**MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH**

BUREAU OF INFECTIOUS DISEASE AND LABORATORY SCIENCES

**MA STATE PUBLIC HEALTH LABORATORY  
 BOSTON, MASSACHUSETTS**

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**MANUAL OF LABORATORY TESTS AND SERVICES**

** **

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MANUAL OF LABORATORY TESTS AND SERVICES

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# SECTION 1

## Introduction

The Massachusetts State Public Health Laboratory’s (MA SPHL) Manual of Laboratory Tests and Services (MLTS) describes our reference analytical laboratory services.

The Massachusetts State Public Health Laboratory is located at Department of Public Health, Dr. Alfred DeMaria. Jr. Campus, Jamaica Plain. The MA SPHL provides comprehensive public health laboratory testing services for diagnosis, surveillance, investigation and prevention of infectious diseases and chemical agents. These services address public health priorities in Massachusetts, serving as a second level laboratory in the national laboratory system. MA SPHL also serves as a reference laboratory to sentinel laboratories, including hospitals and private clinical laboratories.

Core functions listed below provide direct benefits to the health of our citizens:

* Diagnostic testing
* Reference testing
* Laboratory-based surveillance testing
* Consultation for laboratory test interpretation and use
* Environmental chemical analysis and diagnosis of illness in humans due to chemical exposure
* Infectious disease outbreak identification, surveillance, and response
* Identification of pathogens or chemicals of concern for food safety
* Emergency response testing for biological and chemical Threat agents, foodborne illness, and emerging infectious diseases
* Support epidemiologic and participate in method development health studies
* Partnerships with the U.S. Centers for Disease Control and Prevention (CDC), the National Laboratory Response Network (LRN), Food Emergency Response Network (FERN) and other federal and state agencies and academic partners
* Training and outreach in laboratory science and related subject matter expertise

The MLTS provides details of services and contact information for our staff. This manual can be found at the MA SPHL’s website by accessing <https://www.mass.gov/state-public-health-laboratory-services>.

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## SPECIMENS SUBMISSION POLICY

**Tips for successful sample collection and submission:**

Sample collection

* Review the MLTS test listings for requirements: sample type, volume required, specimen submission form, appropriate collection tube or vial, when applicable, and transport requirements.
* It is the responsibility of the shipper to submit good quality samples for testing.
* It is recommended that submitting laboratories retain an aliquot of the specimen sent to MA SPHL for testing if additional testing will be needed by the submitting laboratories that MA SPHL cannot provide.
* Use only a specific specimen outfit (kit) for its intended purpose.

Example: use TB Culture Outfit for TB sample only.

* All specimens submitted for analysis need to be **properly labeled** for identification per CLIA regulations.

Specimens must have at least **two identifiers**:

* 1. Patient’s name or a unique patient identifier (required)
  2. Patient’s ID number (e.g., MRN#) or date of birth (required)

And be labeled with the following information:

* 1. Date and time of collection
  2. Specimen source, if applicable

The **2 identifiers** on the leakproof, sterile **container** (the sample collection tube or vial) and the **identifiers on the laboratory submission form must match**.

* Specimens should be collected at the appropriate times noted in the test listing or specimen instructions.
* Do not hold onto specimens for long periods. Transport or ship the samples to the laboratory as soon as possible. Avoid mailing specimens on weekends or holidays. Where applicable, keep samples at the appropriate transport temperature conditions until shipping per test guidance.
* Follow instructions for temperature control. Do not expose samples to extreme temperatures out of the required criteria as this may affect specimen integrity and the test results.
* **Do not use wet ice (ice cubes)** when shipping because the specimen and/or the shipping container temperature control will be compromised by water from melting down, and/or appear to be leaking which will prevent acceptance or delay transport by a courier or USPS mailing.
  1. Maintain refrigerated temperatures as noted in the Laboratory Testing Services by using pre-frozen cold packs. MA SPHL recommends package by wrapping or sandwich specimens with pre-frozen cold packs. Delivery within same day.
  2. Maintain frozen temperatures as noted in the Laboratory Testing Services by using dry ice. MA SPHL recommends to pack dry ice in polystyrene foam cooler, place a layer of dry ice at the bottom and place specimens in cooler and completely cover the specimens with dry ice until top of the box. Delivery next day.
  3. MA SPHL recommends to maintain room temperature as noted in the Laboratory Testing Services by using unfrozen room temp gel packs. Package by wrapping/surrounding specimen transport bags with gel pack.

Specimen submission form

* Each form must contain complete contact information.
* Use only the most current laboratory specimen submission forms when submitting samples.   
  Discard all old forms.
* Completed specimen submission form with **all** required information must accompany each specimen submitted.
* Missing the required information may delay testing.
* Place the submission form between the secondary and outer container. Do not attach the form to the sample or wrap the submission form around the primary sample container.
* Use recommended packing materials according to appropriate packing regulations when shipping. Do not transport any specimens in materials that do not qualify as secondary or outer packings (such as paper cups or paper bags).

Unsatisfactory Specimens

MA SPHL will discard specimens which are received in unsatisfactory condition. The reasons for the rejection will be reported to the submitter on the laboratory test report. Unsatisfactory conditions include, but are not limited to:

* Hemolyzed, icteric, lipemic, or contaminated specimen
* Specimen received broken or leaking sample
* Specimen received beyond the acceptable time for testing
* Specimen collected too soon or too late during the disease-state for the test requested
* Specimen received in incorrect collection device (transport medium, tube, container)
* Specimen not transported and received within temperature ranges listed within this MLTS

## Electronic Laboratory Report

Some reports can be accessed electronically through MA SPHL Electronic Laboratory Reporting and Communication web portal. Individuals requiring access to data must submit an access request form to MA SPHL. The SPHL will issue a user ID and password for each individual upon approval of the form. You can download the ELR Request Form on [mass.gov](https://www.mass.gov/lists/state-public-health-laboratory-information-for-healthcare-professionals-and-laboratorians) or email [elr.support@mass.gov](mailto:elr.support@mass.gov). Return the completed form via Fax: 857-323-8352 or email ELR Support.

## Specimen Referral for Testing

MA SPHL may submit specimens for reference testing for those not enrolled in CDC Specimen Test Order and Reporting (CSTOR) Web Portal Original Submitter Onboarding functionality (COSO).

Contact  [MASPHLCertifiedShippers@mass.gov](mailto:MASPHLCertifiedShippers@mass.gov)  617-983-6555 for guidance and more information.

Refer to CDC test directory: <https://www.cdc.gov/laboratory/specimen-submission/list.html> for guidance, up-to-date list of orderable tests and more information.

If enrolled in CDC CSTOR COSO, private healthcare providers, hospitals, and laboratories may submit specimens directly to CDC, with MA SPHL approval.

To enroll onto CDC CSTOR COSO, contact: [MASPHL.Laboratory@mass.gov](mailto:MASPHL.Laboratory@mass.gov).

## Other Reference Laboratories

If a specimen is sent to a reference laboratory for initial, follow-up, or verification testing by the MA SPHL, the sender will be notified that the specimen has been referred.  The result will be reported using the MA SPHL Laboratory Information System and/or the report from the reference lab will be forwarded to the submitter, indicating the external lab and the test(s) performed.  MA SPHL will retain records of the report.

## Correction of Patient Information

All requested changes to the request form by the sender must be documented on letterhead, dated, and signed by the requestor. A returned copy of the original laboratory report requesting the missing information is also acceptable to communicate changes needed if the sender states clearly what is needed, dates, and signs the report. The patient’s record will be updated to reflect the change.

## Use of Specimen KIT Container

The SPHL provides Specimen Kits to physicians, hospital laboratories, clinics and boards of health throughout Massachusetts for transporting specimens to the SPHL for analysis. These containers are the property of the MDPH/SPHL and are not to be used for purposes other than shipping specimens to the SPHL. The SPHL does not supply blood collection tubes. The Specimen Outfit containers supplied by the SPHL meet U.S. Postal Service (USPS) and Department of Transportation (USDOT) regulations for triple packaging of patient specimens and biological substances up to and including UN3373- Biological Substances, Category B. Triple packaging provides the most effective containment of pathogens in preventing the risk of exposure during transport. The Childhood Lead Whole Blood collection kits meet the regulations for Exempt Human Specimens.

Refer to Specimen Kits and Supplies for the list of specific laboratories and kits provided by MA SPHL.

**IMPORTANT:** For reasons of confidentiality, safety and security **do not write the name** of a patient or organism on the outside of any package containing laboratory specimens. This includes any package containing Exempt Human or Animal specimens, Biological Substances-Category B, or Infectious Substances-Category A.

## Packaging and Shipping Requirements

All people involved in packaging and shipping potentially infectious substances should be trained and certified in compliance with DOT or IATA.

U.S. DOT Hazardous Materials Information Center at 1-800-467-4922. <https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-C/part-173/subpart-E/section-173.196>

IATA <https://www.iata.org/en/publications/manuals/infectious-substances-shipping-regulations/>

It is the shipper’s (specimen submitter’s) responsibility to package the specimen properly to meet the shipping regulations. Depending on the type of specimen and patient history, specimens that are sent to the SPHL may fall in several categories (proper shipping names) including:

* + Exempt Human or Animal Specimen,
  + UN3373 Biological Substances- Category B,
  + UN2814 Infectious Substances Affecting Humans and Animals- Category A, and
  + UN2900 Infectious Substances Affecting Animals- Category A.

If there are any questions, please reach out to the specific laboratory for guidance.

## Mandatory Reporting of Disease and Specimen Submission

For the list of isolates required to be submitted to the State Public Health Laboratory (refer to the 105 CMR 300 document, section 300.172) and list of diseases reportable by Healthcare Providers and Laboratories, refer to Reportable Disease and Surveillance Information (<https://www.mass.gov/lists/infectious-disease-reporting-and-regulations-for-health-care-providers-and-laboratories>)

State public health officials rely on local boards of health, healthcare providers, laboratories and other public health personnel to report the occurrence of notifiable diseases as required by law (Massachusetts General Laws, Chapter 111, sections 3, 6, 7, 109, 110, 111 and 112 and Chapter 111D, Section 6). These laws are implemented by regulation under Chapter 105, Code of Massachusetts Regulations (CMR), Section 300.000: Reportable Diseases, Surveillance, and Isolation & Quarantine Requirements.

# SECTION 2:

## Laboratory Directory

|  |  |
| --- | --- |
| **Director, MA State Public Health Laboratory** | **(617) 983-**4362 |
| **Associate Director, MA State Public Health Laboratory** | **(617) 983-**6601 |
|  |  |
| **Director, Division of Analytical Chemistry** | **(617) 983-**6203 |
| Chemical Threat Response Laboratory | (24/7) 617-839-1283 |
| Chemical Threat Response Laboratory Coordinator | **(617) 983-**6550 |
| Childhood Lead Screening Laboratory | **(617) 983-**6665 |
| Environmental Chemistry Laboratory | **(617) 983-**6657 |
|  |  |
| **Director, Division of Microbiology** | **(617) 983-**6483 |
| Clinical Microbiology Laboratory / Clinical Microbiology Supervisor | **(617) 983-**6607/ **(617) 983**-6627 |
| Environmental Microbiology: Dairy Lab /Food Lab | **(617) 983-**6616 / **(617) 983-**6610 |
| Environmental Microbiology Supervisor | **(617) 983-**6619 |
| Molecular Microbiology Laboratory / Molecular Microbiology Supervisor | **(617) 983-**6612 / **(617) 983-**6524 |
|  |  |
|  |  |
| **Director, Division of Sexually Transmitted Infections (STI) and Mycobacteriology** |  |
| STI Laboratory | **(617) 983-** 6388 / 6614 |
| STI Laboratory Supervisor | **(617) 983-**6795 |
| Mycobacteriology (TB) Laboratory / Mycobacteriology Supervisor | **(617) 983-**6374 / **(617) 983-6359** |
|  |  |
| **Director, Division of Virology** | **(617) 983-**6966 |
| Arbovirus Surveillance Laboratory / Arbovirus Surveillance Supervisor | **(617) 983-**6792 / **(617) 983-**6343 |
| Molecular Virology Laboratory / Molecular Virology Supervisor | **(617) 983-**6411 / **(617) 983-**6872 |
| Rabies Laboratory / Rabies Supervisor | **(617) 983-**6385 / **(617) 983-**4342 |
| Virus Isolation Laboratory | **(617) 983-**6382/6853 |
| Diagnostics Immunology Laboratory | **(617) 983-**6396 |
| Virus Isolation and Diagnostics Immunology Supervisor | **(617) 983-6397** |
|  |  |
| **Director, Division of Quality Management Systems**  Email Division: [masphl-quality@mass.gov](mailto:masphl-quality@mass.gov) | **(617) 983-**6667 |
|  |  |
| **Director, Central Laboratory Services** | **(617) 983-**6675 |
| Central Laboratory Services Supervisor | **(617) 983-**6673 |
| Specimen Triage Accessioning Receiving Laboratory | **(617) 983-**4333 |
| MA SPHL Certified Shipper Coordinator | **(617) 983-**6555 |
| Specimen Kit Orders | **(617) 983-**6640 |
| Client Services | **(617) 983-**6665 |
|  |  |
| **Director, Safety, Health, and Training**  Responsible Official (RO), Select Agent Program | **(781) 531-5075** |
| BioThreat Response Laboratory | (24/7) 617-590-6390 |
| BioThreat Response Laboratory Coordinator | **(617) 983-**6664 |
|  |  |
| **Director, Sequencing and Bioinformatics Core** | **(617) 983-**6647 |
| Sequencing Core Laboratory / Sequencing Supervisor | **(617) 983**-6260 / **(617) 983-**6621 |
| Bioinformatics Supervisor | **(617) 983-**4314 |

