrook, LJ, or positive broth culture **Transport:** Ambient temperature (15-30 °C)
Secondary drug testing performed at the CDC using molecular testing and / or agar proportion. **Molecular Detection of Drug Resistance** - Rifampin, Isoniazid, Ethambutol, Pyrazinamide, Fluoroquinolones, Amikacin, Capreomycin, Kanamycin, Bedaquiline, Clofazimine, and Linezolid. **Agar Proportion** - Amikacin, Capreomycin, PAS, Ethambutol, Ethionamide, Isoniazid, Kanamycin, Ofloxacin, Ciprofloxacin, Rifabutin, Streptomycin, Rifampin, and Pyrazinamide.	

Mycobacterium tuberculosis complex – Nucleic Acid Amplification	
Method: PCR	
Specimen Type: Clinical respiratory (unprocessed) **Container:** 50 mL conical tube **Storage**: Refrigerate **(**2 - 8°C)	**Specimen Amount:** ≥ 5 mL **Reference Value**: Normally Not Detected **Transport:** Refrigerate to ambient (≤25°C). Transport with cold packs is preferred.

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Mycobacterium tuberculosis complex – IGRA

Method: Interferon gamma release assay (IGRA) by QuantiFERON-TB Gold Plus

Specimen Type: Whole Blood **Container:** QuantiFERON-TB Gold (4 tubes) **Storage:** QFT tubes need to be incubated at 37°C for 16-24 hours after collection. The incubation of the tubes must occur within 16 hours of collection	**Specimen Amount:** 1mL **Reference Value**: Antigen minus Nil result of <0.35 IU/mL **Transport:** **Uncentrifuged specimens** • Room temperature: Acceptable upto 72 hours after incubation • Refrigerated: Acceptable upto 72 hours after incubation Frozen: Not acceptable **Centrifuged specimens** • Room temperature: Not acceptable • Refrigerated: Acceptable upto 28 days • Frozen: Not acceptable

Testing is provided to the PA Department of Health program only. Testing is not available to the public.

Neisseria gonorrhoeae Drug Susceptibility

Method: MIC by Etest

Specimen Type: Identified *Neisseria gonorrhoeae* bacterial isolate **Container:** Collection device or plate medium **Storage:** Incubation (35-37 °C in CO2)	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected **Media:** Growth-supporting agar **Transport:** Ambient temperature (15-30 °C)

The Bureau of Laboratories tests for susceptibility to azithromycin (15µg), ceftriaxone (30µg), ciprofloxacin (5µg)

Neisseria meningitidis Identification

Methods: Conventional biochemical tests and serotyping

Specimen Type: Identified *Neisseria meningitidis* bacterial isolate from sterile sites **Container:** Culture tube **Storage:** Ambient temperature (15-30 °C)	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected **Media:** Agar Slant **Transport:** Ambient temperature (15-30 °C)

Pennsylvania regulations require that all isolates of *N. meningitidis* isolates obtained from sterile sites be submitted to the Bureau of Laboratories within 5 workdays of isolation.

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Norovirus Detection

Method: PCR	
Specimen Type: Stool	**Specimen Amount:** ≥ 1 mL of stool; Add specimen to the fill line of Cary-Blair transport container **Reference Value**: Normally Not Detected
Container: Media transport container	**Media:** Cary Blair
Storage: Refrigerate (2 - 8 °C)	**Transport:** ≤ 96 hours at Refrigerate (2 - 8°C) with cold packs

Orthopox Virus Detection

Approval before Submission is required. Call 484-885-3579	
Method: PCR	
Specimen Type: See below **Container:** Sterile container **Storage:** Refrigerate (2 - 8 °C) **Specimen Types:** Fluid or skin from vesicle or pustule, punch biopsy, ocular impressions, or swab	**Specimen Amount:** 1 swab **Reference Value**: Normally Not Detected **Transport:** Refrigerate (2 - 8 °C)
Collection instructions: (1) Sanitize skin with alcohol wipe and allow to completely dry (2) Open and remove the top of the lesion using a sterile scalpel or polyester or rayon-tipped swab (3) Break off swab and place in a sterile transport container. **Do not use viral transport medium**	

Rabies

Method: Direct Fluorescent Antibody (DFA)	
Specimen Type: Brain tissue **Container:** Leak-proof container with cold pack **Storage:** Refrigerate (2 - 8 °C)	**Specimen Amount:** Animal head or small animal weighing <2 lbs **Reference Value**: Normally Not Detected **Transport:** Refrigerate (2 - 8 °C)
The Rabies Human Exposure Questionnaire must be submitted along with the specimen. It can be found on the Rabies page of the Bureau of Laboratories' website (www.health.pa.gov/labs). Call (484) 870-6280 with questions.	

