Illinois Department of Public Health

Division of Laboratories

Manual of Services

June 2026

Mission Statement

The mission of Illinois Department of Public Health (IDPH) Division of Laboratories is to support public health epidemiology programs by providing surveillance data.

Introduction

The Division of Laboratories serves Illinois' public health system and environmental protection network with high quality diagnostic and communicable disease surveillance testing. As enormous strides continue to take place in all medical and scientific disciplines, division personnel located in Carbondale, Chicago, and Springfield strive to maintain advanced laboratory capabilities to improve public health and environmental quality throughout Illinois. The division participates in numerous certification programs to ensure the accuracy of its testing data. The following is a list of those certification programs:

- Clinical Laboratory Improvement Amendments (CLIA) - Each laboratory in the division has a CLIA certificate. The objective of the CLIA program is to ensure quality clinical laboratory testing.
- American Association for Laboratory Accreditation (A2LA, certificate number 4358.01) - The Springfield Laboratory is accredited for food microbiology testing.
- American Association for Laboratory Accreditation (A2LA, certificate number 7638.01) - The Chicago Laboratory is accredited to test paint, soil, dust wipes, and air filters to determine the level of lead in these samples.
- Certified dairy labs - The Division's Carbondale and Chicago laboratories are certified by IDPH certification/evaluation officers to perform dairy testing.
- U. S. Food and Drug Administration (FDA) – The Springfield Laboratory holds a certificate for dairy lab grade testing.
- U. S. Environmental Protection Agency (EPA) –The Division of Laboratories is accredited by the EPA for drinking water testing.

This manual is a guide to the testing offered by the IDPH Division of Laboratories and describes the requirements for submitting samples. It may be difficult to meet these requirements, however, without them testing may be impossible to perform, or the quality of results may be compromised. The quality of the laboratory's work depends directly on the quality of samples submitted. By observing these sample requirements, clients help the laboratory to provide uncompromised, high quality test results. Shipping of clinical materials and isolates must be in compliance with the rules and regulations for transport of infectious substances as set forth by the U. S. Department of Transportation, U. S. Postal Service, and the International Air Transport Association – Dangerous Goods regulations.

By sending samples to the laboratory, clients enter into a partnership. As in any partnership, good communication is the key to success. The purpose of this manual is to provide information about each of the tests performed and any special requirements for those tests. There will be times when more information is needed than this manual can provide. Appropriate laboratory phone numbers are provided on the first page of this manual. Interpretative consultations for all clinical tests performed by IDPH laboratories are available to authorized submitters from the director of laboratories or the clinical consultant.

Authorization for submitting specimens for testing

This manual of services covers a large number of testing areas. Each test performed by the Division of Laboratories supports public health programs by providing surveillance data. As a result, it is critical that the testing services provided are authorized by the relevant local health departments (LHDs) and IDPH programs. Throughout this manual of services, information about the requirements to authorize the submission of specimens is provided. Authorization to obtain testing services is based on the need for public health surveillance data with consideration of available private testing availability. Samples or specimens submitted to the laboratory without proper authorization will not be tested. Lab staff will contact the submitter and determine if the sample/specimen will be returned or destroyed.

Table of Contents

IDPH Clinical Tests

Neisseria gonorrhoeae (molecular screen)
Neisseria meningitidis
Neisseria meningitidis serogrouping – Whole Genome Sequencing
Newborn Screening
Orthopox screen, non-variola (molecular)
Plasmodium spp. (malaria)
Plasmodium spp. - BioFire Global Fever Special Pathogens Panel
Respiratory Pathogens Panel 2
Salmonella spp. (enteric pathogen)
Shigella spp. (enteric pathogen)
Treponema pallidum (syphilis)
Vibrio spp. (enteric pathogen)
West Nile Virus - BioFire Global Fever Special Pathogens Panel
Yeast spp.
Yellow Fever Virus - BioFire Global Fever Special Pathogens Panel
Yersinia pestis (Plague)
Yersinia pestis – BioFire Global Fever Special Pathogens Panel
Yersinia spp. (enteric pathogen)

IDPH Environmental Tests

Aerobic and Coliform Count in Dairy Products using Petrifilm
Alkaline Phosphatase in Dairy Samples
Bacillus anthracis (Anthrax)
Burkholderia pseudomallei (Melioidosis)
Burkholderia mallei (Glanders)
E. coli O157:H7 and Shiga Toxin Producing *E. coli* (STEC) in Food or Environmental Swabs/Sponges
Environmental Lead
Francisella tularensis (Tularemia)
Inhibitory Substances in Dairy Samples - Charm SL-3
Inhibitory Substances in Dairy Samples - Delvotest P 5 Pack
Legionella from Environmental Water
Listeria species in Food and Environmental Swabs/Sponges
Orthopox screen, non-variola (molecular)
Residual Bacterial Count in Milk Containers
Ricin Toxin
Salmonella in Food and Environmental Swabs/Sponges
Total Coliform and *E. coli* Coliform in Water - Colilert 18 & 24 Hour
Total Coliform and *E. coli* in Dairy Water - MTF method
Yersinia pestis (Plague)

IDPH Surveillance Tests

Carbapenem-Resistant Enterobacteriaceae (CRE) - mCIM
Healthcare associated infections caused by Carbapenem-Resistant Enterobacteriaceae (HAI/CRE) (WGS)
Enteric Pathogens Whole Genome Sequencing (WGS)
Influenza virus Molecular

Influenza Virus Whole Genome Sequencing (WGS)
Listeria monocytogenes
Norovirus, G1 and G2 (molecular)
Rabies virus (animal test only)
Respiratory Pathogens Panel 2
SARS-CoV-2 Whole Genome Sequencing (WGS)
Tick Surveillance (*Ricketsia rickettsii, Ricketsia parkeri, Ehrlichia chaffeensis and Ehrlichia ewingii*)

General Specimen/Sample Requirements and Information

It is vital to ensure that the quality of samples is not compromised, the etiological agents remain viable, and the samples do not endanger the safety of those delivering or receiving them. The laboratories are required to reject any sample that is leaking or otherwise unsafe. The laboratory will be able to complete testing of samples without delay if the submitter:

- Provides all the information requested on the appropriate submission form or in the Electronic Test Ordering and Reporting (ETOR) portal.
- Sends pure cultures on fresh media in the appropriate transport container.
- Avoids sending cultures on inhibitory media.
- Packages sample containers in a leak-proof inner container, ensures that caps are tight to prevent leakage, and uses custody seals for environmental samples.
- Follows proper chain of custody procedures when submitting forensic samples or samples submitted for regulatory enforcement.
- Observes any special temperature requirements and ensure packages are prepared appropriately to meet temperature requirements. Temperatures will be checked upon arrival at IDPH Laboratories. See Specimen Receipt Temperature table below.
- Ensures that the outside of the mailing container indicates which laboratory section is to receive the samples (e.g., Enteric, Bacteriology, Parasitology, Environmental Chemistry, etc.).
- Avoids shipping over the weekend, except in an emergency.
- Conforms to current U.S. Postal Service regulations when shipping by U.S. mail.
    - Contact your local post office for more information on these regulations.
- Conforms to current U.S. Department of Transportation regulations when shipping by courier or other means.

Table: Sample Receipt Temperature

Bacteriology (CRE, H. influenzae, N. gonorrhoeae, N. meningitidis)	2-25°C
Biofire	<1 day 2-30°C 2-7 days 2-8°C
Blood Lead	2-30°C
Enterics	2-25°C
FluVid	Samples ≤72 hours old ≤8°C. Samples received >72 hours old, ≤0°C.
Genmark	≤10 days ≤8°C >10 days ≤0°C
HIV/Syphilis	15-30°C received within 3 days OR 2-30°C received ≤ 7 days
Influenza	Samples ≤72 hours old ≤8°C. Samples received >72 hours old, ≤0°C.
Legionella UAT	-20 to 8°C received within 14 days OR Urine shipped at room temperature and received within 24 hours of collection 15 to 30°C.
LRN	2-25°C
Measles	<8 days ≤8°C
Mumps	<8 days ≤8°C
NBS	2-30°C
NG/CT	2-30°C
Plasmodium	2-30°C
TB	2-25°C

Each test that is performed by the Division of Laboratories supports public health programs by providing surveillance data. As a result, it is critical that the reports for tests conducted by the Division of Laboratories are provided to submitters, LHDs, and IDPH programs. Results are provided through a combination of mechanisms, which include electronic laboratory reporting, fax, and mailed paper results. If you have questions about a particular test and the mechanism by which it is reported, contact the Springfield Laboratory at dph.labs.dmg@illinois.gov .

Ordering or Requesting Clinical or Environmental Supplies

All supplies are ordered through Electronic Test Ordering and Reporting (ETOR) portal. To request access to ETOR and ordering supplies, send an email to dph.labs.dmg@illinois.gov .

Ordering Tests using the Electronic Test Ordering and Reporting (ETOR) Portal

Sample submissions and test reports are accessible through the Electronic Test Ordering and Reporting (ETOR) portal. To request access to ETOR, please sign up at https://prod.labwebportal.com/il/#/.

Division of Laboratories – Hours and Contact Information

Each laboratory location is open and accepts samples/specimens during regular business hours Monday – Friday. Division of Laboratories hours are 8 a.m.- 4:30 p.m. except on state designated holidays. The state of Illinois holiday schedule is available by clicking this link: Holiday schedule.

To contact IDPH
TTY (hearing impaired use only) 800-547-0466

Carbondale Laboratory
Illinois Department of Public Health
Division of Laboratories
1155 S. Oakland Ave.
Carbondale, IL 62901
Main Number (all sections) 618-457-5131
(Fax) 618-457-6995

Chicago Laboratory
Illinois Department of Public Health
Division of Laboratories
2121 W. Taylor St.
Chicago, IL 60612
Main Number (all sections) 312-793-4760
(Fax) 312-793-8152

Springfield Laboratory
Illinois Department of Public Health
Division of Laboratories
825 N. Rutledge St.
Springfield, IL 62702
Main Number (all sections) 217-782-6562
(Fax) 217-524-7924

Emergency Response Procedures

Assistance for after-hour emergencies (e.g., human exposure to a potentially rabid animal) is available through the Illinois Emergency Management Agency (IEMA) statewide emergency response system. In these special cases, arrangements can be made to submit samples/specimens or to report public health emergencies by calling the following:

217-782-7860

Toll free:	800-782-7860
TTY (hearing impaired use only)	800-547-0466

Ask to be directed to IDPH's emergency officer, who can provide you further instructions. If warranted, the emergency officer will arrange to have the closest IDPH laboratory open to receive the samples/specimens and to begin testing that same day.

If a natural or other emergency event causes the closure of one division laboratory, testing services may be transferred to another division lab. In this way, surge capacity for the division is provided by the other labs or through contractual arrangements with private or public facilities.

Services Available at U.S. Centers for Disease Control and Prevention

Collaboration between local, state, and federal laboratories provides the foundation for a successful nationwide program for the prevention and control of infectious diseases. The U.S. Centers for Disease Control and Prevention (CDC) provides state laboratories with reference and diagnostic services (RDS) for certain rare or unusual procedures. **All RDS samples must be submitted to the CDC by or through a state laboratory.**

The IDPH Division of Laboratories is available to facilitate submission of specimens to CDC for testing that is not available through commercial resources. Submission of specimens to CDC laboratories also requires approval from your LHD or the applicable IDPH Division of Infectious Diseases section. If you have questions about submission of specimens to CDC for testing, contact your LHD or IDPH at 217-782-2016.

Once approval to submit the specimen has been obtained through the IDPH Division of Infectious Diseases or LHD, work with your regional public health laboratory in Carbondale, Springfield, or Chicago to complete the appropriate submission form. The CDC may reject the specimen if complete data are not provided. **Do not ship the specimen directly to CDC unless prior arrangements have been made with IDPH.**

CDC provides RDS for:

- Clinical samples to aid in the diagnosis of life-threatening, unusual, or exotic infectious diseases.
- Cultures, paired serum samples, or both from patients suspected of having unusual or infectious diseases.
- Cultures or serum samples obtained from patients who have sporadic infections or who are involved in an outbreak from an organism for which testing reagents are not commercially or widely available.
- Organisms that:
    a) Cannot be identified otherwise.
    b) Are isolated from normally sterile anatomic sites.
    c) Are isolated repeatedly from one or more sites of the same patient or group of patients.
    d) Have atypical phenotypic characteristics.
    e) Does not appear to be a “usual” pathogen.
    f) Are associated with nosocomial infections.
- Clinically important serum samples or cultures sent for confirmation.

See submission criterion for various diseases at CDC.

Environmental Laboratory Certification

IDPH has been designated by the U.S. Department of Health and Human Services and the U.S. Environmental Protection Agency as the certifying agency for approval of microbiological laboratories processing official samples of milk and water. The laboratory certification program ensures that approved laboratories use methods and techniques that are in substantial agreement with the current editions of the *Grade A Pasteurized Milk Ordinance, Standard Methods for the Examination of Water and Wastewater***,** and Official Methods of Analysis of the A.O.A.C. (Association of Official Analytical Chemists). Training workshops and seminars are given to provide continuing education and regulatory updates to environmental laboratory personnel.

Guidelines to Follow for Certification of Milk Laboratories and Certified Industry Supervisors of Milk Drug Sites (Capable of Confirming Screening Results)

1. The applicant seeking certification shall contact IDPH's laboratory evaluation officer to receive a packet containing the Grade A milk laboratory request and agreement form, a copy of the evaluation forms, and personnel questionnaire forms.
2. When the applicant feels the requirements can be met, a written request shall be sent to:
   Laboratory Evaluation Officer
   Illinois Department of Public Health
   Division of Laboratories
   825 N. Rutledge St.
   Springfield, IL 62702
3. Following receipt of the request, the laboratory evaluation officer will, upon a mutually agreeable date, perform an on-site survey, including the evaluation of facilities, equipment, procedures, and preliminary quality control records according to the requirements of the *Grade A Pasteurized Milk Ordinance and Standard Methods for the Examination of Milk*.
4. Upon successfully meeting the requirements of the evaluation, accreditation is given to the laboratory and conditional certification is given to the certified industry supervisors and analysts.
5. Split milk samples are provided by IDPH to milk laboratories and certified industry supervisors annually. Analyses of split samples are required by industry supervisors and analysts and approval shall be revoked for lack of participation or poor performance for two successive submissions.
6. Every two years, certified laboratories and certified industry supervisor sites shall be re-evaluated through on-site inspection by laboratory certification officers.

Guidelines to Follow for Approval of Milk Drug (Antibiotics) Screening Sites

1. The applicant seeking certification shall contact IDPH's laboratory evaluation officer to receive a packet containing the Grade A milk laboratory request and agreement form, a copy of the evaluation forms, and personnel questionnaire forms.
2. When the applicant feels the requirements can be met, a written request shall be sent to:
   Laboratory Evaluation Officer
   Illinois Department of Public Health
   Division of Laboratories
   825 N. Rutledge St.
   Springfield, IL 62702
3. Following receipt of the request, the laboratory evaluation officer will provide training for the prospective industry supervisor. Upon completion of training, the industry supervisor will provide documented training of prospective analysts. A copy of all training records will be submitted to the laboratory evaluation officer.
4. Upon receipt of the training records, the laboratory evaluation officer will, upon a mutually agreeable date, perform an on-site survey and evaluation of facilities, equipment, performance, procedures, and preliminary quality control records.
5. Upon successfully meeting the requirements of the evaluation, approval is given to the milk drug testing site/industry supervisor and analysts.

6. Split milk samples are provided by IDPH to all milk drug testing sites annually. Analyses of split samples are required by industry supervisors and analysts and approval shall be revoked for lack of participation or poor performance for two successive submissions.
7. Every two years, approved drug screening sites shall be re-evaluated through on-site inspection by laboratory evaluation officers.
8. It is the responsibility of the approved industry supervisor to train new analysts and subsequently send training records to the laboratory evaluation officer. Upon review of the training record, the laboratory evaluation officer will either notify the supervisor that training is inadequate or issue a statement that training is acceptable, and the analyst is approved to screen milk samples for drugs (antibiotics).

Guidelines to Follow for Certification of Water Laboratories

1. The applicant seeking certification shall contact the IDPH's laboratory certification officer to receive a packet containing a copy of the regulations and requirements, a request for laboratory certification form, and a copy of the evaluation and personnel questionnaire forms.
2. When the applicant believes the requirements can be met, a written request shall be sent to:

   Laboratory Certification Officer
   Illinois Department of Public Health
   Division of Laboratories
   825 N. Rutledge St.
   Springfield, IL 62702
3. Following receipt of the request, the laboratory certification officer will, upon a mutually agreeable date, perform an on-site survey and evaluation of facilities, equipment, performance, procedures, and preliminary quality control records. The quality assurance plan must be prepared and in use at the time of the evaluation. Proficiency test samples must be successfully analyzed prior to the evaluation date.
4. Periodic analyses of proficiency test samples are required, and laboratory certification shall be revoked for lack of participation or poor performance for two successive submissions.
5. Every two years, certified laboratories shall be re-evaluated through on-site inspection by laboratory certification officers.