# SECTION 3:

## Laboratory Testing Services

| **Test** | **Abrine and Ricinine, Urine** |
| --- | --- |
| **Synonym** | AbRc |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical urine specimens for the presence of abrine or ricinine. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to abrin or ricin by analyzing for the biomarkers, abrine and ricinine, respectively. |
| **Reference Range:** | Ricinine and L-abrine are biomarkers for ricin and abrin, respectively. Any detectable biomarker above the lowest reporting limit should be assumed to imply exposure to a product of the castor bean plant or the rosary pea. Management of patients is based on clinical scenario and presentations. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for sampling and storage guidelines. |
| **Specimen/Sample Types** | Urine |
| **Transport Temperature** | ≤-20°C if longer than 10 days |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Adenovirus Culture** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** |  |
| **Use of Test:** | Virus isolation to support respiratory virus surveillance efforts by the MDPH Epidemiology Program. |
| **Reference Range:** | Not detected by absence of cytopathic effect in tissue culture |
| **Turnaround Time:** | 2 to 10 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Call the laboratory for collection instructions.  Do not use cotton tip wood shaft swab. |
| **Specimen/Sample Types** | Eye swab, throat, and/or nose nares (nasopharyngeal swab), stool, urine, cerebrospinal fluid, and tissue. |
| **Transport Temperature** | Refrigerated (2-8°C) within 24 hours or kept frozen at ≤-70°C |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Culture for additional viruses may be performed at the discretion of the laboratory. Serotyping of adenovirus isolates may be performed at CDC in outbreak situations. |

| **Test** | **Arbovirus Antibody (IgM), Human** |
| --- | --- |
| **Synonym** | Eastern Equine Encephalitis(EEE), West Nile Virus (WNV), Powassan Virus (POWV) |
| **Laboratory** | Diagnostic Immunology Laboratory |
| **Phone** | 617-983-6396 |
| **Special Instructions** |  |
| **Use of Test:** | Serodiagnosis of a recent or current infection or vaccination with **EEE, WNV, or POWV**. |
| **Reference Range:** | IgM Negative |
| **Turnaround Time:** | 3 to 4 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section; Symptoms and Date of Onset are required. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1 mL of serum, no additives and/or at least 1 mL of cerebrospinal fluid (CSF) collected aseptically. Gross hemolysis not suitable for testing and will be rejected.  For samples collected before day 9 after onset of symptoms and negative by EIA test, a second serum is recommended to be drawn 10-14 days after onset of symptoms. |
| **Transport Temperature** | Maintain samples at 2-8°C and transport to the laboratory within 24 hours at 2-8°C. Courier transport of CSF specimens is recommended. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | West Nile virus (WNV) and Eastern equine encephalitis virus (EEE) are performed concurrently, regardless of whether only one is indicated on the request form. Requests specifying “Arbovirus panel,” “Powassan virus (POWV),” or “encephalitis” are tested for all three viruses (WNV, EEE, and POWV). Testing may be modified if specimen volume is insufficient to perform all assays. Positive or equivocal test results may require confirmatory testing using a plaque-reduction neutralization test (PRNT). Please note that PRNT will extend turnaround time.  With MDPH Epidemiology Program approval and a travel history and clinical symptoms, sample(s) may be forwarded to CDC for further serological testing for agents such as: California Encephalitis, Chikungunya, Dengue Fever, Flavivirus, Japanese Encephalitis, Ross River Virus, St Louis Encephalitis, Tick- borne Encephalitis, Western Equine Encephalitis, and Yellow Fever. |

| **Test** | **Arbovirus Antibody (IgM), non-human** |
| --- | --- |
| **Synonym** | Eastern Equine Encephalitis (EEE), West Nile Virus (WNV) |
| **Laboratory** | Diagnostic Immunology Laboratory |
| **Phone** | 617-983-6396 |
| **Special Instructions** | Testing can only occur upon approval of Arbovirus Surveillance Program and State Public Health Veterinarian. |
| **Use of Test:** | Serodiagnosis of a recent or current infection with **EEE or WNV** |
| **Reference Range:** | Specific arbovirus IgM antibodies not found. |
| **Turnaround Time:** | 3 or 4 days |
| **Forms Required** | Animal Submission Form (SS-AN), complete the “Vaccination” and “Epidemiological Information” sections. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 3 mL of serum, no additives and at least 1 mL of cerebrospinal fluid (CSF) collected aseptically.  Acute serum (> 3mL) and CSF (> 1 mL) should be collected within the first 14 days following onset of symptoms and sent immediately to the State Laboratory. |
| **Transport Temperature** | Transport to the laboratory at 2-8°C. Courier transport of CSF specimens is recommended. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Assay is approved for horses only. |

| **Test** | **Arbovirus Culture, Human** |
| --- | --- |
| **Synonym** | Eastern Equine Encephalitis (EEE), West Nile Virus (WNV) |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | As requested. Testing is restricted to illness onsets between May and October unless provided with a travel history to an endemic area. Consult the laboratory from November through April. |
| **Use of Test:** | Clinical diagnosis of a current infection with **EEE or WNV.** |
| **Reference Range:** | West Nile virus/ Eastern Equine Encephalitis virus not detected by absence of cytopathic effect in tissue culture  Presence of virus and/or viral RNA indicates recent or current infection.  For virus culture, only live virus will be detected. Stage of illness, specimen choice, specimen collection technique and specimen handling and transport will affect the sensitivity of the test. Negative results do not rule out infection.  Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 3 to 7 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call Laboratory for specimen collection instructions. |
| **Specimen/Sample Types** | Submit 2 mL of aseptically collected cerebrospinal fluid, or post-morte.m tissue from brain or spinal cord. |
| **Transport Temperature** | Refrigerated (2-8°C) and delivered on ice pack within 24 hours or kept frozen at ≤-70°C. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | **Additional tests recommended:** For cases of meningitis, encephalitis, or meningoencephalitis where a patient’s cerebrospinal fluid (CSF) has been submitted on ice (prefrozen ice packs) in sufficient volume and tests negative for EEE and WNV, the CSF will be tested for enterovirus.  With MDPH Epidemiology Program approval and as indicated by travel history related to endemic areas and clinical symptoms, patient sample(s) may be forwarded to CDC for further testing for agents such as: California Encephalitis, Chikungunya, Dengue Fever, Flavivirus, Japanese Encephalitis, Powassan, Ross River Virus, St Louis Encephalitis, Tick-borne Encephalitis, Western Equine Encephalitis, and Yellow Fever. |

| **Test** | **Arbovirus PCR, Human** |
| --- | --- |
| **Synonym** | Eastern Equine Encephalitis (EEE), West Nile Virus (WNV) |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Available May to October unless provided with a travel history to an endemic area. Consult with MDPH Epidemiology Program (available 24/7) at 617-983-6800 from November through April. |
| **Use of Test:** | Clinical reference testing for diagnosis of a current infection with **EEE and WNV** |
| **Reference Range:** | WNV and EEE RNA not detected.  Presence of virus and/or viral RNA indicates recent or current infection.  Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 617-983-6800 for sample collection instructions. |
| **Specimen/Sample Types** | Submit 2 mL of aseptically collected cerebrospinal fluid (CSF), or post-mortem tissue from brain or spinal cord. |
| **Transport Temperature** | Maintain samples at 2-8°C and transport to the laboratory within 24 hours at 2-8°C. Courier transport of CSF specimens is recommended. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | CSF should be collected within 8 days of onset of symptoms. |

| **Test** | **Arbovirus PCR, Non-human** |
| --- | --- |
| **Synonym** | Eastern Equine Encephalitis (EEE), West Nile Virus (WNV) |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Available May to October, pre-authorization from MDPH Epidemiology Program (available 24/7) at 617-983-6800 is REQUIRED prior to submission of specimens. |
| **Use of Test:** | Support detection of current infection with either **EEE or WNV** in non-human or non- avian specimens. |
| **Reference Range:** | WNV and EEE RNA not detected.  Presence of virus and/or viral RNA indicates recent or current infection. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | Animal Submission Form (SS-AN), complete the “Vaccination” and “Epidemiological Information” sections. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 617-983-6800 for sample collection instructions. |
| **Specimen/Sample Types** | Type of specimen varies depending on species. |
| **Transport Temperature** | Transport temperature varies depending on type of specimen. Please confirm with Division of Epidemiology when obtaining pre-authorization for testing. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Arbovirus Plaque Reduction Neutralization Test –Antibody (PRNT)** |
| --- | --- |
| **Synonym** | Eastern Equine Encephalitis (EEE), West Nile Virus (WNV) |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | As requested. Testing is restricted to illness onsets between May and October unless provided with a travel history to an endemic area. Consult the laboratory from November through April. |
| **Use of Test:** | Confirmatory testing for clinical diagnosis of infection with WNV or EEE. |
| **Reference Range:** | < 10 |
| **Turnaround Time:** | 3 to 7 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the laboratory for instructions prior to collecting sample. |
| **Specimen/Sample Types** | 2 mL of serum, and at least 1 mL of cerebrospinal fluid collected aseptically. |
| **Transport Temperature** | Maintain samples at 2-8°C and transport to the laboratory within 24 hours at 2-8°C. Courier transport of CSF specimens is recommended. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | **Additional tests recommended**: Serology (Eastern Equine Encephalitis EIA antibody, West Nile Virus EIA antibody).  **Note: PRNT confirmation for antibody and for other arboviral agents may be performed at the discretion of the laboratory.** |

| **Test** | **Arbovirus, Mosquito Vectors** |
| --- | --- |
| **Synonym** | Eastern Equine Encephalitis (EEE), West Nile Virus (EEE) |
| **Laboratory** | Arbovirus Surveillance Laboratory |
| **Phone** | 617-983-6792 |
| **Special Instructions** | Upon approval of Arborvirus Surveillance Program. |
| **Use of Test:** | Detection of EEE and WNV in mosquito vectors for surveillance purposes. |
| **Reference Range:** | N/A |
| **Turnaround Time:** | 3 days |
| **Forms Required** | Mosquito Collection form, provided to authorized submitters. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the laboratory for instructions prior to collecting sample. |
| **Specimen/Sample Types** | Varies, depending upon species.  Call the Arbovirus Field Program Manager at 617-983-6792 for information on sample types and mosquito pools.  Maintain sample at 2-8°C. |
| **Transport Temperature** | Transport to the laboratory ASAP at 2-8°C. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Arsenic, Water** |
| --- | --- |
| **Synonym** | Drinking Water |
| **Laboratory** | Chemical Environmental Laboratory |
| **Phone** | 617-983-6657/6654 |
| **Special Instructions** |  |
| **Use of Test:** | Measure arsenic in drinking water as a possible source of exposure. |
| **Reference Range:** | < 15 µg /L |
| **Turnaround Time:** | 10 business days |
| **Forms Required** | Drinking Water Submission Form (SS-DWA) containing documentation of provider, occupant, water source, and exact location of tap.  To order, call 617-983-6654. |
| **Test Kit** | Arsenic sample collection kit. EPA approved containers packaged for chain-of- custody supplied by laboratory.  Each kit includes 1 container for collection and instructions for collecting the sample.  To order, call 617-983-6654 |
| **Specimen/Sample Collection Instructions** | Refer to SI-DWA for collection.  Secure covers to containers to prevent any leakage. |
| **Specimen/Sample Types** | One 250 mL sample. |
| **Transport Temperature** | N/A |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations.  Carton must have labels of orientation and handling to ensure safe delivery.  Ship to laboratory in carton provided within 10 days of collection. |
| **Additional Information/Notes** | N/A |

| **Test** | **Bacillus anthracis** |
| --- | --- |
| **Synonym** | Anthrax |
| **Laboratory** | BioThreat Response Laboratory |
| **Phone** | 617-590-6390 (24hr/7days) |
| **Special Instructions** | Call the BioThreat Response Laboratory to report when a *Bacillus anthracis* cannot be ruled out by sentinel lab protocol.  Approval required prior to submitting specimen(s). |
| **Use of Test:** | Rule out infection by *Bacillus anthracis* causative agent of **anthrax**. |
| **Reference Range:** | *Bacillus anthracis* not found by culture.  *Bacillus anthracis* DNA not detected by PCR. |
| **Turnaround Time:** | 2-15 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1. Whole blood (EDTA or sodium citrate), serum, plasma, pleural fluid, respiratory specimens  2. Subculture- pure growing on an appropriate agar slant in a screw-capped tube. |
| **Transport Temperature** | Determined during pre-approval consultation. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Bacterial Genomic Sequencing** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Sequencing & Bioinformatics |
| **Phone** | 617-983-6612 |
| **Special Instructions** |  |
| **Use of Test:** | Testing is performed for MA SPHL laboratories divisions. Results are used for epidemiologic purposes. |
| **Reference Range:** | N/A |
| **Turnaround Time:** | 1 week for pure cultures.  Turnaround time is delayed if the isolate submitted is in mixed culture. |
| **Forms Required** | N/A |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | DNA extracts are submitted by MA SPHL laboratories |
| **Transport Temperature** | N/A |
| **Shipping Requirements** | N/A |
| **Additional Information/Notes** | Isolates with genetic relatedness require supporting epidemiologic data to support relatedness. |

