

Division of Clinical Microbiology

Adenovirus			
Methods:	Culture and PCR		
Normal Value:	Not detected	Container:	Viral transport medium
Specimen Type:	Nasal or throat swab	Storage:	2 to 8 °C
Specimen Amount:	≥ 5 mL	Transport:	2 to 8 °C

Arbovirus			
Method:	Real-time PCR and culture		
Normal Value:	Not detected	Container:	5 mL vial
Specimen Type:	Cerebral spinal fluid	Storage:	2 to 8 °C, - 20 °C
Specimen Amount:	≥ 1 mL	Transport:	2 to 8 °C, < 0 °C
Note:	Specimens to be tested for arboviruses such as Dengue, Chikungunya, Yellow Fever, Powassan, Zika etc., should be sent to the Bureau of Laboratories for forwarding to the CDC. Contact Dr. Annette Regec at (484)-870-6289 to arrange testing. Approval from the Pennsylvania Department of Health Bureau of Epidemiology is required before arbovirus testing is performed on human specimens. Please contact epidemiologists Dr. Andre Weltman at (717) 787-3350 to arrange testing.		

Arbovirus Immunoassay			
Method:	IgG and IgM ELISA for Eastern Equine Encephalitis (EEE), Western Equine Encephalitis (WEE), St. Louis Encephalitis (SLE), and La Crosse Encephalitis (LAC)		
Normal Value:	Not applicable	Container:	5 mL vial
Specimen Type:	Serum or plasma	Storage:	2 to 8 °C
Specimen Amount:	≥ 1 mL	Transport:	2 to 8 °C
Note:	Specimens to be tested for other arboviruses such as Dengue, Chikungunya, Yellow Fever, Powassan etc., should be sent to the Bureau of Laboratories for forwarding to the CDC. Contact Dr. Annette Regec at (484) 870-6289 to arrange testing.		

Arbovirus Environmental Monitoring	
Method:	Real-time PCR
Normal Value:	Not applicable
Specimen Type:	Mosquitoes, bird swabs, or horse tissue
Specimen Amount:	See note
Container:	See note
Storage:	2 to 8 °C
Transport:	2 to 8 °C
Note:	Environmental monitoring for the following arboviruses: West Nile, Eastern Equine encephalitis, Lacrosse, and St. Louis Encephalitis is conducted in conjunction with the Pennsylvania Departments of Agriculture and Environmental Protection. Specimens are only accepted from those Commonwealth agencies. To report dead birds for West Nile testing please call 1-877-PAHEALTH (1-877-724-3258).

Bacterial Isolate Identification	
Normal Value:	Not applicable
Specimen Type:	Bacterial isolate
Specimen Amount:	Not applicable
Media:	TSA slant
Storage:	Ambient temperature
Transport:	Ambient temperature

Bacterial pathogens – Food Testing	
Methods:	PCR and culture for <i>Salmonella</i> , <i>Shigella</i> , <i>Campylobacter</i> , Shiga Toxin and <i>E. coli</i> O157
Normal Value:	Not applicable
Specimen Type:	Food or beverage
Specimen Amount:	25 grams or 1 ounce
Container:	Any
Storage:	2 to 8 °C
Transport:	2 to 8 °C
Note:	Special requests for <i>Campylobacter</i> , <i>Vibrio</i> , <i>Listeria</i> , and <i>Yersinia</i>

Bioterrorism Agents – Environmental, Clinical, Food, Reference culture	
Method:	PCR and culture for <i>Bacillus anthracis</i> , <i>Brucella</i> sp., <i>Burkholderia</i> sp., <i>Francisella</i> sp., <i>Yersinia pestis</i>
Normal Value:	Not applicable
Specimen Type:	Variable
Specimen Amount:	Variable
Container:	Various
Storage:	Specimen dependent
Transport:	Courier
Note:	Before shipping specimens, call (484)-870-6398 to arrange testing.

Bioterrorism agents - Potable Water	
Method:	Ultrafiltration, PCR and culture
Normal Value:	Not applicable
Specimen Type:	Water from reservoir or tank (municipal)
Specimen Amount:	20 - 100 liters
Note:	Municipal drinking water - call (484) 870-6398 for collection/shipping instructions

Bordetella Detection	
Method:	Conventional culture, biochemical tests, DFA, and PCR for <i>Bordetella pertussis</i> , <i>Bordetella parapertussis</i>
Normal Value:	Not applicable
Specimen Type:	Bacterial isolate or NP swab or wash
Specimen Amount:	Not applicable
Note:	Suspected <i>Bordetella</i> specimens should be submitted using the collection kits provided by the Bureau of Laboratories. For <i>Bordetella</i> collection supplies call (484) 870-6432.