*Bacillus anthracis (*Anthrax*)*

Test Name:	Identification of *Bacillus anthracis* (potential bio-threat agent)
Method Name:	Rapid presumptive identification by real-time polymerase chain reaction (PCR) assay. Confirmation by biochemical identification of culture isolate.
Results:	Negative/Positive for the identification of *B. anthracis.* *Note: If the test is negative and the isolate is genus Bacillus, speciation will not be performed.*
Reference Ranges:	Negative for *B. anthracis.*
Clinical Significance:	Humans can become infected with *B. anthracis* by handling products or consuming undercooked meat from infected animals. Infection may also result from inhalation of *B. anthracis* spores from contaminated animal products, such as wool, or the intentional release of spores during a bioterrorist attack. Human-to-human transmission has rarely been reported, and only with the cutaneous form of the disease. Three forms of anthrax occur in humans: cutaneous, gastrointestinal, and inhalation.
Submission Criteria:	Request testing if you suspect an isolate may be *B. anthracis*. See ASM.org for the rule-out/in protocols. Submit a pure isolate/culture on an agar slant with any media that will support growth. Do not submit the isolate on an agar plate unless the specimen is being transported by courier. Do not perform further tests. Environmental sample testing is also available through special arrangement. Contact the Division of Laboratories if environmental testing is requested.
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn-around Time:	Presumptive PCR: 1 day Culture confirmation: 5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Submission Form:	Communicable Disease Test Requisition Form

Bacillus anthracis – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of *Bacillus anthracis* (potential bio-threat agent)
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for *Bacillus anthracis.*
Reference Ranges:	Negative for *Bacillus anthracis.*
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. *Bacillus anthracis* is a gram-positive spore-forming bacterium and is the etiological agent of anthrax. Anthrax is endemic to the United States but is uncommon. Outside the U.S. the disease occurs most commonly as a cutaneous infection among persons working closely with animals or animal products through the introduction of spores subcutaneously. Anthrax may also occur through inhalation or ingestion of spores. This species is classified as a select agent per the Federal Select Agent Program.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Presumptive PCR: 1 day Confirmation testing 7 days (IDPH)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Bioterrorism Threat Agents

The IDPH laboratories test for the presence of the following potential bioterrorism threat agents:

Biothreat Agent*	Disease	Preferred Specimen Type(s)
Bacillus anthracis	Anthrax	Referred isolate
Brucella spp.	Brucellosis	Referred isolate
Burkholderia pseudomallei/mallei	Melioidosis/Glanders	Referred isolate
Francisella tularensis	Tularemia	Referred isolate
Variola virus**	Smallpox	Swabs; scabs
Yersinia pestis	Plague	Referred isolate

*See links on individual agent page for more information on specimen collection and submission for each threat agent.

**Division of Laboratories does not test for Variola virus. High risk samples are sent to CDC for analysis.

The sentinel laboratory plays a key role in the early detection of these threat agents by recognizing the potential of having isolated one of the bacterial agents or that a patient presents with clinical symptoms consistent with the contraction of the agent. The American Society of Microbiology has developed protocols for use in the presumptive identification of a bacterial threat agent (See link.) and the CDC has developed an algorithm for clinical diagnosis of the various disease syndromes caused by the orthopox viruses (including smallpox).

If you, as a sentinel laboratory, suspect a patient is infected with any of these agents, contact your LHD or IDPH's Communicable Disease Control Section at 217-782-2016.

The IDPH utilizes protocols developed by the CDC's Laboratory Response Network for the definitive identification of the biothreat agents. If an isolate tests negative for a biothreat agent, further identification will NOT be performed.

Environmental sample testing is also available through special arrangement for Biological Threat agents. Contact the Division of Laboratories if environmental testing is requested. Use the Threat Agent Laboratory Test Request form for environmental sample submission.

Brucella spp. (brucellosis)

Test Name:	Culture Identification of *Brucella spp.* (potential biothreat agent)
Method Name:	Rapid presumptive identification by real-time polymerase chain reaction (PCR) assay. Confirmation by biochemical identification of culture isolate.
Results:	Negative/Positive for *Brucella spp.*, *Brucella abortus*, *Brucella suis*, *Brucella melitensis*, or *Brucella canis.* *Note: If the tests are negative and the isolate is the genus Brucella, further speciation tests will not be performed.*
Reference Ranges:	Negative for *Brucella spp.*
Clinical Significance:	*Brucella spp*. are facultative intracellular gram-negative staining bacilli capable of producing the disease brucellosis in humans. The disease is likely acquired by contact with animals infected with *Brucella abortus*, *Brucella suis*, *Brucella melitensis*, and occasionally *Brucella canis,* or by ingestion of infected meat or milk. Animals most commonly infected include sheep, cattle, goats, pigs, and dogs. Symptoms of brucellosis may include fever, night sweats, chills, weakness, malaise, headache, and anorexia. A physical examination may reveal lymphadenopathy and hepatosplenomegaly. A definitive diagnosis of brucellosis is made by recovering the organism from blood, fluid (including urine), or tissue specimens.
Submission Criteria:	Request testing if you suspect an isolate may be *Brucella spp*. See ASM.org for the rule-out/in protocols. Submit a pure isolate/culture submitted on an agar slant with any media that will support growth. Do not submit the isolate on an agar plate unless the specimen is being transported by courier. Primary clinical specimens or blood culture bottles are not acceptable specimens. Do not perform further tests. **Note:** Brucellosis is the most commonly reported laboratory-associated bacterial infection. Certain characteristics of the bacterium, such as its low infectious dose and ease of aerosolization, contribute to the risk of infection by the organism in a laboratory setting. Environmental sample testing is also available through special arrangement. Contact the Division of Laboratories if environmental testing is requested.
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn Around Time:	Presumptive PCR: 1 day Culture confirmation: 5-7 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Submission Form:	Communicable Disease Test Requisition Form

***Burkholderia pseudomallei* (Melioidosis)**
***Burkholderia mallei* (Glanders)**

Test Name:	Identification of *Burkholderia pseudomallei* and *Burkholderia mallei* (potential biothreat agents)
Method Name:	Rapid presumptive identification by real-time polymerase chain reaction (PCR) assay. Confirmation by biochemical identification of culture isolate.
Results:	Negative/Positive for the identification of *Burkholderia pseudomallei.* Negative/Positive for the identification of *Burkholderia mallei.* *If the tests are negative and the isolate is the genus Burkholderia, further speciation will not be performed.*
Reference Ranges:	Negative for the identification of *B. pseudomallei and B. mallei.*
Clinical Significance:	*B. pseudomallei* is the cause of melioidosis, a disease prevalent in Southeast Asia and northern Australia. Chronic infections can mimic *Mycobacterium tuberculosis* infections by producing granulomatous lesions in tissues. B. malei causes glanders. Acute infections cause septicemia and death while chronic infections cause nodules that can ulcerate. Survivors can be carriers. Definitive confirmation of infection is critical for effective antibiotic therapeutic intervention.
Submission Criteria:	Request testing if you suspect an isolate may be *Burkholderia spp*. See ASM.org for the rule-out/in protocols. Submit a pure isolate/culture submitted on an agar slant with any media that will support growth. Do not submit the isolate on an agar plate unless the specimen is being transported by courier. Primary clinical specimens or blood culture bottles are not acceptable specimens. Do not perform further tests. Environmental sample testing is also available through special arrangement. Contact the Division of Laboratories if environmental testing is requested.
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn *Around* Time:	Presumptive PCR: 1 day Culture confirmation: 5-7 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Submission Form:	Communicable Disease Test Requisition Form

Carbapenem Resistant Enterobacteriaceae (CRE) and
Carbapenem Resistant Pseudomonas aeruginosa (CRPA) and
Carbapenem Resistant Acinetobacter baumannii (CRAB) and
Other related β-lactamase Producing Gram Negative Bacteria

Test Name:

Antimicrobial Resistance Testing for Carbapenem Resistant Enterobacteriaceae (CRE), Carbapenem Resistant *Pseudomonas aeruginosa* (CRPA), Carbapenem Resistant Acinetobacter baumannii (CRAB), and Related Species

Method Name:

Biochemical Species Identification; MultiPlex PCR: β-lactamase genes. Antimicrobial susceptibility testing (AST) (This is for surveillance only.)

Results:

Species Identification
PCR: β-lactamase detected/Not detected.
β-lactamase Genes Detected: CTX-M-14, CTX-M-15, VIM, NDM, IMP, KPC, OXA-23, OXA-24/40, OXA-48, OXA-51, OXA-58, OXA-143, MOX, ACC, FOX, DHA, EBC, CMY-2.

Reference Ranges:

No carbapenem resistance detected in culture; No β-Lactamase gene families (CMY, DHA, CTX-M-14, CTX-M-15, VIM, NDM, IMP, KPC, and OXA-23, OXA-24/40, OXA-48, OXA-51, OXA-58, and OXA-143), or plasmid-associated ampC β–Lactamase gene families (MOX, ACC, FOX, DHA, EBC, CMY-2) detected by real-time multi-plex PCR.

Clinical Significance:

Beta-lactam-resistant Gram-negative organisms, producing multiple β-lactamases, are difficult to distinguish phenotypically and necessitate specific detection methods to identify clinically important β-lactamases. Some of the most disconcerting of these organisms, and the ones that pose serious threats to hospitalized patients, are the CRE, CRPA and CRAB. These organisms often demonstrate resistance to many other classes of antibiotics and may harbor a combination of β-lactamase genes. Genetic identification of these resistance mechanisms, along with species identification and phenotypic tests for the evaluation of carbapenemase-producing isolates, is therefore critical for infection control and antimicrobial outbreak surveillance.

Submission Criteria:

Local health department authorization

Specimen Acceptance Criteria:

See website for more information.

Pure isolate of suspected CRE, CRPA, and CRAB grown on slant or plate media (such as blood, nutrient, or to-soy agar) or other β-lactamase producing Gram Negative bacteria, such as Acinetobacter species.

CRE

- Isolate belongs to Enterobacteriaceae family
- Resistant to at least one carbapenem
- MIC of ≥4 µg/mL for imipenem, meropenem, or doripenem
- MIC of ≥2 µg/mL for ertapenem

CRPA

- Isolate identified as *P. aeruginosa*
- Resistant to at least one carbapenem
- MIC of ≥8 µg/mL for imipenem, meropenem, or doripenem

CRAB

- Isolate identified as A. baumannii

- Resistant to at least one carbapenem
- MIC of ≥8 µg/mL for imipenem, meropenem, or dorpenem

Rejection Criteria: Specimens are rejected if they are not viable isolates, improper specimen identification, specimens other than those detailed above, no authorization, or broken specimen tube.

Authorization: Contact local health department for authorization.

Turn Around Time: 5-15 business days

Ship to: Chicago IDPH Laboratory

Shipping Kits: N/A

Submission Form: Communicable Disease Test Requisition Form

Copy of submitting clinical laboratory Antimicrobial Susceptibility Testing (AST) results required for IDPH to confirm that the isolate meets the CRE/CRPA/CRAB definition for testing to obtain preliminary indication that isolate may be pan-resistant.

Healthcare-associated infections caused by Carbapenem Resistance Enterobacteriaceae (HAI/CRE)
Whole Genome Sequencing (For Epidemiology use only)

Test Name:	Whole Genome Sequencing (WGS) – HAI/CREs
Method Name:	Whole Genome Sequencing of Healthcare-associated infections caused by Carbapenem Resistance Enterobacteriaceae for Epidemiological Surveillance.
Results:	Compiled surveillance results are sent to Communicable Disease and local health departments for awareness and outbreak detection **(WGS for epidemiological use only).**
Reference Ranges:	N/A
Clinical Significance:	Sequencing healthcare-associated infection and carbapenem-resistant organism (HAI/CRE) isolates is clinically significant because it enables precise identification of transmission pathways, resistance mechanisms, and outbreak sources within healthcare settings. By providing high-resolution genomic data, sequencing distinguishes between related and unrelated cases, guiding targeted infection prevention and control interventions such as isolation, cohorting, and environmental remediation. It also identifies specific resistance genes and mobile genetic elements, informing antimicrobial stewardship and supporting optimized therapy choices.
Submission Criteria:	Local health department authorization not required for whole genome sequencing. Pure isolate of suspected CRE, pseudomonas aeruginosa (CRAB), Acinetobacter baumannii (CRAB), and other related beta-lactamase producing gram-negative bacteria, such as Acinetobacter species.
Rejection Criteria:	Specimens are rejected if they are not viable, improper specimen identification, or broken specimen tube.
Authorization:	No authorization number is required for whole genome sequencing (surveillance only). Local health department authorization may be required for HAI/CRE clinical testing. See website for more information.
Turn Around Time:	Results are not reported back to the submitter. Approximately 30 days of when sample volume warrants sequencing.
Ship to:	Chicago IDPH laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form (Note HAI/CRE whole genome sequencing request in comment section of form.)

Chikungunya Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of Chikungunya virus
Method Name:	Rapid positive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for Chikungunya virus.
Reference Ranges:	Negative for Chikungunya virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Chikungunya virus is a positive-sense single-stranded RNA virus (genus Alphavirus). The virus is transmitted to humans by infected mosquitoes. The infection causes severe joint pain. Chikungunya infections are rarely lethal, but symptoms may be severe and disabling. Persons at risk for more severe disease include infants, and older adults, as well as persons with underlying medical conditions such as high blood pressure, diabetes, or heart disease. Differential diagnosis of chikungunya disease can be difficult due to overlapping symptoms, transmission, and geographic distribution of Dengue virus and Zika virus.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Positive PCR: 1 day
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Chlamydia trachomatis/Neisseria gonorrhoeae
(Molecular STD Screening Panel)

Test Name:	Detection of Neisseria g*onorrhoeae* (*GC*) and/Chlamydia *trachomatis* (*CT*)
Method Name:	Qualitative target amplification nucleic acid probe test.
Results:	Positive/Negative for the detection of Neisseria *gonorrhoeae* (GC) and/or Chlamydia *trachomatis* (*CT*).
Reference Ranges:	Negative for the detection of Neisseria *gonorrhoeae and* Chlamydia *trachomatis.*
Clinical Significance:	*Neisseria gonorrhoeae* infection of women can lead to pelvic inflammatory disease, infertility, ectopic pregnancy, and chronic pelvic pain. In men *Neisseria gonorrhoeae* can lead to acute urethritis and dysuria. *Chlamydia trachomatis* infections in women can cause long-term sequelae, such as pelvic inflammatory disease and infertility, in addition to the birth of underweight babies. *Chlamydia trachomatis* infection of men can result in acute urethritis or epididymitis and chronic proctitis. Transmission of *N. gonorrhoeae and C. trachomatis* occurs through sexual contact but can also take place in the birth canal leading to neonatal conjunctivitis and/or *Chlamydia pneumonia*. Infections with *C. trachomatis* and *N. Gonorrhoeae* are common in extragenital sites in certain populations, such as men who have sex with men (MSM). Since extragenital infections are common in MSM and most infections are asymptomatic, annual screening is recommended. No recommendations for extragenital screening exist for women, but rectal and oropharyngeal infections are not uncommon.
Submission Criteria:	Endocervical swab, vaginal swab, rectal swab, throat swab, and male and female urine specimens. Urine (neat) must be transferred into the urine collection tube within 24 hours of collection. See specimen collection instruction at this link.
Rejection Criteria:	The specimen is too old for testing (Urine: Must be tested within 30 days of collection and be stored at 2-30°C; Swab: Must be tested within 60 days of collection and be stored at 2-30°C); expired swab collection kit or urine transport tube; no identifier on specimen; improperly collected specimen; quantity not sufficient or tube over-filled; provider not authorized for testing; tube contains more than one swab; or specimen collected in wrong collection kit.
Authorization:	Providers are authorized by the IDPH Office of Disease Control, STD Section, at 217-782-2747. A provider number will be given and should be included on the submission form.
Turn Around Time:	4 business days
Ship to:	Carbondale IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Congo Hemorrhagic Fever Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of Crimean-Congo hemorrhagic fever virus (potential bio-threat agent)
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for Crimean-Congo hemorrhagic fever virus.
Reference Ranges:	Negative for Crimean-Congo hemorrhagic fever virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Crimean-Congo hemorrhagic fever (CCHF) virus is a negative-stranded, enveloped RNA virus and is a member of the Nairovirus genus. CCHF is a zoonotic disease transmitted primarily by bites from ticks of the genus Hyalomma. Contact with blood and bodily fluids from infected animals or persons is also a mode of transmission. Wild animals and domestic livestock are the primary reservoirs of the virus which is endemic to the Middle East, southeastern Europe, and parts of Africa, and Asia. Infections are uncommon within the United States. CCHF is classified as a select agent per the Federal Select Agent Program.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Presumptive PCR: 1 day Confirmation testing 14 days (CDC)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Dengue Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of Dengue Virus
Method Name:	Rapid positive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for Dengue virus.
Reference Ranges:	Negative for Dengue virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Dengue virus is a Flavivirus with four serotypes. The serotypes are phylogenetically and antigenically distinct, and acquired long-term immunity from one serotype does not extend to the other three. The viruses are transmitted through mosquitoes. While most dengue infections are asymptomatic, the most severe cases may result in life-threatening dengue hemorrhagic fever (DHF), or dengue shock syndrome (DSS). The DHF and DSS forms of the disease are most often associated with secondary infections of a different serotype, which is especially of concern in regions where all four serotypes are co-circulating.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Positive PCR: 1 day Viral Serotyping testing 14 days (CDC)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Ebola Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of Ebola Virus (potential bio-threat agent)
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for Ebola Virus.
Reference Ranges:	Negative for Ebola Virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Ebola virus spp. are members of the Filoviridae family, with six known species (Bombali, Bundibugyo, Reston, Sudan, Taï Forest, and Zaire). Only the Bundibugyo, Sudan, Taï Forest, and Zaire cause disease in humans, with Zaire the most commonly responsible for outbreaks. The viruses spread through direct contact with blood, body fluids, or tissues from infected persons or animals. Transmission through sexual contact with an infected individual is also possible. Due to the risk to national security Ebola viruses are designated as a select agent per the Federal Select Agent Program.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Presumptive PCR: 1 day Confirmation testing 14 days (CDC) for species other than Zaire Zaire only can be confirmed at the Chicago Laboratory in 1 day
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Enteric Pathogens Overview