| **Test** | **Bordetella pertussis and other Bordetella spp., Culture** |
| --- | --- |
| **Synonym** | Whooping Cough |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6607 |
| **Special Instructions** |  |
| **Use of Test:** | Isolation and identification of *B. pertussis* and other *Bordetella* species. |
| **Reference Range:** | *B. pertussis* or other *Bordetella* species not found.  Culture is most sensitive for specimens collected within the first 2 weeks after onset of cough. Beyond this period, false negative results become more likely. |
| **Turnaround Time:** | 12-15 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | Pertussis Culture Kit |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Charcoal transport agar slant inoculated with sample from nasopharyngeal swab, according to instructions included in the kit. Moisten swab in 1% CAS and roll over the charcoal transport slant. Submit slant for culture. Discard the nasopharyngeal swab and glass tube with the remaining 1% CAS solution as biohazard waste after use. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations.  Same day delivery is recommended.  Overnight priority mail with coolant is acceptable if same day delivery is not possible. |
| **Additional Information/Notes** | N/A |

| **Test** | **Bordetella pertussis Serology** |
| --- | --- |
| **Synonym** | Whooping Cough |
| **Laboratory** | Diagnostic Immunology Laboratory |
| **Phone** | 617-983-6396 |
| **Special Instructions** |  |
| **Use of Test:** | Determine the presence of IgG antibody to pertussis toxin, which is consistent with an ongoing or recent infection with *Bordetella pertussis*. |
| **Reference Range:** | < 20 µg/mL IgG antibody to Bordetella pertussis toxin. |
| **Turnaround Time:** | 2 to 14 days.  Repeat testing and time of year may affect turnaround time. |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | Single Mailing Kit |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1 mL serum. |
| **Transport Temperature** | Serum may be shipped at room temperature (20-25°C), refrigerated (2-8°C), or frozen (≤-20°C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Brucella** |
| --- | --- |
| **Synonym** | Brucellosis |
| **Laboratory** | BioThreat Response Laboratory |
| **Phone** | 617-590-6390 (24hr/7days) |
| **Special Instructions** | Call the BioThreat Response Laboratory to report when a Brucella spp. cannot be ruled out by sentinel lab protocol. Approval required prior to submitting specimen(s). |
| **Use of Test:** | Rule out infection caused by Brucella spp. the causative agent for **Bang’s disease**, Malta fever, Undulant fever. |
| **Reference Range:** | *Brucella spp*. not found by culture.  *Brucella spp*. DNA not detected by PCR. |
| **Turnaround Time:** | 7-21 days.  Preliminary report may be obtained earlier. |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1. Primary specimen- aseptically collected bone marrow, body fluids, abscesses, exudates, whole blood and serum (PCR only; no culture), tissue (spleen, liver) in screw-capped tube (with or without swab used to collect sample) 2. Subculture- pure growing on an appropriate agar slant in a screw-capped tube. |
| **Transport Temperature** | Determined during pre-approval consultation. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Additional tests recommended: *Brucella* spp. serology. |

| **Test** | **Burkholderia mallei/pseudomallei** |
| --- | --- |
| **Synonym** | Glanders (mallei)  Melioidosis (pseduomallei) |
| **Laboratory** | BioThreat Response Laboratory |
| **Phone** | 617-590-6390 (24hr/7days) |
| **Special Instructions** | Call the BioThreat Response Laboratory to report when a Burkholderia mallei or Burkholderia pseudomallei cannot be ruled out by sentinel lab protocol. Approval required prior to submitting specimen(s). |
| **Use of Test:** | Rule out infection by *Burkholderia mallei* the causative agent of **glanders**.  Rule out infection by *Burkholderia pseudomallei* causative agent of meliodosis. |
| **Reference Range:** | *Burkholderia mallei* not found by culture.  *Burkholderia mallei* DNA not detected by PCR.  *Burkholderia pseudomallei* not found by culture.  *Burkholderia pseudomallei* DNA not detected by PCR. |
| **Turnaround Time:** | 7-21 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1. Primary specimen- aseptically collected bone marrow, body fluids, abscesses, exudates, whole blood and serum (PCR only; no culture), tissue (spleen, liver) in screw-capped tube (with or without swab used to collect sample) 2. Subculture- pure growing on an appropriate agar slant in a screw-capped tube. |
| **Transport Temperature** | Determined during pre-approval consultation. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Campylobacter** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6607 |
| **Special Instructions** |  |
| **Use of Test:** | Reference confirmatory testing and surveillance for epidemiological studies. |
| **Reference Range:** | *Campylobacter* species not found. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification of *Campylobacter* sp is required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Carbapenem-resistant bacteria**  **CRO (CRE, CRPA, CRAB)** |
| --- | --- |
| **Synonym** | CRE = Carbapenem-resistant Enterobacterial (former Enterobacteriaceae)  CRPA = Carbapenem resistant Pseudomonas aeruginosa  CRAB = Carbapenem resistant Acinetobacter baumanii complex |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6607 |
| **Special Instructions** |  |
| **Use of Test:** | Surveillance of Antimicrobial resistance organism and HAIs for epidemiological studies |
| **Reference Range:** | N/A |
| **Turnaround Time:** | 7 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification and sensitivity report is required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Transport pure culture isolates at room temperature (15-25 °C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Chlamydia trachomatis and Neisseria gonorrhoeae, Nucleic Acid Amplification Test (NAAT)** |
| --- | --- |
| **Synonym** | CT/GC NAAT |
| **Laboratory** | Sexually Transmitted Infections Laboratory |
| **Phone** | 617-983-6388 |
| **Special Instructions** | Testing is available only on specimens from assigned clinics. Clinics are specific sites selected to monitor disease prevalence throughout Massachusetts. |
| **Use of Test:** | Selective screening for Chlamydia and Gonorrhea infection among individuals at risk for sexually transmitted diseases (STDs), including sexually active adolescents, contacts of STD patients, individuals with multiple sexual partners, and individuals exhibiting symptoms of an STD. |
| **Reference Range:** | Presumed negative for CT rRNA  Presumed negative for GC rRNA |
| **Turnaround Time:** | 2 to 5 days |
| **Forms Required** | 2D Barcode Specimen Submission Form (Chlamydia/Gonorrhea testing) |
| **Test Kit** | CT/GC NAAT (specify specimen type) and Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | Package inserts instructions provided with collection device.  Refer to SPHL Swab (GLX-ST) and Urine (GLU-STI) Collection Guidelines for CT/GC provided by clinic's contract manager. |
| **Specimen/Sample Types** | Swab- vaginal or endocervical for females, urethral for males, pharyngeal (throat) , rectal.  Urine- for females and males.  Using the transfer pipet provided in the kit, transfer 2.0 – 3.0 mL urine into the urine specimen transport tube provided in the kit. The final volume after adding specimen must be between the fill lines indicated on the tube. |
| **Transport Temperature** | Vaginal, endocervical, and urethral swabs should be shipped or delivered by courier at 2°C to 30°C and pharyngeal and rectal swabs at 4°C to 30°C to the MA SPHL on the same day on which they are collected.  Urine should be shipped, or delivered by courier at 2°C to 30°C to the MA SPHL on the same day on which they are collected. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | NAAT is not intended for the evaluation of suspected sexual abuse or appropriate for medico-legal cases. Testing of specimens with this method for medico-legal purposes is not performed at MA SPHL. NAAT is not recommended for post-treatment assessment (“test of cure”) for persons with pharyngeal gonorrhea 7-14 days and for pregnant women with chlamydial infection after 4 weeks post treatment.  The performance of the assay has not been evaluated in adolescents less than 14 years of age. |

| **Test** | **Clostridium botulinum** |
| --- | --- |
| **Synonym** | Botulism Toxin |
| **Laboratory** | BioThreat Response Laboratory |
| **Phone** | 617-590-6390 (24hr/7days) |
| **Special Instructions** | All botulism testing must be approved by MDPH Epidemiology Program 617-983-6800  Call the BioThreat Response Laboratory to arrange for submission of specimens to reference laboratory.  617-590-6390 |
| **Use of Test:** | Clinical diagnosis of botulism or infant botulism. |
| **Reference Range:** | Negative |
| **Turnaround Time:** | Minimum 7 days. |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Adults: collect > 5ml od serum, and > 20 g of unpreserved stool in a wide mouth, sterile, leak-proof container.  Infants: Send rectal swab in a sterile container. |
| **Transport Temperature** | Specimens may be stored and shipped refrigerated at 2-8°C or frozen at -20°C. |
| **Shipping Requirements** | Shipment by courier as soon as possible. If overnight, ship with coolant such as prefrozen gel packs.  Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Test is performed only on patients who exhibit neurological symptoms suggestive of botulism or infant botulism, on patients who have consumed food suspected to contain botulinum toxin, or on foods highly suspected to contain botulinum toxin. |

| **Test** | **Corynebacterium diphtheriae** |
| --- | --- |
| **Synonym** | *C. diphtheriae*, Diphtheria |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Rule out *Corynebacterium diphtheriae* as causative agent of infection. |
| **Reference Range:** | *Corynebacterium diphtheriae* was not found by culture. |
| **Turnaround Time:** | 1-2 days preliminary report, if suspicious; up to 30 days for final toxin testing report |
| **Forms Required** | General Specimen Submission Form (SS-PHL) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Collect swab in gel transport media if transport is expected to exceed 24 hours from collection. |
| **Specimen/Sample Types** | Swab from the inflamed areas of the membranes in throat and nasopharynx, skin lesion and material from wounds removed by swab or aspiration.  Swab shipped dry in a sterile tube or in a special packet containing a desiccant such as silica gel provided by the user.  A transport medium may be used if the sample is not being delivered by courier the same day as collected. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship specimens to the State Public Health Laboratory in accordance with applicable local, state and federal regulations.  Same day delivery is recommended. |
| **Additional Information/Notes** | N/A |

| **Test** | **Cyanide, Whole Blood** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical specimens (whole blood) for the presence of cyanide. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to cyanide |
| **Reference Range:** | A level of <100 ng/mL of cyanide in blood is generally accepted as normal.  Levels greater than 1000 ng/mL are considered toxic and even potentially lethal. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for sampling and storage guidelines. |
| **Specimen/Sample Types** | Whole Blood |
| **Transport Temperature** | Refrigerated (4-8°C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Cytomegalovirus Culture** |
| --- | --- |
| **Synonym** | CMV |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** |  |
| **Use of Test:** | Rule out infection caused by cytomegalovirus. |
| **Reference Range:** | CMV not detected by not detected by absence of cytopathic effect in tissue culture |
| **Turnaround Time:** | 2 to 28 days for positive report, and 28 days for negative report. |
| **Forms Required** | General Specimen Submission Form (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call laboratory prior to collection. |
| **Specimen/Sample Types** | Urine, cerebral spinal fluid, tissue, peripheral blood buffy coat. |
| **Transport Temperature** | Refrigerated (2-8°C) and delivered on ice pack within 24 hours. DO NOT FREEZE |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Culture for additional viruses may be performed at the discretion of the laboratory. |

| **Test** | **Dairy Regulatory Testing** |
| --- | --- |
| **Synonym** | Dairy, Milk |
| **Laboratory** | Dairy Laboratory |
| **Phone** |  |
| **Special Instructions** | Samples to be coordinated with the Food Protection Program (FPP) Dairy Unit (617) 983-6712. |
| **Use of Test:** | To ensure Grade "A" milk producers and Interstate Milk Shippers (IMS) are in compliance with current FDA Regulations. |
| **Reference Range:** | N/A |
| **Turnaround Time:** | 21-28 days |
| **Forms Required** | Coordinated with Food Protection Program (FPP) Dairy Unit. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Dairy Samples will be collected under the guidance of the Food Protection Program (FPP) Dairy Unit. |
| **Specimen/Sample Types** | Dairy Samples will be collected under the guidance of the Food Protection Program (FPP) Dairy Unit. |
| **Transport Temperature** | Refrigerated (0-4.5°C) |
| **Shipping Requirements** | Coordinated with Food Protection Program (FPP) Dairy Unit. |
| **Additional Information/Notes** | All test results are verified against the Pasteurized Milk Ordinance (PMO) by the Food Protection Program (FPP) Dairy Unit. https://www.mass.gov/lists/dairy |

| **Test** | **Ebola and Marburg virus Panel** |
| --- | --- |
| **Synonym** | Viral Hemorrhagic Fever (VHF) |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Pre-authorization from MDPH Epidemiology Program (available 24/7) at 617-983-6800 is REQUIRED prior to submission of specimens for all suspect Ebola or Marburg virus cases to coordinate sample collection, transport and rapid testing. |
| **Use of Test:** | Rule out suspect Ebola or Marburg virus cases meeting the case definition; support public health measures. |
| **Reference Range:** | Ebola or Marburg virus RNA not detected by PCR. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 617-983-6800 for sample collection instructions. |
| **Specimen/Sample Types** | Two tubes of whole blood (lavender top) are required.  Store specimens at room temperature (18-30°C) for up to 1 day  Refrigerated (2 to 8°C) for up to 7 days |
| **Transport Temperature** | Room temperature (18-30°C) same day of collection.  Refrigerated (2 to 8°C) on ice pack |
| **Shipping Requirements** | For all specimens/cases, testing and transport arrangements must be coordinated through the MDPH Epidemiology Program at 617-983-6800. |
| **Additional Information/Notes** | Refer to the MDPH or CDC website for the most up to date information. Confirmatory testing will be performed by CDC. |