Botulism toxin detection - Infant (< 1yr old)	
Method:	Mouse bioassay for <i>Clostridium botulinum</i> toxin
Normal Value:	Not applicable
Specimen Type:	Stool
Specimen Amount:	10 mL or 10 grams
Note:	Rectal swabs are accepted if stool is not able to be obtained.

Botulism Toxin Detection - Adult	
Method:	Mouse bioassay for <i>Clostridium botulinum</i> toxin
Normal Value:	Not applicable
Specimen Type:	Serum
Specimen Amount:	7 mL

Botulism Toxin Detection			
Method:	PCR for Toxin A-G		
Normal Value:	Not applicable	Container:	Media slant or plate
Specimen Type:	Pure isolate of <i>Clostridium botulinum</i>	Storage:	Anaerobic condition
Specimen Amount:	Bacterial isolate	Transport:	Anaerobic condition at ambient temperature

Botulism Toxin Detection - Food Testing			
Method:	DIG-ELISA with confirmation by Mouse bioassay for <i>Clostridium botulinum</i> toxin		
Normal Value:	Not applicable	Container:	Any
Specimen Type:	Food	Storage:	2 to 8 °C
Specimen Amount:	25 grams or 1 ounce	Transport:	2 to 8 °C

Campylobacter Species Identification			
Method:	Conventional biochemical tests		
Normal Value:	Not applicable	Media:	Blood, chocolate, or Carey-Blair media
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature

Carbapenemase Detection			
Method:	MIC susceptibilities, blaKPC by PCR, and Modified Hodge Test		
Normal Value:	Not applicable	Media:	Slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature
Note:	Isolates are sent to the CDC for testing. Please submit the CDC paperwork with the specimen.		

<i>Chlamydia trachomatis</i> Detection			
Method:	Fluorescent probe following nucleic acid amplification		
Normal Value:	Not applicable	Container:	Swab transport tube or urine transport tube
Specimen Type:	Endocervical, urethral swab or urine	Storage:	2 to 8 °C
Specimen Amount:	1 swab or > 35mL voided urine	Transport::	Ambient temperature
Note:	Transfer approximately 3 mL of urine to the black line on the fill window located on the transport tube label. Urine should be transferred to the transport tube within 8 hours of collection. The Bureau of Laboratories provides collection kits for Chlamydia specimens. Please call (484) 870-6432 to obtain kits. All Chlamydia specimens must be received within 6 days of collection.		

<i>Clostridium difficile</i> Toxin Detection			
Method:	ELISA		
Normal Value:	Not applicable	Container:	Cary-Blair medium
Specimen Type:	Stool	Storage:	2 to 8 °C
Specimen Amount:	Add specimen to fill line on Cary-Blair	Transport:	2 to 8 °C

<i>Coxiella burnetti</i> detection			
Method:	PCR – Select Agent		
Normal Value:	NA	Container:	EDTA tube
Specimen Type:	Whole blood preferred	Storage:	2 to 8 °C
Specimen Amount:	At least 1 ml	Transport:	2 to 8 °C
Note:	Before shipping specimens, call (484) 870-6398 to arrange testing. Serum, environmental swabs, powders and liquids are also accepted.		

Enteric Pathogens			
Method:	Culture and PCR for <i>Salmonella</i> , <i>Shigella</i> , <i>E. coli</i> O157 and Shiga-like toxin producers		
Normal Value:	No <i>E. coli</i> O157, <i>Salmonella</i> sp., Shiga-like toxin organisms or <i>Shigella</i> sp. isolated	Media:	Carey-Blair transport medium
Specimen Type:	Stool sample	Storage:	2 to 8 °C
Specimen Amount:	Add specimen to fill line on Cary-Blair	Transport:	2 to 8 °C
Note:	Specimens can be tested for <i>Campylobacter</i> , <i>Vibrio</i> , <i>Listeria</i> , <i>Aeromonas</i> , <i>Yersinia</i> and <i>Plesiomonas</i> upon special request.		

