MONTANA LABORATORY SERVICES BUREAU Contact Information

1400 BROADWAY
W. F. COGSWELL BUILDING
1400 E. Broadway, P.O. BOX 4369
HELENA, MONTANA 59604-4369

CLIA ID. # 27D0652531

PHONE: 406-444-3444
800-821-7284 (24 hour)
MAIN FAX: 406-444-1802

******************************************************************************************

LABORATORY SERVICES BUREAU LEADERSHIP

Laboratory Services Bureau Chief,
Ron Paul, 444-5559 or r paul@mt.gov

Laboratory Systems Improvement Section Supervisor and Deputy Laboratory Director
Deborah Gibson 444-5970 or debgibson@mt.gov

LABORATORY SERVICES BUREAU SUPERVISORS

Laboratory Business Operations Manager,
Danielle Lindeman, 444-5246 or DLindeman@mt.gov

Serology & Newborn Screening Laboratory Manager, Angela Dusko,
444-3040 or adusko@mt.gov

Micro & Molecular Laboratory Manager,
Carrie Biskupiak, 444-5526 or cbiskupiak@mt.gov

Environmental Laboratory Supervisor,
Russ Leu, 444-5259 or rleu2@mt.gov

******************************************************************************************

For most up-to-date contact information and testing information, see our website:
http://dphhs.mt.gov/publichealth/LaboratoryServices
The Eleven Core Functions of Public Health Laboratories (courtesy of APHL)

1. Disease Prevention, Control and Surveillance—Provide accurate and precise analytical data in a timely manner

2. Integrated Data Management—Serve as the conduit for scientific data and information in support of public health programs

3. Reference and Specialized Testing—Serve as centers of excellence using their expertise, reference and resources in the areas of biological, chemical and radiologic issues of public health importance

4. Environmental Health and Protection—Collaborate with partners to coordinate and ensure scientific analysis of environmental and human samples to identify, quantify and monitor potential threats to health

5. Food Safety—Collaborate in the detection, monitoring and response to food safety issues

6. Laboratory Improvement and Regulation—Provide leadership for laboratory improvement in areas of public health importance

7. Policy Development—Play a role in the development of state and federal health policy

8. Public Health Preparedness and Response—Fulfill a key partnership role in local, state and national disaster preparedness and response

9. Public Health Related Research—Engage in research to improve and expand the scientific and policy bases of public health laboratory practice and assure their optimal application in support of the public health system

10. Training and Education—Facilitate access to training and education

11. Partnerships and Communication—Support their respective state public health laboratory systems

The Montana Laboratory Services Bureau and its sentinel laboratories are part of the CDC’s Laboratory Response Network (LRN)

LRN Mission: The LRN and its partners will maintain an integrated national and international network of laboratories that are fully equipped to respond quickly to acts of chemical or biological threats, emerging infectious diseases, and other public health threats and emergencies.

Sentinel laboratories play a key role in the early detection of biological agents. Sentinel laboratories provide routine diagnostic services, rule-out, and referral steps in the identification process. While these laboratories may not be equipped to perform the same tests as LRN reference laboratories, they can test samples.
Montana Sentinel Laboratories

“In the broadest sense, all laboratories capable of analyzing or referring specimens or samples that may contain microbial agents, biological toxins, chemical agents, chemical agent metabolites, or radiological agents function as sentinels in the public health laboratory system. This includes environmental, food, veterinary, agriculture, military, public health and clinical laboratories. Because of their routine activities, all of these laboratories have the potential to encounter samples that may contain agents that threaten the public’s health. While all of these laboratories are considered to be sentinel laboratories, they may have different roles within the public health laboratory system.

Role of Sentinel Clinical Laboratories in the Public Health Laboratory System

Clinical laboratories testing human and animal samples are often the first interface with patients and the public health system. These laboratories perform a variety of critical tests, providing timely results to impact patient care. Optimally, these laboratories also work with local and state health departments to provide information on nationally notifiable diseases and other threats. While reporting of nationally notifiable diseases to the Centers for Disease Control and Prevention (CDC) is not federally mandated, it is currently required by legislation or regulation at the state or local levels. As such, the list of reportable diseases varies slightly by jurisdiction. Ongoing communications and trainings from public health staff, including laboratorians and epidemiologists, help to assure that clinical laboratories are integrated into the public health laboratory system. This coordination is vital to the surveillance and responses for endemic and emerging pathogens, including identification of novel threats such as pandemic influenza and the development of appropriate countermeasures such as vaccines.

Role of Sentinel Clinical Laboratories in the LRN for Biological Threat Preparedness

In addition to their broad role in the public health laboratory system, clinical laboratories work closely with local and state public health and federal laboratories to recognize potential biological threat agents and other emerging threats to public health. Such laboratories are part of the nation’s Laboratory Response Network (LRN) founded by the CDC, the Federal Bureau of Investigation (FBI) and the Association of Public Health Laboratories (APHL). The strength of the LRN lies in its standardized approach and its tiered capability construct—with sentinel clinical laboratories serving at the foundation to quickly recognize, ruleout or refer potential biothreat agents to the LRN Reference Laboratories.” (excerpt taken from “Definition of LRN Sentinel Laboratories” on the ASM website)

We would like to recognize Montana’s 18 sentinel laboratories for serving in this role:

Benefis East Health Services, Great Falls
Big Horn County Memorial Hospital, Hardin
Billings Clinic, Billings
Bozeman Health, Bozeman
Clark Fork Valley Hospital, Plains
Community Medical Center, Missoula
Frances Mahon Deaconess Hospital, Glasgow
Glendive Medical Center, Glendive
Holy Rosary Hospital, Miles City
IHS Fort Belknap Hospital, Harlem
Kalispell Regional Hospital, Kalispell
Livingston Memorial Hospital, Livingston
Madison Valley Hospital, Ennis
Sidney Health Center, Sidney
St. Patrick’s Hospital, Missoula
St. Peter’s Hospital, Helena
St. Vincent’s Hospital, Billings
VA Medical Center, Ft. Harrison, Helena

For more information on sentinel laboratories and rule-out testing, see the American Society for Microbiology website, [https://www.asm.org/Articles/Policy/Laboratory-Response-Network-(LRN)-Sentinel-Level-C](https://www.asm.org/Articles/Policy/Laboratory-Response-Network-(LRN)-Sentinel-Level-C)
Laboratory Outreach

The Montana Laboratory Services Bureau offers not only testing, but also consultation and outreach in a number of different areas.

One of our most recent outreach programs is biosafety. The Ebola crisis of 2014 revealed that, on a national level, there are gaps in laboratory biosafety programs. Measures that can be put in place to protect ourselves and the public from laboratory acquired infections include risk assessments, standardized training, and non-punitive systems for reporting incidents and near misses, to name a few. The Association of Public Health Laboratories, with funding by the CDC, has developed tools and provided training and other programs to enhance biosafety in each state. Public Health laboratories have been tasked with passing these resources on to clinical partners in their jurisdictions. Part of our outreach is to provide copies of our newly updated Laboratory Services Manual.

Please contact our program managers and subject matter experts for any assistance you may need. If you need assistance with a topic not listed below, please give one of us a call, and we can find someone to help.

For assistance with biosafety, packaging and shipping, biopreparedness training, jurisdictional transport plans (county level), Harvest Webstation accounts, and Portacount requests or technical assistance, contact: Biosafety Officer and Laboratory Training Specialist, Crystal Fortune, 444-0930 or cfortune@mt.gov

For assistance with biopreparedness, jurisdictional sample transport plans (county level), CAP LPX facility feedback, and sentinel laboratory outreach, contact: Bioterrorism Specialist, Lana Moyer, 444-0944 or lmoyer@mt.gov

For assistance with chemical terrorism preparedness, including rapid toxic screening questions or training, contact: Chemical Terrorism Specialist, Joel Felix, 444-9653 or jfelix@mt.gov

For assistance with Harvest Webstation or Copia, contact: Data Coordinator, Kim Varvel, 444-4115 or kvarvel@mt.gov

For assistance with laboratory safety/biosafety; quality assurance, including rapid HIV/HCV; and Portacount requests, contact: Quality Assurance and Safety Specialist, Donna Jo Hosmer, 444-5941 or dhosmer@mt.gov
Clinical Testing List of Services
For most up-to-date manual, refer to our website. For tests not listed, please contact the laboratory (800-821-7284) for availability.

*****************************************************************************

Summary of Changes:

- Removed Legionella pneumophila Groups 1-6 IgG Serology by Indirect Immunofluorescence

*****************************************************************************

Note: To avoid rejection, all patient specimens should be clearly marked with two identifiers (name, DOB, medical record number, etc.) and collection date. Additionally, specimens should be submitted, with absorbent material, inside a biohazard transport bag and the corresponding requisition in the outer pouch of the transport bag. Please do not submit more than one patient or more than one specimen type (example, culture and blood) per transport bag or allow requisitions to be in contact with specimens.