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Respiratory Syndromic Panel

Method: Real-time PCR

Specimen Types: Nasopharyngeal (Preferred) and Nasal

Container: VTM or UTM

Storage (Time of Collection) :

- Refrigerate the sample at ≤8°C if it is tested within 72 hours of collection
- Freeze the sample at ≤0°C if it is stored for more than 72 hours after collection

Specimen Amount: 1 swab

Reference Value: Normally Not Detected

Transport:

- Transport ≤72 hours: Samples must be maintained at ≤8°C with frozen cold packs
- Transport >72 hours: Samples must be maintained at ≤0°C, with dry ice preferred

Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.

The Bureau of Laboratories' respiratory panel includes Adenovirus, Coronavirus (229E, HKU1, NL63, OC43), SARS-CoV-2, Human Metapneumovirus, Human Rhinovirus/Enterovirus, Influenza A, A/H1, A/H1-2009, A/H3, Influenza B, Parainfluenza Virus type 1-4, Respiratory Syncytial Virus Type A and B, *Chlamydia pneumoniae*, and *Mycoplasma pneumoniae*.

Ricin Detection – Environmental and Food

Call 484-885-3579 before submitting samples to obtain approval for testing and details on packaging, storage, and transport.

Method: Time-resolved Fluorescence (TRF) immunoassay

Specimen Type: Variable

Container: Leak proof container

Storage: Call 484-885-3579 for information

Specimen Amount: Variable

Reference Value: Normally Not Detected

Transport: Call 484-885-3579 for information

Rubella Serology

Methods: ELISA IgG

Specimen Types: Serum

Container: Sterile tube; 5 mL vial; Serum separator tube or Red top tube

Storage (Time of Collection):

- Refrigerate the sample at ≤8°C if it is tested within 48 hours of collection
- Freeze the sample at ≤0°C if it is stored for more than 48 hours after collection

Specimen Amount: ≥ 1 mL

Reference Value: Normally Not Detected

Transport:

- Transport ≤48 hours: Samples must be maintained at ≤8°C with frozen cold packs
- Transport >48 hours: Samples must be maintained at ≤0°C, with dry ice preferred

Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.

The Bureau of Laboratories only performs IgG testing. Specimens are referred to the CDC for IgM testing. Vaccination and travel history is required.

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Rubeola (Measles) Serology

Method: ELISA IgG

Specimen Type: Serum

Container: Sterile tube, 5 mL vial, Serum separator tube or Red top tube

Storage (Time of Collection) :

- Refrigerate the sample at ≤8°C if it is tested within 48 hours of collection
- Freeze the sample at ≤0°C if it is stored for more than 48 hours after collection

Specimen Amount: ≥ 1 mL

Reference Value: Normally Not Detected

Transport:

- Transport ≤48 hours: Samples must be maintained at ≤8°C with frozen cold packs
- Transport >48 hours: Samples must be maintained at ≤0°C, with dry ice preferred

Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.

The Bureau of Laboratories only performs IgG testing. Specimens with positive IgG results are referred to the CDC for IgM testing. Vaccination and travel history is required.

Rubeola (Measles) Detection

Method: Real-time PCR

Specimen Types: Nasopharyngeal aspirates or swab, Oropharyngeal swab and Urine

Container: VTM or UTM

Storage (Time of Collection) :

- Refrigerate the sample at ≤8°C if it is tested within 72 hours of collection
- Freeze the sample at ≤0°C if it is stored for more than 72 hours after collection

Specimen Amount: ≥ 1 mL

Reference Value: Normally Not Detected

Transport:

- Transport ≤72 hours: Samples must be maintained at ≤8°C with frozen cold packs
- Transport >72 hours: Samples must be maintained at ≤0°C, with dry ice preferred

Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.

Nasopharyngeal aspirate: ≥ 0.5 mL fluid in a 5 mL vial
Nasopharyngeal or oropharyngeal swab: 1 swab in viral transport media
Urine: >35 mL in a 50 mL conical tube

Collect respiratory specimens (nasopharyngeal aspirate, nasopharyngeal swab, or oropharyngeal swab) within four days of the onset of symptoms. For improved virus detection, submit a urine specimen with a respiratory specimen. Urine specimens collected less than four days from the onset of symptoms may not yield positive results.