Test Name:	Enteric Pathogen Culture (includes clinical and referred isolates)
Method Name:	*Salmonella*, *Shigella*, Shiga Toxin Producing *E. coli*, *Vibrio*, *Yersinia* (only when requested during outbreaks) (includes identification, serotyping, and molecular Shiga toxin). For routine Salmonella, Shiga toxin producing E. coli and Vibrio isolates, whole genome sequencing (WGS) is performed, and results are sent to the CDC PulseNet national database.
Results:	Negative or confirmation of *Salmonella* (Typhi or Non-Typhi), *Shigella*, Shiga toxin producing *E. coli, Vibrio, Yersinia.* WGS data submitted to CDC PulseNet national database for cluster analysis and outbreak detection **(WGS for epidemiological use only)**.
Reference Ranges:	Negative or confirmation of *Salmonella, Shigella,* Shiga toxin producing *E. coli*, Vi*brio, Yersinia.*
Clinical Significance:	Enteric pathogens cause a variety of human diseases. The severity of the disease depends on the virulence of the strain and the condition of the host and can be a mild self-limiting gastroenteritis or become more severe with bacteremia or typhoid fever, which can be life threatening. Early detection allows for effective management and identification of possible outbreaks.
Submission Criteria:	Clinical - Stool submitted at room temperature in Cary-Blair vial or swab; received by IDPH within 72 hours (swab) or 96 hours (vial). Referred Isolates – Submit isolate at room temperature on slant [e.g., BHI, Heart infusion (HI) slant], or on sealed plates (if delivered by courier) on solid media that is non-inhibitory (e.g., BAP). Indicate source on request form and specimen.
Rejection Criteria:	Specimen received without unique identifier (name or other ID) on the specimen or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Authorization:	For questions, contact your LHD or the IDPH Communicable Disease Control Section at 217-782-2016. No authorization number is required. Submission is required by Illinois Administrative Rule Part 690.
Turn Around Time:	7 days
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Escherichia coli (Shiga toxin producing)

Test Name:	Isolation and Identification of Shiga Toxin-Producing *E. coli*
Method Name:	Culture and biochemical reactions are used for the isolation, identification, and serotyping of E. coli. Real-time polymerase chain reaction (RT-PCR) assay is used for the identification of Shiga toxin (types 1 and 2) producing E. coli.
Results:	Negative for the detection of Shiga toxin-producing *E. coli*.
Reference Ranges:	Negative for the detection Shiga toxin producing *E. coli*.
Clinical Significance:	Enteric pathogens cause a variety of human diseases. The severity of the disease depends on the virulence of the strain and the condition of the host and can be a mild, self-limiting gastroenteritis or become more severe with bacteremia or typhoid fever, which can be life threatening. Early detection allows for effective management and identification of possible outbreaks.
Submission Criteria:	Clinical - Stool submitted at room temperature in Cary-Blair vial or swab, received by IDPH within 72 hours (swab) or 96 hours (vial). Stool submitted in enrichment broth. Referred Isolates – Submit isolate at room temperature on slant [e.g., BHI, Heart infusion (HI) slant] or on sealed plates (if delivered by courier) on solid media that is non-inhibitory (e.g., BAP). Indicate source on request form and specimen.
Rejection Criteria:	Specimen received without unique identifier (name or other ID) on the specimen, or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Turn Around Time:	7 days
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Francisella tularensis (tularemia)

Test Name:	Culture Identification of *F. tularensis (potential biothreat agent)*
Method Name:	Rapid presumptive identification by real-time polymerase chain reaction (RT-PCR) assay. Confirmation by biochemical identification of culture isolate.
Results:	Negative/Positive for the identification of *F. tularensis*. **Note:** *If the test is negative and the isolate is the genus Francisella, speciation will not be performed.*
Reference Ranges:	Negative for the identification of *F. tularensis.*
Clinical Significance:	Tularemia is a rare infectious disease that can attack the skin, eyes, lymph nodes, lungs, and, less often, other internal organs. It is caused by the bacterium *Francisella tularensis,* which is transmitted by several routes, such as insect bites and direct exposure to an infected animal. The infection is highly contagious and potentially fatal. Early confirmation of infection aids in appropriate antibiotic therapeutic intervention.
Submission Criteria:	Request testing if you suspect an isolate may be *F. tularensis*. See ASM.org for the rule-out/in protocols for *F. tularensis*. Submit an isolate on an agar slant with any media that will support growth. Do not submit the isolate on an agar plate unless the specimen is being transported by courier. Do not perform further tests. **Note:** *Francisella tularensis* is highly infectious when grown in culture, and laboratory-acquired infections have been documented. The isolation of *F. tularensis* from clinical specimens, especially if unanticipated, can generate concern among laboratory workers about possible exposure. Environmental sample testing is also available through special arrangement. Contact the Division of Laboratories if environmental testing is requested.
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn Around Time:	Presumptive PCR: 1 day Culture confirmation: 5-7 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Submission Form:	Communicable Disease Test Requisition Form

Francisella tularensis – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of *Francisella tularensis* (potential bio-threat agent)
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for *Francisella tularensis.*
Reference Ranges:	Negative for *Francisella tularensis.*
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. *Francisella tularensis* is an aerobic, gram-negative coccobacillus and is the causative agent of tularemia. Tularemia occurs throughout North America in addition to Europe, Asia, and the Middle East although it is relatively uncommon. The disease affects both animals and humans and is transmitted primarily through contact with infected animals or bites from ticks and flies. Transmission may also occur through the inhalation of dust or aerosols containing the bacterium. *F. tularensis* is also designated as a select agent.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Presumptive PCR: 1 day Confirmation testing 7 days (IDPH)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Gastrointestinal Illness Using BioFire® GI Panel

Test Name: Identification of agents causing gastrointestinal illness using BioFire® GI Panel

Method Name: Rapid presumptive identification by polymerase chain reaction (PCR) assay.

Results: Detected/Not detected

Reference Ranges: Negative for pathogens tested

Clinical Significance: The BioFire® FILMARRAY® Gastrointestinal (GI) Panel is a qualitative multiplexed nucleic acid-based in vitro diagnostic test intended for use with BIOFIRE® FILMARRAY® Systems. The BIOFIRE GI Panel is capable of the simultaneous detection and identification of nucleic acids from multiple bacteria, viruses, and parasites directly from stool samples in Cary Blair transport media obtained from individuals with signs and/or symptoms of gastrointestinal infection. The following bacteria (including several diarrheagenic E. coli/Shigella pathotypes), parasites, and viruses are identified using the BIOFIRE GI Panel:

- *Campylobacter* (*C. jejuni/C. coli/C. upsaliensis*)
- *Clostridium difficile* (*C. difficile*) toxin A/B
- *Plesiomonas shigelloides*
- *Salmonella*
- *Vibrio (V. parahaemolyticus/V. vulnificus/V. cholerae)*, including specific identification of *Vibrio cholerae*
- *Yersinia enterocolitica*
- *Enteroaggregative Escherichia coli* (EAEC)
- *Enteropathogenic Escherichia coli* (EPEC)
- *Enterotoxigenic Escherichia coli* (ETEC) lt/st
- Shiga-like toxin producing *Escherichia coli* (STEC) stx1/stx2 (including specific identification of the *E. coli* O157 serogroup within STEC)
- *Shigella*/Enteroinvasive *Escherichia coli* (EIEC)
- *Cryptosporidium*
- *Cyclospora cayetanensis*
- *Entamoeba histolytica*
- *Giardia lamblia* (also known as *G. intestinalis* and *G. duodenalis*)
- *Adenovirus* F 40/41
- *Astrovirus*
- *Norovirus* GI/GII
- *Rotavirus* A
- *Sapovirus* (Genogroups I, II, IV, and V)

Submission Criteria: Stool specimens should be collected in Cary Blair transport media according to manufacturer's instructions. Specimens must be received within four days (96 hours post collection). Specimens may be shipped at room temperature or refrigerated, Specimens must arrive in the lab between 2-25℃. Specimens must be labelled with two unique patient identifiers. Specimens must be shipped with a Communicable Disease Requisition form filled out in full.

Rejection Criteria: Specimens collected in anything other than Cary Blair transport media, specimens without prior approval, improper filling of requisition form, no patient identifiers on specimen, specimens older than 96 hours, broken or leaking specimens, specimens outside recommended temperature range.

Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	3 days
Ship to:	Springfield IDPH Laboratory
Submission Form:	Communicable Disease Test Requisition Form

Haemophilus influenzae

Test Name:	Identification of *Haemophilus influenzae*
Method Name:	Biochemical confirmation of *Haemophilus influenzae.* Antiserum slide agglutination to identify serotypes.
Results:	Positive/Negative for the detection of *Haemophilus influenzae* Serotypes detected; a, b, c, d, e, and f.
Reference Ranges:	Negative for *Haemophilus influenzae.*
Clinical Significance:	*H. influenzae* can affect many organ systems. Type "b" can cause septicemia, meningitis, septic arthritis, and purulent pericarditis. Non-"b" bacteria can cause disease similar to type "b." Nontypeable *H. influenzae* can cause invasive disease.
Submission Criteria:	Isolate grown on a chocolate agar slant. If sent by courier, isolates grown on chocolate agar plates are also acceptable. Submissions of *H. influenzae* isolates from sterile body sites (blood, CSF, or synovial fluids) are required by the state.
Rejection Criteria:	Improperly filled out requisition form, no patient identifier on specimen, mismatched names, or broken or leaking specimen tube.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn Around Time:	3-5 days
Ship to:	Chicago IDPH Laboratory
Submission Form:	Communicable Disease Test Requisition Form

Human Immunodeficiency Virus (HIV), Types 1 and 2 – Serum

Test Name:	Detection of HIV Types 1 and 2 Antibody and p24 Antigen
Method Name:	Chemiluminescent microparticle immunoassay (CMIA) for the detection of HIV antibodies/p24 antigen.
Results:	Positive/Negative for HIV-1 antibody/p24 antigen. Positive/Negative for HIV-2 antibody. **NOTE:** If the test is positive, additional confirmatory testing to differentiate HIV-1 from HIV-2 and/or for direct detection of the HIV-1 RNA by the polymerase chain reaction (PCR) assay will be performed according to the HIV testing algorithm. If the patient is an HIV PrEP patient, a negative initial CMIA result will automatically reflex to the HIV-1 RNA PCR assay. Submitters must indicate in the ETOR portal when ordering the test if the patient is an HIV PrEP patient.
Reference Range:	Negative for the detection of HIV-1/HIV-2 antibodies/p24 antigen.
Clinical Significance:	Early detection of HIV in the acute phase, using the CMIA, is essential to the rapid linkage of individuals infected with HIV to care and prevention of transmission.
Submission Criteria:	The manufacturer recommends collecting 2 mL of blood in a gold top/serum separator tube (SST). Allow blood to clot at room temperature. Centrifuge for 10 minutes. Blood collected in a serum separator tube (SST) and centrifuged should be shipped in a cooler on cold packs on the same day as collected. Every effort should be made to ship specimens on the same day as collected. If it is not possible to ship the same day as collected, store at 2-8°C and ship in a cooler on cold packs the next business day. Avoid shipping specimens on Friday. Label specimens with a unique identifier. The IDPH Division of Laboratories has determined specimens are acceptable for testing if received in the laboratory between 2-30°C for up to 7 days.
Rejection Criteria:	Specimens will be rejected if they are: • Grossly hemolyzed • No submission form is provided • Insufficient quantity • No unique identifier on specimen • Broken or leaking specimen • Specimen greater than 7 days old from collection
Authorization:	Prior approval is necessary from the IDPH Office of Disease Control, STD Section, at 217-782-2747.
Turn Around Time:	2 days for screening; 2-3 days for additional tests
Ship to:	Carbondale IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Influenza Virus (For Clinical and Epidemiology use)

Test Name:	Detection of Influenza
Method Name:	Real-time reverse transcriptase polymerase chain reaction (RT-PCR) assay.
Results:	Detected/Not Detected for Influenza A/B. For Influenza A Detected specimens: Detected/Not Detected for Influenza A Subtypes (H1N1, H3, H3N2, H5N1 and H7N9. (H5 and H7 targets are only run if epidemiologically indicated. For Influenza B Detected specimens: Detected/Not Detected for Influenza B Genotypes (Victoria and Yamagata). Influenza B genotypes are for epidemiological use only and will not be reported submitters.
Reference Ranges:	Influenza A and Influenza B not detected.
Clinical Significance:	Early detection allows for effective clinical management and identification of possible outbreaks of influenza.
Submission Criteria:	Specimens should be collected during the acute phase of illness (within 3 days of onset). Complete the appropriate submission form, including authorization outbreak code (See Authorization section below.) for each specimen. Acceptable swab specimens (submitted in viral transport medium) include nasopharyngeal, nasal, throat, and dual nasopharyngeal/throat. Acceptable non-swab specimens include nasal aspirates, nasal washes, bronchoalveolar lavages, tracheal aspirates, bronchial washes, sputum, lung tissue, and viral cultures. Click here for further instructions. For specimens ≤72 hours old, store at 2-8°C, specimens >72 hours old must be frozen (below 0°C). Specimens ≤72 hours old must arrive at the testing laboratory ≤8°C. Specimens >72 hours old must arrive at the testing laboratory ≤0°C. Dry ice should be used in the shipping of frozen specimens.
Rejection Criteria:	Specimens other than those outlined in the submission criteria section above, improperly completed submission form, specimens without submission form, submission form/specimen tube do not match, no patient identifier on specimen, broken specimen tube, specimens sent as dry swabs (no VTM), specimens shipped at improper temperatures, specimen not frozen when >72 hours from collection, or specimens shipped at room temperature.
Authorization:	Individual specimen authorization is not needed for sentinel sites. All other submissions need approval from your LHD. For questions, contact your LHD or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	3-5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	For ILINET Submitters: Specimens are submitted via the Electronic Test Ordering and Reporting (ETOR). All other Specimens: Communicable Disease Test Requisition Form (Note Influenza testing request in the comments).

Influenza/SARS-CoV-2 Virus

Test Name:	Detection of Influenza and SARS-CoV-2
Method Name:	Real-time reverse transcriptase polymerase chain reaction (RT-PCR) assay.
Results:	Detected/Not Detected for influenza A, influenza B, and SARS-CoV-2.
Reference Ranges:	Influenza A, Influenza B, and SARS-CoV-2 not detected.
Clinical Significance:	Early detection allows for effective clinical management and identification of possible outbreaks of influenza and SARS-CoV-2.
Submission Criteria:	Specimen type includes upper and lower respiratory specimens, such as nasopharyngeal or oropharyngeal swabs, sputum, lower respiratory tract aspirates, bronchoalveolar lavage, and nasopharyngeal wash/aspirate or nasal aspirate. The minimum sample volume required is 2 mL in viral transport media (VTM). Collection should occur as quickly as possible and performed according to standard technique and placed in VTM or UTM. For specimens ≤72 hours old, store at 2-8°C, specimens >72 hours old must be frozen (below 0°C). Specimens ≤72 hours old must arrive at the testing laboratory ≤8°C. Specimens >72 hours old must arrive at the testing laboratory ≤0°C. Dry ice should be used in the shipping of frozen specimens. See https://www.cdc.gov/covid/hcp/clinical-care/clinical-specimen-guidelines.html for more details.
Rejection Criteria:	Rejection criteria include, but are not limited to, those with: 1. Mismatched requisitions. 2. Specimens without patient identifiers. 3. Specimens stored or shipped incorrectly. 4. Specimens collected using expired viral transport media. 5. Specimens without IDPH Communicable Disease Control Section/local health department (LHD) testing pre-approval and for which approval cannot be obtained after specimen receipt.
Authorization:	Individual specimen authorization is not needed for sentinel sites.
Turn Around Time:	3-5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Specimens are submitted via the Electronic Test Ordering and Reporting (ETOR).