Enterovirus Identification			
Method:	Culture, PCR, or IFA		
Normal Value:	Not applicable	Container:	Viral transport medium, 5 mL vial, or clean stool kit
Specimen Type:	Nasal or throat swab, tissue culture fluid, or stool	Storage:	- 20 °C
Specimen Amount:	1 swab, ≥ 0.5 mL fluid, or 25 g stool	Transport:	< 0 °C
Note:	Confirmation of positive cell culture by IFA covers the following: Coxsackie B1-B6, Echovirus 4,6,9,11,30 and 34, Pan-Enterovirus including 70 and 71, Poliovirus 1-3,		

<i>Esherichia coli</i> O157 Identification			
Method:	Conventional biochemical tests, serology, and Pulsed Field Gel Electrophoresis (PFGE)		
Normal Value:	Not applicable	Media:	TSA slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature

Haemophilus influenzae Identification			
Method:	Conventional biochemical tests and serotyping		
Normal Value:	Not applicable	Media:	Chocolate slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature
Note:	Pennsylvania regulations require the submission of all <i>H. influenzae</i> isolates from sterile sites.		

CD4+ T-Cell Determination			
Method:	Flow cytometry		
Normal Value:	300 to 1300 cells/mL	Container:	EDTA purple-topped blood tube
Specimen Type:	Whole blood	Storage:	Ambient temperature
Specimen Amount:	≥ 1 mL	Transport:	Ambient temperature
Note:	Specimen must be received in the laboratory within 48 hours of collection.		

HIV Detection [Dried Blood Spots]			
Method:	Screening: Immunoassay; Confirmation: Western Blot		
Normal Value:	Not applicable	Container:	Filter paper
Specimen Type:	Dried blood spot from finger stick or venipuncture	Storage:	Biohazard bag at ambient temperature with desiccant
Specimen Amount:	Saturate filter paper with 2 spots 3/4" in diameter	Transport:	Ambient temperature with desiccant

HIV Detection [Oral Fluid]			
Method:	Screening: Immunoassay; Confirmation: Western Blot		
Normal Value:	Not applicable	Container:	Oral fluid collection device
Specimen Type:	Oral fluid	Storage:	Ambient temperature
Specimen Amount:	≥ 1 mL	Transport:	Ambient temperature

HIV Detection [Serum or Plasma]			
Method:	Screening: ELISA; Confirmation: Western Blot		
Normal Value:	Not applicable	Container:	Red-topped blood collection tube
Specimen Type:	Serum or Plasma	Storage:	2 to 8 °C
Specimen Amount:	≥ 2 mL	Transport:	2 to 8 °C

HIV Viral Load			
Method:	Quantitative PCR		
Normal Value:	Not applicable	Container:	Pearl-topped blood collection tube
Specimen Type:	Plasma	Storage:	2 to 8 °C
Specimen Amount:	≥ 2 mL	Transport:	2 to 8 °C

Herpesvirus B – B Virus			
Method:	Serology		
Normal Value:	Not applicable	Container:	5 mL vial
Specimen Type:	Serum	Storage:	2 to 8 °C
Specimen Amount:	≥ 1 mL	Transport:	2 to 8 °C
Note:	Contact the Bureau of Laboratories at (484) 870-6289 for proper specimen submission paperwork. Specimens will be sent to a reference laboratory for testing.		

Human Metapneumovirus			
Method:	PCR		
Normal Value:	Not applicable	Container:	Viral transport medium
Specimen Type:	Nasal or throat swab	Storage:	2 to 8 °C
Specimen Amount:	1 swab	Transport:	2 to 8 °C

Human Rhinovirus			
Method:	PCR		
Normal Value:	Not applicable	Container:	Viral transport medium
Specimen Type:	Nasal or throat swab	Storage:	2 to 8 °C
Specimen Amount:	1 swab	Transport:	2 to 8 °C

Influenza Detection			
Method:	PCR		
Normal Value:	Not applicable	Container:	Viral transport medium
Specimen Type:	Nasal or throat swab	Storage:	2 to 8 °C
Specimen Amount:	1 swab	Transport::	2 to 8 °C