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Salmonella Identification

Methods: Conventional biochemical tests, serogrouping, and whole genome sequencing (WGS)

Specimen Type: Stool **Container:** Media transport container **Storage:** Refrigerate (2 - 8°C)	**Specimen Amount:** Add until medium reaches fill line **Reference Value**: Normally Not Detected **Media:** Cary Blair **Transport:** Refrigerate to ambient (≤ 25°C) Transport on cold packs is preferred.

Refer to the website **www.health.pa.gov/labs** for stool collection instructions.

Specimen Type: Bacterial Isolate **Container:** Culture tube **Storage:** Ambient temperature (15-30 °C)	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected **Media:** TSA slant **Transport:** Ambient temperature (15-30 C)

Pennsylvania regulations require that all *Salmonella* isolates or positive CIDTs be submitted to the Bureau of Laboratories within 5 workdays of isolation.

SARS-CoV-2 Detection

Method: Real-time PCR

Specimen Types: Nasal, Nasopharyngeal, Throat or Oropharyngeal **Container:** VTM or UTM **Storage (Time of Collection):** • Refrigerate the sample at ≤8°C if it is tested within 72 hours of collection • Freeze the sample at ≤0°C if it is stored for more than 72 hours after collection	**Specimen Amount:** 1 swab **Reference Value**: Normally Not Detected **Transport:** • Transport ≤72 hours: Samples must be maintained at ≤8°C with frozen cold packs • Transport >72 hours: Samples must be maintained at ≤0°C, with dry ice preferred **Temperature is checked upon receipt and any specimen not meeting the above conditions will be rejected.**

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Shigella Identification

Methods: Conventional biochemical tests and serotyping

Specimen Type: Stool	**Specimen Amount:** Add to the fill line
Container: Media transport container	**Reference Value**: Normally Not Detected **Media:** Cary Blair
Storage: Refrigerate (2 - 8°C)	**Transport:** Refrigerate (2 - 8°C) transport with cold packs
Specimen Type: Bacterial isolate	**Specimen Amount:** Not applicable
Container: Culture tube	**Reference Value**: Normally Not Detected **Media:** TSA slant
Storage: Ambient temperature (15-30 °C)	**Transport:** Ambient temperature (15-30 °C)

Pennsylvania regulations require that all isolates or positive stool cultures of *Shigella* be submitted to the Bureau of Laboratories within 5 workdays of isolation.

Shiga Toxin Detection or Shiga Toxin-producing *E. coli (STEC) Detection*

Method: PCR for Shiga Toxin 1 and 2

Specimen Type: Stool	**Specimen Amount:** Add until media reaches fill line **Reference Value**: Normally Not Detected
Container: Media transport container	**Media:** Cary Blair
Storage: Refrigerate (2 - 8°C)	**Transport:** Refrigerate to ambient (≤25°C) – transport with cold packs is preferred
Specimen Type: Bacterial isolate, GN broth culture	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected
Container: Culture medium	**Media:** Slant, GN tube
Storage: Ambient temperature (15-30 °C)	**Transport:** Ambient temperature (15-30 °C)

Pennsylvania regulations require that all isolates of STEC or positive stool culture obtained be submitted to the Bureau of Laboratories within 5 workdays.

Streptococcus Group A screening

Method: Culture

Specimen Type: Throat, wounds, parenteral	**Specimen Amount:** Collected swab into the BD CultureSwab Plus collection tube with Amies **Reference Value**: Normally No Streptococcus group A isolated
Container: Swab collection tube	
Storage: Refrigerate (2 - 8°C)	**Transport:** Refrigerate to ambient (≤ 25°C). Transport with cold packs is preferred.

Testing is provided to the PA Department of Health program only. Testing is not available to the public. Contact BOL at 610-280-3464, select the prompt for Microbiology, and then the prompt for Bacteriology to obtain approval for testing and specimen collection materials before submitting specimens.