| **Test** | **Enteric Pathogens, Food** |
| --- | --- |
| **Synonym** | *Salmonella spp, Shigella spp*, shiga-toxin-producing E. coli, *Listeria monocytogenes* |
| **Laboratory** | Food Laboratory |
| **Phone** |  |
| **Special Instructions** | Food samples must be submitted through local or state public health agencies and implicated in an outbreak (one or more ill consumers). Call the Food Protection Program at 617-983-6712 prior to submission. |
| **Use of Test:** | Determine enteric pathogens in food source associated with human illness. |
| **Reference Range:** | Enteric pathogen not found. |
| **Turnaround Time:** | 3 to 14 days |
| **Forms Required** | Environmental Sample Submission Form. Forms are available from the MDPH Food Protection Program at 617-983-6712, the local board of health, or the Food Laboratory. Collection is to be coordinated by the MDPH Food Protection Program. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | All samples will be coordinated under the guidance of the Food Protection Program (FPP). At least 100 grams is preferred, but lesser amounts are acceptable with original sample container as submitted by inspector. Alternatively, collect food aseptically and place in sterile whirlpack bags or other sterile, leak-proof container. |
| **Transport Temperature** | Keep all samples under refrigeration (2-8°C) except samples received frozen which should be maintained in the frozen (≤-20°C) state. |
| **Shipping Requirements** | Transport samples on ice or on pre-frozen cold packs, in appropriate packages. |
| **Additional Information/Notes** | Additional Tests Recommended: Enteric Pathogens, Routine Culture Human |

| **Test** | **Enterovirus Culture** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** |  |
| **Use of Test:** | Detection of coxsackieviruses, echoviruses, polioviruses and other viruses. |
| **Reference Range:** | Not detected by absence of cytopathic effect in tissue culture. |
| **Turnaround Time:** | 2 to 10 days for positive report, and 10 days for negative report. |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the laboratory for sample collection instructions. |
| **Specimen/Sample Types** | Throat swab in viral transport media (VTM) or universal transport media (UTM), stool, cerebrospinal fluid, tissue, vesicular fluid. |
| **Transport Temperature** | Specimens can be held for up to 24 hours at 2-8°C.  If longer delays are necessary, specimens should be frozen at ≤-70°C, transport on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Enteroviruses may be recovered from stools of asymptomatic patients. Vaccine strain polioviruses may be recovered from stools of recently vaccinated individuals or their contacts. This test is usually performed in the context of an outbreak.  Culture for additional viruses may be performed at the discretion of the laboratory. Typing of poliovirus performed but serotyping of other isolates is performed only at CDC under special circumstances. |

| **Test** | **Francisella tularensis** |
| --- | --- |
| **Synonym** | Tularemia, rabbit fever |
| **Laboratory** | BioThreat Response Laboratory |
| **Phone** | 617-590-6390 (24hr/7days) |
| **Special Instructions** | Call the BioThreat Response Laboratory to report when a *Francisella tularensis* cannot be ruled out by sentinel lab protocol. Approval required prior to submitting specimen(s). |
| **Use of Test:** | Rule out infection caused by *Francisella tularensis* causative agent of **tularemia** (Rabbit fever, Deer-fly fever). |
| **Reference Range:** | *Francisella tularensis* not found by culture.  *Francisella tularensis* DNA not detected by PCR. |
| **Turnaround Time:** | 2-21 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1. Primary specimen- Aseptic collection of lesion, tissue biopsy and aspirate (lymph node, spleen, liver), whole blood (PCR only; no culture), sputum, tracheal, pleural aspirates. in a sterile screw cap tube (with or without swab used to collect sample) 2. Subculture pure growing on appropriate agar slant in a screw capped tube |
| **Transport Temperature** | Determined during pre-approval consultation. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Gastrointestinal Panel** |
| --- | --- |
| **Synonym** | GI Panel, BioFire GI, Enteric Pathogen  Campylobacter (jejuni, coli, and upsaliensis); Clostridioides difficile (toxin A/B); Plesiomonas shigelloides; Salmonella spp.; Yersinia enterocolitica; Vibrio (parahaemolyticus, vulnificus, and cholerae); Vibrio cholerae; Enteroaggregative E. coli (EAEC); Enteropathogenic E. coli (EPEC); Enterotoxigenic E. coli (ETEC) It/st; Shiga-like toxin-producing E. coli (STEC) stx1/stx2; E. coli 0157; Shigella/Enteroinvasive E. coli (EIEC); Cryptosporidium; Cyclospora cayetanensis; Entamoeba histolytica; Giardia lamblia; Adenovirus F 40/41; Astrovirus; Norovirus GI/GII; Rotavirus A; Sapovirus (I,II,IV,V) |
| **Laboratory** | Molecular Microbiology Lab |
| **Phone** | 617-983-6612 |
| **Special Instructions** | Coordinate with MDPH Epidemiology Program 617-983-6800 |
| **Use of Test:** | Screen for enteric pathogens associated with Foodborne Illness Outbreak. |
| **Reference Range:** | Not-Detected |
| **Turnaround Time:** | Preliminary Results 48 hours Confirmation 5 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | Enteric Pathogen Stool Kit |
| **Specimen/Sample Collection Instructions** | Instructions provided in Kit. |
| **Specimen/Sample Types** | Stool specimens submitted in Cary-Blair transport media, received in lab within 96 hours of collection. |
| **Transport Temperature** | Room temperature (15-25°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Coordinate transport with MDPH Epidemiology Program  Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Bacterial pathogens detected by PCR screen will be confirmed by culture. |

| **Test** | **Haemophilus influenzae** |
| --- | --- |
| **Synonym** | *H. influenzae* |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Serotyping or serogrouping of common pathogens for use in treatment selection and/or epidemiological studies. |
| **Reference Range:** | *Haemophilus influen*zae was not found by culture. |
| **Turnaround Time:** | 1 to 3 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification of Haemophilus influenzae is required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Hepatitis C Antibody** |
| --- | --- |
| **Synonym** | Anti-HCV |
| **Laboratory** | Sexually Transmitted Infections Laboratory |
| **Phone** | 617-983-6388 |
| **Special Instructions** | Testing for approved counseling and testing sites only, or for reference testing or epidemiological studies. |
| **Use of Test:** | Detection of antibodies to Hepatitis C Virus. |
| **Reference Range:** | Nonreactive: Hepatitis C Virus antibodies not detected. |
| **Turnaround Time:** | 2 to 3 days |
| **Forms Required** | 2D Barcode Specimen Submission Form (HIV/HCV/Syphilis testing) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | After whole blood collection in Serum Separator Tube (SST), let tube sit for 30 to 60 minutes prior to centrifugation at >10,000 RCF for 10 minutes. Minimum of 1 mL of serum. |
| **Specimen/Sample Types** | Serum |
| **Transport Temperature** | Specimens should be shipped, or delivered by courier at room temperature (20°C to 23°C) or refrigerated (2-8°C) to the MA SPHL on the same day on which they are collected. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | A nonreactive anti-HCV test result does not exclude the possibility of exposure to HCV. A reactive anti-HCV test result does not exclude co-infection by another hepatitis virus.  Not intended for use in screening blood, plasma, or tissue donors. |

| **Test** | **HIV Antigen/Antibody** |
| --- | --- |
| **Synonym** | HIV Ag-Ab Combo |
| **Laboratory** | Sexually Transmitted Infections Laboratory |
| **Phone** | 617-983-6388 |
| **Special Instructions** | Testing for approved counseling and testing sites only, or for reference testing or epidemiological studies. |
| **Use of Test:** | Detection of p24 antigen or antibodies to Human Immunodeficiency Virus (HIV). |
| **Reference Range:** | Nonreactive: HIV-1 p24 Ag and HIV-1/HIV-2 Ab not detected. |
| **Turnaround Time:** | 2 to 3 days |
| **Forms Required** | 2D Barcode Specimen Submission Form (HIV/HCV/Syphilis testing) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | After whole blood collection in Serum Separator Tube (SST), let tube sit for 30 to 60 minutes prior to centrifugation at >10,000 RCF for 10 minutes. Minimum of 1 mL of serum. |
| **Specimen/Sample Types** | Serum. |
| **Transport Temperature** | Specimens should be shipped, or delivered by courier at room temperature (15°C to 23°C) or refrigerated (2-8°C) to the MA SPHL on the same day on which they are collected. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | A nonreactive HIV Ag/Ab Combo test result does not exclude the possibility of exposure to or infection with HIV-1 and/or HIV-2. A reactive HIV Ag/Ab Combo test can occur in an individual who has participated in HIV vaccine study. Not intended for use in screening blood or plasma donors. At MASPHL, assay performance characteristics have not been established for individuals younger than 2 years of age. |

| **Test** | **Influenza A and SARS-CoV-2** |
| --- | --- |
| **Synonym** | FluSC2 |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** |  |
| **Use of Test:** | Rule out suspect influenza and SARS-CoV-2 for outbreak investigations. |
| **Reference Range:** | Influenza or SARS CoV-2 virus RNA not detected. |
| **Turnaround Time:** |  |
| **Forms Required** | Respiratory Specimen Submission Form (SS-VI), complete required sections. |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Specimen Collection for Respiratory Virus Testing Instructions.  Do not use cotton tip wood shaft swabs. |
| **Specimen/Sample Types** | Nasopharyngeal swab, and/or pharyngeal swab placed into viral transport media (VTM) or universal transport media (UTM). |
| **Transport Temperature** | Up to 72 hours after collection refrigerate specimens at 2-8°C and ship overnight on ice pack.  After 72 hours, specimen is frozen at ≤-70°C, ship overnight on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Influenza Virus, Molecular Typing/Subtyping PCR** |
| --- | --- |
| **Synonym** | Flu |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Notify MDPH Epidemiology Program (available 24/7) at 617-983-6800 for all suspect avian or novel influenza cases to prioritize and coordinate testing. |
| **Use of Test:** | Rule out suspect novel influenza strains or to rapidly subtype influenza A or B strains for outbreak investigations. |
| **Reference Range:** | Influenza virus RNA not detected |
| **Turnaround Time:** | October - May: 3 business days  June - September: 7 business days |
| **Forms Required** | Respiratory Specimen Submission Form (SS-VI), complete required sections. |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Specimen Collection for Respiratory Virus Testing Instructions.  Do not use cotton tip wood shaft swabs. |
| **Specimen/Sample Types** | Nasopharyngeal swab (NPS), nasal swab, throat swabs (TS), nasal aspirates, nasal washes, dual NPS/TS, bronchoalveolar lavage, bronchial wash, tracheal aspirate, sputum and lung tissue.  Swabs must be placed into viral transport media (VTM) or universal transport media (UTM) and be collected within 5 days of symptom onset.  Store specimens:  Refrigerated (2-8°C) within 72 hours of collection.  Frozen (-20°C or below) after 72 hours of collection. |
| **Transport Temperature** | Refrigerated (2-8°C) within 72 hours of collection.  Frozen at ≤-20°C, after 72 hours of collection, ship overnight on dry ice. |
| **Shipping Requirements** | Call 617-983-6800 for courier pickup.  Ship specimens to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | A negative NPS may reflex to the Respiratory Panel. |

| **Test** | **Influenza Virus, Shell Vial Culture** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 for all suspect pandemic, avian or novel influenza cases to prioritize and coordinate testing. |
| **Use of Test:** | To support public health virologic surveillance efforts, isolation and subtyping of influenza samples from sentinel surveillance sites, sentinel and hospital laboratories to support public health virologic surveillance efforts. |
| **Reference Range:** | Negative by shell vial procedure.  Only live virus will be detected.  Negative results do not rule out infection. Laboratory results must be interpreted in light of overall patient information.  This procedure is not as sensitive as conventional tissue culture, specimens testing negative are not reported until conventional culture results are finalized. |
| **Turnaround Time:** | 1 to 2 days for preliminary positive report. Positives are confirmed by conventional culture and subtyping. |
| **Forms Required** | Respiratory Specimen Submission Form (SS-VI), complete “Additional Patient Information” section. |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Call Laboratory for sample collection instructions, or use Respiratory Virus Test kit instructions.  Do not use cotton tip wood shaft swabs. |
| **Specimen/Sample Types** | Acceptable specimen types include: throat swab or nasopharyngeal swab in viral transport media (VTM) or universal transport media (UTM), bronchial wash or other respiratory specimen. |
| **Transport Temperature** | Refrigerated (2-8°C) within 24 hours. If the specimen cannot shipped immediately, it should be stored immediately at ≤-70°C; storage at high temperatures (e.g., -20°C) leads to the loss of virus viability. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Culture for additional viruses may be performed at the discretion of the laboratory. |