Influenza Hemagglutinin (H) Sub-typing			
Methods:	Hemagglutination Inhibition or Real-time PCR for subtyping human influenza A and B		
Normal Value:	Not applicable	Container:	Viral transport medium or 5 mL vial
Specimen Type:	Nasal or throat swab, or positive tissue culture	Storage:	2 to 8 °C swab, < 0 °C culture
Specimen Amount:	1 swab or ≥ 0.5 mL tissue culture fluid	Transport:	2 to 8 °C swab, < 0 °C culture

<i>Legionella spp. and pneumophila</i> Culture and Identification			
Methods:	Conventional biochemical tests, DFA, culture and PCR		
Normal Value:	Not applicable	Media:	BYCE slant
Specimen Type:	Bacterial isolate, Respiratory Specimen	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature

Legionella from Water			
Methods:	PCR and culture for <i>Legionella spp.</i> and <i>L. pneumophila</i>		
Normal Value:	Not applicable	Container:	Polypropylene screw cap
Specimen Type:	Water	Storage:	Ambient Temperature
Specimen Amount:	1 liter	Transport:	Ambient Temperature

Listeria monocytogenes Identification			
Method:	Conventional biochemical tests, Pulsed field gel electrophoresis for outbreak cases		
Normal Value:	Not applicable	Media:	Blood, chocolate, or TSA slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature

Lyme Disease Immunoassay – <i>Borrelia burgdorferi</i>			
Method:	Screening: ELISA IgM and IgG; Confirmation: Western blot		
Normal Value:	Not applicable	Container:	Red-topped blood collection tube
Specimen Type:	Serum or plasma	Storage:	2 to 8 °C
Specimen Amount:	≥ 1 mL	Transport:	2 to 8 °C

Malaria and Babesia Confirmation			
Method:	Microscopy and PCR		
Normal Value:	Not detected	Container:	Slide mailer, EDTA blood tube
Specimen Type:	Stained slides, blood	Storage:	Ambient temperature, 2 to 8 °C
Specimen Amount:	Not applicable	Transport:	Ambient temperature, 2 to 8 °C
Note:	Slide images are electronically sent to the CDC for confirmation. www.dpdx.cdc.gov PCR is done only at the discretion of the CDC's parasitology laboratory.		

Molecular Subtyping – Cluster Detection	
Method:	Pulsed-field gel electrophoresis (PFGE)
Normal Value:	Not applicable
Specimen Type:	Enterobacteriaceae and <i>Listeria</i>
Specimen Amount:	See note
Container:	Pure culture
Storage:	Ambient temperature
Transport:	Ambient temperature
Note:	PFGE subtyping is conducted on Shiga toxin-producing <i>E. coli</i> (STEC), <i>Salmonella</i> , and <i>Shigella</i> sp bacterial isolates submitted to the BOL as part of the surveillance program mandated by Pennsylvania Code (Title 28, Chapter 27). PFGE testing is also conducted on <i>Listeria monocytogenes</i> and <i>Vibrio parahaemolyticus</i> . PFGE testing may be requested to aid in an infection control investigation on a limited number of bacterial isolates. Contact Lisa Dettinger, Director of Clinical Microbiology, for approval at (484) 870-6416.

Mumps Virus Immunoassay	
Method:	ELISA IgG and IgM
Normal Value:	Not applicable
Specimen Type:	Serum
Specimen Amount:	≥ 1 mL
Container:	5 mL vial
Storage:	2 to 8 °C
Transport:	2 to 8 °C
Note:	Testing performed at CDC. Send serum along with buccal swab or urine.

Mumps Virus	
Method:	PCR and Culture
Normal Value:	Not applicable
Specimen Type:	Buccal swab, tissue culture fluid, or urine and serum
Specimen Amount:	1 swab, ≥ 0.5 mL fluid, 35 mL urine
Container:	Viral transport medium, 5 mL vial, or 50 mL conical tube
Storage:	2 to 8 °C, - 20 °C
Transport:	2 to 8 °C, < 0 °C
Note:	Confirmation testing performed at CDC. Send serum along with buccal swab or urine.

Mycobacteria Culture	
Method:	Fluorescent microscopy, MGIT 960 broth culture, and Middlebrook agar
Normal Value:	Not detected
Specimen Type:	Sputum
Specimen Amount:	≥ 5 mL
Container:	50 mL conical tube
Storage:	Ambient temperature
Transport:	Ambient temperature
Note:	Collection is done through the State and County Health Centers.