Call the laboratory (800) 821-7284 with any questions regarding safe transport.

*****************************************************************************
# Table of Contents

LABORATORY SERVICES MANUAL...............................................................................................................................................1
MONTANA LABORATORY SERVICES BUREAU Contact Information.................................................................................2
LABORATORY SERVICES BUREAU LEADERSHIP..................................................................................................................2
The Eleven Core Functions of Public Health Laboratories (courtesy of APHL).................................................................3
  The Montana Laboratory Services Bureau and its sentinel laboratories are part of the CDC’s Laboratory Response Network (LRN) .................................................................................................................................3
Montana Sentinel Laboratories ..................................................................................................................................................4
  Role of Sentinel Clinical Laboratories in the Public Health Laboratory System ............................................................4
  Role of Sentinel Clinical Laboratories in the LRN for Biological Threat Preparedness ................................................4
  We would like to recognize Montana’s 18 sentinel laboratories for serving in this role: ....................................4
Laboratory Outreach .................................................................................................................................................................5
Clinical Testing List of Services .............................................................................................................................................6
Summary of Changes: .................................................................................................................................................................6
Tests in Alphabetical Order ...................................................................................................................................................13
A.................................................................................................................................................................................................13
  Acid Fast Bacilli (AFB) (see Mycobacterium spp. culture) .........................................................................................................13
  Actinomycyes spp. Culture Isolation/ Identification (see Bacterial Culture, Anaerobic) .........................................................13
  Actinomycyes spp. Serology ......................................................................................................................................................13
  Adenovirus Direct Detection by Real Time PCR .....................................................................................................................13
  Amebiasis Detection (see Ova and Parasite Exam) ................................................................................................................13
  Amebiasis Serology (see Entameba histolytica serology) .........................................................................................................13
  Anthrax (see Bacillus anthracis) ..............................................................................................................................................13
  Antimicrobial Resistant Bacteria Confirmation .....................................................................................................................13
  Arbovirus Serology, Additional Tests (WEE and California Group) by ELISA, ELISA .........................................................14
  Aspergillus spp. Culture Isolation/ Identification (see Fungal Culture) ................................................................................14
  Autoclave Monitoring ...............................................................................................................................................................14
B.................................................................................................................................................................................................14
  Babesia Detection .........................................................................................................................................................................14
  Babesia Serology by IFA ..............................................................................................................................................................14
  Bacillus anthracis Culture Isolation/ Identification/Rapid Test Methods ..............................................................................15
  Bacterial Culture Identification, Aerobic .................................................................................................................................15
  Bacterial Culture Identification, Anaerobic ...............................................................................................................................15
  Bartonella spp. (formerly Rochalimaea spp.) Serology by IFA ............................................................................................16
  Blastomyces, Histoplasma, Coccidoides Identification by Nucleic Acid Probe .................................................................16
  Blastomyces spp. Culture Isolation/ Identification (see Fungal Culture) ................................................................................16
  Blastomyces spp. Serology (see Fungal Serology) ....................................................................................................................16
  Blood Borne Pathogen Exposure - Exposed Worker (HBsAb, HIV, HCV) by EIA ........................................................................16
  Blood Borne Pathogen Exposure - Source Patient (HBsAg, HIV, HCV) by EIA ..............................................................17
  Blood Lead by Anodic Stripping Voltometry ...........................................................................................................................17
  Bordetella pertussis/B. parapertussis/B. holmesii Direct Detection by Real Time PCR .......................................................17
  Borrelia burgdorferi Culture .......................................................................................................................................................18
  Borrelia burgdorferi Serology Total Antibody by EIA with reflex Western Blot confirmation ...........................................18
  Borrelia hermsii Serology (Tick Borne Relapsing Fever) by IgM/IgG ELISA ...........................................................................18
  Brucella spp. Culture Isolation/ Identification/Rapid Test Methods ................................................................................18
  Brucella Serology by Bacterial Agglutination .........................................................................................................................19
  Burkholderia mallei, B. pseudomallei Culture Isolation / ID / Rapid Test Methods ..........................................................19
C.................................................................................................................................................................................................20
  Campylobacter spp. Culture Isolation/Identification ...............................................................................................................20
  Candida albicans Culture Isolation/Identification (see Fungal Culture) ...............................................................................20
  Carbapenem-Resistant Enterobacteriaceae (CRE) Direct Detection by Real-Time PCR 20
Cat Scratch Fever (see Bartonella spp. Serology) ....................................................... 20
Chagas Disease (see Trypanosomiasis Detection) ................................................. 20
Chikungunya Virus by PCR (see Zika Triplex PCR) ........................................... 20
Chlamydia trachomatis Direct Detection by Nucleic Acid Amplification ............ 20
Chlamydia trachomatis/Neisseria gonorrhoeae Direct Detection by NAAT (Combo Test) 21
Cholera (see Vibrio spp. Culture Isolation/ Identification) ................................ 21
Clostridium botulinum (Botulism) Bacterial ID, Toxin, and Serology Testing .... 21
Clostridium difficile PCR, including NAP1 ................................................................ 21
Clostridium spp. (except C. botulinum) Culture Isolation/ ID (see Bacterial Culture, Anaerobic) .......................................................... 22
Coccidioides spp. Culture Isolation/ Identification (see Fungal Culture) .......... 22
Coccidioidomycosis Serology (see Fungal Serology) ........................................... 22
Colorado Tick Fever Virus (CTFV) Serology, IgG by Indirect Immunofluorescence .......................................................... 22
Corynebacterium diphtheriae Culture Isolation/ Identification .......................... 22
Corynebacterium spp. (not C. diphtheriae) Culture Isolation/ ID (see Bacterial Culture, Aerobic) ......................................................... 22
Coxiella burnetii by Real-Time PCR ........................................................... 22
Coxiella burnetii Serology (see Q fever Serology) .............................................. 23
Cryptococcus spp. Culture Isolation/ Identification (see Fungal Culture) .......... 23
Cryptosporidium / Cyclospora / Isospora Detection by Fluorescent Stain .... 23
Culture for Storage .................................................................................................. 23
Cyclospora Detection (see Cryptosporidium / Cyclospora / Isospora Detection by Fluorescent Stain) ..................................................... 23
Cysticercosis (Taenia spp.) Detection ............................................................... 23
Cysticercosis (Taenia spp.) Serology by Immunoblot ................................... 23

D......................................................................................................................... 24

Dengue Fever Serology by ELISA ................................................................. 24
Dengue Fever Virus by PCR (see Zika Triplex PCR) ....................................... 24
Diphtheria (see Corynebacterium diphtheriae Culture Isolation) ..................... 24
Diphtheria (see Corynebacterium diphtheriae Culture Isolation) ..................... 24
DNA Fingerprinting (see Pulsed Field Gel Electrophoresis for enterics or other organisms) .................................................. 24

E................................................................................................. ............................. 24

Ebola Virus ........................................................................................................ 24
Echinococcosis Detection ................................................................................ 25
Echinococcosis Serology by EIA .................................................................. 25
EHEC, Enterohemorrhagic E. coli (see Escherichia coli Shiga-Like Toxin Assay or Enteric Panel) ................................................................. 25

Ehrlichia spp. Serology by Indirect Immunofluorescence .............................. 25
Entameba histolytica Serology by EIA ............................................................. 25
Enteric Isolate Surveillance ............................................................................ 26
Enteric Panel Culture Isolation/ Identification .............................................. 26
Enterovirus (D68) Detection by Real-Time PCR ......................................... 26
Enterovirus (Pan-Enterovirus) Detection by Real-Time PCR ..................... 27
ESBL (see Antimicrobial Resistant Bacteria Confirmation) ......................... 27
Escherichia coli O157 Culture Isolation/Identification .................................. 27
Escherichia coli Shiga-Like Toxin Assay (Enterohemorrhagic E. coli, EHEC or STEC) by EIA .............................................................. 27

Exanthem Panel, IgG + IgM by EIA, IFA ......................................................... 28
Exanthem Serology Panel, IgG only by EIA, IFA ........................................... 28

F......................................................................................................................... 29

Francisella tularensis Culture Isolation/ Identification/Rapid Test Methods 29
Francisella tularensis Serology by Bacterial Agglutination .......................... 29
Fungal Culture Isolation/Identification ................................................................. 30
Fungal Serology (Histo, Cocci, Blasto) by CF & Agar Gel ................................. 30