| **Test** | **Influenza/ Parainfluenza Virus Culture and Subtyping** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 for all suspect pandemic, avian or novel influenza cases to prioritize and coordinate testing. |
| **Use of Test:** | Virus isolation to support public health virologic surveillance efforts. |
| **Reference Range:** | Not detected by hemadsorption in tissue culture  Only live virus will be detected.  Negative results do not rule out infection.  Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 2 to 10 days |
| **Forms Required** | Respiratory Specimen Submission Form (SS-VI), complete “Additional Patient Information” section. |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Call Laboratory for sample collection instructions, or use Respiratory Virus Test kit instructions.  Do not use cotton tip wood shaft swabs. |
| **Specimen/Sample Types** | Primary specimens- Nasopharyngeal swab (preferred specimen)or throat swab placed into viral transport media (VTM) or universal transport media (UTM), bronchial wash, or other respiratory specimen.  Isolates- exhibiting hemadsorption or any preliminary positive results by a rapid influenza test. |
| **Transport Temperature** | Refrigerated (2-8°C) within 24 hours. If a sample cannot be cultured during this time frame, it should be stored immediately at ≤-70°C; storage at high temperatures (e.g., -20°C) leads to the loss of virus viability. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Culture for additional viruses may be performed at the discretion of the laboratory. |

| **Test** | **Lead, Clinical** |
| --- | --- |
| **Synonym** | Blood Lead, Childhood Lead Screening |
| **Laboratory** | Childhood Lead Screening Laboratory |
| **Phone** | 617-983-6665 |
| **Special Instructions** |  |
| **Use of Test:** | Identification and monitoring of children with elevated lead body burden. |
| **Reference Range:** | Children:  < 3.5ug/dL, within reference range.  ≥ 3.5ug/dl, exceeds reference range.  Adults:  ≥ 10ug/dL considered elevated.  ≥ 20ug/dL considered critical.  Based on NHANES 2015-2016 survey, the 95% reference ranges for lead in blood is Lead 2.75 ug/dL. In 2021, the CDC lowered its reference level from 5 ug/dL to 3.5 ug/dL. For children with blood lead levels at or above 3.5 ug/dL from a capillary test, it is recommended that a confirmation test be performed using a venous specimen. |
| **Turnaround Time:** | 2 Days |
| **Forms Required** | Childhood Lead Screening Specimen Submission Form (SS-BL) |
| **Test Kit** | Blood Lead Screening Supplies |
| **Specimen/Sample Collection Instructions** | Refer to Blood Lead Collection Instructions  Collect specimens in lead-free, anticoagulant NOT expired tubes. |
| **Specimen/Sample Types** | Venous whole blood: Use only K2EDTA (tan-top) tube or K2EDTA or Na2EDTA (royal blue-top) tubes.  Fingerstick/Capillary: Sarstedt Microvette CB300 or similar EDTA microtainers.  Store specimens at 2-8°C before submission to MA SPHL. |
| **Transport Temperature** | Refrigerated (2-8°C)  Avoid exposing specimens to extreme temperatures during shipping. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Lead, Water** |
| --- | --- |
| **Synonym** | Drinking Water |
| **Laboratory** | Chemical Environmental Laboratory |
| **Phone** | 617-983-6657/6654 |
| **Special Instructions** |  |
| **Use of Test:** | Measure lead in drinking water as a possible source of exposure. |
| **Reference Range:** | < 15 µg /L |
| **Turnaround Time:** | 10 business days |
| **Forms Required** | Drinking Water Submission Form (SS-DWP) containing documentation of provider, occupant, water source, and exact location of tap. |
| **Test Kit** | Lead sample collection kit. EPA approved containers packaged for chain-of- custody supplied by laboratory. Each kit includes 3 containers for collection of compliance and instructions for collecting compliance samples. To order, call 617-983-6654. |
| **Specimen/Sample Collection Instructions** | Refer to SI-DWA for collection |
| **Specimen/Sample Types** | Three compliance samples, collected over time, (standing, two minutes running and five minutes running). |
| **Transport Temperature** | N/A |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations.  Ship to laboratory in carton provided within 10 days of collection. Carton must have labels of orientation and handling to ensure safe |
| **Additional Information/Notes** | N/A |

| **Test** | **Legionella** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Reference testing confirm diagnosis of Legionnaire’s Disease in the acute phase of illness. |
| **Reference Range:** | *Legionella species* was not found by culture. |
| **Turnaround Time:** | 12 to 15 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | Legionella Transport Kit |
| **Specimen/Sample Collection Instructions** | Collect pea-sized piece of tissue or 5-30 mL of secretions.  Specimens should not be allowed to be dry out; add a small amount of sterile distilled water to specimen.  Do not use sterile saline for specimen collections as Legionella spp. are inhibited by saline. |
| **Specimen/Sample Types** | Lung tissue, pleural fluid, trans-tracheal aspirate, and lower respiratory secretions (sputum bronchial wash etc.). Sputum, trans-tracheal aspirate and lung tissue have the highest yield. Pleural fluid has the lowest yield.  Specimens are stored at 2-8°C  Subcultures can be stored refrigerated (2-8°C), room temperature (18-30 °C) or 35°C incubator until transport. |
| **Transport Temperature** | Primary Specimens: 2-8°C on cold ice packs or frozen at ≤-20°C in dry ice  Isolates: Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Same day transport by courier is recommended. If same day transport is not possible, freeze the specimen and send it overnight priority mail.  Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulat |
| **Additional Information/Notes** | Additional testing: Legionella serology. |

| **Test** | **Lewisite Metabolite, Urine** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical urine specimens for the presence of lewisite metabolite. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to lewisite by analyzing for the presence of the lewisite metabolite: 2- chlorovinylarsonous acid in urine. |
| **Reference Range:** | There is no natural environmental exposure that is known to produce the Lewisite metabolite in urine; therefore, the reference range is expected to approach zero for non-exposed persons. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for sampling and storage guidelines. |
| **Specimen/Sample Types** | Urine |
| **Transport Temperature** | Specimens during processing can be stored up to 15 days at ≤-50°C. Long term storage at -70 ± 20°C |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Listeria monocytogenes** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Epidemiological studies. |
| **Reference Range:** | *Listeria monocytogenes* was not found by culture. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Pure, actively growing culture on agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship specimens to the State Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Measles Antibody (IgM)** |
| --- | --- |
| **Synonym** | Rubeola |
| **Laboratory** | Diagnostic Immunology Laboratory |
| **Phone** | 617-983-6396 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate measles testing during outbreak investigations. |
| **Use of Test:** | Serological testing to support measles outbreak public health investigations. |
| **Reference Range:** | IgM Negative  IgM may be negative if the specimen is collected prior to the appearance of or before the fourth day after rash onset. Convalescent specimen should be submitted to rule out measles infection.  Cannot distinguish between antibody produced in response to vaccine versus wild strain measles. |
| **Turnaround Time:** | 1 to 3 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1 mL of serum collected no sooner than four days after rash onset. Grossly hemolyzed specimens unsuitable for testing. |
| **Transport Temperature** | All samples submitted for serology testing should be frozen (-20°C or lower) and shipped on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Additional tests recommended: Throat and/or NP swab collected in parallel and submitted for measles virus culture and PCR. |

| **Test** | **Measles PCR** |
| --- | --- |
| **Synonym** | Rubeola |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Pre-authorization from MDPH Epidemiology Program (available 24/7) at 617-983-6800 is REQUIRED prior to submission for specimens for all suspect measles cases to prioritize and coordinate testing during outbreak investigations. |
| **Use of Test:** | Clinical diagnosis of a current measles infection and to support measles outbreak investigations . |
| **Reference Range:** | Measles virus RNA not detected by PCR. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 617-983-6800 for specimen collection instructions. |
| **Specimen/Sample Types** | Nasopharyngeal swab (preferred) or throat swab in viral transport media (VTM) or universal transport media (UTM), collected within 14 days of rash onset.  Store specimens:  Refrigerated (2-8°C) within 72 hours of collection.  Frozen (-20°C or below) after 72 hours of collection. |
| **Transport Temperature** | Refrigerated (2-8°C) within 72 hours of collection.  Frozen at ≤-20°C, after 72 hours of collection, ship overnight on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Measles Virus Culture** |
| --- | --- |
| **Synonym** | Rubeola |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate measles testing during outbreak investigations. |
| **Use of Test:** | Isolation of the viral agent to support measles outbreak investigations. Original specimens and isolates are used to determine the viral strains in circulation and are forwarded to the CDC for genetic characterization. |
| **Reference Range:** | Not detected by absence of cytopathic effect in tissue culture  For virus culture, measles virus is rarely isolated from clinical specimens.  Negative results do not rule out infection. Laboratory results must be interpreted in light of clinical information including vaccine status. |
| **Turnaround Time:** | Positive results 3-14 days; at least 14 days for negative results. PCR: 6 hrs. |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the laboratory for sample collection instructions. |
| **Specimen/Sample Types** | Nasopharyngeal swab (preferred) or throat swab in viral transport media (VTM) or universal transport media (UTM), urine. |
| **Transport Temperature** | Refrigerated (2-8°C) and delivered on ice pack same day. DO NOT FREEZE |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | **Additional tests required**: IgM serology must also be performed for measles diagnosis. Parvovirus and rubella antibody and/or PCR testing may be necessary for differential diagnosis. Culture for additional viruses may be performed at the discretion of the laboratory. |

| **Test** | **Meningitis/Encephalitis Panel** |
| --- | --- |
| **Synonym** | Meningitis/Encephalitis (ME) Panel  Escherichia coli K1, Haemophilus influenzae, Listeria monocytogenes, Neisseria meningitidis, Streptococcus agalactiae, Streptococcus pneumoniae,  Cytomegalovirus, Enterovirus, Herpes simplex virus 1, Herpes simplex virus 2, Human herpesvirus 6, Human parechovirus, Varicella zoster virus,  Cryptococcus (C. neoformans/C. gattii). |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Notify MDPH Epidemiology Program (available 24/7) at 617-983-6800 to prioritize and coordinate testing. |
| **Use of Test:** | To diagnose multiple bacterial, viral and yeast pathogens that cause individuals to have signs and symptoms of Meningitis/Encephalitis. |
| **Reference Range:** | Bacterial, viral and/or yeast nucleic acid not detected.  Negative results do not rule out infection.  Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 671-983-6800 for specimen collection instructions |
| **Specimen/Sample Types** | Only cerebrospinal fluid (CSF) is approved for this assay.  Store specimens:  Room temperature (15-25°C) within 24 hours of collection.  Refrigerated (2 to 8°C) within 7 days of collection. |
| **Transport Temperature** | Room temperature (15-25°C) same day of collection  Refrigerated (2°C to 8°C) on ice pack |
| **Shipping Requirements** | Call 617-983-6800 for courier pickup.  Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Mercury, Urine** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-983- 6657/6654 |
| **Special Instructions** |  |
| **Use of Test:** | Measure acute mercury exposure in urine. |
| **Reference Range:** | Based on NHANES 2013-2014 survey, the 95% reference ranges for mercury in urine is 1.64 ug/L. |
| **Turnaround Time:** | 1-10 business days. |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 617-983-6654 for sampling instructions and container. |
| **Specimen/Sample Types** | 100 mL urine. Use trace metal free urine specimen collection container. Submit single first void sample, or an aliquot of a 24-hour urine collection. For 24-hour collection, measure total volume and record the volume on required laboratory form. . Mix urine well, then pour off an aliquot to submit to the State Laboratory. Sample must be submitted to the laboratory for preservation within 24 hours of collection. Secure container to avoid sample loss. |
| **Transport Temperature** | Refrigerated (2-8°C) or frozen (-10°C to -90°C) for up to 15 days  Secure container to avoid sample loss. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Mumps Antibody (IgM)** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Diagnostic Immunology Laboratory |
| **Phone** | 617-983-6396 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate mumps testing during outbreak investigations. |
| **Use of Test:** | Serological testing to support mumps outbreak public health investigations by providing clinical diagnosis of a current or recent mumps infection. |
| **Reference Range:** | IgM Negative  Negative IgM indicates probable non-mumps cause or possibility that the specimen was collected too early.  30% of primary mumps may be sub-clinical. Mumps infection can occur without parotitis. Parotid swelling may have other viral/bacterial causes (coxsackievirus, echovirus, parainfluenza, influenza A, herpes simplex virus, varicella zoster virus, and S. aureus). Parotid pain or swelling may have non-infectious cause. |
| **Turnaround Time:** | 1 to 3 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | At least 1 mL of serum collected no sooner than five days after onset of symptoms. Grossly hemolyzed specimens unsuitable for testing. |
| **Transport Temperature** | Maintain sample at 2-8°C and transport to the laboratory.  Freeze at -20°C or lower if testing is delayed. Transport on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Additional tests recommended:  Collect convalescent specimen ≥14 days after the acute specimen. Buccal or throat swab in VTM or UTM, or saliva should be collected ≤ 5 days in parallel and submitted for mumps virus culture and PCR. |

| **Test** | **Mumps virus Culture** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate mumps testing during outbreak investigations. |
| **Use of Test:** | Clinical diagnosis of a current mumps infection and support mumps virus outbreak public health investigations |
| **Reference Range:** | Not detected by the absence of hemadsorption in tissue culture  Negative results do not rule out infection. Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 5 to 15 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call laboratory prior to collection. |
| **Specimen/Sample Types** | Buccal swab (preferred) or throat swab in viral transport media (VTM) or universal transport media (UTM), saliva, urine, cerebrospinal fluid, or tissue. |
| **Transport Temperature** | Refrigerated (2-8°C) and delivered on ice pack within 24 hours of collection. If longer, it must be kept frozen at ≤–70°C and submitted to the lab on dry ice. DO NOT FREEZE AT –20°C |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | 0% of primary mumps may be sub-clinical. Mumps infection can occur without parotitis. Parotid swelling may have other viral/bacterial causes (coxsackievirus, echovirus, parainfluenza, influenza A, herpes simplex and varicella zoster virus, and S. aureus). Parotid pain or swelling may have a non- infectious cause.  **Additional Tests required**: Mumps antibody IgM.  Culture for additional viruses may be performed at the discretion of the laboratory. |