Mycobacteria Identification	
Method:	Microscopy, DNA probes, conventional biochemical tests, and mycolic acid analysis by High Performance Liquid Chromatography (HPLC)
Normal Value:	Not detected
Specimen Type:	Mycobacteria culture
Specimen Amount:	Not applicable
Media:	Middlebrook, LJ or positive broth culture
Storage:	Ambient temperature
Transport:	Ambient temperature

Mycobacterium tuberculosis Drug Susceptibility	
Method:	Primary drugs: MGIT 960 broth culture Secondary drugs: Agar proportion
Normal Value:	Susceptible
Specimen Type:	<i>M. tuberculosis</i> culture
Specimen Amount:	Not applicable
Media:	Middlebrook, LJ or positive broth culture
Storage:	Ambient temperature
Transport:	Ambient temperature
Primary Drugs:	Ethambutol, isoniazid, pyrazinamide, and rifampin
Secondary Drugs:	Amikacin, capreomycin, cycloserine, ethambutol, ethionamide, isoniazid, kanamycin, ofloxacin, rifampin, and streptomycin

<i>Mycobacterium tuberculosis</i> Genotyping			
Method:	PCR-based genotyping and spoligotyping and MIRU		
Normal Value:	Not applicable	Media:	Middlebrook or LJ
Specimen Type:	<i>M. tuberculosis</i> complex isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature
Note:	Isolates are sent to the Michigan Department of Health laboratories for testing.		

<i>Mycobacterium tuberculosis</i> complex – Nucleic Acid Amplification			
Method:	PCR		
Normal Value:	<i>M. tuberculosis</i> complex not detected	Container:	50 mL conical tube
Specimen Type:	Clinical respiratory - unprocessed	Storage:	2 to 8 °C
Specimen Amount:	≥ 5 mL	Transport:	2 to 8 °C

Mycology Identification			
Method:	See note		
Normal Value:	Not applicable	Container:	Fungal medium
Specimen Type:	Culture	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature
Note:	Specimens sent to the CDC for identification.		

<i>Neisseria gonorrhoeae</i> Culture and Identification			
Method:	Conventional biochemical tests		
Normal Value:	Not applicable	Media:	Chocolate media with antibiotics
Specimen Type:	Bacterial isolate or clinical specimen	Storage:	Incubate at 35-37°C in CO ₂
Specimen Amount:	Not applicable	Transport:	Ambient temperature in CO ₂ bag

Neisseria gonorrhoeae Drug Susceptibility

Method:	Disc diffusion and MIC		
Normal Value:	Susceptible	Media:	Chocolate media with antibiotics
Specimen Type:	Bacterial isolate or clinical specimen	Storage:	Incubate at 35 to 37 °C in CO ₂
Specimen Amount:	Not applicable	Transport:	Ambient temperature in CO ₂ bag
Disc Diffusion Drugs:	Azithromycin (15 µg), cefixime (5 µg), ceftriaxone (30 µg), ciprofloxacin (5 µg), penicillin (10 U), spectinomycin (100 µg), and tetracycline (30 µg)		
MIC Drugs:	Azithromycin, ceftriaxone, and ciprofloxacin		

Neisseria meningitidis Identification

Method:	Conventional biochemical tests and serotyping		
Normal Value:	Not applicable	Media:	Slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature
Note:	Pennsylvania regulations require the submission of all <i>N. meningitidis</i> isolates from sterile sites.		

Norovirus Detection

Method:	PCR		
Normal Value:	Not applicable	Container:	Cary-Blair medium
Specimen Type:	stool	Storage:	2 to 8 °C
Specimen Amount:	Add specimen to fill line on Cary Blair	Transport:	2 to 8 °C

Parainfluenza Virus 1,2,3, 4

Method:	PCR		
Normal Value:	Not detected	Container:	Viral transport medium
Specimen Type:	Nasal or throat swab	Storage:	2 to 8 °C
Specimen Amount:	1 swab	Transport:	2 to 8 °C

Parasite Immunoassay	
Method:	See Centers for Disease Control and Prevention's (CDC) website, www.dpd.cdc.gov/dpdx/ for a complete listing of immunoassays for parasitic diseases
Normal Value:	Not applicable
Specimen Type:	Serum
Specimen Amount:	≥ 1 mL
Container:	5 mL vial
Storage:	2 to 8 °C
Transport:	2 to 8 °C
Note:	Include the CDC specimen submission form that can be found on the Bureau of Laboratories' website, www.health.pa.gov/labs , when submitting specimens. Be sure to complete the section on patient travel history.