Influenza Virus Whole Genome Sequencing (WGS)
(For Epidemiology use only)

Test Name:	Whole Genome Sequencing (WGS) – Influenza Virus
Method Name:	Whole Genome Sequencing of Influenza Virus for Epidemiological Surveillance.
Results:	Compiled surveillance results are sent to Communicable Disease and local health departments for awareness and outbreak detection **(WGS for epidemiological use only).**
Reference Ranges:	N/A
Clinical Significance:	Early detection allows for effective identification of possible outbreaks of influenza and more responsive public health decision-making.
Submission Criteria:	Specimens should be collected during the acute phase of illness (within 3 days of onset). Complete the appropriate submission form for each specimen. Acceptable swab specimens (submitted in viral transport medium) include nasopharyngeal, nasal, throat, and dual nasopharyngeal/throat. Acceptable non-swab specimens include nasal aspirates, nasal washes, bronchoalveolar lavages, tracheal aspirates, bronchial washes, sputum, lung tissue, and viral cultures. Click here for further instructions. Recommended shipping conditions: For specimens ≤72 hours old, store at 2-8°C, specimens >72 hours old should be frozen (below 0°C). Specimens ≤72 hours old should arrive at the testing laboratory ≤8°C. Specimens >72 hours old should arrive at the testing laboratory ≤0°C. Dry ice should be used in the shipping of frozen specimens. Specimens will still be tested even if specimen are not shipped at ideal temperatures. Specimens should have cycle threshold (Ct) values of ≤28 based on Inf A or Inf B tests.
Rejection Criteria:	Specimens other than those outlined in the submission criteria section above, improperly completed submission form, specimens without submission form, submission form/specimen tube do not match, no patient identifier on specimen, broken specimen tube, specimens sent as dry swabs (no VTM), specimens shipped at improper temperatures, specimen not frozen when >72 hours from collection, or specimens shipped at room temperature.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn Around Time:	Results are not reported back to the submitter. Approximately 30 days or when sample volume warrants sequencing.
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	For ILINET Submitters: Specimens are submitted via the Electronic Transfer of Records (ETOR) portal. All other Specimens: Communicable Disease Test Requisition Form (Note Influenza whole genome sequencing request in the comments.)

Lassa Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of Lassa Virus (potential bio-threat agent)
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for Lassa Virus.
Reference Ranges:	Negative for Lassa Fever Virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Lassa virus causes Lassa fever, a zoonotic viral illness endemic to regions of West Africa and uncommon within the United States. The virus is a bi-segmented single-stranded RNA virus of the Arenaviridae family. Transmission occurs primarily through direct or indirect contact with urine and feces from the rodent reservoir of the virus. Transmission from an infected individual is also possible through direct contact with bodily fluids. Lassa fever manifests as a broad range of symptoms, and approximately 80% of infected individuals have only mild symptoms. Lassa virus is categorized as a select agent under the Federal Select Agent Program.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Presumptive PCR: 1 day Confirmation testing 14 days (CDC)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Lead, Blood

Test Name:	Quantification of Lead Levels in Blood
Method Name:	Inductively coupled plasma mass spectrometry (ICP-MS).
Results:	Lead measurements are reported as microgram/deciliter blood (µg/dL). Detection level is 1 µg/dL.
Clinical Significance:	Early detection of lead poisoning allows for the effective clinical management of patients. Complications of lead poisoning include learning disabilities, impaired growth, impaired hearing, IQ decline, mental retardation, and death.
Submission Criteria:	**Micro Specimens**: For capillary specimens, fill EDTA micro-collection tube to at least above the first line marked on the tube. 100 µL (microliter) of whole blood is required. **Macro Specimens**: Submit a minimum of 1 mL (milliliter) of whole blood drawn into a BD K2 EDTA trace metal free royal blue top collection tube or BD K2 EDTA lead-free tan top collection tube. Mix both capillary and venous specimens by gentle inversion 5 to 10 times. The specimen must be labeled with the patient's full name and date of birth. For capillary specimens, use a black permanent marker. Place **each** specimen into an **individual** small plastic bag. **Blood lead specimens should reach the Chicago laboratory within 15 days of collection.** For more information, see the following for specimen collection.
Rejection Criteria:	Insufficient volume of blood, clotted blood, specimens collected in wrong container (e.g., serum tubes), no patient identifier on specimen, requisition form not submitted, patient identifier on specimen and requisition form do not match, leaking specimen, specimens reached the Chicago lab more than 15 days of shipment (specimen transport time).
Authorization:	Prior approval through the local health department or IDPH Division of Environmental Health is required**.**
Turn Around Time:	3 days
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Specimens are submitted via the Electronic Test Ordering and Reporting (ETOR).

Legionella Urinary Antigen

Test Name:	Detection of *Legionella* Urinary Antigen
Method Name:	Immunochromatographic membrane assay.
Results:	**Presumptive Positive** for *L. pneumophila* serogroup 1 antigen in urine, suggesting current or past infection. **Presumptive Negative** for *L. pneumophila* serogroup 1 antigen in urine, suggesting no recent or current infection. Infection due to *Legionella* cannot be ruled out since other serogroups and species may cause disease, antigen may not be present in urine in early infection, and the level of antigen present in the urine may be below the detection limit of the test.
Reference Range:	Negative
Clinical Significance:	*Legionella pneumophila* is responsible for 80-90% of reported cases of *Legionella* infection with serogroup 1 accounting for greater than 70% of all legionellosis. This test allows for presumptive early diagnosis of *Legionella pneumophila* serogroup 1 infection through detection of a specific soluble antigen present in the urine of patients with Legionnaires' disease. *Legionella pneumophila* serogroup 1 antigen has been detected in urine as early as three days after the onset of symptoms.
Submission Criteria:	Urine specimens ONLY; random collection; >2 mL of urine. Collect in a sterile specimen container. Specimens must be shipped 2-8°C or ≤-10°C.
Rejection Criteria:	Any specimen other than urine, < 2 mL of urine, non-sterile specimen container, received room temperature, improperly completed submission form, specimen without submission form, submission form/specimen container do not match, no patient identifier on specimen, or broken/leaking specimen container.
Authorization:	Submissions need approval from the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	1 day
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Leishmaniasis, Visceral - BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of *Leishmania spp.*
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for *Leishmania spp.*
Reference Ranges:	Negative for *Leishmania spp.*
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. *Leishmania spp.,* a group of protozoan parasites belonging to the genus Leishmania, cause leishmaniasis. The parasites are transmitted through the bites of phlebotomine sand flies and are widely distributed throughout the world, although uncommon within the United States. Leishmaniasis may manifest as either cutaneous (skin lesions) or visceral (internal organs) forms. Visceral leishmaniasis is primarily caused by *L. donovani* and *L. infantum*. The panel detects all species within the Leishmania genus, including visceral and cutaneous species; however, reduced sensitivity was observed for *L. infantum.* Only visceral leishmaniasis is expected to be detected in whole blood specimens.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Positive PCR: 1 day Speciation testing 21 days (CDC)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Leptospira spp. BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of *Leptospira spp.*
Method Name:	Rapid positive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for *Leptospira spp.*
Reference Ranges:	Negative for *Leptospira spp.*
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. *Leptospira spp.* (Family Leptospiraceae) are spirochete bacteria and the causative agents of leptospirosis. Leptospirosis is a zoonotic disease with worldwide distribution. Leptospira bacteria are transmitted through direct contact with urine or tissues from infected animals, or indirectly through contaminated soil or water. Exposure may occur through abrasions and cuts in the skin, or mucous membranes. The genus is divided into three subgroups, with one pathogenic subgroup. The pathogenicity of the Group I members ranges from subclinical infections to severe disease and death.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Positive PCR: 1 day Confirmation/speciation testing 14 days (CDC)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Marburg Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of Marburg Virus (potential bio-threat agent)
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for Marburg Virus.
Reference Ranges:	Negative for Marburg Virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Marburg viruses are Filoviridae with two lineages that have been characterized to date: Marburg virus (MARV) and Ravn virus (RAVV). Viruses from both lineages cause Marburg virus disease and infections are rare. The primary reservoir of Marburgvirus is believed to be the African fruit bat, and the viruses are suspected to be endemic throughout most of sub-Saharan Africa. The mechanism of transmission to humans is not currently known. However, person-to-person transmission occurs through direct contact with blood and body fluids. Sexual transmission is also possible. Marburg virus has been designated as a select agent under the Federal Select Agent Program.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Presumptive PCR: 1 day Confirmation testing 14 days (CDC)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Measles Virus (Rubeola)

Test Name:	Detection of Measles Virus (Rubeola)
Method Name:	Real-time reverse transcriptase polymerase chain reaction (RT-PCR) assay.
Results:	Detected/Not Detected for Measles RNA.
Reference Ranges:	Measles RNA Not Detected.
Clinical Significance:	Measles virus is a member of the family Paramyxoviridae, genus Morbillivirus. Clinical infection with measles virus is characterized by high fever, cough, coryza, conjunctivitis, malaise, Koplik spots inside the mouth, and rash developing behind the ears and over the forehead, spreading to the trunk. Detection of measles virus RNA is most successful when samples are collected on the first day of rash through the three days following onset of rash. Detection of measles virus RNA by RT-PCR may be successful as late as 10-14 days after rash onset. Collect throat or nasopharyngeal swab samples as soon as measles disease is suspected, but within 10 days of rash onset. Measles is highly contagious with an incubation period of 4-12 days. Infected individuals are contagious from the first appearance of symptoms until 3-5 days after the rash appears.
Submission Criteria:	Testing is validated for throat and nasopharyngeal swabs in viral transport medium (VTM), viral carrier medium (VCM), or universal transport media (UTM). If collecting both nasopharyngeal and throat, place both swabs in the same VTM/VCM/UTM tube. Swabs must arrive at the testing laboratory within 8 days of collection. Swabs must arrive at the testing laboratory ≤8°C. Dry ice should be used in the shipping of frozen specimens. For additional information on specimen submission, click here.
Rejection Criteria:	Unacceptable specimens include those with mismatched requisitions; specimens without patient identifiers; specimens without prior approval for testing (See authorization.); specimens not shipped in VTM, VCM, or UTM; non-respiratory specimens; specimens arriving warmer than 8°C and specimens greater than 8 days old; duplicate submissions.
Authorization:	Prior approval from your LHD with an outbreak investigation number is required. For questions, contact your LHD or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	3 days
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Measles Virus (Rubeola) Vaccine Strain

Test Name:	Detection of Measles Virus (Rubeloa) Vaccine Strain
Method Name:	Real-time reverse transcriptase polymerase chain reaction (RT-PCR) assay.
Results:	Detected/Not Detected for Measles virus Vaccine Strain RNA (Genotype A).
Reference Ranges:	Negative for measles virus.
Clinical Significance:	Measles virus is a member of the family Paramyxoviridae, genus Morbillivirus. Clinical infection with measles virus is characterized by high fever, cough, coryza, conjunctivitis, malaise, Koplik spots inside the mouth, and rash developing behind the ears and over the forehead, spreading to the trunk. Measles is highly contagious with an incubation period of 4-12 days. Approximately 5% of individuals who receive the live measles vaccine (Genotype A) will develop a febrile rash syndrome approximately 7-10 days post-vaccination. An assay that can differentiate a wild-type measles infection from a vaccine strain reaction highly desirable, especially in an outbreak situation where contacts are being vaccinated.
Submission Criteria:	Testing is validated for throat and nasopharyngeal swabs in viral transport medium (VTM), viral carrier medium (VCM), or universal transport media (UTM). If collecting both nasopharyngeal and throat, place both swabs in the same VTM/VCM/UTM tube. Swabs must be submitted cold (ice packs) and shipped for overnight delivery. Swabs must be received **no later than eight** days of collection and arrive at the laboratory cold or frozen. For additional information on specimen submission, click here.
Rejection Criteria:	Unacceptable specimens include those with mismatched requisitions; specimens without patient identifiers; specimens without prior approval for testing (See authorization.); specimens not shipped in VTM, VCM, or UTM; non-respiratory specimens; specimens not shipped cold (ice packs); and specimens not received **no later than eight** days of collection; duplicate submissions.
Authorization:	Prior approval from your LHD with an outbreak investigation number is required. For questions, contact your LHD or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	3 days
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Mpox Virus Clade Typing by PCR

Test Name:	Monkey Pox Clade Typing by PCR
Method Name:	Detection of Orthopox Virus and Mpox Virus Clade Types with Real-Time PCR (RT-PCR)
Results:	Orthopox Virus DNA Not Detected, Mpox Virus DNA Not Detected Orthopox DNA Detected, Mpox Virus DNA Not Detected Orthopox DNA Detected, Mpox DNA Detected, Clade I DNA Detected Orthopox DNA Detected, Mpox DNA Detected, Clade II DNA Detected Orthopox DNA Detected, Mpox DNA Detected, Clade Indeterminant Specimen Testing Invalid Specimen Testing Inconclusive Specimen Unsatisfactory
Reference Ranges:	Orthopox Virus DNA Not Detected, Mpox Virus DNA Not Detected
Clinical Significance:	Identification of Mpox Virus; Identification of Clade I (Select Agent) Identification of a select agent will require confirmation of destruction of residual materials by submitter through completion and submission of a Form 4. https://www.selectagents.gov/
Submission Criteria:	See Orthopox Screen, Molecular page for more details. Acceptable specimens for Mpox testing are dry swabs taken from the lesion site or dry swabs taken from the lesion site collected in 1-3 mL of viral transport media (VTM) or universal transport media (UTM). Specimens are to be labeled with the full patient's name, date of birth, and date of collection. Specimens are to be shipped on dry ice or cold packs and arrive at the IDPH testing laboratory between -20 to + 8°C. Specimens must be received at the laboratory within 96 hours of collection and within 24 hours of shipping from the provider. Specimens not meeting these criteria will be rejected from testing. For short-term storage (i.e., ≤ 3 days), specimens may be stored at 2-8°C. For long-term storage, specimens are stored at -70°C for up to 12 months.
Rejection Criteria:	Unacceptable specimens include those with mismatched requisitions, specimens without patient identifiers, specimens stored or shipped incorrectly, specimens without testing authorization, and specimens collected using prohibited materials (Swab specimens should be collected only on swabs with a synthetic tip (such as polyester or Dacron®) with aluminum or plastic shafts. Swabs with calcium alginate or cotton tips with wooden shafts are not acceptable. Use only synthetic fiber swabs with plastic shafts.).
Authorization:	Prior approval from the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	3-5 days
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Mumps Virus (Orthorubulavirus)

Test Name:	Detection of Mumps Virus
Method Name:	Real-time reverse transcriptase polymerase chain reaction (RT-PCR) assay.
Results:	Detected/Not Detected for Mumps RNA
Reference Ranges:	Mumps RNA Not Detected.
Clinical Significance:	Mumps virus is a member of the family *Paramyxoviridae*, genus *Rubularvirus.* Clinical infection with mumps virus is characterized by parotitis with complications, such as meningitis, pancreatitis, and orchitis. Although the majority of infections are benign, more serious but rare consequences of infection include encephalitis, cerebellar ataxia, and hearing loss. Mumps is highly contagious with an incubation period of 16-18 days but can range from 12-25 days. Infected individuals are contagious from a few days before until five days after the onset of parotitis.
Submission Criteria:	Collect buccal swabs as soon as mumps disease is suspected. RT-PCR has the greatest diagnostic sensitivity when samples are collected within three days of symptom onset (Collect prior to nine days after symptom onset.). The buccal swab specimens are obtained by massaging the parotid gland area for 30 seconds prior to swabbing the area around Stensen's duct. Swab specimens are placed in viral transport medium (VTM), viral carrier medium (VCM), or universal transport medium (UTM). Swabs must arrive at the testing laboratory within 8 days of collection. Swabs must arrive at the testing laboratory ≤8°C. Dry ice should be used in the shipping of frozen specimens. For additional information on mumps submission, click here.
Rejection Criteria:	Unacceptable specimens include those with mismatched requisitions; specimens without patient identifiers; specimens without prior approval for testing (See authorization); specimens not shipped in VTM, VCM, or UTM; non-buccal specimens; specimens arriving warmer than 8°C and specimens greater than 8 days old; duplicate submissions.
Authorization:	Prior approval from your LHD with an outbreak investigation number is required. For questions, contact your LHD or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	3 days
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Mycobacterium tuberculosis, Acid Fast Bacilli (AFB) Smear Analysis

Test Name: Detection of Acid-Fast Bacilli (AFB) in Primary Clinical Specimens

Method Name: AFB detected by Auramine-Rhodamine stain and fluorescent microscopy.

Results:

Kinyoun-stained 300 Field-1000X	Auramine-Rhodamine 50 Fields- 200X	Report
No AFB per slide	No AFB per slide	Negative
1-2 AFB per slide	1-2 AFB per slide	Document in notes and report Negative
1-9 AFB, 100 fields	1-9 AFB, 10 fields	Rare
1-9 AFB, 10 fields	1-9 AFB per field	Few
>9 AFB per field	>90 AFB per field	Many

Reference Ranges: Negative for the detection of *AFB.*

Clinical Significance: AFB may signify *M. tuberculosis* infection. Test does not distinguish from *M. tuberculosis* versus non-tuberculous AFB. Test does not distinguish between live versus dead infection.