| **Test** | **Mumps virus, PCR** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Pre-authorization from MDPH Epidemiology Program (available 24/7) at 617-983-6800 is REQUIRED prior to submission for specimens for all suspect mumps cases to prioritize and coordinate testing during outbreak investigations. |
| **Use of Test:** | Clinical diagnosis of a current mumps infection and to support mumps virus outbreak investigations. |
| **Reference Range:** | Mumps virus RNA not detected by PCR. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 617-983-6800 for specimen collection instructions. |
| **Specimen/Sample Types** | Buccal swab (preferred) or throat swab in viral transport media (VTM) or universal transport media (UTM) collected within 8 days from onset of parotitis  Store specimens:  Refrigerated (2-8°C) within 72 hours of collection.  Frozen (-20°C or below) after 72 hours of collection. |
| **Transport Temperature** | Refrigerated (2-8°C) within 72 hours of collection.  Frozen at ≤-20°C, after 72 hours of collection, ship overnight on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Mycobacteria Identification, Referred Culture** |
| --- | --- |
| **Synonym** | Tuberculosis, AFB, TB |
| **Laboratory** | Mycobacteriology Laboratory |
| **Phone** | 617-983-6381 |
| **Special Instructions** |  |
| **Use of Test:** | Isolation of *Mycobacteria* spp. |
| **Reference Range:** | No AFB found.  No *Mycobacteria* sp found |
| **Turnaround Time:** | < 60 days |
| **Forms Required** | Mycobacteriology Specimen Submission (SS-TB) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Pure isolate. Liquid cultures are acceptable.  Mixed or contaminated cultures may take longer and identification may not be possible. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Mycobacteria Smear and Culture** |
| --- | --- |
| **Synonym** | Tuberculosis, AFB, TB |
| **Laboratory** | Mycobacteriology Laboratory |
| **Phone** | 617-983-6381 |
| **Special Instructions** |  |
| **Use of Test:** | Determine presence or rule out Mycobacteria. Presumptive diagnosis of mycobacterial disease; rapid identification of most infectious cases, e.g. those that are smear positive; to follow progress of tuberculosis patient on chemotherapy; to evaluate if patient may be discharged from hospital or return to gainful employment. |
| **Reference Range:** | No AFB found.  No *Mycobacteria* sp found |
| **Turnaround Time:** | Smear 1 day culture 1 to 8 weeks (60 days) |
| **Forms Required** | Mycobacteriology Specimen Submission (SS-TB) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Refer to TB Collection Instructions for acceptable specimen and volume. |
| **Transport Temperature** | Transport specimens as soon as possible at room temperature (18-30°C) - if transport is delayed for more than 1 hour refrigerate (2-8°C) the specimen, (except for tissue/lymph node, blood, bone marrow aspirate, CSF, Body fluids, gastric lavage - room temp only) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Drug susceptibility testing is performed on all *M. tuberculosis* *complex* isolates. |

| **Test** | **Mycobacterium tuberculosis Antimicrobial Susceptibility** |
| --- | --- |
| **Synonym** | AFB Drug Susceptibility testing (DST) |
| **Laboratory** | Mycobacteriology Laboratory |
| **Phone** | 617-983-6381 |
| **Special Instructions** |  |
| **Use of Test:** | Determine the in-vitro susceptibility of *M. tuberculosis complex* organisms to first line drugs. |
| **Reference Range:** | *M. tuberculosis complex* organisms susceptible to mycobacteria antimicrobial agents. |
| **Turnaround Time:** | Results are available 7 to 12 days after inoculation. |
| **Forms Required** | Mycobacteriology Specimen Submission (SS-TB) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Pure isolate, only performed on M. tuberculosis complex organisms. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Mycobacterium tuberculosis Nucleic Acid Amplification Testing (NAAT)** |
| --- | --- |
| **Synonym** | Tuberculosis, TB |
| **Laboratory** | Mycobacteriology Laboratory |
| **Phone** | 617-983-6381 |
| **Special Instructions** | To request NAAT on smear negative respiratory specimens please call the lab.  Patient specimens must be decontaminated within 24 hours after collection.  Sediments must be analyzed within 72 hours after decontamination.  If positive, possible resistance to Rifampin |
| **Use of Test:** | Nucleic acid amplification testing (NAAT) to detect the presence of *Mycobacterium tuberculosis complex* DNA in acid-fast (AFB) smear positive concentrated sediments prepared from sputum, bronchial specimens or tracheal aspirates only. Only for the detection of members of the *M. tuberculosis complex* using sediments prepared following the NALC-NaOH and NaOH procedures recommended by CDC**. NAAT will always be performed in conjunction with mycobacterial culture**. This test is performed on specimens from first time, smear-positive patients that have not had a previous M. tuberculosis complex infection, upon physician request on smear-negative specimens, highly suspect TB cases, and on first time submissions of respiratory specimens from high risk providers. |
| **Reference Range:** | *M. tuberculosis* not detected.  A negative test does not exclude the possibility of isolating an M. tuberculosis complex organism from the specimen. |
| **Turnaround Time:** | 1 day |
| **Forms Required** | Mycobacteriology Specimen Submission (SS-TB) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Patient specimen or sediment of a sputum, bronchial specimen or tracheal aspirate. |
| **Transport Temperature** | Sputum sediment: Store resuspended sediments at 2-8°C for up to seven days.  Raw sputum: Transport and store specimens at 2-8C before processing whenever possible.  If necessary, sputum specimens can be stored at a maximum of 35C for up to three days and then at 2-8C for an additional seven days. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Additional tests recommended: Mycobacteriology culture. |

| **Test** | **Neisseria gonorrhoeae, culture** |
| --- | --- |
| **Synonym** | GC culture, Gonorrhea |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** | Testing on primary cultures is available only on specimens from assigned clinics. Assigned clinics are specific sites selected to monitor disease prevalence throughout Massachusetts. |
| **Use of Test:** | Screening and confirmation of *Neisseria gonorrhoeae*. |
| **Reference Range:** | *Neisseria gonorrhoeae* was not found by culture. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | E-swabs of genital, anal and/or oropharyngeal sites.  Primary cultures: InTray GC culture collection device that are pre-incubated at 35°C for 24 hours.  Referred culture: Place 24 hour isolate on Thayer Martin slant.  Isolates on chocolate slant or Modified Thayer Martin media |
| **Transport Temperature** | InTray GC Culture: Ship at room temperature (18-25°C)  Referred culture: Ship presumptive positive specimens at room temperature (18-30°C). |
| **Shipping Requirements** | Transport by same day courier, or by carrier to arrive the next day.  Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Neisseria meningitidis** |
| --- | --- |
| **Synonym** | Bacterial meningitis |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | To Serogroup isolate for use in treatment selection and/or epidemiological studies. |
| **Reference Range:** | Neisseria meningitidis was not found by culture. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification of Neisseria meningitidis required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) |
| **Shipping Requirements** | If culture is N. meningitidis, print “DO NOT REFRIGERATE” on the outside of the outer packing.  Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Nitrogen Mustard Metabolites, Urine** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical urine specimens from patients with suspected exposure to nitrogen mustard. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to nitrogen mustard by analyzing for the N- ethyldiethanolamine (EDEA) and N-methyldiethanolamine (MDEA) metabolites in urine. |
| **Reference Range:** | In this assay, EDEA and MDEA are used as biomarkers for the nitrogen mustards HN1 and HN2, respectively. Any detectable biomarker above the method LOD should be assumed to imply exposure either to nitrogen mustards or to the actual compound. EDEA and MDEA are commonly used in many industrial processes, therefore, patients may be exposed to these compounds in industrial settings. management of patients will be based on the clinical scenario and on available exposure information. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** |  |
| **Transport Temperature** | Frozen (-70 ±10°C)  Transport on dry ice |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Non-variola orthopoxvirus PCR** |
| --- | --- |
| **Synonym** | Monkeypox, Mpox |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Notify MDPH Epidemiology Program (available 24/7) at 617-983-6800 to prioritize and coordinate testing, and for specimen collection and shipping instructions for all pustular rash illness symptoms suspicious for non-variola orthopoxviruses such as vaccinia, cowpox, mpox and ectromelia. |
| **Use of Test:** | To support public health investigations of adverse vaccine reactions or accidental inoculation. To provide rapid results for vaccinia, cowpox, mpox and ectromelia virus. |
| **Reference Range:** | Non-variola orthopoxvirus DNA not detected by PCR. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Mpox specimen collection guidelines:  <https://www.mass.gov/doc/instructions-for-specimen-collection-for-orthopoxvirus-testing/download> |
| **Specimen/Sample Types** | Dry swabs of crusts and/or fluid from an active, open lesions; dry swabs of an intact vesicle or pustule; or a scab from a lesion.  Freezing is strongly recommended. If freezer is unavailable, refrigerated samples (2-8°C) can be store for up to 7 days.  It is strongly recommended to send samples within 7 days of collection. |
| **Transport Temperature** | Frozen (-20°C or lower) on dry ice or refrigerated (2-8°C) on ice pack |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | If travel-related infection is suspected, this must be noted in history field on submission form.  This test can be part of the pustular rash algorithm. |

| **Test** | **Organophosphate Nerve Agent Metabolites, Serum** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical serum specimens from patients with suspected exposure to organophosphate nerve agents such as sarin, soman, cyclosarin, Russian VX, and VX. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to the nerve agents sarin, soman, cyclosarin, Russian VX, and VX by analyzing for the presence of esters of the methylphosphonic acid metabolites for each agent in serum. |
| **Reference Range:** | Ther is no natural environmental exposure that is known to produce the nerve agent metabolites in serum; therefore/ the reference range is expected to approach zero for non-exposed persons. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** | Serum |
| **Transport Temperature** | Frozen (-10C to -90C). Transport on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Organophosphate Nerve Agent Metabolites, Urine** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical serum specimens from patients with suspected exposure to organophosphate nerve agents such as sarin, soman, cyclosarin, Russian VX, and VX. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to the nerve agents sarin, soman, cyclosarin, Russian VX, and VX by analyzing for the presence of esters of the methylphosphonic acid metabolites for each agent in urine. |
| **Reference Range:** | There is no natural environmental exposure that is known to produce the nerve agent metabolites in urine; therefore, the reference range is expected to approach zero for non-exposed persons. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** |  |
| **Transport Temperature** | Frozen (-70 ± 5°C)  Transport on dry ice |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Orthopoxvirus PCR** |
| --- | --- |
| **Synonym** | Pox virus |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Pre-authorization from MDPH Epidemiology Program (available 24/7) at 617-983-6800 is REQUIRED to prioritize and coordinate testing, and for specimen collection and shipping instructions for all pustular rash illness symptoms suspicious for orthopoxvirus such as variola (smallpox), vaccinia, cowpox, mpox, camelpox, ectromelia, and gerbilpox viruses. |
| **Use of Test:** | Rule out of smallpox in moderate to high risk specimens. |
| **Reference Range:** | Orthopoxvirus DNA not detected by PCR. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call 617-983-6800 for specimen collection instructions. |
| **Specimen/Sample Types** | Dry swabs of crusts and/or fluid from an active, open lesions; dry swabs of an intact vesicle or pustule; or a scab from a lesion.  Freezing is strongly recommended. If freezer is unavailable, refrigerated samples (2-8°C) can be store for up to 7 days.  It is strongly recommended to send samples within 7 days of collection. |
| **Transport Temperature** | Frozen (-20°C or lower) on dry ice or refrigerated (2-8°C) on ice pack |
| **Shipping Requirements** | For moderate to high risk specimens/cases transport arrangements must be coordinated through the MDPH Epidemiology Program at 617-983-6800. |
| **Additional Information/Notes** | This test can be part of the pustular rash algorithm. |