Rabies	
Method:	DFA
Normal Value:	Not applicable
Specimen Type:	Brain tissue – Animal head or small animal
Specimen Amount:	Animal head or small animal
Container:	Leak proof with cold pack
Storage:	2 to 8 °C
Transport:	2 to 8 °C
Note:	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) 870-6289 with questions.

Ricin – Environmental and Food	
Method:	Time-resolved Fluorescence (TRF) immunoassay
Normal Value:	Not applicable
Specimen Type:	Variable
Specimen Amount:	Variable
Container:	Leak proof container
Storage:	Specimen dependent, call (484) 870-6398
Transport:	Courier

Rubella Immunoassay	
Method:	ELISA IgG and IgM
Normal Value:	Not applicable
Specimen Type:	Serum or Plasma
Specimen Amount:	≥ 1 mL
Container:	5 mL vial
Storage:	2 to 8 °C
Transport:	2 to 8 °C

Rubeola Immunoassay - Measles			
Method:	IgG and IgM ELISA		
Normal Value:	Not applicable	Container:	5 mL vial
Specimen Type:	Serum or Plasma	Storage:	2 to 8 °C
Specimen Amount:	≥ 1 mL	Transport:	2 to 8 °C
Note:	Confirmation testing performed at CDC. Send NP swab and urine along with serum		

Rubeola Virus - Measles			
Method:	PCR and Culture		
Normal Value:	Not applicable	Container:	Viral transport medium, 5 mL vial, or 50 mL conical tube
Specimen Type:	NP swab and urine	Storage:	2 to 8 °C
Specimen Amount:	1 swab, ≥ 0.5 mL fluid, 35 mL urine	Transport:	2 to 8 °C
Note:	Send serum along with NP swab or urine.		

Salmonella Identification			
Method:	Conventional biochemical tests, serology, and Pulsed Field Gel Electrophoresis (PFGE)		
Normal Value:	Not applicable	Media:	TSA slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature

Shigella Identification			
Method:	Conventional biochemical tests, serology, and Pulsed Field Gel Electrophoresis (PFGE)		
Normal Value:	Not applicable	Media:	TSA slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature

Shiga-like Toxin Detection	
Method:	PCR for Shiga-like Toxin 1 and 2
Normal Value:	Not detected
Specimen Type:	Bacterial isolate or broth culture
Specimen Amount:	≥ 1 mL broth
Media:	Slant or GN broth
Storage:	Ambient temperature
Transport:	Ambient temperature
Note:	Serotyping and Pulsed Field Gel Electrophoresis (PFGE) are performed on all Shiga-like Toxin producing <i>E. coli</i> upon isolation of the organism.

Staphylococcus aureus Drug Resistance Confirmation	
Method:	See note
Normal Value:	Not applicable
Specimen Type:	Bacterial isolate
Specimen Amount:	Not applicable
Media:	Slant
Storage:	Ambient temperature
Transport:	Ambient temperature
Note:	Isolates are sent to the Centers for Disease Control and Prevention (CDC) for testing. Include the CDC specimen submission form that can be found on the Bureau of Laboratories' website, www.health.pa.gov/labs , when submitting specimens.

Streptococcus pneumoniae Typing	
Method:	Not done
Normal Value:	Not applicable
Specimen Type:	Bacterial isolate
Specimen Amount:	Not applicable
Media:	Slant
Storage:	Ambient temperature
Transport:	Ambient temperature
Note:	The Bureau of Laboratories no longer performs typing on <i>S. pneumoniae</i> . The Centers for Disease Control and Prevention no longer accepts vaccine failure isolates for testing. Consult a commercial reference laboratory if testing is needed.

Syphilis [<i>Treponema pallidum</i>] Detection			
Method:	RPR and FTA-AB confirmation		
Normal Value:	Not applicable	Container:	Red-topped blood collection tube
Specimen Type:	Serum or Plasma	Storage:	2 to 8 °C
Specimen Amount:	≥ 1 mL	Transport:	2 to 8 °C

Tick Identification			
Method:	Microscopy		
Normal Value:	Not applicable	Container:	No crushable container
Specimen Type:	Suspected tick	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature
Note:	The Bureau of Laboratories will identify ticks but it does not offer <i>Borrelia sp.</i> testing on ticks. Consult a reference laboratory.		