G ............................................................................................................................... 31
Gardnerella vaginalis Culture Isolation/ Identification (see Bacterial Culture, Aerobic)... 31
Giardia Detection (see Ova and Parasite Exam) .................................................. 31
Gonococcal Infections (see Neisseria gonorrhoeae Culture Isolation) ............... 31
Group A Streptococcus Screen (see Streptococcus Screen for Group A) ............. 31

H ............................................................................................................................... 31
Haemophilus influenzae Culture Isolation/ Identification ........................................ 31
Haemophilus spp. Culture Isolation/ Identification (see Bacterial Culture, Aerobic) 31
Hantavirus (Sin Nombre Virus) IgG + IgM Serology by EIA, capture EIA .......... 31
Hepatitis A IgM Antibody (HAV IgM) by EIA ...................................................... 32
Hepatitis, Acute Panel by EIA (HAV IgM Ab, HBsAg, HBc IgM Ab, HCV) .......... 32
Hepatitis B Core IgM (HBc IgM) Antibody by EIA .............................................. 32
Hepatitis B Core Total Antibody (HBc Total) by EIA ........................................ 32
Hepatitis B Post-Vaccination Panel (Infants Only) ............................................. 33
Hepatitis B Surface Antibody (HBsAb) by EIA (Quantitation) ......................... 33
Hepatitis B Surface Antigen (HBsAg) by EIA with reflex confirmation .......... 33
Hepatitis C (HCV) Antibody Screen by EIA ..................................................... 34
Herpes Simplex Virus (HSV), Type 1 and 2, Direct Detection by Real Time PCR ... 34
Herpes Simplex Virus (HSV), Type 1 and 2, IgG Serology by type specific EIA ... 34
Herpes Zoster Virus IgG Serology by EIA (See Varicella Zoster Virus Serology) ... 34
Histoplasma Culture Isolation/ Identification (see Fungal Culture) .................. 34
Histoplasma Serology (see Fungal Serology) .................................................... 34
HIV 1/2 Ab/p24 Ag by EIA .................................................................................. 34
HIV-1/HIV-2 Geenius ....................................................................................... 35

I .................................................................................................................................. 35
Influenza A and B Direct Detection by Real Time PCR ...................................... 35
Influenza A Sub-typing by Real Time PCR ......................................................... 35
Influenza B Genotyping by Real Time PCR ....................................................... 35
Influenza Isolate Susceptibility Testing and Characterization ......................... 36
Isospora Detection (see Cryptosporidium / Cyclospora / Isospora Detection) .... 36

J .................................................................................................................................. 36

K .................................................................................................................................. 36
KPC (K. pneumoniae Carbapenemase) (see Antimicrobial Resistant Bacteria Confirmation) ......................................................................................... 36

L .................................................................................................................................. 36
Lead Testing (see Blood Lead) ................................................................. 36
Legionella pneumophila Groups 1-6 Direct Detection by Immunofluorescence ... 36
Legionella spp. Culture Isolation/ Identification .............................................. 37
Leishmania Detection ............................................................................................ 37
Leishmania Serology by IFA ............................................................................... 37
Leptospira Serology by INDX Dip-S-Ticks or IgM EIA .................................... 37
Listeria Culture Isolation/ Identification (see Bacterial Culture, Aerobic) ........ 38
Lyme Disease Culture (see Borrelia burgdorferi culture) ............................... 38
Lyme Disease Serology (see Borrelia burgdorferi serology) ......................... 38

M .................................................................................................................................. 38
Malaria Detection/ Identification (see Plasmodium Detection) ...................... 38
Malaria Serology (see Plasmodium Serology) .................................................. 38
Measles PCR (see Rubeola (Measles) Direct Detection by Real Time PCR) .... 38
Measles Serology (see Rubeola Serology) ....................................................... 38
Meningococcal Infection (see Neisseria spp. including N. meningitidis Culture) ... 38
MERS Co-V .......................................................... 38
Methicillin Resistant Staphylococcus aureus (MRSA) (see Antimicrobial Resistant Bacteria Confirmation) ................................................................. 38
Modified Acid Fast Stain ........................................... 38
Mold Culture Isolation/ Identification (see Fungal Culture) ................................................................. 39
Mumps Direct Detection by Real Time PCR ............ 39
Mumps IgG Serology by EIA ........................................ 39
Mumps IgM Serology by IFA ......................................... 39
Mycobacterium spp. Culture Isolation/ Identification ................................................................. 39
Mycobacterium spp. Identification by Nucleic Acid Probe ................................................................. 40
Mycobacterium tuberculosis complex Antimicrobial Susceptibility Testing ................................. 40
Mycobacterium tuberculosis Nucleic Acid Amplification Testing with Rifampin resistance marker ................................................................. 41
Mycology Culture (see Fungal Culture) .................. 41

N................................................................................. 41
Neisseria gonorrhoeae Culture Isolation/ Identification ................................................................. 41
Neisseria gonorrhoeae Direct Detection by Nucleic Acid Amplification ................................................................. 42
Neisseria spp. (including N. meningitidis) Culture Isolation /Identification/Typing ................................................................. 42
Newborn Screening Panel ........................................... 42
Nocardia spp. Culture Isolation/ Identification (see Fungal Culture) ................................................................. 43
Nocardia spp. Serology ................................................. 43
Norovirus Direct Detection by Nucleic Acid Amplification ................................................................. 44

O................................................................................. 44
Orthopoxvirus, including Variola (Smallpox), Direct Detection by Real Time PCR ................................................................. 44
Orthopoxvirus, Other Than Variola, Direct Detection by Real Time PCR ................................................................. 44
Ova and Parasite Exam ................................................. 45

P................................................................................. 45
Paragonimus Detection .............................................. 45
Paragonimus Serology .............................................. 45
Parasite Detection (see Ova and Parasite Exam) ................................................................. 45
Paratyphoid Fever (see Salmonella spp.) ................................................................. 45
Parvovirus Serology IgG & IgM by EIA ................................................................. 45
Pasteurella spp. Culture Isolation/ Identification (see Bacterial Culture, Aerobic) ................................................................. 46
Penicillium spp. Culture Isolation/ Identification (see Fungal Culture) ................................................................. 46
Pertussis (see Bordetella pertussis) ................................................................. 46
Phenylalanine (PKU) Monitor by Fluorescent Immunoassay ................................................................. 46
Pinworm Examination (Enterobius vermicularis) ................................................................. 46
Plague (see Yersinia pestis Culture Isolation) ................................................................. 46
Plasmodium Detection ................................................ 46
Plasmodium Serology by IFA ........................................ 47
Pneumococcal Infection (see Streptococcus pneumoniae) ................................................................. 47
Premarital Testing (see Rubella IgG Serology) ................................................................. 47
Pseudomonas spp. Culture Isolation/ Identification (see Bacterial Culture, Aerobic) ................................................................. 47
Pulsed Field Gel Electrophoresis (PFGE) for Enterics ................................................................. 47
Pulsed Field Gel Electrophoresis (PFGE) (for other organisms) ................................................................. 47

Q................................................................................. 48
Q-Fever (Coxiella burnetti) Phase 1 and 2 IgG Serology by Indirect Immunofluorescence ................................................................. 48
QuantiFERON – Gold (QFT – Gold) In-Tube Testing ................................................................. 48