Submission Criteria: Click here for acceptable specimens; collection and shipping instructions.

Specimen Handling: For specimen transportation, use refrigerated cold packs. For specimen stability, store at up to 35°C for a maximum of 3 days, then at 2-8°C for an additional 7 days.

Rejection Criteria: Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimen received greater than 10 days after collection.

Authorization: Local health departments (LHD) are authorized to submit specimens. Other private submitters will require LHD approval to submit specimens.

Turn Around Time: 24 Hours

Ship to: Chicago IDPH Laboratory

Shipping Kits: See Ordering or Requesting Clinical or Environmental Supplies.

Submission Form: Communicable Disease Test Requisition Form

Mycobacterium tuberculosis, Primary Clinical Specimens

Test Name:	Direct Detection of the *M. tuberculosis* in Primary Clinical Specimens
Method Name:	Detection of rifampin-resistant Mycobacterium tuberculosis complex (MTBC) by Cephied GeneXpert Assay.
Results:	1) MTB NOT DETECTED 2) MTB DETECTED; Rifampin Resistance NOT DETECTED 3) MTB DETECTED; Rifampin Resistance DETECTED 4) MTB DETECTED; Rifampin Resistance INTERMEDIATE 5) INVALID; (presence or absence of MTB cannot be determined)
Reference Ranges:	MTBC not detected; Rifampin resistance not detected.
Clinical Significance:	Direct detection of the rifampin-resistant *M. tuberculosis* complex provides early presumptive evidence of infection; allows for early therapeutic intervention and patient isolation. The test does not distinguish among the members of the *M. tuberculosis* complex (*M. tuberculosis, M. bovis, M. bovis* BCG, *M. canetii, M. africanum, M. caprae, M. microti, M. pinnipedii*). Test does not distinguish between live versus dead infection.
Submission Criteria:	Click here for acceptable specimens; collection and shipping instructions.
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	Local health departments (LHD) are authorized to submit specimens. Other private submitters will require LHD approval to submit specimens.
Turn Around Time:	24 Hours
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Mycobacterium tuberculosis, Culture confirmation

Test Name:	Culture Confirmation of *M. tuberculosis* Complex Infection
Method Name:	Confirmation of AFB in culture by Cephied GeneXpert Assay. Detection of rifampin-resistant Mycobacterium tuberculosis complex (MTBC) by Cephied GeneXpert Assay.
Results:	1) MTB NOT DETECTED 2) MTB DETECTED; Rifampin Resistance NOT DETECTED 3) MTB DETECTED; Rifampin Resistance DETECTED 4) MTB DETECTED; Rifampin Resistance INTERMEDIATE 5) INVALID (presence or absence of MTB cannot be determined)
Reference Ranges:	MTBC not detected; Rifampin resistance not detected.
Clinical Significance:	Culture identification provides confirmation of infection with the M. tuberculosis complex and confirms detection in primary sputum by NAAT. The test does not distinguish among the members of the *M. tuberculosis* complex (*M. tuberculosis, M. bovis, M. bovis* BCG, *M. canetii, M. africanum, M. caprae, M. microti, M. pinnipedii*). The laboratory does not identify non-tuberculous Mycobacterium cultures.
Submission Criteria:	Click here for acceptable specimens; collection and shipping instructions. Mycobacterium isolates. Submit on agar slant tubes (See shipping instructions).
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or primary specimen received greater than 10 days after collection.
Authorization:	Local health departments (LHD) are authorized to submit specimens. Other private submitters will require LHD approval to submit specimens.
Turn Around Time:	Variable – dependent upon culture growth rate.
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Mycobacterium tuberculosis, Drug Susceptibility in Culture

Test Name:	Identification of First Line Drug Susceptible/Resistant Isolates of the *M. tuberculosis* Complex in Culture
Method Name:	Growth of the *M. tuberculosis* complex in MGIT cultures supplemented with the following first line drugs: Rifampin tested at a concentration of 1 µg/mL Isoniazid (INH) tested at concentrations of 0.1 µg/mL and 0.4 µg/mL Ethambutol tested at a concentration of 5.0 µg/mL Pyrazinamide (PZA) tested at a concentration of 100 µg/mL ***Note:*** *Second line drugs not tested*
Results:	Drug susceptible/resistant.
Reference Ranges:	Susceptible for all drugs tested.
Clinical Significance:	The efficacy of drug therapy in the treatment of M. tuberculosis complex disease can be compromised by the infection with or development of a drug-resistant TB strain. It is vitally important to understand when a patient is infected with a drug-resistant strain so therapy can be changed to limit the spread of the infection and to improve clinical outcome. The IDPH laboratory performs the drug susceptibility assay on all new TB isolates. Thereafter, the test is only performed for patients who are not responding to therapy (although they are adhering to their drug regimen) AND it has been more than 60 days since the original or previous drug susceptibility test was performed for the patient.
Submission Criteria:	1. Click here for acceptable specimens; collection and shipping instructions. 2**.** *Mycobacterium tuberculosis* complex isolates. Submit on agar slant tubes.
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	Local health departments (LHD) are authorized to submit specimens. Other private submitters will require LHD approval to submit specimens.
Turn Around Time:	7-10 days after the identification of culture isolate as *M. tuberculosis* complex
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Mycobacterium tuberculosis Strain Genotyping

Test Name:	Identification of Mycobacterium Tuberculosis Strain by Genotyping
Method Name:	Molecular based assays performed by the Michigan Department of Community Health.
Results:	Strain identification reported to the state for epidemiological investigations. Submitters are not forwarded the results.
Reference Ranges:	Not applicable.
Clinical Significance:	Strain typing allows for epidemiological studies to be performed to identify infection clusters, routes or transmission, and outbreaks of M. tuberculosis.
Submission Criteria:	All facilities are obligated by law to forward M. tuberculosis isolates to the IDPH Mycobacteriology Laboratory for genotyping. Submit the isolates on an agar slant tube (See shipping instructions).
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	Local health departments (LHD) are authorized to submit specimens. Other private submitters will require LHD approval to submit specimens.
Turn Around Time:	N/A
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Neisseria gonorrhoeae Culture

Test Name:	Identification of *Neisseria gonorrhoeae*
Method Name:	Biochemical confirmation of *Neisseria gonorrhoeae.*
Results:	Positive/Negative for the detection of *Neisseria gonorrhoeae.*
Reference Ranges:	Negative for *Neisseria gonorrhoeae.*
Clinical Significance:	*N. gonorrhoeae* is always considered a pathogen when isolated from human sources. It is sexually transmitted and can be isolated from genital, rectal, and throat specimens. The organism is capable of dissemination and has been isolated from blood and joint fluid.
Submission Criteria:	Isolate grown on a chocolate agar slant. If sent by courier, isolates grown on chocolate agar plates are also acceptable.
Rejection Criteria:	Improperly filled out requisition form, no patient identifier on specimen, mismatched names, or broken or leaking specimen tube.
Authorization:	Submission of specimens for *N. gonorrhoeae* testing requires authorization from the IDPH Office of Disease Control, STD Section. The STD Section can be reached at 217-782-2747.
Turn Around Time:	3-5 days
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	N/A
Submission Form:	Communicable Disease Test Requisition Form

Neisseria meningitidis

Test Name:	Identification of *Neisseria meningitidis*
Method Name:	Biochemical confirmation of *Neisseria meningitidis.* Antiserum slide agglutination to identify serogroups.
Results:	Positive/Negative for the detection of *Neisseria meningitidis.* Serogroups detected: A, B, C, D, W135, X, Y, and Z.
Reference Ranges:	Negative for *Neisseria meningitidis.*
Clinical Significance:	*N. meningitidis* infection in normally sterile site (such as spinal fluid and blood) is highly pathogenic and life threatening and required to be submitted according to Illinois Administrative Rule Part 690.
Submission Criteria:	Isolate grown on a chocolate agar slant. If sent by courier, isolates grown on chocolate agar plates are also acceptable. Hospitals are required to submit known *Neisseria meningitidis* isolates to the IDPH labs for confirmatory identification and serogrouping.
Rejection Criteria:	Improperly filled out submission form, no patient identifier on specimen, mismatched names, or broken or leaking specimen tube.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn Around Time:	3-5 days
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	N/A
Submission Form:	Communicable Disease Test Requisition Form

Neisseria meningitidis Serogrouping – Whole Genome Sequencing

Test Name:	Serogroup Identification of *Neisseria meningitidis* using Whole Genome Sequencing
Method Name:	Whole Genome Sequencing of *Neisseria meningitidis*
Results:	Positive/Negative for the detection of *Neisseria meningitidis.* Serogroups detected: A, B, C, W, X, Y, Z, NG and Inconclusive.
Reference Ranges:	N/A
Clinical Significance:	*Neisseria meningitidis* infection is clinically significant due to the rapid progressive and life-threatening illnesses it can cause. Infection may develop suddenly and lead to severe complications if not treated promptly. Early recognition, immediate antibiotic therapy, and preventative vaccination are critical for reducing morbidity, mortality, and the risks of outbreak. It is required to be submitted according to Illinois Administrative Rule Part 690.
Submission Criteria:	Isolate grown on a chocolate agar slant. If sent by courier, isolates grown on chocolate agar plates are also acceptable. Hospitals are required to submit known *Neisseria meningitidis* isolates to IDPH labs for confirmatory identification and serogrouping.
Rejection Criteria:	Specimens are rejected if submitted with improperly filled submission forms, no patient identifier on the specimen, mismatched names, or broken/leaking specimen tubes.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. See website for more information.
Turn Around Time:	3-7 days
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	N/A
Submission Form:	Communicable Disease Test Requisition Form

Newborn Screening Panel

Test Name: Newborn Screening Panel
Information about the IDPH Newborn Screening Program is available here.

Methods: Varies between disorders; more details available upon request.

Results: Normal, Borderline, Positive, Unsatisfactory, Invalid (reported per disorder).

Endocrine Disorders

- Congenital adrenal hyperplasia (CAH)
- Congenital hypothyroidism (TSH)

Hemoglobinopathies

- Sickle cell disease (S, S)
- Sickle cell disease (S, C)
- Alpha thalassemia
- Beta thalassemia major
- Hemoglobin trait conditions
- Sickle-C disease
- Other hemoglobinopathies

Amino acid disorders

- Argininemia
- Argininosuccinic aciduria
- Biopterin defect in cofactor biosynthesis
- Biopterin defect in cofactor regeneration
- Citrullinemia, type I
- Citrullinemia, type II
- Homocystinuria
- Hypermethioninemia
- Hyperphenylalaninemia
- Maple syrup urine disease
- Non-ketotic Hyperglycinemia
- Orthithine transcarbamylase deficiency (OTC)
- Phenylketonuria (PKU)
- Tyrosinemia, type I
- Tyrosinemia, type II - tyrosine levels may not be sufficiently elevated for detection
- Tyrosinemia, type III - tyrosine levels may not be sufficiently elevated for detection

Organic acid disorders

- 2-methylbutyryl-CoA dehydrogenase deficiency (2MBD)
- 3-methylcrotonyl-CoA carboxylase deficiency (3MCC)
- 3-hydroxy-3-methylglutaric-CoA lyase deficiency (3HMG)
- 3-methylglutaconic aciduria (3MGA)
- Beta-ketothiolase deficiency (BKT)
- Glutaric aciduria, type 1 (GA1)
- Isobutyryl-CoA dehydrogenase deficiency
- Isovaleric acidemia (IVA)
- Malonic aciduria (MA)
- Methylmalonic acidemia (cobalamin disorders)
- Methylmalonic acidemia (methylmalonyl-CoA mutase)
- Methylmalonic acidemia with homocystinuria

- Multiple carboxylase deficiency
- Propionic acidemia (PA)

Fatty acid oxidation disorders

- 2,4 Dienoyl-CoA reductase deficiency (DE RED)
- Carnitine palmitoyl transferase deficiency type 1 (CPT1A)
- Carnitine palmitoyl transferase deficiency type 2 (CPT2)
- Carnitine/acylcarnitine translocase deficiency (CACT) - neonatal form, extremely rare
- Glutaric aciduria, type 2/Multiple acyl-CoA dehydrogenase deficiency
- Long chain 3-hydroxyacyl-CoA dehydrogenase deficiency (LCHAD)
- Medium chain acyl-CoA dehydrogenase deficiency (MCAD)
- Medium/Short chain L-3-hydroxyacyl-CoA-dehydrogenase deficiency (M/SCHAD)
- Short chain acyl-CoA dehydrogenase deficiency (SCAD)
- Trifunctional protein deficiency (TFPD)
- Very long chain acyl-CoA dehydrogenase deficiency (VLCAD)

Lysosomal Storage Diseases

- Fabry Disease
- Gaucher Disease
- Pompe Disease
- Krabbe Disease
- Niemann Pick Disease
- Hurler's Disease (MPS-I)
- Hunter Syndrome (MPS-II)
- Metachromatic Leukodystrophy (MLD)

Other Disorders

- Adrenoleukodystrophy (X-ALD)
- Biotinidase deficiency
- Cystic Fibrosis first-tier immunoreactive trypsinogen (IRT) with second-tier genetic mutation analysis on top 4% of IRT specimens
- Galactosemia
- Severe combined immunodeficiency (SCID) and other T-cell lymphopenias
- Spinal Muscular Atrophy (SMA)
- Guanidinoacetate Methyltransferase (GAMT) deficiency

Reference Ranges: Dependent upon test/analyte; provided upon request.

Clinical Significance: Newborn screening provides an opportunity to rapidly identify otherwise healthy-appearing infants who are at high risk of developing various conditions. Early intervention can have significant reductions in morbidity and mortality, while reducing health care costs associated with treatment of lifelong debilitating conditions. A screening test cannot confirm or rule out a particular condition. Stated differently, newborn screening is not a diagnostic test. It identifies individuals who may have the condition so that definitive follow-up testing can be offered to determine if the condition is truly present. See also: www.babysfirsttest.org/newborn-screening/screening-101.

Submission Criteria: Acceptable specimens must be collected on special filter paper specimen cards supplied by IDPH. Newborn screening blood spot specimens should be collected as soon as possible after the first 24 hours of life. If the newborn is to be discharged from the birth center prior to 24 hours of age, collect the specimen before discharge. After drying, the

	specimen cards are to be sent by courier to IDPH's Newborn Screening Laboratory in Chicago for testing.
Rejection Criteria:	Unsatisfactory specimen reports indicate the specimen was improperly collected, handled, or submitted, as determined by the IDPH's Division of Laboratories. Specimens must be of good quality to assure reliable, valid newborn screening; unsatisfactory specimens require collection and submission of a new sample to assure that every baby receives a valid newborn screening. Unsatisfactory results are reported from the program by letter indicating the nature of the specimen and the need for immediate repeat specimen collection. The letter is sent by mail to the submitting physician or facility. Additional information about specimen collection and submission is available here .
Turn Around Time:	4 days for abnormal test results and 10 days for normal test. Positive or abnormal results are provided as quickly as possible.
Authorization:	No authorization number is required.
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Newborn Screening Submission Form

Orthopoxvirus Screen, Molecular

Test Name: Screening Assay to Detect the Following orthopoxviruses: *Variola, Vaccinia*, cowpox, monkeypox, camelpox, ectromelia, and gerbilpox

Method Name: Real-time polymerase chain reaction (PCR) assay.

Results: Positive/Negative for the detection of Orthopoxvirus. Assay does not distinguish among the viruses.

Reference Ranges: Negative for the detection of orthopoxvirus.

Clinical Significance: This test is intended for patients who present with a vesicular/pustular rash illness of unknown of origin with a low-to-moderate risk of having contracted *Variola* virus (smallpox). If the test result is positive, further appropriate reflex testing would need to be done to identify the specific orthopoxvirus contracted.

Submission Criteria: Evaluation of patients for potential orthopox infection/testing is based on the Acute, Generalized Vesicular, or Pustular Rash Illness Protocol.

Specimen Type	Room Temp	2 to 8° C	-20 to -70° C
Vesicle/pustule skin or crust	NO	YES (up to 24 hours)	YES
Slide of fluid	YES	YES (up to 24 hours)	NO
Swab of lesion fluid	NO	YES (up to 24 hours)	YES
Punch biopsy (no formalin)	NO	YES (up to 24 hours)	YES
Ocular impression (slide)	YES	YES (up to 24 hours)	NO
Swab of ocular site	NO	YES (up to 24 hours)	YES
Serum-gold top/SST	NO	YES (up to 24 hours)	YES (if aliquoted)

All specimen tubes must be labeled with at least the patient's name. Ship the specimens as soon as possible after collection. Follow storage conditions listed in the table above.

Rejection Criteria: Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or calcium alginate swab specimens.

Authorization: No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.