Toxin Testing			
Method:	ELISA		
Normal Value:	Not applicable	Container:	Leak proof container
Specimen Type:	Food or beverage	Storage:	2 to 8 °C
Specimen Amount:	25 grams or 1 ounce	Transport:	2 to 8 °C
Note:	Histamine, Bacterial toxins: <i>Staphylococcus Enterotoxin</i> , <i>Bacillus cereus</i> , Shiga toxin, Fungal toxins: Alfatoxin, Vomotoxin and Mycotoxin T2, <i>Staphylococcus aureus</i> toxins: Toxic Shock toxin (TST) and Panton-Valentine leukocidin toxin (PVL) testing is performed at Centers for Disease Control and Prevention (CDC). Include the CDC specimen submission form that can be found on the Bureau of Laboratories' website, www.health.pa.gov/labs , when submitting specimens.		

Vaccinia Virus			
Method:	PCR		
Normal Value:	Not detected	Container:	Sterile container
Specimen Type:	Fluid or skin from vesicle or pustule, punch biopsy, ocular impressions or swab	Storage:	2 to 8 °C
Specimen Amount:	1 swab	Transport:	2 to 8 °C
Note:	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. <p style="text-align: center;">Do not use viral transport medium</p> Contact the laboratory at (484) 870-6398 before shipping specimens.		

Varicella Zoster Virus			
Method:	Culture, PCR and DFA		
Normal Value:	Not detected	Container:	Sterile container
Specimen Type:	Fluid or skin from vesicle or pustule, punch biopsy, ocular impressions or swab	Storage:	2 to 8 °C
Specimen Amount:	1 swab	Transport:	2 to 8 °C
Note:	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 . <p style="text-align: center;">Do not use viral transport medium.</p> Contact the laboratory at (484) 870-6398 before shipping specimens.		

Vibrio Species Identification			
Method:	Conventional biochemical tests and serology		
Normal Value:	Not applicable	Media:	Blood, chocolate, or TSA slant
Specimen Type:	Bacterial isolate	Storage:	Ambient temperature
Specimen Amount:	Not applicable	Transport:	Ambient temperature

West Nile Virus Immunoassay			
Method:	ELISA for IgG and IgM		
Normal Value:	Not applicable	Container:	5 mL vial
Specimen Type:	Serum, plasma, or cerebral spinal fluid	Storage:	2 to 8 °C
Specimen Amount:	≥ 1 mL	Transport:	2 to 8 °C

West Nile Virus Detection			
Method:	Real-time PCR and culture		
Normal Value:	Not detected	Container:	5 mL vial
Specimen Type:	Serum, plasma, or cerebral spinal fluid	Storage:	2 to 8 °C
Specimen Amount:	≥ 1 mL	Transport::	2 to 8 °C
Note:	Human West Nile testing is only conducted with the approval of the Pennsylvania Department of Health Bureau of Epidemiology. To arrange patient testing please call (717) 787-3350.		

Division of Chemistry & Toxicology

Abrine and Ricinine			
Method:	Liquid chromatography – tandem mass spectrometry		
Normal Value:	0 ppb	Container:	Urine collection cup
Specimen Type:	Urine	Storage:	- 20 °C
Specimen Amount:	≥ 5 mL	Transport:	- 20 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.		

Blood Lead			
Method:	Atomic absorption spectroscopy		
Normal Value:	< 10 µg/mL	Container:	Purple-topped tube
Specimen Type:	Blood	Storage:	2 to 8 °C
Specimen Amount:	≥ 200 µL	Transport:	Ambient temperature

Blood Metals			
Method:	Inductively coupled plasma – mass spectrometry		
Normal Value:	0 ppb	Container:	Purple-topped tube
Specimen Type:	Blood	Storage:	2 to 8 °C
Specimen Amount:	≥ 5 mL	Transport:	2 to 8 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. If possible, submit two blood collections tubes.		

Cyanide			
Method:	Gas chromatography – mass spectrometry		
Normal Value:	10 to 100 ppb	Container:	Purple-topped tube
Specimen Type:	Blood	Storage:	2 to 8 °C
Specimen Amount:	≥ 5 mL	Transport:	2 to 8 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. If possible, submit two blood collections tubes. Fill the tubes as completely as possible. Minimizing the vacant space in the tubes increases the accuracy of the analysis.		