R................................................................................. 48
Rabies Detection for Diagnostic Purposes (Animal Testing) ................................................................. 48
Rabies Detection for Diagnostic Purposes (Human Testing) ................................................................. 48
Rabies Serology for Immune Status Antibody Testing by RFFIT ................................................................. 49
Rapid Toxic Screen, (for Chemical Exposure) ........................................ 49
Retail Meat Testing (E. coli) .................................................................. 49
Retail Meat Testing (Listeria) ............................................................... 49
Retail Meat Testing (Salmonella) ........................................................ 50
Ricin Rapid Tests .................................................................................. 50
Rickettsial Serology (see Rocky Mountain Spotted Fever, Typhus Fever Serology) .......................... 50
Rochalimea spp. Culture Isolation/ Identification (see Bartonella spp. Culture) ................................. 50
Rochalimea spp. Serology (see Bartonella Serology) ................................ 50
Rocky Mountain Spotted Fever (RMSF) IgG Serology by Indirect Immunofluorescence. 50
Rubella IgG Serology by EIA ................................................................. 51
Rubella IgM Serology by EIA ................................................................. 51
Rubeola (Measles) Direct Detection by Real Time PCR ............................ 51
Rubeola (Measles) IgG Serology by EIA .................................................. 51
Rubeola (Measles) IgM Serology by Indirect Immunofluorescence .......... 52
S ............................................................................................................. 52
Salmonella spp. (including S. typhi) Culture Isolation/Identification .......... 52
Schistosoma Detection ........................................................................ 52
Schistosoma Serology by FAST-ELISA ................................................. 53
Shigella spp. Culture Isolation/Identification ........................................ 53
Sin Nombre Virus (see Hantavirus Serology) ........................................... 53
Sporothrix Culture Isolation/Identification (see Fungal Culture) ............. 53
Sporothrix Serology by Latex and/or Tube Agglutination ......................... 53
Staphylococcus spp. Culture Isolation/Identification (see Bacterial Culture, Aerobic) 53
STEC (see Escherichia coli Shiga-Like Toxin Assay or Enteric Panel) ............ 53
St. Louis Encephalitis IgM Serology by EIA ............................................ 53
Stool Culture (see Enteric Panel) .......................................................... 54
Streptococcus Group A Screen, Culture Method ..................................... 54
Streptococcus pneumoniae Culture Isolation/ID (see Bacterial Culture, Aerobic) 54
Streptococcus spp. Culture Isolation/Identification (see Bacterial Culture, Aerobic) .. 54
Strongyloides Detection (see Ova and Parasite Exam) .............................. 54
Strongyloides Serology by EIA ............................................................ 54
Syphilis Serology Screen (Qualitative) by VDRL ................................... 54
Syphilis Serology Screen (Quantitative) by VDRL ................................. 55
T ............................................................................................................. 55
Tick-borne Disease IgG Serology Panel by IFA, Bacterial Agglutination 55
Tick-borne Relapsing Fever (see Borrelia hermsi Serology) ....................... 55
Toxocara Serology by EIA .................................................................... 55
Treponema pallidum (See Syphilis Serology or Treponema pallidum Particle Agglutination Assay) ........................................................................ 56
Treponema pallidum Particle Agglutination Assay .................................... 56
Trichinella Serology ............................................................................. 56
Trypanosomiasis Detection (including Trypanosoma cruzi / Chagas Disease) 56
Trypanosomiasis Serology (including Trypanosoma cruzi / Chagas Disease) 56
Tuberculosis (See Mycobacterium spp.) .................................................. 57
Tularemia Culture (See Francisella tularensis culture) ......................... 57
Tularemia Serology (See Francisella tularensis serology) ......................... 57
Typhoid Fever (see Enteric Panel or Salmonella spp.) ............................. 57
Typhus Fever IgG Serology by Indirect Immunofluorescence ................. 57
U .......................................................................................................... 57
V .......................................................................................................... 57
Vancomycin Resistant Enterococci (VRE) (See Antimicrobial Resistant Bacteria Confirmation) .......................... 57

PHL Lab Manual Effective December 2018

11
Varicella Zoster Virus (VZV) (Herpes Zoster Virus) Direct Detection by Real Time PCR ........................................... 57
Varicella Zoster Virus (VZV) (Herpes Zoster Virus) IgG Serology by EIA ................................................................. 57
VDRL Serology (see Syphilis Serology) ...................................................................................................................... 58
Vibrio spp. Culture Isolation/ Identification ............................................................................................................. 58
West Nile Virus (WNV) IgG Serology by EIA ............................................................................................................ 58
West Nile Virus (WNV) IgM Serology by EIA ............................................................................................................ 58
Yeast Culture (see Fungal Culture) .......................................................................................................................... 59
Yersinia enterocolitica Culture Isolation/ Identification ............................................................................................. 59
Yersinia pestis Culture Isolation/ Identification/Rapid Test Methods ............................................................... 59
Yersinia pestis Serology by Passive Hemagglutination ............................................................................................ 60
Zika MAC Elisa IgM .................................................................................................................................................. 60
Zika Virus Testing by CDC Trioplex Real-Time PCR Assay ............................................................................. 60
Collection and Transport of Specimens ................................................................................................................. 62
Chlamydia/Gonorrhea Amplified Testing Collection and Transport ................................................................. 62
Molecular (Nucleic Acid Amplification) Testing Collection and Transport ......................................................... 65
Mycobacterium spp. (AFB or TB) Testing Collection and Transport ................................................................. 67
Mycology (Fungal) Culture Collection and Transport ............................................................................................ 68
Newborn Screening Collection and Transport ....................................................................................................... 69
Capillary (Fingerstick Specimens) for Blood Lead Collection and Transport .................................................. 70
Venipuncture Specimens for Blood Lead Collection and Transport ................................................................. 71
QuantiFERON®-TB Gold In-Tube Testing Collection and Transport ............................................................... 72
Serology Specimens Collection and Transport ..................................................................................................... 73
Clinical Laboratory Requisition Forms ................................................................................................................ 74
Standard Laboratory Testing Requisition Form ...................................................................................................... 75
Newborn Screening Requisition Form ................................................................................................................ 76
Supply Order Form ................................................................................................................................................ 77
Packaging and Shipping Guidelines ..................................................................................................................... 78
Tests in Alphabetical Order

A

**Acid Fast Bacilli (AFB)** *(see Mycobacterium spp. culture)*

**Actinomyes spp. Culture Isolation/ Identification** *(see Bacterial Culture, Anaerobic)*

**Actinomyes spp. Serology**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 3 to 6 weeks

CPT Code:
86602  
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Adenovirus Direct Detection by Real Time PCR**
Specimen Requirements: Respiratory specimen in Universal Viral Transport Media. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 3 working days. Results are telephoned to the submitter.

CPT Code:
87798  
Price: $107.00

Transport Temperature: 2-8°C

**Amebiasis Detection** *(see Ova and Parasite Exam)*

**Amebiasis Serology** *(see Entameba histolytica serology)*

**Anthrax** *(see Bacillus anthracis)*

**Antimicrobial Resistant Bacteria Confirmation**
Specimen Requirements: Isolate submitted in Cary-Blair transport or on solid media.

Submit any isolate that demonstrates a resistance pattern that has high epidemiologic significance, such as potential Vancomycin Resistant or Intermediate *Staphylococcus aureus*, Methicillin Resistant *Staphylococcus aureus*, Vancomycin Resistant Enterococci, ESBL producing *Enterobacteriaceae*, Carbapenem-Resistant *Enterobacteriaceae* - CRE (e.g., KPC or NDM), and resistant *Streptococcus pneumoniae*.

Turn-around Time: 2 to 4 working days. May be referred to the Centers for Disease Control in Atlanta, Georgia.

CPT Code:
one
Price: Fee Waived

Transport Temperature: Ambient

**Arbovirus Serology, Additional Tests (WEE and California Group) by ELISA**

Specimen Requirements: 2 mL serum or CSF

Paired acute and convalescent serum recommended. Date of onset must be included on requisition form.

Referred to the Centers for Disease Control, Fort Collins, CO

Turn-around Time: 4 to 6 weeks

**CPT Codes:**
86654 (Western Equine Encephalitis)
86651 (California Group)

Total Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Aspergillus spp. Culture Isolation/ Identification** *(see Fungal Culture)*

**Autoclave Monitoring**

Specimen Requirements: BT Sure vials containing *Bacillus stearothermophilus* are obtained by contacting the laboratory. Place the BT Sure vial in center of load to be sterilized, then autoclave using normal procedures.

Turn-around Time: 2 working days from receipt of specimen

**CPT Code:**
No code
Price: $23.00

Transport Temperature: Ambient

**B**

**Babesia Detection**

Specimen Requirements: Blood smear, unstained or stained with Wright’s or Giemsa.

Turn-around Time: 1 to 2 working days. Positive smears are referred to the Centers for Disease Control, Atlanta, Georgia for confirmation.

**CPT Code:**
87207
Price: $31.00

Transport Temperature: Ambient

**Babesia Serology by IFA**

Specimen Requirements: 2 mL serum
Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 3 to 6 weeks

**CPT Code:**
86256
Price: $38.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Bacillus anthracis Culture Isolation/ Identification/Rapid Test Methods**
Specimen Requirements: Lesion swab, clinical specimen or culture isolate on solid media or in Cary-Blair transport.

*Note: A suspected B. anthracis culture requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please notify the laboratory by telephone at time of shipment.*

*Please contact the laboratory prior to submission regarding environmental samples, rapid test methods, and transport instructions.*

Turn-around Time: Cultures will be held for five (5) working days before reporting as negative. Results are telephoned as soon as possible to the submitter.

Rapid test methods are performed in Molecular Diagnostics and are available within 6 - 8 hours of specimen receipt.

**CPT Codes:**
87081 (Culture screen)
Price: Fee Waived

87798 (PCR)
Price: Fee Waived

Transport Temperature: Ambient

**Bacterial Culture Identification, Aerobic**
Specimen Requirements: Send non-fastidious Gram negative or Gram positive isolates on solid media or on swab in Cary-Blair transport. Fastidious or slow growing organisms require careful transport on an enriched agar medium. *Please contact the laboratory prior to submission regarding environmental samples, rapid test methods, and transport instructions and to notify the laboratory of time of shipment.*

Turn-around Time: Normally 3 to 14 working days, depending on the growth rate of the isolate.