Turn Around Time: 1-2 days

Ship to: Carbondale, Chicago, or Springfield IDPH Laboratories

Submission Form: Communicable Disease Test Requisition Form

Plasmodium spp. (Malaria)

Test Name:	Detection of *Plasmodium spp*. (Malaria)
Method Name:	Real-time Polymerase chain reaction (RT-PCR) for *Plasmodium spp.*
Results:	Detected/Not Detected for *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium malariae,* or *Plasmodium ovale.*
Reference Ranges:	Not Detected for *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium malariae,* or *Plasmodium ovale.*
Clinical Significance:	Malaria is a major tropical disease caused primarily by four species of the protozoa *Plasmodium*: *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium malariae*, and *Plasmodium ovale.* Malaria infects approximately 500 million people and causes 1.5 to 2.7 million deaths annually. Ninety percent of the deaths occur in sub-Saharan Africa and most of these occur in children <5 years old; it is the leading cause of mortality in this age group. This disease is also widespread in Central and South America, Hispaniola, the Indian subcontinent, the Middle East, Oceania, and Southeast Asia. In the United States, individuals at risk include travelers to and visitors from endemic areas. PCR is a sensitive and specific method of detection for *Plasmodium* species DNA in peripheral blood. PCR may be more sensitive than conventional microscopy in very low parasitemias and is more specific for species identification.
Submission Criteria:	Submit a purple capped (EDTA) blood tube. Complete patient demographics (patient's first and last name, date of birth, ethnicity, and date of onset). Preliminary microscopic observations including semi-quantitation, such as low level of parasitemia, etc., should be included on page two in the "Other Pertinent Information" section of the Communicable Diseases Laboratory Test Requisition form. Prior to shipping, hold specimens at 2-8°C and then ship the specimen (overnight).
Rejection Criteria:	Specimen received without a test request form. Specimen received without unique identifier (name or other ID) on the specimen, or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimens not submitted according to submission criteria.
Authorization:	Hospitals are required to send positive purple capped (EDTA) blood tube to IDPH's Springfield Laboratory for confirmation of malaria.
Turn Around Time:	7 days
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Plasmodium spp. BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of *Plasmodium spp.*
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for *Plasmodium spp., P. falciparum* and *P. vivax/ovale*.
Reference Ranges:	Negative for *Plasmodium spp.*
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Malaria is primarily caused by five species of the Plasmodium genus (*P. falciparum*, *P. knowlesi*, *P. malariae*, *P. ovale*, and *P. vivax)*. Transmission of these parasitic protozoans occurs through bites from Anopheles mosquitoes. The five species vary by geography, and treatment depending on the species and the incidence of drug resistance. Early identification of the species is important for selecting the appropriate treatment. The most common malaria infections are caused by *P. falciparum* and *P. vivax*, whereas infections of *P. ovale* and *P. malariae* are less common. *P. knowlesi* is emerging as a significant cause of zoonotic malaria in Southeast Asia. Co-infection with multiple Plasmodium species is possible and should always be considered. The panel detects all Plasmodium species known to infect humans and provides species identification for *P. falciparum* and *P. vivax/ovale*.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Positive PCR: 1 day
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Respiratory Pathogens Panel 2 – GenMark ePlex®

Test Name:	GenMark ePlex® Respiratory Pathogens Panel
Method Name:	The test is a multiplexed nucleic acid *in vitro* diagnostic test intended for use on the ePlex Instrument for the simultaneous qualitative detection and identification of multiple respiratory viral and bacterial nucleic acids.
Results:	Detected/Not Detected for each of the following targets: Adenovirus (A-F); Coronavirus (229E, HKU1, NL63, OC43); Human metapneumovirus; Human Rhinovirus/Enterovirus; Influenza A; Influenza A H1; Influenza A H1-2009; Influenza A H3; Influenza B; Parainfluenza Virus 1; Parainfluenza Virus 2; Parainfluenza Virus 3; Parainfluenza Virus 4; Respiratory Syncytial Virus A; Respiratory Syncytial Virus B; *Chlamydia pneumoniae; Mycoplasma pneumoniae;* SARS-CoV-2.
Reference Ranges:	Not Detected for all targets on panel (Detected for Internal Control).
Clinical Significance:	Influenza and influenza-like illness (ILI) are the most common cause of acute illness in developed countries, causing an estimated 500 million non-influenza cases yearly in the United States alone.
Submission Criteria:	An IDPH Communicable Diseases Laboratory Test Requisition must accompany specimens and include the test ordered; full patient name and identifiers (including sex and date of birth); source of specimen; date of collection; the submitting organization; referring physician, if appropriate; and contact information. Specimen type is a nasopharyngeal swab (NP Swab) specimen. Collection should be performed according to standard technique and placed in viral transport media (VTM) or universal transport media (UTM). Clinical specimens should be stored refrigerated after collection at 2-8°C. Specimens ≤10 days from collection must arrive in the testing laboratory ≤8°C; Specimens ≥10 days from collection must arrive in the testing laboratory ≤0°C. Dry ice should be used in the shipping of frozen specimens. Minimum testing volume is 500 µL.
Rejection Criteria:	Rejection criteria include, but are not limited to, those with: Mismatched requisitions, specimens without patient identifiers, specimens stored or shipped incorrectly, specimens collected using expired VTM, or specimens without IDPH Communicable Disease Control Section/local health department (LHD) testing pre-approval and for which approval cannot be obtained after specimen receipt.
Authorization:	Testing authorization must be obtained before submitting a specimen. Approval can be obtained through the patient's LHD or through the IDPH Communicable Disease Control Section staff.
Turn Around Time:	<3 business days of receiving the specimen
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	N/A
Submission Form:	Communicable Disease Test Requisition Form

Salmonella spp.

Test Name:	Isolation and Identification of *Salmonella spp*.
Methods:	Culture and biochemical reactions are used for the isolation and identification of *Salmonella spp*. Isolates are further analyzed to identify serotypes/strains for epidemiological purposes.
Results:	Positive/Negative for the detection of *Salmonella spp*. (Typhi or Non-Typhi).
Reference Ranges:	Negative for the detection of *Salmonella spp*.
Clinical Significance:	Enteric pathogens cause a variety of human diseases. The severity of the disease depends on the virulence of the strain and the condition of the host and can be a mild self-limiting gastroenteritis or become more severe, with bacteremia or typhoid fever, which can be life threatening. Early detection allows for effective management and identification of possible outbreaks.
Submission Criteria:	**Clinical** – Stool submitted at room temperature in Cary-Blair vial or swab; received by IDPH within 72 hours (swab) or 96 hours (vial). **Referred Isolates** – Submit isolate at room temperature on slant [e.g., BHI, Heart infusion (HI) slant] or on sealed plates (if delivered by courier) on solid media that is non-inhibitory (e.g., BAP). Indicate source on request form and specimen.
Rejection Criteria:	Specimen received without unique identifier (name or other ID), or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Turn Around Time:	7 days
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection. Clinical specimens should be discussed with an LHD.
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Shigella spp.

Test Name:	Isolation and Identification of *Shigella spp*.
Methods:	Culture and biochemical reactions are used for the isolation and identification of *Shigella spp*. Isolates are further analyzed to identify serotypes/strains for epidemiological purposes.
Results:	Positive/Negative for the detection of *Shigella spp*.
Reference Ranges:	Negative for the detection *Shigella spp*.
Clinical Significance:	Enteric pathogens cause a variety of human diseases. The severity of the disease depends on the virulence of the strain and the condition of the host and can be a mild self-limiting gastroenteritis or become more severe with bacteremia or typhoid fever, which can be life threatening. Early detection allows for effective management and identification of possible outbreaks.
Submission Criteria:	**Clinical** - Stool submitted at room temperature in Cary-Blair vial or swab; received by IDPH within 72 hours (swab) or 96 hours (vial). **Referred Isolates** – Submit isolate at room temperature on slant [e.g., BHI, Heart infusion (HI) slant] or on sealed plates (if delivered by courier) on solid media that is non-inhibitory (e.g., BAP). Indicate source on request form and specimen.
Rejection Criteria:	Specimen received without unique identifier (name or other ID), or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimen not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Turn Around Time:	7 days
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection. Clinical specimens should be discussed with an LHD.
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Syphilis *(Treponema pallidum*)

Test Name:	Detection of Treponema Pallidum (Syphilis) Antibodies
Method Name:	Chemiluminescent microparticle immunoassay (CMIA) for the detection of antibodies to *Treponema pallidum.* N**OTE**: If the test is positive, additional confirmatory testing by RPR and TP-PA will be performed according to the syphilis testing algorithm.
Results:	Reactive or nonreactive for treponemal antibodies.
Reference Range:	Nonreactive for treponemal antibodies.
Clinical Significance:	Early detection of syphilis, using the CMIA as a screening test, allows for rapid treatment and limits further spread of the disease. Additional information about the stage of syphilis infection can be obtained from the RPR and TP-PA tests. Left untreated, syphilis can cause devastating systemic problems and increased risk for co-infection with HIV.
Submission Criteria:	The manufacturer recommends collecting 5 mL blood in a gold top/serum separator tube (SST). Allow blood to clot at room temperature. Centrifuge for 10 minutes. Label specimens with a unique identifier. Blood collected in a serum separator tube (SST) and centrifuged should be shipped in a cooler on cold packs on the same day as collected. Every effort should be made to ship specimens on the same day as collected. If it is not possible to ship the same day as collected, store at 2-8°C and ship on cold packs the next business day. Avoid shipping on Friday. The IDPH Division of Laboratories has determined specimens are acceptable for testing if received in the laboratory between 2-30°C for up to 7 days.
Rejection Criteria:	Specimens will be rejected if they are: • Grossly hemolyzed specimens. • No submission form. Insufficient quantity. • No unique identifier on specimen. • Broken or leaking specimen. • Specimen greater than seven days old from collection
Authorization:	Providers are authorized by the IDPH Office of Disease Control, STD Section, at 217-782-2747. A provider number will be given, which should be included on the submission form.
Turn Around Time:	2 days for CMIA screening; 3-5 days for additional tests
Ship to:	Carbondale IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Vibrio spp.

Test Name:	Isolation and Identification of *Vibrio spp*.
Method Name:	Culture and biochemical reactions are used for the isolation, identification of Vibrio spp. and serotyping of *Vibrio cholerae*.
Results:	Positive/negative for the detection of *Vibrio spp*.
Reference Ranges:	Negative for the detection *Vibrio spp*.
Clinical Significance:	Enteric pathogens cause a variety of human diseases. The severity of the disease depends on the virulence of the strain and the condition of the host and can be a mild self-limiting gastroenteritis or become more severe with bacteremia or typhoid fever, which can be life threatening. Early detection allows for effective management and identification of possible outbreaks.
Submission Criteria:	Clinical - Stool submitted at room temperature in Cary-Blair vial or swab; received by IDPH within 72 hours (swab) or 96 hours (vial). Referred Isolates – Submit isolate at room temperature on slant [e.g., BHI, Heart infusion (HI) slant], or on sealed plates (if delivered by courier) on solid media that is non-inhibitory (e.g., BAP). Indicate source on request form and specimen.
Rejection Criteria:	Specimen received without unique identifier (name or other ID), or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Turn Around Time:	7 days
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection. Clinical specimens should be discussed with an LHD.
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

West Nile Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of West Nile Virus
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for West Nile Virus.
Reference Ranges:	Negative for West Nile Virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. West Nile virus is a Flavivirus widely distributed throughout the world. The virus causes West Nile fever and is primarily transmitted to humans through mosquito bites. Up to 80% of West Nile virus infections are asymptomatic in humans. Mild cases of West Nile fever are clinically indistinguishable from disease caused by other Flaviviruses such as dengue fever. In rare cases a more severe illness affecting the central nervous system may develop. West Nile virus has been identified in multiple mosquito species. However, mosquitoes of the Culex genus are believed to be responsible for most transmission. Culex species primarily feed on birds which are a natural reservoir of the virus. West Nile Virus is already endemic to Illinois.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Positive PCR: 1 day
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Yeast spp.

Test Name:	Identification of Yeasts (including *Candida auris*)
Method Name:	Yeast isolates are cultured on selective and non-selective media (e.g., CHROMagar Candida and blood agar) to promote growth and aid morphological assessment. Colonies are identified using MALDI-TOF mass spectrometry. Isolates are confirmed to species level based on log score thresholds.
Results:	Identified/Not Identified (e.g., *Candida albicans*, *Candida auris*, *Trichosporon asahii*, etc.)
Reference Ranges:	Negative for identification of clinically significant yeast species.
Clinical Significance:	Yeasts, including *Candida* and *Cryptococcus* spp., can cause a wide spectrum of diseases ranging from superficial infections to life-threatening systemic conditions, particularly in immunocompromised patients. *Candida auris* is a multidrug-resistant organism of public health concern. Rapid identification is crucial for patient management and infection control.
Submission Criteria:	Submit pure yeast isolates in screw-cap media tubes (e.g., Subouraud Dextrose agar (SDA) slant, Chocolate agar) or sealed non-inhibitory solid media (e.g., blood agar, SDA plate).
Rejection Criteria:	Missing unique identifier or mismatch with submission form. No date of specimen collection. No growth on media after 7 days of incubation. Specimen not submitted as a pure culture. Absence of completed request form. Specimen not submitted according to transport regulations.
Turn-around Time:	7 days
Authorization:	Submission of yeast isolates is required in accordance with public health guidelines. Isolates already confirmed as *Candida auris* require authorization through the XDRO registry.
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Yellow Fever Virus – BioFire Global Fever Special Pathogens Panel

Test Name:	Identification of Yellow Fever Virus (potential bio-threat agent)
Method Name:	Rapid presumptive identification by polymerase chain reaction (PCR) assay.
Results:	Detected/Not detected for Yellow Fever Virus.
Reference Ranges:	Negative for Yellow Fever Virus.
Clinical Significance:	The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented. Yellow fever virus is a positive-sense, single-stranded RNA virus. The virus belongs to the Flavivirus genus (Flaviviridae) and is primarily transmitted through the mosquitoes of the Aedes or *Haemagogus genuses*. The mosquito vectors facilitate both sylvatic transmission as well as urban human-to-human transmission. Yellow fever disease is endemic to tropical regions of South America and sub-Saharan Africa and cases within the United States are typically travelers to these regions. Most patients have no symptoms or only mild febrile symptoms. In a small number of patients more severe disease may develop including renal dysfunction and hemorrhage which is often fatal.
Submission Criteria:	Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.
Rejection Criteria:	Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.
Authorization:	Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn-around Time:	Presumptive PCR: 1 day Confirmation testing 14 days (CDC)
Ship to:	Chicago IDPH Laboratory
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Yersinia pestis (Plague)

Test Name:	Culture Identification of *Yersinia pestis* (potential biothreat agent)
Method Name:	Rapid presumptive identification by real-time polymerase chain reaction (PCR) assay. Confirmation by biochemical identification of culture isolate.
Results:	Negative/Positive for the identification of *Y. pestis.* *Note: If the test is negative and the isolate is the genus Yersinia, speciation will not be performed.*
Reference Ranges:	Negative for the identification of Y. pestis.
Clinical Significance:	Plague is a disease that affects humans and other mammals. It is caused by the bacterium *Yersinia pestis*. Humans usually get plague after being bitten by a rodent flea carrying the bacterium or by handling an infected animal. Plague is infamous for killing millions of people in Europe during the Middle Ages. Today, modern antibiotics are effective in treating plague. However, without prompt treatment, the disease can cause serious illness or death. Presently, human plague infections continue to occur in the western United States, but significantly more cases occur in parts of Africa and Asia.
Submission Criteria:	Request testing if you suspect an isolate may be *Y. pestis*. See ASM.org for the rule-out/in protocols. Submit a pure isolate/culture submitted on an agar slant with any media that will support growth. Do not submit the isolate on an agar plate unless the specimen is being transported by courier. Do not perform further tests. Environmental sample testing is also available through special arrangement. Contact the Division of Laboratories if environmental testing is requested.
Rejection Criteria:	Specimens other than those detailed above, improperly filled out test request form, no patient identifier on specimen, or broken specimen tube.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection. Clinical specimens should be discussed with an LHD.
Turn Around Time:	Presumptive PCR: 1 day Culture confirmation: 4 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Submission Form:	Communicable Disease Test Requisition Form

Yersinia pestis – BioFire Global Fever Special Pathogens Panel

Test Name: Identification of *Yersinia pestis* (potential bio-threat agent)

Method Name: Rapid presumptive identification by polymerase chain reaction (PCR) assay.

Results: Detected/Not detected for *Yersinia pestis.*

Reference Ranges: Negative for *Yersinia pestis.*

Clinical Significance: The BioFire® Global Fever Special Pathogens Panel is a qualitative, multiplexed, nucleic acid-based test for the simultaneous detection and identification of multiple pathogens directly from EDTA whole blood collected from symptomatic individuals or those suspected of exposure to the targeted pathogens. Results are meant to be used in conjunction with other clinical, epidemiologic, and laboratory data. This test would be used on international travelers, so that treatment and public health measures can be quickly implemented.