3,4-hydroxynitrophenylacetic Acid (HNPAAC)			
Method:	Liquid chromatography – mass spectrometry		
Normal Value:	0 ppb	Container:	Urine collection sup
Specimen Type:	Urine	Storage:	-20 °C
Specimen Amount:	≥ 5 mL	Transport:	-20 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.		

Lead in Dust			
Method:	Inductively coupled plasma – mass spectrometry		
Normal Value:	See below	Container:	50 mL conical tube
Sample Type:	Dust wipe	Storage:	Ambient temperature
Sample Amount:	1 dust wipe	Transport:	Ambient temperature
Note:	The normal value for lead in dust depends on the surface where the sample was collected. Floor: < 40 ppm Windowsill: < 250 ppm Window well: < 400 ppm		

Lead in Paint			
Method:	Inductively coupled plasma – mass spectrometry		
Normal Value:	< 5000 mg/g	Container:	50 mL conical tube
Sample Type:	Dust wipe	Storage:	Ambient temperature
Sample Amount:	2 to 4 in ²	Transport:	Ambient temperature

Lead in Soil	
Method:	Inductively coupled plasma – mass spectrometry
Normal Value:	See below
Sample Type:	Soil
Sample Amount:	8 to 16 cm ²
Container:	50 mL conical tube
Storage:	Ambient temperature
Transport:	Ambient temperature
Note:	The normal value for lead in soil depends on the area where the sample was collected. Child's play area: < 400 mg/g Non-play area: < 1200 mg/g

Lewisite	
Method:	Liquid chromatography - Inductively coupled plasma – mass spectrometry
Normal Value:	0 ppb
Specimen Type:	Urine
Specimen Amount:	≥ 5 mL
Container:	Urine collection cup
Storage:	-20 °C
Transport:	-20 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

Metabolic Toxins Panel	
Method:	Liquid chromatography – tandem mass spectrometry
Normal Value:	0 ppb
Specimen Type:	Urine
Specimen Amount:	≥ 5 mL
Container:	Urine collection cup
Storage:	-20 °C
Transport:	-20 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

Organophosphate Nerve Agent Metabolites	
Method:	Liquid chromatography – tandem mass spectrometry
Normal Value:	0 ppb
Specimen Type:	Urine
Specimen Amount:	≥ 5 mL
Container:	Urine collection cup
Storage:	-20 °C
Transport:	-20 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

Post-mortem Blood Alcohol	
Method:	Headspace gas chromatography
Normal Value:	0 mg/dL
Specimen Type:	Blood
Specimen Amount:	5 mL
Container:	Grey-topped tube
Storage:	2 to 8 °C
Transport:	Ambient temperature
Note:	Please submit two grey-topped tubes for each deceased individual.

Post-mortem Drugs of Abuse	
Method:	GC-MS
Normal Value:	0 ng/mL
Specimen Type:	Blood
Specimen Amount:	5 mL
Container:	Grey-topped tube
Storage:	2 to 8 °C
Transport:	Ambient temperature
Note:	Please submit two grey-topped tubes for each deceased individual.

Toxic Elements Screen	
Method:	Inductively coupled plasma – mass spectrometry
Normal Value:	0 ppb
Specimen Type:	Urine
Specimen Amount:	≥ 5 mL
Container:	Urine collection cup
Storage:	-20 °C
Transport:	-20 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

Tetramine	
Method:	Gas chromatography – mass spectrometry
Normal Value:	0 ppb
Specimen Type:	Urine
Specimen Amount:	≥ 5 mL
Container:	Urine collection cup
Storage:	-20 °C
Transport:	-20 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. The ideal specimen volume is 50 mL.

Volatile Organic Compounds	
Method:	Gas chromatography – mass spectrometry
Normal Value:	0 ppb
Specimen Type:	Blood
Specimen Amount:	≥ 5 mL
Container:	Non-gel grey or green top heparin tubes
Storage:	2 to 8 °C
Transport:	2 to 8 °C
Note:	Please contact Jennifer Okraska at (484) 870-6405 before submitting specimens. Specimens should be collected and submitted as soon as possible once exposure is suspected. If possible, submit two blood collections tubes.