**CPT Codes:**
87070 (culture, presumptive ID)
Price: $25.00

87077 (Each add’l ID)
Price: $25.00

Transport Temperature: Ambient

**Bacterial Culture Identification, Anaerobic**
Specimen Requirements: Send isolate in an anaerobic transport system.

Turn-around Time: Normally 3 to 14 working days, depending on the growth rate of the isolate.
**CPT Codes:**
87075 (culture, presumptive ID)
Price: $25.00

87076 (Each add’l ID)
Price: 25.00

Transport Temperature: Ambient

**Bartonella spp. (formerly Rochalimaea spp.) Serology by IFA**
Specimen Requirements: 2 mL serum, plus completed cat scratch fever disease history form. The laboratory will fax you a form upon request.
Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 4 to 6 weeks

**CPT Code:**
86256
Price: $30.00

Transport Temperature: 2-8°C

**Blastomyces, Histoplasma, Coccidoides Identification by Nucleic Acid Probe**
Specimen Requirements: Isolates sent on Sabouraud’s slants or as reflex testing on positive primary specimens submitted for culture.

Turn-around Time: 1 to 3 working days for submitted isolates, others dependent on growth rate.

**CPT Code:**
87149 (each)
Price: $35.00 each

Transport Temperature: Ambient

**Blastomyces spp. Culture Isolation/ Identification** (see Fungal Culture)

**Blastomyces spp. Serology** (see Fungal Serology)

**Blood Borne Pathogen Exposure - Exposed Worker (HBsAb, HIV, HCV) by EIA**
Specimen Requirements: 2 mL serum

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter. These tests may be ordered as a panel, but are billed individually.

**CPT Codes:**
86706 (HBsAb)
Price: $30.00

87389 (HIV)
Price: $31.00

86803 (HCV)
Price: $40.00

Total Price: $101.00

Transport Temperature: 2-8°C

**Blood Borne Pathogen Exposure - Source Patient (HBsAg, HIV, HCV) by EIA**

Specimen Requirements: 2 mL serum

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter. These tests may be ordered as a panel, but are billed individually.

**CPT Codes:**
87340 (HBsAg)
Price: $25.00

87389 (HIV)
Price: $31.00

86803 (HCV)
Price: $40.00

Total Price: $96.00

Transport Temperature: 2-8°C

**Blood Lead by Anodic Stripping Voltometry**

Specimen Requirements: 1 mL venous or 0.3 mL capillary whole blood, EDTA (purple top). Adult and child specimen collection kits are available through the laboratory. The laboratory is certified to test for both child and adult lead levels. See Blood Lead Collection and Transport instructions on the collection and transport of capillary and venous specimens.

Turn-around Time: Routinely batch tested at least twice per week. Elevated results are telephoned to the submitter.

**CPT Code:**
83655
Price: $23.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Bordetella pertussis/ B. parapertussis/ B. holmesii Direct Detection by Real Time PCR**

Specimen Requirements: Nasopharyngeal (NP) swab in a sterile container without transport media. Do not submit a throat or nares specimen or a specimen submitted in Regan Lowe Media. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 2 working days. Positive results are telephoned to the submitter.

**NOTE:** PCR testing should be performed only on symptomatic patients; a positive PCR in an asymptomatic patient does not meet the standard CDC case definition and cannot be considered a case of pertussis. PCR testing may be able to detect *B. pertussis* 3 to 4 weeks post onset, and after antibiotic therapy has been initiated.

**CPT Code:**
87801
Price: $107.00
Transport Temperature: Ambient or 2-8°C

*Borrelia burgdorferi* Culture
Specimen Requirements: Skin punch biopsy, synovial fluid, CSF. *Contact the laboratory prior to collection for special instructions and transport media.*

Referred to the Centers for Disease Control, Fort Collins, Colorado
Turn-around Time: 4 to 6 weeks

CPT Code:
87081
Price: $30.00

Transport Temperature: Ambient

*Borrelia burgdorferi* Serology Total Antibody by EIA with reflex Western Blot confirmation
Specimen Requirements: 2 mL serum
Date of onset information must be included on requisition form.

Turn-around Time: Routinely batch-tested once per week. Specimens that test positive or equivocal are referred to South Dakota Public Health Laboratory in Pierre, SD, for Lyme IgG and IgM Western Blot confirmation.

CPT Code:
86618 (Screen)
Price: $40.00
86617 (Western Blot)
Price: $100.00

Transport Temperature: 2-30°C (Refrigeration preferable)

*Borrelia hermsii* Serology (Tick Borne Relapsing Fever) by IgM/IgG ELISA
Specimen Requirements: 2 mL serum
Paired acute and convalescent serum recommended. Date of onset information must be included on requisition form.

Referred to the Centers for Disease Control, Fort Collins, Colorado
Turn-around Time: 4 to 6 weeks

CPT Code:
86619
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

*Brucella spp.* Culture Isolation/ Identification/Rapid Test Methods
Specimen Requirements: EDTA whole blood (PCR) or suspect culture isolates on solid medium.

*Note: A suspected Brucella spp. culture requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please notify the laboratory by telephone at time of shipment.*

*Please contact the laboratory prior to submission regarding environmental samples, rapid test methods, and transport instructions.*

Turn-around Time: Cultures will be held for five (5) working days before reporting as negative. Results are telephoned as soon as
possible to the submitter.

Rapid test methods are performed in Molecular Diagnostics and are available within 6 - 8 hours of specimen receipt.

**CPT Codes:**
87081 (Culture screen)
Price: Fee Waived

87798 (PCR)
Price: Fee Waived

Transport Temperature: Ambient

**Brucella Serology by Bacterial Agglutination**
Specimen Requirements: 2 ml. Serum
Paired acute and convalescent serum recommended.

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter.

**NOTE:** Tularemia serology will be automatically performed on all requests for Brucella serology due to antigen cross reactivity.

**CPT Codes:**
86622 (Brucella)
86668 (Tularemia)

Price: $25.00 (each)

Total Price: $50.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Burkholderia mallei, B. pseudomallei Culture Isolation / ID / Rapid Test Methods**
Specimen Requirements: Clinical specimen in sterile container or isolate submitted in Cary-Blair transport or on solid medium.

*Note: A suspected Burkholderia mallei or B. pseudomallei culture requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please notify the laboratory by telephone at time of shipment.*

Please contact the laboratory prior to submission regarding environmental samples, rapid test methods, and transport instructions.

Turn-around Time: Cultures will be held for five (5) working days before reporting as negative. Results are telephoned as soon as possible to the submitter.

Rapid test methods are performed in Molecular Diagnostics and are available within 6 - 8 hours of specimen receipt.

**CPT Codes:**
87081 (Culture screen)
Price: Fee Waived

87798 (PCR)
Price: Fee Waived

Transport Temperature: Ambient
**Campylobacter spp. Culture Isolation/Identification**

Specimen Requirements: Stool in submitted in Cary-Blair transport or culture isolate on solid media sent in a *Campylobacter* transport system.

Turn-around Time: 3 to 5 working days. Positive results are telephoned to the submitter.

**CPT Codes:**
87046 (Culture ID)  
Price: $18.00

87077 (Each add’l ID)  
Price: $25.00

Transport Temperature: 2-8°C for stool specimens, ambient for isolates

**Candida albicans Culture Isolation/Identification** (see Fungal Culture)

**Carbapenem-Resistant Enterobacteriaceae (CRE) Direct Detection by Real-Time PCR**

Detects and differentiates KPC, NDM, VIM, OXA-48, and IMP gene sequences associated with Carbapenem non-susceptibility in gram-negative bacteria.

Specimen requirements: Clinical isolate or direct rectal swab collection. Rectal swabs specific to this test are provided by MTPHL. Store the collection swabs at room temperature. For collection of a paired rectal swab, See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: Routinely tested each working day. Positive results are telephoned to the submitter.

**CPT Code:**
None  
Price: Fee Waived

Transport Temperature: Ambient

**Cat Scratch Fever** (see Bartonella spp. Serology)

**Chagas Disease** (see Trypanosomiasis Detection)

**Chikungunya Virus by PCR** (see Zika Triplex PCR)

**Chlamydia trachomatis Direct Detection by Nucleic Acid Amplification**

Specimen Requirements: Endocervical, male urethral, throat or rectal swab in APTIMA Uni-Sex Swab Specimen Collection Tube, vaginal swab in APTIMA Vaginal Specimen Collection Tube, or urine in APTIMA Urine Specimen Collection Tube. See Chlamydia/Gonorrhea Amplified Testing Collection and Transport instructions.