Yersinia pestis is an aerobic gram-negative bacterium which causes plague. The disease is spread to humans from rodents and other wild animals by flea bites, although contact with contaminated fluids or tissue are also modes of transmission. Within the United States *Y. pestis* is endemic to rural areas in all Western state. The disease manifests as three major clinical syndromes: bubonic plague, septicemic plague, and pneumonic plague. *Y. pestis* is designated as a select agent per the Federal Select Agent Program.

Submission Criteria: Specimens must be collected in EDTA blood collection tubes and stored at 2-8°C. Specimens must be received at the testing laboratory within seven days of collection. Specimens less than 24 hours old must arrive between 2-30°C. Specimens between 2-7 days old must arrive between 2-8°C. Ship specimens to the testing laboratory using enough frozen cold packs to maintain refrigerated temperature. Do not freeze specimens.

Rejection Criteria: Specimens other than EDTA whole blood, improperly filled out test request form, no patient identifier on specimen, broken specimen tube, or specimens improperly shipped.

Authorization: Authorization number is required. Number should be obtained from local health department in consultation with IDPH Communicable Disease Section and CDC. For questions, contact your local health department or the IDPH Communicable Disease Control Section at 217-782-2016.

Turn-around Time: Presumptive PCR: 1 day
Confirmation testing 7 days (IDPH)

Ship to: Chicago IDPH Laboratory

Submission Form: Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Yersinia spp.

Test Name:	Isolation and Identification of *Yersinia spp*. (only when requested during an outbreak)
Method Name:	Culture and biochemical reactions are used for the isolation and identification of *Yersinia spp*.
Results:	Positive/Negative for the detection of *Yersinia spp*.
Reference Ranges:	Negative for the detection *Yersinia spp*.
Clinical Significance:	Enteric pathogens cause a variety of human diseases. The severity of the disease depends on the virulence of the strain and the condition of the host and can be a mild self-limiting gastroenteritis or become more severe with bacteremia or typhoid fever, which can be life threatening. Early detection allows for effective management and identification of possible outbreaks.
Submission Criteria:	Clinical - Stool submitted at room temperature in Cary-Blair vial or swab; received by IDPH within 72 hours (swab) or 96 hours (vial). Referred Isolates – Submit isolate at room temperature on slant [e.g., BHI, Heart infusion (HI) slant], or on sealed plates (if delivered by courier) on solid media that is non-inhibitory (e.g., BAP). Indicate source on request form and specimen.
Rejection Criteria:	Specimen received without unique identifier (name or other ID), or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Turn Around Time:	7 days
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection. Clinical specimens should be discussed with an LHD.
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Aerobic and Coliform Count in Dairy Products using Petrifilm

Test Name: Aerobic and Coliform Count in Dairy Products

Method Name: Petrifilm

Results: Reported as Petrifilm Aerobic Count (PAC) per 1 mL or 1 gram and Petrifilm Coliform Count per 1 mL or 1 gram.

Reference Ranges: Acceptable results are as follows:

	Grade A Finished Products	Grade B Finished Products	Grade A Raw Samples	Grade B Raw Samples
PAC	≤20,000	≤50,000	≤300,000	≤1,000,000 for cheese plants and ≤500,000 for ice cream plants
HSCC	≤10	≤20	N/A	N/A

Clinical Significance: High bacterial counts in dairy samples could indicate the presence of pathogenic bacteria. Pathogenic bacteria in dairy samples could lead to an outbreak of illness among consumers.

Submission Criteria: Samples collected for analysis must be refrigerated (0 to 4.5°C) at the time of collection. Samples received <3 hours from time of collection may be ≤7°C if the samples are cooler than when they were collected. Record the times and dates of sample collection for each set of samples. Upon receipt in the laboratory, the temperature of each set of samples is determined by recording the temperature of a separate container that has been treated exactly like the samples and transported with them. This pilot sample must be at least one half the size of the largest container in the cooler.

Rejection Criteria: Testing will not be performed if samples are not within the required temperature range (0 to 4.5°C) or are not received within the time required to start testing (60 hours). Samples received in leaky containers will also be rejected.

Authorization: Dairy samples are accepted from milk sanitarians employed by the IDPH regional offices. Testing requirements and frequency of testing are determined by the FDA and monitored by the IDPH Division of Food, Dairies, and Devices as part of the Grade A Milk Program.

Turn Around Time: 5 days

Ship to: Carbondale, Chicago, or Springfield IDPH Laboratories

Shipping Kits: No shipping kits are provided by IDPH laboratory. Milk sanitarians transport samples in coolers provided by IDPH regional offices.

Submission Form: Dairy Sample Submission Form

Alkaline Phosphatase in Dairy Samples

Test Name:	Alkaline Phosphatase in Dairy Samples
Method Name:	Charm Paslite
Results:	Reported as positive or not found. If positive, reported as residual phosphatase, microbial phosphatase, or reactivated phosphatase present.
Reference Ranges:	>350 mU/L is considered a positive result.
Clinical Significance:	Detection of improper milk pasteurization or the addition of raw milk to pasteurized milk.
Submission Criteria:	Samples collected for analysis must be refrigerated (0 to 4.5°C) at the time of collection. Samples received <3 hours from time of collection may be ≤7°C if the samples are cooler than when they were collected. Record the times and dates of sample collection for each set of samples. Upon receipt in the laboratory, the temperature of each set of samples is determined by recording the temperature of a separate container that has been treated exactly like the samples and transported with them. This pilot sample must be at least one half the size of the largest container in the cooler.
Rejection Criteria:	Testing will not be performed if samples are not within the required temperature range (0 to 4.5°C) or are not received within the time required to start testing (60 hours). Samples received in leaky containers will also be rejected.
Authorization:	Dairy samples are accepted from milk sanitarians employed by the IDPH regional offices. Testing requirements and frequency of testing are determined by the FDA and monitored by the IDPH Division of Food, Dairies, and Devices as part of the Grade A Milk Program.
Turn Around Time:	5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	No shipping kits are provided by IDPH laboratory. Milk sanitarians transport samples in coolers provided by IDPH regional offices.
Submission Form:	Dairy Sample Submission Form

E. coli O157:H7 and Shiga Toxin Producing _E. coli_ (STEC) in Food and Environmental Swabs/Sponges

Test Name:	_E. coli_ O157:H7 in Food and Environmental Swabs/Sponges
Method Name:	PCR Method for STEC, BioMerieux VIDAS Method for _E. coli_ O157:H7
Results:	Reported as detected or not detected.
Reference Ranges:	_E. coli_ O157:H7 or Shiga Toxin Producing _E. coli_ not detected.
Clinical Significance:	Early detection allows for effective clinical management and identification of a possible outbreak of _E. coli_ O157:H7 or STEC.
Submission Criteria:	Samples should be representative of the food being tested. Sample size should be 200-400 grams (minimum of 25 g) of food per test requested. Food samples less than 25 grams may be tested, if necessary, but the results may not be representative of the sample. Frozen samples should be kept frozen until received in the laboratory. Refrigerated samples should be kept refrigerated until received in the laboratory. Environmental swab/sponge samples are to be kept cool until testing can be performed and can be sent in the same cooler as food samples if both are being submitted. Samples should be shipped or transported to the laboratory so that they arrive at the laboratory as soon as possible after collection. Each sample should be logged onto a Food Investigation Submission Form. If more than one sample is submitted, a Sample Cover Sheet must also be filled out. The necessary information includes source, location, temperature, date, time of collection, collector's name, symptoms, and test(s) requested.
Rejection Criteria:	Testing may not be performed if sample labeling or submission form data is insufficient.
Authorization:	Food samples are accepted only from regional, county, or city sanitarian personnel. The sanitarian contacts the epidemiologist of IDPH Division of Infectious Diseases and/or the Division of Food, Dairies, and Devices to receive assistance in determining the necessity of testing food samples for _E. coli_ O157:H7 and STEC. After it is determined by the IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies, and Devices that testing is necessary, the IDPH laboratory should be contacted with the method of shipment and the expected time of arrival.
Turn Around Time:	7 days
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	Foodborne Illness Kit: Contact IDPH laboratory directly after IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies and Devices establishes contact between the submitter and the laboratory. Most test kit items can be shipped overnight upon request.
Submission Form:	Sample Cover Sheet and Food Investigation Submission Form

Environmental Lead

Test Name:	Environmental Lead
Method Name:	Determination of Lead in by Inductively Coupled Plasma – Atomic Emission Spectroscopy.
Results:	Results reported for Dust Wipe: µg/ft^2/wipe, Air Filter: µg/m^3/air filter, Paint: %, and Soil: µg/g.
Reference Ranges:	Dust Wipe: < 4 µg/ft^2, Air Filter: <5 µg/m^3, Paint: <0.005%, and Soil: <10 µg/g.
Clinical Significance:	Source of lead exposure need to be identified. Prolonged exposure to lead causes health problems, including delayed mental and physical development and learning deficiencies in infants and young children.
Submission Criteria:	The Chicago IDPH Laboratory is accredited for paint, soil, dust wipe, and air filter matrices by the American Association for Laboratory (A2LA), with the A2LA R207 Environmental Lead Testing Laboratory Accreditation program, containing US EPA National Lead Laboratory Accreditation Program (NLLAP). The laboratory will supply sample tubes and dust wipe media upon request. Paint chips should be free of underlying matrix and are analyzed as submitted. Submit paint sample in 50 mL digestion tubes. A minimum of 200 mg of paint sample is required for analysis. Submit soil samples in 50 mL digestion tubes. A minimum of 1.0 gm. of soil sample is required for analysis. Only dust wipes supplied by the laboratory or wipe materials meeting ASTM E 1792 requirements will be analyzed. Dust wipe samples must be collected separately in 50 mL digestion tubes to avoid cross contamination. A control should be supplied along with each batch of submitted wipe samples. Various foods, toys, flatware, and other items (matrices not accredited by A2LA) can also be tested as “Other” upon request. Contact the laboratory for instructions.
Rejection Criteria:	Wipes not supplied by the laboratory or wipe materials not meeting ASTM E1792 requirements will not be accepted. Paint and soil samples not meeting minimum required quantity may not be analyzed. Samples with missing or incomplete forms or samples not properly identified will not be analyzed by laboratory.
Authorization:	Paint chips, dust wipes, soil samples, air filter, and “other” samples will be accepted only from the IDPH Division of Environmental Health or a local health department.
Turn Around Time:	1-5 days
Ship to:	Chicago IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Lead Sample Submission Form

Inhibitory Substances in Dairy Samples – Charm SL-3

Test Name:	Inhibitory Substances in Dairy Samples
Method Name:	Charm SL-3
Results:	Reported as positive for Beta-lactam or Beta-lactam not found.
Reference Ranges:	Beta-lactam not found.
Clinical Significance:	To detect the presence of 6 of 6 Beta-lactam antibiotics in raw milk, which would indicate that the raw milk was obtained from an unacceptable source. The presence of Beta-lactam antibiotics would also invalidate the coliform and aerobic bacteria counts by inhibiting growth.
Submission Criteria:	Samples collected for analysis must be refrigerated (0 to 4.5°C) at the time of collection. Samples received <3 hours from time of collection may be ≤7°C if the samples are cooler than when they were collected. Record the times and dates of sample collection for each set of samples. Upon receipt in the laboratory, the temperature of each set of samples is determined by recording the temperature of a separate container that has been treated exactly like the samples and transported with them. This pilot sample must be at least one half the size of the largest container in the cooler.
Rejection Criteria:	Testing will not be performed if samples are not within the required temperature range (0 to 4.5°C) or are not received within the time required to start testing (60 hours). Samples received in leaky containers will also be rejected.
Authorization:	Dairy samples are accepted from milk sanitarians employed by the IDPH regional offices. Testing requirements and frequency of testing are determined by the FDA and monitored by the IDPH Division of Food, Dairies, and Devices as part of the Grade A Milk Program.
Turn Around Time:	5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	No shipping kits are provided by IDPH laboratories. Milk sanitarians transport samples in coolers provided by their IDPH regional offices.
Submission Form:	Dairy Sample Submission Form

Inhibitory Substances in Dairy Samples – Delvotest P 5 Pack

Test Name:	Inhibitory Substances in Dairy Samples
Method Name:	Delvotest P 5-Pack.
Results:	Reported as positive or not found.
Reference Ranges:	Beta-lactam not found.
Clinical Significance:	To detect the presence of 4 of 6 Beta-lactam antibiotics in raw milk and finished milk products which would indicate that the raw milk was obtained from an unacceptable source. The presence of Beta-lactam antibiotics would also invalidate the coliform and aerobic bacteria counts by inhibiting growth.
Submission Criteria:	Samples collected for analysis must be refrigerated (0 to 4.5°C) at the time of collection. Samples received <3 hours from time of collection may be ≤7°C if the samples are cooler than when they were collected. Record the times and dates of sample collection for each set of samples. Upon receipt in the laboratory, the temperature of each set of samples is determined by recording the temperature of a separate container that has been treated exactly like the samples and transported with them. This pilot sample must be at least one half the size of the largest container in the cooler.
Rejection Criteria:	Testing will not be performed if samples are not within the required temperature range (0 to 4.5°C) or are not received within the time required to start testing (60 hours). Samples received in leaky containers will also be rejected.
Authorization:	Dairy samples are accepted from milk sanitarians employed by the IDPH regional offices. Testing requirements and frequency of testing are determined by the FDA and monitored by the IDPH Division of Food, Dairies, and Devices as part of the Grade A Milk Program.
Turn Around Time:	5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	No shipping kits are provided by IDPH laboratory. Milk sanitarians transport samples in coolers provided by their IDPH regional offices.
Submission Form:	Dairy Sample Submission Form

Detection of Legionella from Environmental Waters and Swabs

Test Name:	Detection of *Legionella* Species by Culture, PCR, and IDEXX Legiolert
Method Name:	Culture, PCR, and IDEXX Legiolert.
Results:	Culture, PCR, and IDEXX Legiolert methods are used in combination to detect and to isolate *Legionella* species from potable, non-potable water, and environmental swabs using PCR and culture methods. The Legiolert test detects *Legionella pneumophila* at ≥10 organisms/100 mL when using potable water and *Legionella pneumophila* at ≥10 organisms/mL (≥1000 organism/100 mL) when testing non-potable water.
Reference Range:	*Legionella species* Not Detected, *Legionella pneumophila* Not Detected.
Clinical Significance:	*Legionella* is commonly found in environmental sources, typically in man-made warm water systems. The mode of transmission from these reservoirs is aerosolization, aspiration, or direct inoculation into the airway. Direct person-to-person transmission does not occur. The spectrum of illness caused by *Legionella* species ranges from a mild, self-limited flu-like illness (Pontiac fever) to a disseminated and often fatal disease characterized by pneumonia and respiratory failure (Legionnaire's disease). Risk factors include smoking, chronic lung disease, and immunosuppression.
Submission Criteria:	Use only laboratory supplied collection containers. Include sample identification/location, date and time of collection, sample type, and collector's name. Submit 1 liter of bulk water within 30 hours of collection. Submit flocked swabs in 3–7 mL of source water collected in approved sterile collection tubes within 30 hours of collection. Use IDPH approved water submission form appropriate for sample type.
Rejection Criteria:	Samples received that are greater than four days or 96 hours from collection. Unapproved swab types (i.e., wood shafted, calcium alginate). Swabs not collected in source water (i.e., dry swabs). Samples received without a completed test requisition. No date and time of collection. Samples leaked or broken in transit. Samples containing an interfering substance.
Authorization:	Prior approval from the local health department or IDPH regional office is required.
Turn Around Time:	9 days
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Use IDPH approved water submission form appropriate for sample type.