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Vibrio Species Identification	
Methods: Conventional biochemical tests and *V. cholera* typing	
Specimen Type: Stool specimen **Container:** Media transport container **Storage:** Refrigerate (2 - 8°C)	**Specimen Amount:** Add until medium reaches fill line **Reference Value**: Normally Not Detected **Media:** Cary Blair **Transport:** Refrigerate to ambient (≤25°C). Transport with cold packs is preferred.
Specimen Type: Bacterial isolate **Container:** Culture tube **Storage:** Ambient temperature	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected **Media:** Blood, chocolate, or TSA slant **Transport:** Ambient temperature

Yersinia Species Identification	
Methods: Conventional biochemical tests	
Specimen Type: Stool specimen **Container:** Media transport container **Storage:** Refrigerate (2 - 8°C)	**Specimen Amount:** Add until medium reaches fill line **Reference Value**: Normally Not Detected **Media:** Cary Blair **Transport:** Refrigerate to ambient (≤25°C). Transport on cold packs is preferred.
Specimen Type: Bacterial isolate **Container:** Culture tube **Storage:** Ambient temperature	**Specimen Amount:** Not applicable **Reference Value**: Normally Not Detected **Media:** Blood, chocolate, or TSA slant **Transport:** Ambient temperature

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Chemistry & Toxicology

Abrine and Ricinine

Method: Liquid chromatography – tandem mass spectrometry

Specimen Type: Urine **Container:** Urine collection cup **Storage:** -20°C	**Specimen Amount:** ≥ 5 mL **Reference Value**: Normally Not Detected **Transport:** -20°C

Contact Chemical Terrorism Coordinator at 484-870-6279 before submitting specimens. Collect and submit specimens as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

Blood Lead

Method: Graphite Furnace Atomic – Absorption spectroscopy

Specimen Type: Blood **Container:** Blood collection tube containing EDTA **Storage:** 2 - 8°C	**Specimen Amount:** ≥ 500 µL **Reference Value**: < 3.5 µg/dL **Transport:** Ambient temperature

Contact Toxicology supervisor at 484-870-6294 before submitting specimens. Collect and submit specimens as soon as possible once exposure is suspected.

Cyanide

Method: Gas chromatography – mass spectrometry

Specimen Type: Blood **Container:** Blood collection tube containing EDTA **Storage:** 4 - 8°C (DO NOT FREEZE)	**Specimen Amount:** ≥ 1 mL **Reference Value**: < 100 ng/mL **Transport:** 4 - 8°C (DO NOT FREEZE)

Contact Chemical Terrorism Coordinator at 484-870-6279 before submitting specimens. Collect and submit specimens as soon as possible once exposure is suspected. If possible, submit two blood collection tubes. Fill the tubes as completely as possible. Minimizing the vacant space in the tubes increases the accuracy of the analysis.

4-Hydroxy-3-Nitrophenylacetic Acid (HNPAA)

Method: Liquid chromatography – tandem mass spectrometry

Specimen Type: Urine **Container:** Urine collection cup **Storage:** -20 °C	**Specimen Amount:** ≥ 5 mL **Reference Value**: Normally Not Detected **Transport:** -20 °C

Contact Chemical Terrorism Coordinator at 484-870-6279 before submitting specimens. Collect and submit specimens as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

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Organophosphate Nerve Agent Metabolites

Method: Liquid chromatography – tandem mass spectrometry

Specimen Type: Urine **Container:** Urine collection cup **Storage:** -20°C	**Specimen Amount:** ≥ 5 mL **Reference Value**: Normally Not Detected **Transport:** -20°C

Contact Chemical Terrorism Coordinator at 484-870-6279 before submitting specimens. Collect and submit specimens as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

Postmortem Blood Alcohol

Method: Headspace gas chromatography

Specimen Type: Blood **Container:** Blood collection tube containing sodium oxalate and potassium fluoride (grey-topped tube) **Storage:** 2 - 8°C	**Specimen Amount:** 10 mL **Reference Value**: Normally Not Detected **Transport:** Ambient temperature

Testing is only available to county coroners and medical examiners. Submit two grey-topped tubes for each deceased individual. The submitted tubes will also be used for postmortem drug testing.

Postmortem Drugs

Methods: Screening: Immunoassay Confirmation: Gas chromatography – mass spectrometry

Specimen Type: Blood **Container:** Blood collection tube containing sodium oxalate and potassium fluoride (grey-topped tube) **Storage:** 2 - 8°C	**Specimen Amount:** 10 mL **Reference Value**: Normally Not Detected **Transport:** Ambient temperature

Testing is only available to county coroners and medical examiners. Submit two grey-topped tubes for each deceased individual. The submitted tubes will also be used for postmortem blood alcohol testing.

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