Turn-around Time: Routinely tested three (3) days/week (Monday, Wednesday, Friday). Positive results are telephoned to the submitter.

**NOTE:** Can be run in tandem with *Neisseria gonorrhoeae* Direct Detection by APTIMA Amplification (see Combination Amplification Test below)
**Chlamydia trachomatis/Neisseria gonorrhoeae Direct Detection by NAAT (Combo Test)**

Specimen Requirements: Endocervical, male urethral, throat or rectal swab in APTIMA Uni-Sex Swab Specimen Collection Tube, vaginal swab in APTIMA Vaginal Specimen Collection Tube, or urine in APTIMA Urine Specimen Collection Tube. See Chlamydia/Gonorrhea Amplified Testing Collection and Transport instructions.

Turn-around Time: Routinely tested three (3) days/week (Monday, Wednesday, Friday). Positive results are telephoned to the submitter. These tests can be ordered as a panel, but will be billed individually.

**CPT Codes:**
87491 (Chlamydia)
87591 (GC)

Price: $44.00 (each)

Total Price: $88.00

Transport Temperature: 2-30°C

**Cholera (see Vibrio spp. Culture Isolation/ Identification)**

**Clostridium botulinum (Botulism) Bacterial ID, Toxin, and Serology Testing**

Call the Montana Public Health Laboratory at (800)821-7284 for consultation on sending specimens; an epidemiologic consultation is also required for preapproval of testing, and for making arrangements to receive antitoxin.

Specimen Requirements: 10 mL serum, and 25 gm stool. Special requirements for infants is a stool sample only, serum will not be accepted.

Food testing is not performed at MTPHL.
Human testing referred to the Utah State Public Health Laboratory in Salt Lake City, UT

Turn-around Time: Preliminary results in 2 to 4 working days.

**CPT Code:**
None
Price: Fee Waived*

Transport Temperature: Contact the laboratory

**Clostridium difficile PCR, including NAP1**

Specimen Requirements: Liquid or unformed stool in a sterile container

Turn-around Time: 1 to 2 working days. Positive results are telephoned to the submitter.

**CPT Code:**
87493
Price: $107.00
Transport Temperature: 2-8°C (Stable for up to 5 days when stored at 2-8°C)

**Clostridium spp. (except C. botulinum) Culture Isolation/ ID** (see Bacterial Culture, Anaerobic)

**Coccidioides spp. Culture Isolation/ Identification** (see Fungal Culture)

**Coccidioidomycosis Serology** (see Fungal Serology)

**Colorado Tick Fever Virus (CTFV) Serology, IgG by Indirect Immunofluorescence**

Specimen Requirements: 1 mL serum
Paired acute and convalescent serum recommended.

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter.

NOTE: Rocky Mountain Spotted Fever testing will automatically be performed on all requests for Colorado Tick Fever.

**CPT Codes:**
86790 (CTFV)  
Price: $30.00

86757 (RMSF)  
Price: $25.00 (each)

Total Price: $55.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Corynebacterium diphtheriae Culture Isolation/ Identification**

Specimen Requirements: Throat, nasal, and wound swabs, pseudo-membrane, and sputum. Swabs may be placed in Amies or Stuart transport medial. Pseudo-membrane should be sent in leak proof container with saline (not formalin).

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: One week. Positive results are telephoned to the submitter.

**CPT Code:**
87081
Price: $30.00

Transport Temperature: Ambient

**Corynebacterium spp. (not C. diphtheriae) Culture Isolation/ ID** (see Bacterial Culture, Aerobic)

**Coxiella burnetii by Real-Time PCR**

Specimen Requirements: Whole blood or environmental samples

*Please contact the Montana Public Health Laboratory prior to submission regarding sample collection and transport instructions.*

Turn-around Time: Rapid test methods are performed in Molecular Diagnostics and are available within 6 - 8 hours of specimen receipt. Results are telephoned as soon as possible to the submitter.

NOTE: This is a presumptive assay. Confirmation for *Coxiella burnetii* is performed at the Centers for Disease Control and Prevention (CDC).
Coxiella burnetii Serology (see Q fever Serology)

Cryptococcus spp. Culture Isolation/ Identification (see Fungal Culture)

Cryptosporidium / Cyclospora / Isospora Detection by Fluorescent Stain
Specimen Requirements: Stool in formalin

Turn-around Time: Performed each working day. Positive results are telephoned to the submitter.

CPT Code:
87798
Price: Fee Waived

Transport Temperature: Ambient

Culture for Storage
Specimen Requirements: Isolate submitted in Cary-Blair transport or on solid media.

Submit organisms that are of epidemiologic interest and need to be stored for molecular comparison to other strains. Laboratories are encouraged to submit organisms which may be part of an outbreak or which demonstrate a significant antibiotic resistance, i.e. Salmonella spp., E. coli O157, Toxigenic E. coli, Shigella spp., N. gonorrhoeae, N. meningitidis from a sterile site, H. influenzae from a sterile site, resistant Streptococcus pneumoniae, MRSA, CRE, VRE, ESBL, KPC, potential VISA or VRSA.

CPT Code:
None
Price: Fee Waived

Transport Temperature: Ambient

Cyclospora Detection (see Cryptosporidium / Cyclospora / Isospora Detection by Fluorescent Stain)

Cysticercosis (Taenia spp.) Detection
Specimen Requirements: Stained tissue section

Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 2 to 4 weeks

CPT Code:
87207
Price: $30.00

Transport Temperature: Ambient

Cysticercosis (Taenia spp.) Serology by Immunoblot
Specimen Requirements: 2 mL serum
Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
84182
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

D

**Dengue Fever Serology by ELISA**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, San Juan, Puerto Rico
Turn-around Time: 4 to 6 weeks

CPT Code:
86790
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Dengue Fever Virus by PCR** *(see Zika Trioplex PCR)*

**Dermatophytes Culture Isolation/ Identification** *(see Fungal Culture)*

**Diphtheria** *(see *Corynebacterium diphtheriae* Culture Isolation)*

**DNA Fingerprinting** *(see Pulsed Field Gel Electrophoresis for enterics or other organisms)*

E

**Ebola Virus**
Specimen Requirements: Whole blood, serum, or plasma. Urine may be submitted, but only when accompanied by a blood specimen.

*NOTE: Contact your local health department or the State Epidemiology Department (406-444-0273) to ensure the patient meets criteria for testing.*

*A specimen suspected of containing Ebola Virus requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please contact the Montana Public Health Laboratory prior to submission regarding sample collection and transport instructions.*

Turn-around Time: Rapid test methods are performed in Molecular Diagnostics and are available within 6 - 8 hours of specimen receipt. Samples that yield positive, equivocal, or inconclusive results will be forwarded to CDC for additional evaluation.

CPT Code:
87798
Price: Fee Waived

Transport Temperature: Whole blood: 2-8°C
Serum, plasma, or urine: 2-8°C or frozen

**Echinococcosis Detection**
Specimen Requirements: Stained tissue section

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 1 to 3 weeks

**CPT Code:**
87207
Price: $30.00

Transport Temperature: 2-8°C

**Echinococcosis Serology by EIA**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 2 to 4 weeks

**CPT Code:**
84182
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**EHEC, Enterohemorrhagic E. coli (see *Escherichia coli* Shiga-Like Toxin Assay or Enteric Panel)**

**Ehrlichia spp. Serology by Indirect Immunofluorescence**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 4 to 6 weeks

**CPT Code:**
86682
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Entameba histolytica Serology by EIA**
Specimen Requirements: 2 mL serum  Include documentation of negative stool examinations for *E. histolytica*.

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

**CPT Code:**
86753
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)
**Enteric Isolate Surveillance**
Specimen Requirements: All isolates of shiga-toxin producing *Escherichia coli* (including serotype O157:H7), *Salmonella* spp., *Shigella* spp., *Vibrio*, and *Listeria* should be referred for surveillance purposes.

Confirmation of isolates is performed and results are reported to submitter. In addition, PFGE testing (DNA fingerprinting) will be performed to determine strain-relatedness; results are compared to other strain patterns in Montana and across the nation using the CDC PulseNet database. Results are communicated to the DPHHS Epidemiology staff for follow up.

Turn-around Time: Routinely tested each week.

**CPT Code:**
none
Price: Fee Waived

Transport Temperature: Ambient

**Enteric Panel Culture Isolation/ Identification**
Includes screens for Salmonella, Shigella, Campylobacter, E. coli O157 and EHEC

Specimen Requirements: Stool in Cary-Blair transport, or other commercial enteric transport media. Collect stool directly from patient into a clean specimen container. Do not collect from toilet bowl or use stool contaminated with urine. Use a sterile swab to collect a portion of the stool (collect from bloody or mucous-containing areas if present) and insert swab to the lower part of a Cary-Blair transport tube and break or cut the swab stick. A rectal swab is also acceptable if there is evidence of fecal staining on the swab. Cary-Blair transport tubes are supplied upon request.