| **Test** | **Rabies, Non-human** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Rabies Laboratory |
| **Phone** | 617-983-6385 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to report all human exposures to rabies suspect animals.  Note: Individuals whom have been exposed to rabies suspect animals should notify their physician as it may be necessary to start rabies post-exposure prophylaxis (PEP) immediately. |
| **Use of Test:** | To determine whether post-exposure prophylaxis should be administered to exposed individuals by rapidly identifying rabies virus infection in wild and domestic animals. |
| **Reference Range:** | Rabies virus antigen not detected by DFA. |
| **Turnaround Time:** | 1 day |
| **Forms Required** | Animal Submission Form (SS-AN), complete the “Vaccination” and “Epidemiological Information” sections. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Contact the Rabies laboratory for sample submission and packaging instructions.  Only send head, or intact brain stem and brain of animal.  Do not send live animals or whole bodies (except for bats).  Package/bag sample separately, place in leak proof container and use prefrozen cool packs to place outside of the sample packaging.  Do not use ice cubes as coolant. |
| **Transport Temperature** | N/A |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Rapid Plasma Reagin Test** |
| --- | --- |
| **Synonym** | RPR, Non-treponemal Syphilis Serology |
| **Laboratory** | Sexually Transmitted Infections Laboratory |
| **Phone** | 617-983-6388 |
| **Special Instructions** |  |
| **Use of Test:** | Screening test for syphilis used to detect non-treponemal (reagin) antibodies This test is primarily used to quantitate levels of non-treponemal antibodies to monitor efficacy of syphilis treatment. |
| **Reference Range:** | Non-treponemal antibodies (Reagin: non-specific, anti-lipid) not detected. Titer to endpoint. |
| **Turnaround Time:** | 2-7 days |
| **Forms Required** | Syphilis Specimen Submission Form (SS-STI) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Serum (> 3 mL) is preferred. Alternatively, 5-10 mL whole blood in a red top or serum separator tube. Allow blood to clot at least 30 minutes before centrifuging.  The RPR test cannot be used with cerebrospinal fluid (CSF). |
| **Transport Temperature** | Serum may be shipped ≤ 7 days refrigerated (2°C to 8°C) or frozen (≤-20°C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Test results are intended to aid in diagnosis only. Results should be interpreted in conjunction with additional treponemal serologic test results, the patient’s clinical symptoms, medical history, and other clinical and/or laboratory findings to produce a diagnosis of syphilis by disease stage. Pinta, yaws, bejel and other treponemal diseases may produce reactive results. The test is not intended for screening blood, plasma, or tissue donors. |

| **Test** | **Respiratory Panel** |
| --- | --- |
| **Synonym** | Respiratory Panel (RP) 2.1  Adenovirus; Coronavirus 229E, HKU1, NL63, OC43; Human Rhinovirus/Enterovirus (R/E); Human Metapneumovirus; Influenza A (subtypes H1, H1-2009, and H3); Influenza B; Parainfluenza Virus 1; Parainfluenza Virus 2; Parainfluenza Virus 3; Parainfluenza Virus 4; Respiratory Syncytial Virus; SARS-CoV-2; *Bordetella pertussis; Bordetella parapertussis; Chlamydophila pneumoniae; and Mycoplasma pneumoniae* |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Notify MDPH Epidemiology Program (available 24/7) at 617-983-6800 to prioritize and coordinate testing for outbreak or surveillance purposes. |
| **Use of Test:** | Diagnosis of respiratory pathogens to support public health surveillance and/or outbreak investigation. |
| **Reference Range:** | Viral and/or bacterial nucleic acid not detected. |
| **Turnaround Time:** | October - May: 3 business days  June - September: 7 business days |
| **Forms Required** | Respiratory Surveillance Specimen Submission (SS-VI) |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Call 617-983-6800 for specimen collection instructions or use Specimen Collection for Respiratory Virus Testing Instructions.  Do not use cotton tip wood shaft swab. |
| **Specimen/Sample Types** | Nasopharyngeal swab ONLY in viral transport media (VTM) or universal transport media (UTM).  Store specimens:  Refrigerated (2-8°C) within 72 hours of collection.  Frozen (-20°C or below) after 72 hours of collection. |
| **Transport Temperature** | Refrigerated (2-8°C) within 72 hours of collection.  Frozen at ≤-15°C, after 72 hours of collection, ship overnight on dry ice. |
| **Shipping Requirements** | Call 617-983-6800 for courier pickup.  Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Respiratory Panel, Viral Culture** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate testing for outbreak or surveillance purposes. |
| **Use of Test:** | To diagnose respiratory pathogens in support of public health surveillance and/or outbreak investigation activities. |
| **Reference Range:** | Not detected by absence of cytopathic effect in tissue culture. |
| **Turnaround Time:** | 2 to 10 days |
| **Forms Required** | Respiratory Surveillance Specimen Submission (SS-VI) |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Specimen Collection for Respiratory Virus Testing Instructions.  Do not use cotton tip wood shaft swab. |
| **Specimen/Sample Types** | Primary specimens for virus culture only- Nasopharyngeal swab (preferred specimen) or throat swab in viral transport media (VTM) or universal transport media (UTM), bronchial wash, or other respiratory specimen.  Isolates- exhibiting hemadsorption or any preliminary positive results by a rapid influenza test. |
| **Transport Temperature** | Refrigerated (2-8°C) and delivered on ice pack within 24 hours or kept frozen at –70°C or colder and submitted to the lab on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Viruses not included in the panel may be identified resulting in additional testing being performed at the discretion of the laboratory. |

| **Test** | **Respiratory Syncytial Virus, Culture** |
| --- | --- |
| **Synonym** | RSV |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate testing for outbreak or surveillance purposes. |
| **Use of Test:** | To support public health investigations influenza-like illness outbreak and routine virus surveillance efforts. |
| **Reference Range:** | Not detected by the absence of hemadsorption in tissue culture.  Only live virus will be detected.  Negative results do not rule out infection. Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 2 to 10 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | Respiratory Virus Kit |
| **Specimen/Sample Collection Instructions** | Respiratory Virus Test kit instructions.  Do not use cotton tip wood shaft swab. |
| **Specimen/Sample Types** | Nasopharyngeal swab in viral transport media (VTM). |
| **Transport Temperature** | Refrigerated (2-8°C) and delivered on ice pack within 24 hours or kept frozen at –70°C or colder and submitted to the lab on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Culture for additional viruses may be performed at the discretion of the laboratory. |

| **Test** | **Salmonella** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Confirmation and surveillance for epidemiological studies. |
| **Reference Range:** | *Salmonella* species was not found. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification of *Salmonella* sp is required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Shiga Toxin Producing *Escherichia coli*** |
| --- | --- |
| **Synonym** | Verotoxin  *E. coli* O157:H7, *E. coli* non-O157, STEC, EHEC, Shiga toxin positive |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Confirm presence of Shiga toxin. Isolate Shigatoxigenic organism(s) for subsequent identification. |
| **Reference Range:** | Shiga Toxin NOT detected. |
| **Turnaround Time:** | 3 to 7 days for confirmation of mixed culture and/or stool specimen.  Isolation of the Shigatoxigenic organism can take a few days longer. If specimen must be forwarded to CDC for final confirmation and/or serotyping, turnaround time may exceed 1 month. |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | Enteric Pathogen Stool Kit |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Pure isolate on an agar slant in a screw cap tube, broth culture in screw cap tube, selected broth medium (GN broth; MAC broth), stool in Enteric Pathogen Stool Kit (Cary Blair transport media) |
| **Transport Temperature** | Room temperature (18-30°C) within 96 hours or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Shigella** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Confirmation and surveillance for epidemiological studies. |
| **Reference Range:** | *Shigella* species was not found. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification of *Shigella* sp is required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Sulfur Mustard Metabolite, Serum** |
| --- | --- |
| **Synonym** | SBMTE |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical threat Laboratory for guidance on submitting clinical serum specimens from patients with suspected exposure to sulfur mustard ("mustard gas"). Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to sulfur mustard by analyzing for the presence of the 1,1-sulfonylbis-[2-methylthio] ethane (SBMTE) metabolite in serum. |
| **Reference Range:** | There is no natural environmental exposure that is known to produce the sulfur mustard beta-lyase metabolite SBMTE in serum; therefore, the reference range is expected to be near zero for non-exposed persons. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** | Serum |
| **Transport Temperature** | Frozen (-10C to -90C). Transport on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Sulfur Mustard Metabolite, Urine** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical urine specimens from patients with suspected exposure to sulfur mustard (“mustard gas”). Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to sulfur mustard by analyzing for the presence of the 1,1-sulfonylbis-[2-methylthio] ethane (SBMTE) metabolite in urine. |
| **Reference Range:** | There is no natural environmental exposure that is known to produce the sulfur mustard beta-lyase metabolite, SBMTE in urine; therefore, the reference range is expected to be non-detectable for non-exposed persons. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** | Urine |
| **Transport Temperature** | Frozen (-70 ± 5°C)  Transport on dry ice |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Syphilis Antibody** |
| --- | --- |
| **Synonym** | TP |
| **Laboratory** | Sexually Transmitted Infections Laboratory |
| **Phone** | 617-983-6388 |
| **Special Instructions** | Testing for approved counseling and testing sites only, or for reference testing or epidemiological studies. |
| **Use of Test:** | Detection of antibodies directed against Treponema pallidum (TP). |
| **Reference Range:** | Nonreactive: Treponema pallidum antibodies not detected. |
| **Turnaround Time:** | 2-3 days |
| **Forms Required** | 2D Barcode Specimen Submission Form (HIV/HCV/Syphilis testing) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | After whole blood collection in Serum Separator Tube (SST), let tube sit for 30 to 60 minutes prior to centrifugation at >10,000 RCF for 10 minutes. Minimum of 1 mL of serum. |
| **Specimen/Sample Types** | Serum |
| **Transport Temperature** | Specimens should be shipped, or delivered by courier at room temperature (15°C to 30°C) or refrigerated (2-8°C) to the MA SPHL on the same day on which they are collected. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | This test is intended for screening only and requires appropriate confirmatory testing. A non-reactive result does not rule out a new syphilis infection. For a reactive result, a reflex test for confirmation and titer will be added. Pinta, yaws, bejel and other treponemal diseases may produce reactive results. Not intended for use in screening blood, plasma, or tissue donors. |

| **Test** | **Tetramine, Urine** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical urine specimens from patients with suspected exposure to tetramine. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to (Tetramine) tetramethylene disulfotetramine in urine. |
| **Reference Range:** | Any detectable analyte above the method LOD should be assumed to imply exposure. Management of patients will be based on the clinical presentation. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** | Urine |
| **Transport Temperature** | Frozen (-70 ± 5°C)  Transport on dry ice |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Tetranitromethane Metabolite, Urine** |
| --- | --- |
| **Synonym** | HNPAA |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical urine specimens from patients with suspected exposure to tetranitromethane.  Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to tetranitromethane by analyzing for the 4-hydroxy 3-nitrophenylacetic acid (HNPAA) metabolite in urine. |
| **Reference Range:** | There is limited environmental exposure that is known to produce the tetranitromethane metabolite, HNPAA in urine. There, the possibility exists that a small number of individual urine specimens could have detectable amounts of HNPAA in non-exposed persons. However, any detectable level above the LOD should be assumed to imply exposure to tetranitromethane. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** |  |
| **Transport Temperature** | Frozen (-70 ±10°C)  Transport on dry ice |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Trace Metals, Urine** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-983-6657 |
| **Special Instructions** |  |
| **Use of Test:** | Measure acute exposure to any or all of the following: arsenic, barium, beryllium, cadmium, lead, thallium, and uranium by detection in urine. |
| **Reference Range:** | Based on NHANES 2009-2010 survey, the 95% reference ranges for metals in urine are as follows: Berylium ≤ 0.072 ug/L, Cobalt 1.40 ug/L, Molybdenum 160 ug/L, Antimony 0.230 ug/L, Cesium 11 ug/L, Barium 6.78 ug/L, Tungsten 0.460 ug/L, Thallium 0.410 ug/L, Lead 1.65 ug/L, Uranium 0.036 ug/L, Cadmium 1.03 ug/L, Arsenic 85.6 ug/L. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** | Urine |
| **Transport Temperature** | Freeze at ≤-20°C as soon as possible and transport on dry ice |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Trace metal levels in urine are corrected for creatinine, if requested.  Samples with As levels of greater than 20 ng/mL may be followed up with Arsenic Speciation by HPLC-ICPMS |

| **Test** | **Trace Metals, Whole Blood** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical specimens (whole blood) from patients with suspected exposure to cadmium, lead, and mercury. Prior to submitting specimen(s), instructions on packaging and shipping requirements will |
| **Use of Test:** | Measure acute exposure to any or all of the following: cadmium, lead, and mercury |
| **Reference Range:** | Based on NHANES 2015-2016 survey, the 95% reference ranges for metals in blood are as follows: Manganese 16.4 ug/L, Selenium 233 ug/L, Cadmium 1.22 ug/L, Mercury 4.25 ug/L, and Lead 2.75 ug/dL. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** | Whole Blood |
| **Transport Temperature** | Venous samples stored refrigerated (2°C -8°C) while in tubes, or once transferred into cryovials stored at (-10°C to -90°C) prior to shipment. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC.  Samples with Hg levels of greater than 5 ng/mL may be followed up with mercury speciation in blood via TSID-SPME-GC-ICP-MS/MS |

| **Test** | **Treponema pallidum Particle Agglutination Antibody** |
| --- | --- |
| **Synonym** | TP-PA |
| **Laboratory** | Sexually Transmitted Infections Laboratory |
| **Phone** | 617-983-6388 |
| **Special Instructions** |  |
| **Use of Test:** | Detection of antibodies to Treponema pallidum. Test is used for confirmation of specimens that are reactive on RPR or other non-treponemal tests. |
| **Reference Range:** | Treponema pallidum antibodies not detected.  Presence of antibodies does not differentiate between past and current infection. Treponema pallidum may be present even in the absence of detectable antibodies. |
| **Turnaround Time:** | 2-7 days |
| **Forms Required** | Syphilis Specimen Submission Form (SS-STI) |
| **Test Kit** | Single or Multiple Mailing or Courier Kits |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Serum (> 3 mL) is preferred. Alternatively, 5-10 mL whole blood in a red top or serum separator tube. Allow blood to clot at least 30 minutes before centrifuging. |
| **Transport Temperature** | Serum may be shipped ≤ 14 days refrigerated (2°C to 8°C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Results should be interpreted in conjunction with additional treponemal serologic test results, the patient’s clinical symptoms, medical history, and other clinical and/or laboratory findings to produce a diagnosis of syphilis by disease stage. The TP-PA test may be reactive in persons from areas where yaws or pinta was, or is, endemic. Samples from patients with HIV, Leprosy, Toxoplasmosis, H. pylori, or drug addiction may react, on occasion, with either the sensitized or the unsensitized particles, causing false-positive or inconclusive results. |