Listeria species in Food and Environmental Swab/Sponge Samples

Test Name:	*Listeria* Species in Food and Environmental Swab/Sponge Samples
Method Name:	PCR Method, BioMerieux VIDAS Method
Results:	Reported as *Listeria monocytogenes* detected or not detected. Also, if another *Listeria* species is found, it is reported as *Listeria* species detected. Species detected will be specified.
Reference Ranges:	*Listeria species* not detected.
Clinical Significance:	Early detection allows for effective clinical management and identification of a possible outbreak of *Listeria monocytogenes* or another *Listeria spp.*
Submission Criteria:	Samples should be representative of the food being tested. Sample size should be 200-400 grams (minimum of 25 g) of food per test requested. Food samples less than 25 grams may be tested, if necessary, but the results may not be representative of the sample. Frozen samples should be kept frozen until received in the laboratory. Refrigerated samples should be kept refrigerated until received in the laboratory. Environmental swab/sponge samples are to be kept cool until testing can be performed and can be sent in the same cooler as food samples if both are being submitted. Samples should be shipped or transported to the laboratory so that they arrive at the laboratory as soon as possible after collection. Each sample should be logged onto a Food Investigation Submission Form. If more than one sample is submitted, a Sample Cover Sheet must also be filled out. The necessary information includes source, location, temperature, date, time of collection, collector's name, symptoms, and test(s) requested.
Rejection Criteria:	Testing may not be performed if sample labeling or submission form data is insufficient.
Authorization:	Food samples and environmental swab/sponge samples are accepted only from regional, county, or city sanitarian personnel. The sanitarian contacts the epidemiologist of the IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies, and Devices to receive assistance in determining the necessity of testing samples for *Listeria.* After it is determined by the IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies, and Devices that testing is necessary, the IDPH laboratory should be contacted with the method of shipment and the expected time of arrival.
Turn Around Time:	7 days
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	Foodborne Illness Kit: Contact IDPH laboratory directly after IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies and Devices establishes contact between the submitter and the laboratory. Most test kit items can be shipped overnight upon request.
Submission Form:	Sample Cover Sheet and Food Investigation Submission Form

Residual Bacterial Count in Milk Containers

Test Name:	Residual Bacterial Count in Milk Containers
Method Name:	Petrifilm
Results:	Reported as a Residual Bacterial Count (RBC) per container and Residual Coliform Count (RCC) per container.
Reference Ranges:	0 cfu's in milk container.
Clinical Significance:	The detection of bacteria in the pasteurized milk container indicates a failure to sterilize containers by the dairy facility.
Submission Criteria:	Milk containers are received at room temperature with the lids securely in place.
Rejection Criteria:	Containers with no lids or cracked containers.
Authorization:	Milk containers are accepted from milk sanitarians employed by the IDPH regional offices. Testing requirements and frequency of testing are determined by the FDA and monitored by the IDPH Division of Food, Dairies, and Devices as part of the Grade A Milk Program.
Turn Around Time:	5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	No shipping kits are provided by IDPH laboratories. Milk sanitarians transport containers at room temperature.
Submission Form:	Dairy Sample Submission Form

Ricin communis (ricin) Toxin

Test Name:	Identification Ricin Toxin
Method Name:	Time-Resolved Fluorescence Immunoassay (TRF) for Ricin Toxin.
Results:	Ricin toxin.
Reference Ranges:	Negative or reactive for ricin toxin.
Clinical Significance:	Ricin toxin is a substance found in castor beans (species *Ricinus communis*). It would take a deliberate act to make ricin toxin and use it as a poison. Unintentional exposure to ricin is highly unlikely, unless through the ingestion of castor beans. Symptoms depend upon the type and level of exposure. Inhalational exposure results in difficulty breathing, fever, cough, and chest tightness, leading up to excess fluid in the lungs and respiratory failure. Ingestional exposure leads to vomiting, diarrhea, dehydration, seizures, and eventual kidney, liver, and spleen failure. There is no antidote to exposure; only supportive care can be given. Death usually occurs in 36-72 hours.
Submission Criteria:	Acceptable specimens include: a. Environmental sample
Rejection Criteria:	Samples not pre-screened by a certified HAZMAT team for explosive, chemical, and radiological contamination; or samples not submitted by the FBI, CST, or other designated law enforcement.
Authorization:	No authorization number is required. Notify your LHD if you suspect this infection.
Turn Around Time:	2 days for TRF
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Submission Form:	Threat Agent Laboratory Test Requisition (also serves as a chain of custody form).

Salmonella in Food and Environmental Swab/Sponge Samples

Test Name:	*Salmonella* in Food and Environmental Swab/Sponge Samples
Method Name:	PCR method with culture confirmation, BioMerieux VIDAS method
Results:	Reported as detected or not detected.
Reference Ranges:	*Salmonella* species not detected.
Clinical Significance:	Early detection allows for effective clinical management and identification of a possible outbreak of *Salmonella.*
Submission Criteria:	Samples should be representative of the food being tested. Sample size should be 200-400 grams (minimum of 25 g) of food per test requested. Food samples less than 25 grams may be tested, if necessary, but the results may not be representative of the sample. Frozen samples should be kept frozen until received in the laboratory. Refrigerated samples should be kept refrigerated until received in the laboratory. Environmental swab/sponge samples are to be kept cool until testing can be performed and can be sent in the same cooler as food samples if both are being submitted. Samples should be shipped or transported to the laboratory so that they arrive at the laboratory as soon as possible after collection. Each sample should be logged onto a Food Investigation Submission Form. If more than one sample is submitted, a Sample Cover Sheet must also be filled out. The necessary information includes source, location, temperature, date, time of collection, collector's name, symptoms, and test(s) requested.
Rejection Criteria:	Testing may not be performed if sample labeling or submission form data is insufficient.
Authorization:	Food samples and environmental swab/sponge samples are accepted only from regional, county, or city sanitarian personnel. The sanitarian contacts the epidemiologist of IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies, and Devices to receive assistance in determining the necessity of testing samples for *Salmonella* species. After it is determined by the IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies, and Devices that testing is necessary, the IDPH laboratory should be contacted with the method of shipment and the expected time of arrival.
Turn Around Time:	7 days
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	Foodborne Illness Kit: Contact IDPH laboratory directly after IDPH Division of Infectious Diseases and/or the IDPH Division of Food, Dairies and Devices establishes contact between the submitter and the laboratory. Most test kit items can be shipped overnight upon request.
Submission Form:	Sample Cover Sheet and Food Investigation Submission Form

Total Coliform and E. coli Coliform in Water – Colilert 18 and 24 hour

Test Name:	Determination of Total Coliforms and *E. coli* in Water
Method Name:	Colilert Presence/Absence, Quanti-Tray 51 and Quanti-Tray 2000.
Results:	For Drinking Waters: Total coliform and E. coli present or not found per 100 mL for P/A and total coliform and E. coli count/100 mL for QT 51 and QT 2000. For Bathing Beaches: E. coli count/100 mL for QT 2000.
Reference Range:	Total and E. coli coliform Not Found or <1/100 mL.
Clinical Significance:	Detection of coliform bacteria in water is an indicator of the overall bacteriological quality of the water. Coliform presence is an indicator that the water may contain other pathogenic or disease-causing bacteria. The presence of E. coli in bathing beaches can cause illness if ingested by bathers.
Submission Criteria:	Use only laboratory supplied collection containers. Sample bottles must be filled to the fill line on the bottle. Include sample identification/location, date and time of collection, sample type, and collector's name. Submit 100-120 mL of water within 30 hours of collection. Use IDPH approved water submission form appropriate for sample type.
Rejection Criteria:	Samples received that are greater than 30 hours from collection. Samples received without a complete test requisition. No date and time of collection. Samples leaked or broken in transit. Samples containing an interfering substance.
Authorization:	Prior approval from the local health department or regional office is required.
Turn Around Time:	3 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Use IDPH approved water submission form appropriate for sample type.

Total Coliform in Dairy Water – MTF

Test Name:	Determination of Total Coliform in Dairy Glycol Water
Method Name:	Multiple Tube Fermentation (MTF).
Results:	Reported as total coliform <1 not found /100 mL or ≥1 present /100 mL.
Reference Range:	Total coliform <1 not found.
Clinical Significance:	Detection of coliform bacteria in glycol water is an indicator of the overall bacteriological quality of the water. Coliform presence is an indicator that the water may contain other pathogenic or disease-causing bacteria.
Submission Criteria:	Use only laboratory supplied collection containers. Sample bottles must be filled to the fill line on the bottle. Include sample identification/location, date and time of collection, sample type, and collector's name. Samples must be submitted within 30 hours of collection.
Rejection Criteria:	Samples received more than 30 hours after collection. Samples received without a complete test requisition. No date and time of collection. Samples leaking or broken in transit. Samples containing an interfering substance.
Authorization:	Dairy glycol water samples are accepted from milk sanitarians employed by the IDPH regional offices. Testing requirements and frequency of testing are determined by the FDA and monitored by the IDPH Division of Food, Dairies, and Devices as part of the Grade A Milk Program.
Turn Around Time:	5 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Dairy Water Sample Submission Form

Enteric Pathogens Whole Genome Sequencing (For Epidemiology use only)

Test Name:	Whole Genome Sequencing (WGS) - PulseNet
Method Name:	Salmonella, Escherichia, Listeria, Vibrio, and Campylobacter – For routine Enteric isolates, whole genome sequencing (WGS) is performed, and results are sent to the CDC PulseNet national database.
Results:	WGS data submitted to CDC PulseNet national database for cluster analysis and outbreak detection **(WGS for epidemiological use only).**
Reference Ranges:	N/A
Clinical Significance:	Enteric pathogens cause a variety of human diseases. The severity of the disease depends on the virulence of the strain and the condition of the host and can be a mild, self-limiting gastroenteritis or become more severe with bacteremia or typhoid fever, which can be life threatening. Early detection allows for effective management and identification of possible outbreaks.
Submission Criteria:	Clinical or Environmental Isolate - Isolate submitted at room temperature on nonselective slant, such as TSA, HIA, etc. Indicate source on request form and specimen. Specimens for Campylobacter should be sent directly to the Springfield laboratory.
Rejection Criteria:	Specimen received without unique identifier (name or other ID) on the specimen or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn Around Time:	7 days
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Listeria monocytogenes (For Epidemiology use only.)

Test Name:	Whole Genome Sequencing (WGS) - PulseNet
Method Name:	*Listeria* – For routine *Listeria* isolates, whole genome sequencing (WGS) is performed, and results are sent to the CDC PulseNet national database.
Results:	WGS data submitted to CDC PulseNet national database for cluster analysis and outbreak detection **(WGS for epidemiological use only).**
Reference Ranges:	N/A
Clinical Significance:	Cause of Listeriosis, a serious infection usually caused by eating food contaminated with the bacteria *Listeria monocytogenes*. The disease primarily affects older adults, pregnant women, newborns, and adults with weakened immune systems. Symptoms include fever, muscle aches, and diarrhea.
Submission Criteria:	Clinical or Environmental Isolate - Isolate submitted at room temperature on nonselective slant, such as TSA, HIA, etc. Indicate source on request form and specimen.
Rejection Criteria:	Specimen received without unique identifier (name or other ID) on the specimen, or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances.
Authorization:	No authorization number is required. Submission is required by Illinois Administrative Rule Part 690. Notify your LHD if you suspect this infection.
Turn Around Time:	5 days
Ship to:	Chicago or Springfield IDPH Laboratories
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Norovirus (Norwalk-like virus, NLV)

Test Name:	Detection of Norovirus
Method Name:	Molecular detection (RT-PCR) of Norovirus Types G1 and G2.
Results:	Norovirus types G1 and G2 Detected or Not Detected **(Norovirus for epidemiological use only)**.
Reference Range:	Norovirus not detected.
Clinical Significance:	Early detection allows for effective clinical management and identification of possible outbreaks of Norovirus.
Submission Criteria:	Collected stool specimens should be stored refrigerated after collection, shipped cold on ice packs, and received within ten days from collection. All specimens must be labeled with a unique identifier. Refer to following link for further collection and submission information. Patient Instructions for Stool Collection.
Rejection Criteria:	Specimens other than stool, improperly completed test request, no patient identifier on specimen, broken or leaking specimen, specimen shipped and/or received at improper temperature, specimen received greater that ten days from collection shipping.
Authorization:	Prior approval from your LHD with an outbreak investigation number is required. For questions, contact your LHD or the IDPH Communicable Disease Control Section at 217-782-2016.
Turn Around Time:	5 days
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Rabies Virus (animal)

Test Name:	Detection of Rabies Virus in Animals
Method Name:	Direct fluorescent antibody (**DFA**) **test** for the detection of **rabies** virus proteins in animal tissues.
Results:	Positive, negative, and inconclusive for the detection of rabies virus.
Clinical Significance:	Early detection allows for rapid post exposure treatment of exposed individuals. Since clinical rabies is most often fatal, rapid treatment can be lifesaving. See the IDPH Communicable Disease Control Section website for more information here.
Submission Criteria:	Submit whole animals for specimens weighing less than 2 pounds (i.e., bat, mouse). Submit only the head if the animal weighs 2-20 pounds (i.e., dog, cat, raccoon). Brain tissue must be undamaged, allowing proper identification of specific brain sections. The specimen should be submitted immediately after collection and shipped on ice.
Rejection Criteria:	Non-mammalian species. Specimens with damaged or decomposed tissue that cannot be identified. Use of preservatives other than refrigeration. Specimens received without all required brain sections. **Animals which do not meet the rabies criteria for exposure or surveillance testing.**
Authorization:	Rabies specimens must be submitted through the local animal control, local health department, or a veterinarian.
Turn Around Time:	2 days
Ship to:	Carbondale, Chicago, or Springfield IDPH Laboratories
Submission Form:	Tests must be ordered online using the Electronic Test Ordering and Reporting (ETOR) portal. **Print the submission form from the portal and submit copy with specimen**. Contact dph.labs.dmg@illinois.gov for enrollment or questions regarding online test ordering.

Whole Genome Sequencing of *SARS-CoV-2* (For Epidemiological use only)

Test Name:	Whole Genome Sequencing of *SARS-CoV-2*
Methods:	Whole Genome Sequencing of *SARS-CoV-2* for the detection of variants.
Results:	Pangolin Lineage variant information for surveillance and outbreak detection **(WGS for Epidemiological use only).**
Reference Ranges:	N/A
Clinical Significance:	Human infection with 2019-nCoV can produce symptoms from mild to severe. These symptoms include severe acute respiratory illness with fever, cough, and shortness of breath. Some patients also have shown gastrointestinal distress and/or renal failure. The virus can be transmitted from person to person. Whole Genome Sequencing of SARS-CoV-2 assay is intended for use as an aid in identifying variant information in individuals with SARS-CoV-2.
Submission Criteria:	Specimen type includes upper and lower respiratory specimens, such as nasopharyngeal or oropharyngeal swabs, sputum, lower respiratory tract aspirates, bronchoalveolar lavage, and nasopharyngeal wash/aspirate or nasal aspirate collected from individuals who meet CDC criteria for 2019-nCoV testing. The minimum sample volume required is 2 mL in VTM. Collection should occur as quickly as possible and performed according to standard technique and placed in viral transport media (VTM). The optimum specimen type and timing for peak viral levels during infections caused by 2019-nCov have not been determined.
Rejection Criteria:	Specimen received without unique identifier (name or other ID), or the identifier does not match the identifier on the submission form. Specimen received without date of collection. Specimen received without submission form. Specimens not submitted according to submission criteria or according to rules and regulations for transporting clinical specimens or infectious substances. Specimens with gross hemolysis. Specimens that have been heat-inactivated.
Turn Around Time:	Results are not reported back to the submitter. Approximately 30 days or when sample volume warrants sequencing.
Authorization:	No authorization number is required.
Ship to:	Springfield IDPH Laboratory
Shipping Kits:	See Ordering or Requesting Clinical or Environmental Supplies.
Submission Form:	Communicable Disease Test Requisition Form

Tick Surveillance

Test Name:	Detection of *Rickettsia parkeri, Rickettsia rickettsia, Ehrlichia chaffeensis,* and *Ehrlichia ewingii* pathogens isolated from ticks.
Method Name:	Polymerase chain reaction for Detection of *Rickettsia parkeri, Rickettsia rickettsia, Ehrlichia chaffeensis* and *Ehrlichia ewingii* pathogens isolated from ticks.
Results:	DNA Detected/Not Detected for the following targets: *Rickettsia rickettsii* and *Rickettsia parkeri* or *Ehrlichia chaffeensis* and *Ehrlichia ewingii*.
Reference Ranges:	DNA not detected for the following targets: Rickettsia rickettsii and Rickettsia parkeri or Ehrlichia chaffeensis and Ehrlichia ewingii.
Clinical Significance:	*Rickettsia rickettsii* is associated with the American Dog tick (*Dermacentor variabilis*) and is the causative agent of Rocky Mountain Spotted fever (RMSF) when passed to a human host. Common signs and symptoms of RMSF are fever, headache, nausea, vomiting and stomach pain. Nearly all RMSF infections will cause a rash development, however onset of rash development is often delayed, and presentation is variable making successful medical diagnosis difficult. RMSF can be fatal if left untreated. *Rickettsia parkeri* is associated with the Gulf Coast tick (*Amblyomma maculatum*) and causes Rickettsiosis in infected humans. Both Rickettsiosis and RMSF have similar presentations of disease but can be differentiated by the appearance of an eschar, which is not a common manifestation of RMSF. *Ehrlichia chaffeensis* and *Ehrlichia ewingii* are tickborne pathogens associated with the Lone Star tick (*Amblyomma americanum*) and causes Ehrlichiosis when introduced into a human host. *E. chaffeensis* is associated with monocytic Ehrlichiosis while *E. ewingii* is associated with granulocytic Ehrlichiosis. Signs and symptoms include fever, chills, headache, muscle pain and rash. Ehrlichiosis can be severe or fatal in neonatal and geriatric populations.
Submission Criteria:	Whole ticks in 70% Ethanol (EtOH) are the only acceptable specimen type for this assay. Ticks are collected by participating local county health departments (LHDs) by performing tick drags in field and submitted to the Vectorborne Disease (VBD) office for speciation and storage in EtOH. Ticks must be of the following species: *Dermacentor variabilis, Amblyomma maculatum* or *Amblyomma Americanum.*
Rejection Criteria:	Ticks from species other than those listed. Ticks from non-VBD sources. Ticks not properly stored in ethanol. Ticks collected from individuals.
Authorization:	Ticks must be approved and speciated by VBD office.
Turn-around Time:	30 Days
Ship to:	Springfield IDPH Laboratory
Submission Form:	Ehrlichia Submission Template or Rickettsia Submission Template.