*Escherichia coli*/Shiga-Like Toxin Assay will be performed on all specimens. Stools with positive toxin tests will be further cultured to isolate and identify the toxin-producing organism.

Turn-around Time: 2 to 4 working days. Positive test results are telephoned to the submitter.

**CPT Codes:**
87045 (*Salm*. and *Shig*. culture)
87046 (*E. coli* culture)
87046 (*Campy* culture)
87046 (*Vibrio Spp* culture)
87046 (Yersinia culture)

87449 (EHEC)
Price: $30.00

Total Price: $84.00

87077 (Each add’l ID)
Price: $25.00

Transport Temperature: 2-8°C

**Enterovirus (D68) Detection by Real-Time PCR**
Specimen Requirements: CSF in a sterile transport container without transport media, respiratory specimens (solid or swabs) in Universal Viral Transport Media. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 3 working days. Positive results are telephoned to the submitter.
Enterovirus (Pan-Enterovirus) Detection by Real-Time PCR
Specimen Requirements: CSF in a sterile transport container without transport media, respiratory specimens (solid or swabs) in Universal Viral Transport Media. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 3 working days. Positive results are telephoned to the submitter.

ESBL (see Antimicrobial Resistant Bacteria Confirmation)

Escherichia coli O157 Culture Isolation/Identification
Specimen Requirements: Stool specimen in Cary-Blair transport, or other commercial enteric transport media, or culture isolate submitted in Cary Blair transport or on solid media.

Note: A suspected E. coli O157 culture requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please notify the laboratory by telephone at time of shipment.

For public health surveillance, please submit all isolates of E. coli O157 to the laboratory. See Enteric Isolate Surveillance.

Turn-around Time: 2 to 4 working days. Positive results are telephoned to the submitter.

CPT Codes:
87046 (Culture ID)
Price: $18.00

87077 (Each add’l ID)
Price: $25.00

Transport Temperature: 2-8°C for stool, ambient for isolates

Escherichia coli Shiga-Like Toxin Assay (Enterohemorrhagic E. coli, EHEC or STEC) by EIA
Specimen Requirements: Stool specimen in Cary-Blair transport, or other commercial enteric transport media, or Escherichia coli isolate submitted in Cary Blair transport or on solid media.

EHEC is also performed on all routine enteric panels.

Turn-around Time: 2 to 4 working days. Positive results are telephoned to the submitter. Stools with positive toxin tests will be further cultured to isolate and identify the toxin-producing organism.

CPT Code:
87449
Price: $30.00
Transport Temperature: 2-8°C

**Exanthem Panel, IgG + IgM by EIA, IFA**
Includes Rubeola IgG + IgM, Rubella IgG + IgM, HSV, VZV, CTFV and RMSF (during tick season)

Specimen Requirements: 2 mL serum
Paired acute and convalescent serum recommended. Date on onset of rash must be included on requisition form.

Turn-around Time: Routinely batch tested once per week. IgM testing performed each working day, as needed. Significant results are telephoned to the submitter. These tests may be ordered as a panel, but will be billed individually.

NOTE: Tick season is normally March through September.

**CPT Codes:**
86765 (Rubeola IgG)
86762 (Rubella IgG)
86695 (HSV1)
86696 (HSV2)
86787 (VZV)
86757 (RMSF)

Price: $25.00 each

86790 (CTFV)
Price: $30.00

86765 (Rubeola IgM)
Price: $30.00

86762 (Rubella IgM)
Price: $39.00

Total Price: $249.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Exanthem Serology Panel, IgG only by EIA, IFA**
Includes Rubeola, Rubella, HSV, VZV, CTFV and RMSF (during tick season)

Specimen Requirements: 2 mL serum
Paired acute and convalescent serum recommended. Date on onset of rash must be included on requisition form.

Turn-around Time: Routinely batch tested once per week. Significant results are telephoned to the submitter. These tests may be ordered as a panel, but will be billed individually.

NOTE: Tick season is normally March through September.

**CPT Codes:**
86765 (Rubeola IgG)
86762 (Rubella IgG)
86695 (HSV1)
86696 (HSV2)
86787 (VZV)
Francisella tularensis Culture Isolation/ Identification/Rapid Test Methods
Specimen Requirements: Clinical specimen in sterile container or pure culture on solid medium.

Note: A suspected *F. tularensis* culture requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please notify the laboratory by telephone at time of shipment.

Please contact the laboratory prior to submission regarding environmental samples, rapid test methods, and transport instructions.

Turn-around Time: Cultures will be held for five (5) working days before reporting as negative. Results are telephoned as soon as possible to the submitter.

PCR testing methods are performed in Molecular Diagnostics and are available within 6 - 8 hours of specimen receipt. Culture is considered confirmatory for specimens that are PCR-positive.

CPT Codes:
87081 (Culture screen)
Price: Fee Waived

87798 (PCR)
Price: Fee Waived

Transport Temperature: Ambient

Francisella tularensis Serology by Bacterial Agglutination
Specimen Requirements: 2 mL serum
Paired acute and convalescent specimens recommended.

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter.

NOTE: *Brucella* serology testing will be automatically performed on all requests for Tularemia serology due to antigen cross reactivity.

CPT Codes:
86668 (Tularemia)
86622 (*Brucella*)

Price: $25.00 (each)

Total Price: $50.00
Transport Temperature: 2-30°C (Refrigeration preferable)

**Fungal Culture Isolation/Identification**
Specimen Requirements: Send original specimens in a sterile container. Send cutaneous specimens dry. Send fungal isolates on an agar slant. See Mycology (Fungal) Culture Collection and Transport instructions.

Turn-around Time: Primary specimen cultures are monitored for 4 weeks prior to a negative report.

**CPT Codes:**
87101 (culture, skin)
87102 (culture, other)
87103 (culture, blood)

Price: $42.00 Each

87106 (ID, yeast)
Price: $22.00 Each

87107 (ID, mold)
Price: $22.00 Each

Transport Temperature: Ambient

**Fungal Serology (Histo, Cocci, Blasto) by CF & Agar Gel**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

**CPT Codes:**
86698 (Histoplasma)
86612 (Blastomyces)
86635 (Coccidioides)

Price: $30.00

Transport Temperature: 2-8°C
G

*Gardnerella vaginalis* Culture Isolation/ Identification ([see Bacterial Culture, Aerobic](#))

*Giardia* Detection ([see Ova and Parasite Exam](#))

Gonococcal Infections ([see *Neisseria gonorrhoeae* Culture Isolation](#))

Group A *Streptococcus* Screen ([see *Streptococcus* Screen for Group A](#))

H

*Haemophilus influenzae* Culture Isolation/ Identification

Specimen Requirements: Primary specimen or isolate on chocolate media.

Turn-around Time: 2 to 4 working days. Positive *H. influenzae* results from sterile sites are telephoned to the submitter.

NOTE: Serogrouping is routinely performed on *H. influenzae* isolates from sterile body sites such as blood or cerebral spinal fluid. Please submit all *H. influenzae* isolates from sterile body sites to the laboratory for serogrouping and storage for future epidemiologic purposes.

CPT Codes:
87081 (culture)
Price: $38.00

87185 (beta lactamase)
Price: $9.00

Transport Temperature: Ambient

*Haemophilus spp.* Culture Isolation/ Identification ([see Bacterial Culture, Aerobic](#))

Hantavirus (*Sin Nombre Virus*) IgG + IgM Serology by EIA, capture EIA

Specimen Requirements: 1 mL serum

Turn-around Time: Routinely batch tested once per week. STAT testing is available each working day, or on weekends and holidays as needed. *Call ahead to notify the laboratory and to make arrangements*. Positive and STAT results are telephoned to the submitter.

To qualify for STAT testing, all of the following criteria must be met:
1. The patient is hospitalized with an acute respiratory illness, typical of Hantavirus Pulmonary Syndrome (HPS).
2. The patient is critically ill.
3. The patient does not have any relevant underlying medical condition that could account for the symptoms (COPD, malignancy, immunosuppression, diabetes)
4. The onset of illness (date when prodromal symptoms such as low-grade fever and myalgia were noted) is three (3) or more days prior to serum sample collection. IgM antibody to SNV is usually not detectable until the patient develops shortness of breath.