| **Test** | **Unknown powders/liquids** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting unknown environmental powders and liquids for identification. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Detect unknown drugs, toxic or household compounds in suspect powders |
| **Reference Range:** | Not Detected |
| **Turnaround Time:** | 2 days |
| **Forms Required** | Environmental (Biological/Chemical) Threat Submission Form (SS-LP) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** |  |
| **Transport Temperature** | N/A |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Some samples may be triaged to the Chemical Threat Laboratory following screening for the presence of biological agents by the BioThreat Response Laboratory (617-590-6390 (24hr/7days)). Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Vaccinia Virus, Shell Vial Culture** |
| --- | --- |
| **Synonym** | VAC |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate testing, and for specimen collection and shipping instructions for all pustular rash illness symptoms suspicious for vaccinia virus. |
| **Use of Test:** | To support investigation and clinical diagnosis of adverse vaccine events or inadvertent inoculation by vaccinia virus. |
| **Reference Range:** | Not detected by absence of cytopathic effect in tissue culture.  Only live virus will be detected.  Negative results do not rule out infection. Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 2 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Vesicular material, scab specimens, biopsy lesions. |
| **Transport Temperature** | Refrigerated (2-8°C) on ice pack and delivered ASAP. If for any reason it cannot be done immediately, the specimen should be stored at ≤ –20°C and transported on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | **Additional tests recommended:** Non-orthopoxvirus PCR: rapid presumptive identification by PCR may be performed on a case-by-case basis. |

| **Test** | **Varicella Zoster Virus, Culture** |
| --- | --- |
| **Synonym** | Chicken pox |
| **Laboratory** | Virus Isolation Laboratory |
| **Phone** | 617-983-6382/6853 |
| **Special Instructions** | Notify MDPH Epidemiology Program (24/7) at 617-983-6800 to prioritize and coordinate testing for all pustular rash illness symptoms suspicious for Varicella zoster virus (VZV). |
| **Use of Test:** | Clinical diagnosis of Varicella Zoster virus and support public health investigation . |
| **Reference Range:** | Not detected by absence of cytopathic effect in tissue culture.  Only live virus will be detected.  Negative results do not rule out infection. Laboratory results must be interpreted in light of overall patient information. |
| **Turnaround Time:** | 2 to 10 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Vesicular material, scab specimens, biopsy lesions. |
| **Transport Temperature** | Refrigerated (2-8°C) on ice pack and delivered ASAP. If for any reason it cannot be done immediately, the specimen should be stored at ≤ –20°C and transported on dry ice. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Variola Virus, PCR** |
| --- | --- |
| **Synonym** | Smallpox |
| **Laboratory** | Molecular Virology Laboratory |
| **Phone** | 617-983-6411 |
| **Special Instructions** | Pre-authorization from MDPH Epidemiology Program (available 24/7) at 617-983-6800 is REQUIRED to prioritize and coordinate testing, and for specimen collection and shipping instructions for all pustular rash illness symptoms suspicious for variola. |
| **Use of Test:** | Presumptive identification of smallpox in high risk specimens |
| **Reference Range:** | Variola virus not detected by PCR. |
| **Turnaround Time:** | 3 business days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Dry swabs of crusts and/or fluid from an active, open lesion; dry swabs of an intact vesicle or pustule; or a scab from a lesion.  Freezing is strongly recommended. If freezer is unavailable, refrigerated samples (2-8°C) can be store for up to 7 days.  It is strongly recommended to send samples within 7 days of collection. |
| **Transport Temperature** | Frozen (-20°C or lower) on dry ice or refrigerated (2-8°C) on ice pack |
| **Shipping Requirements** | For moderate to high risk specimens/cases transport arrangements must be coordinated through the MDPH Epidemiology Program at 617-983-6800. |
| **Additional Information/Notes** | This test can be part of the pustular rash algorithm. |

| **Test** | **Vibrio** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Confirmation and surveillance for epidemiological studies. |
| **Reference Range:** | V*ibrio* species was not found by culture. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification of *Vibrio* sp is required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Viral Genomic Sequencing** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Sequencing & Bioinformatics |
| **Phone** | 617-983-6313 |
| **Special Instructions** |  |
| **Use of Test:** | Testing is performed for MA SPHL laboratories divisions. Results are used for epidemiologic purposes. |
| **Reference Range:** | N/A |
| **Turnaround Time:** | 7-21 days from receipt of sample |
| **Forms Required** | SARS-CoV-2 Sequencing submission form (SS-CoVseq). Otherwise, for clinical samples specifically submitted for sequencing, use the General Specimen Submission Form, complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Target dependent. |
| **Transport Temperature** | N/A |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Volatile Organic Compounds, Whole Blood** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Chemical Threat Response Laboratory |
| **Phone** | 617-839-1283 (24hr/7days) |
| **Special Instructions** | Call the Chemical Threat Laboratory for guidance on submitting clinical samples (whole blood) for exposure to one or more of the following: 1,2- dichloroethane, benzene, carbon tetrachloride, chloroform, ethylbenzene, m- & p-xylene, o-xylene, styrene, tetrachloroethylene, and toluene. Prior to submitting specimen(s), instructions on packaging and shipping requirements will be provided. |
| **Use of Test:** | Measure acute exposure to 1,2-dichloroethane, benzene, carbon tetrachloride, chloroform, ethylbenzene, m- & p-xylene, o-xylene, styrene, tetrachloroethylene, and/or toluene in whole blood. |
| **Reference Range:** | Based on NHANES III survey, the 95% reference ranges for VOCs in blood are as follows: Chloroform 0.021 ng/mL, 1,2-dichloroethane 0.012 ng/mL, Benzene 0.48 ng/mL, Carbon tetrachloride 0.019 ng/mL, Toluene 1.5 ng/mL, Tetrachloroethene 0.62 ng/mL, Ethylbenzene 0.25 ng/mL, m-and p-xylene 0.78 ng/mL, Styrene 0.18 ng/mL, and o-xylene 0.30 ng/mL. |
| **Turnaround Time:** | 5 business days |
| **Forms Required** | Chemical Exposure Clinical Specimen Form (SS-CT) |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | Call the Chemical Threat Laboratory for packaging and shipping instructions and to coordinate specimen transport to the laboratory. |
| **Specimen/Sample Types** | Whole blood |
| **Transport Temperature** | Specimen stored and shipped refrigerated (4 -10°C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | Further characterization or identification may be performed at the discretion of the laboratory and/or after consultation with the CDC. |

| **Test** | **Wastewater Surveillance** |
| --- | --- |
| **Synonym** | SARS-CoV-2 |
| **Laboratory** | Molecular Microbiology Lab |
| **Phone** | 617-983-6612 |
| **Special Instructions** |  |
| **Use of Test:** | Wastewater surveillance of pathogens of public health interest for epidemiological purposes from wastewater treatment plants. |
| **Reference Range:** | Detected/Not Detected with Normalized Concentration Data (copies/Liter) |
| **Turnaround Time:** | 2 to 5 days |
| **Forms Required** | Wastewater Surveillance Specimen Manifest |
| **Test Kit** | Wastewater Collection Kit |
| **Specimen/Sample Collection Instructions** | Instructions provided in Kit. |
| **Specimen/Sample Types** | Raw influent 24 & 48 hour composite wastewater samples. |
| **Transport Temperature** | Samples must be kept cold during collection and transport (2-8°C). |
| **Shipping Requirements** | Ship samples to the State Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Yersinia pestis** |
| --- | --- |
| **Synonym** | Bubonic Plague |
| **Laboratory** | BioThreat Response Laboratory |
| **Phone** | 617-590-6390 (24hr/7days) |
| **Special Instructions** | Call the BioThreat Response Laboratory to report when a *Yersinia pestis* cannot be ruled out by sentinel lab protocol. Approval required prior to submitting specimen(s). |
| **Use of Test:** | Rule out infection by *Yersinia pestis* causative agent of **Plague** (Bubonic and Pneumonic). |
| **Reference Range:** | *Yersinia pestis* not found by culture.  *Yersinia pestis* DNA not detected by PCR. |
| **Turnaround Time:** | 2-21 days |
| **Forms Required** | General Specimen Submission (SS-PHL), complete “Additional Patient Information” section. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | 1. Primary specimen- Aseptically collected tissue biopsy or aspirates (lymph node, bone marrow, spleen, liver, lung); whole blood, bronchial wash and trans-tracheal aspirates (>1mL) in a sterile screw-capped tube (with or without swab used to collect sample). 2. Subculture pure growing on appropriate agar slant in a screw capped tube. |
| **Transport Temperature** | 1. Primary specimen determined during pre-approval consultation. 2. Isolates can be refrigerated (2-8°C) or kept at room temperature (15-25°C). Isolates should be maintained to ensure viability. |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

| **Test** | **Yersinia spp** |
| --- | --- |
| **Synonym** |  |
| **Laboratory** | Clinical Microbiology Laboratory |
| **Phone** | 617-983-6608 |
| **Special Instructions** |  |
| **Use of Test:** | Confirmation and surveillance for epidemiological studies. |
| **Reference Range:** | *Yersinia* species was not confirmed by culture. |
| **Turnaround Time:** | 3 to 5 days |
| **Forms Required** | General Specimen Submission Form (SS-PHL), and submitting laboratory’s work-up and results information. |
| **Test Kit** | N/A |
| **Specimen/Sample Collection Instructions** | N/A |
| **Specimen/Sample Types** | Submitting laboratory’s identification of *Yersinia* sp is required.  Pure actively growing culture on suitable agar slant. |
| **Transport Temperature** | Room temperature (18-30°C) or refrigerated (2-8 °C) |
| **Shipping Requirements** | Ship samples to the State Public Health Laboratory in accordance with applicable local, state and federal regulations. |
| **Additional Information/Notes** | N/A |

# SECTION 4:

## SPECIMEN KITS AND SUPPLIES

Specimen Kits and supplies are available for the purpose of sending samples via USPS, commercial carrier, or courier free of charge unless otherwise noted in the table below.

Email ([MASPHL.SpecimenKitOrders@mass.gov](mailto:MASPHL.SpecimenKitOrders@mass.gov)) or fax (857-323-8352) kit order requests. Please indicate whether the kits should be shipped or will be picked up by the requestor at the State Public Health Laboratory.

|  |  |  |  |
| --- | --- | --- | --- |
| **Specimen Kits and Materials** | **Specimen Kits and Materials** | | |
| Enteric Pathogen Stool | **Blood Lead Screening Supplies:** | | |
| Legionella Transport | Lead, Microcuvette Capillary Collection Tubes | | |
| Pertussis Culture | Lead, Blood Requisition Form | | |
|  | Specimen Shipping containers | | |
| CT/GC NAAT  (specify specimen type: vaginal, urine, universal) | Biohazard Bags | | |
|  |  | | |
| Respiratory Virus | **Environmental Test Kits:** | | |
|  | Lead, Water | | ***Fee per Kit***: $80.00 |
| Multiple Mailing or Courier Kits – Specify for STI or TB | Lead, Sodium Sulfide  (Provided to State Licensed Lead Inspectors and Code Enforcement Agents Only). | | |
| Single Mailing or Courier Kits – Specify for STI or TB |  | | |
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| **SPHL Forms and Instructions Available online:  (**refer to <https://www.mass.gov/lists/state-public-health-laboratory-specimen-submission-forms> for available current versions) | | | |
| *Submission Forms* | | *Specimen Collection Instructions* | |
| * Animal Specimen Submission (SS-AN) * Childhood Lead Screening Specimen Submission Form (SS-BL) * Chemical Exposure Clinical Specimen (SS-CT) * Environmental Specimen for Biological or Chemical Threat Submission Form (SS-LP) * Food Environmental Sample Submission (SS-FD) * General Specimen Submission (SS-PHL) * Mycobacteriology Specimen Submission Form (SS-TB) * Rabies Specimen for Testing (SS-RA) * Respiratory Surveillance Specimen Submission (SS-VI) | | * Blood Lead Collection Instructions (SI-BL) * Specimen Collection for Respiratory Virus Testing   (SI-VI)   * Specimen Collection for Mycobacteriology Testing   (SI-TB) | |
| Please contact the Laboratory or Program for the following forms and instructions:   * Hepatitis/ HIV Barcodes and Specimen Submission Forms (Select Clinics Only) * Syphilis Specimen Submission Form (SS-STI) * Swab Collection and Submission for CT/GC (GLX-STI) * Urine Collection and Submission for CT/GC (GLU-STI) * Blood/Serum Collection for HIV, HCV, and Syphilis (GLS-STI) * Instructions for Submitting Specimens for Legionella Culture (SI-LG) * COVID (SARS-2-CoV) Sequencing Surveillance Form (SS-CoVseq) * Drinking Water Submission Form (SS-DW) * Drinking Water Collection Instructions (SI-DW) * Dairy Submission Form (SS-DL) | | | |