CPT Codes:
86790 (IgG)
86790 (IgM)
Price: $ 53.00 (each)

Total Price: $106.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Hepatitis A IgM Antibody (HAV IgM) by EIA**
Specimen Requirements: 1 mL serum

Turn-around Time: Testing is routinely batch tested once per week, but may be available each working day as needed. *Call ahead to notify the laboratory and to make arrangements if immediate testing is needed.* Positive and STAT results are telephoned to the submitter.

**CPT Code:**
86709
Price: $35.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Hepatitis, Acute Panel by EIA (HAV IgM Ab, HBsAg, HBc IgM Ab, HCV)**
Specimen Requirements: 2 mL serum

Turn-around Time: Testing is routinely batch tested once per week, but may be available each working day as needed. *Call ahead to notify the laboratory and to make arrangements if immediate testing is needed.* Positive and STAT results are telephoned to the submitter.

**CPT Codes:**
80074 (entire panel)
Total Price: $135.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Hepatitis B Core IgM (HBc IgM) Antibody by EIA**
Specimen Requirements: 1 mL serum

Turn-around Time: Testing is routinely batch tested once per week, but may be available each working day as needed. *Call ahead to notify the laboratory and to make arrangements if immediate testing is needed.* Positive and STAT results are telephoned to the submitter.

**CPT Code:**
86705
Price: $35.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Hepatitis B Core Total Antibody (HBc Total) by EIA**
Specimen Requirements: 1 mL serum

Turn-around Time: Testing is routinely batch tested once per week. Positive results are telephoned to the submitter.

**CPT Code:**
86704
Price: $40.00
Transport Temperature: 2-30°C (Refrigeration preferable)

**Hepatitis B Post-Vaccination Panel (Infants Only)**

Specimen Requirements: 2 mL serum

Turn-around Time: Testing is routinely batch tested once per week.

NOTE: This test is only for post-vaccination serologic testing for infants born to Hepatitis B-infected women. Confirmatory Neutralization testing will be automatically performed on all repeat reactive HBsAg.

**CPT Code:**
86706 (HBsAb)
Price: $30.00

87340 (HBsAg)
Price: $25.00

Total Price: $55.00

87341 (HBsAg Neutralization)
Price: $31.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Hepatitis B Surface Antibody (HBsAb) by EIA (Quantitation)**

Specimen Requirements: 1 mL serum

Turn-around Time: Testing is routinely batch tested once per week.

**CPT Code:**
86706
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Hepatitis B Surface Antigen (HBsAg) by EIA with reflex confirmation**

Specimen Requirements: 2 mL serum

Turn-around Time: Routinely batch tested once per week. Call ahead to notify the laboratory and to make arrangements if immediate testing is needed. Positive and STAT results are telephoned to the submitter.

NOTE: Confirmatory Neutralization testing will be automatically performed on all repeat reactive screens.

**CPT Code:**
87340 (HBsAg)
Price: $25.00

87341 (HBsAg Neutralization)
Price: $31.00

Transport Temperature: 2-30°C (Refrigeration preferable)
Hepatitis C (HCV) Antibody Screen by EIA
Specimen Requirements: 2 mL serum

Turn-around Time: EIA screens routinely batch tested twice per week. Positive results are telephoned to the submitter.

NOTE: Confirmatory testing is recommended on specimens with S/CO ratios of less than 3.8. Confirmatory testing is NOT performed by MT PHL and must be sent by the collecting facility to a reference laboratory.

CPT Code:
86803 (Screen)
Price: $40.00

Transport Temperature: 2-30°C (Refrigeration preferable)

Herpes Simplex Virus (HSV), Type 1 and 2, Direct Detection by Real Time PCR
Specimen Requirements: CSF in sterile container without transport media, or Cervical Swab or Lesion swab in Universal Viral Transport Media. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 3 working days. Positive results are telephoned to the submitter.

CPT Code:
87529
Price: $107.00

Transport Temperature: 2-8°C

Herpes Simplex Virus (HSV), Type 1 and 2, IgG Serology by type specific EIA
Specimen Requirements: 1 mL serum
Screen or paired acute and convalescent specimens

Turn-around Time: Routinely batch tested once per week. Significant results are telephoned to the submitter.

CPT Codes:
86695 (HSV 1)
86696 (HSV 2)

Price: $25.00 (each)

Total Price: $50.00

Transport Temperature: 2-30°C (Refrigeration preferable)

Herpes Zoster Virus IgG Serology by EIA (See Varicella Zoster Virus Serology)

Histoplasma Culture Isolation/ Identification (see Fungal Culture)

Histoplasma Serology (see Fungal Serology)

HIV 1/2 Ab/p24 Ag by EIA
Specimen Requirements: 1 mL serum

Turn-around Time: EIA screens routinely tested at least two (2) days each week. Positive results are telephoned to the submitter.
NOTE: Reflex supplemental testing is performed on all repeat reactive EIA screens using the newly proposed HIV testing algorithm. HIV-1/HIV-2 Geenius testing will be performed to confirm the presence of HIV antibody and to differentiate HIV-1 and HIV-2. HIV NAT testing will be performed to confirm the presence of HIV p24 antigen (acute infection) when the HIV Ab/Ag Combo test is repeat reactive and the HIV-1/HIV-2 Geenius test is negative.

**CPT Codes:**
87389
Price: $31.00

86703 (HIV-1/HIV-2 Geenius)
Price: $55.00

Transport Temperature: 2-8°C or frozen

**HIV-1/HIV-2 Geenius**
Specimen Requirements: 1 mL serum

**NOTE:** This test is used to differentiate HIV-1 and HIV-2 and is used in an algorithm when the HIV Combo Ag/Ab EIA is repeat-reactive. Repeat reactive EIA screens with inconclusive Geenius results are reflexed to the Florida Department of Public Health in Jacksonville, FL, for HIV NAT testing.

**Turn-around Time:** Within 1 to 2 working days of repeat reactive HIV Combo Ag/Ab EIA

**CPT Code:**
86703
Price: $55.00

Transport Temperature: 2-8°C or frozen

---

**Influenza A and B Direct Detection by Real Time PCR**
Specimen Requirements: Respiratory specimen in Universal Viral Transport Media. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

This test detects Influenza B and all subtypes of Influenza A. All specimens positive for Influenza A will be reflexed to real-time PCR subtyping. Specimens positive for Influenza B will be reflexed to real-time PCR genotyping.

**Turn-around Time:** 1 to 3 working days. Positive results are telephoned to the submitter.

**CPT Code:**
87502
Price: $55.00

Transport Temperature: 2-8°C

**Influenza A Sub-typing by Real Time PCR**
Detects Influenza A subtypes H3N2, H1N1 2009 pdm, H5, H7, or variant subtypes

Specimen Requirements: Nucleic acid derived from a PCR specimen screened positive for Influenza A. Reflex testing is performed on all Influenza A positive specimens.

**Turn-around Time:** Sub-typing is performed each working day. Results are telephoned to the submitter.
Influenza B Genotyping by Real Time PCR
Detects Yamagata and Victoria lineage genotypes

Specimen Requirements: Nucleic acid derived from a PCR specimen screened positive for Influenza B. Reflex testing is performed on all Influenza B positive specimens.

Turn-around Time: Sub-typing is performed each working day. Results are telephoned to the submitter.

CPT Code:
87503
Price: $33.00

Transport Temperature: 2-8°C

Influenza Isolate Susceptibility Testing and Characterization
Specimen Requirements: Influenza A isolate in Universal Transport Media. The laboratory routinely selects significant isolates for susceptibility testing and characterization.

*Testing is performed at no cost for epidemiological purposes.

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 6 to 8 weeks

Price: Fee Waived*

Transport Temperature: 2-8°C

Isospora Detection (see Cryptosporidium / Cyclospora / Isospora Detection)

KPC (K. pneumoniae Carbapenemase) (see Antimicrobial Resistant Bacteria Confirmation)

Lead Testing (see Blood Lead)

Legionella pneumophila Groups 1-6 Direct Detection by Immunofluorescence
Specimen Requirements: Nasopharyngeal (NP) or Throat swab smeared on microscope slide, or primary specimen as with culture.

Turn-around Time: Performed each working day. Positive results are telephoned to the submitter.
**Legionella spp. Culture Isolation/ Identification**
Specimen Requirements: Submit fresh or frozen lung tissue, pleural fluid, bronchial washings, trans-tracheal aspirates, chest drainage, BAL, or sputum. Put a minimum of 1 mL specimen in a sterile, leak-proof container, and transport on ice in an insulated container.

Turn-around Time: DFA test performed each working day. Positive test results are telephoned to the submitter. Cultures are monitored for 14 working days before reporting as negative.

NOTE: Both a DFA test and culture is performed on each primary specimen received.

**CPT Codes:**
87081 (Culture screen)
Price: $38.00

87278 (DFA)
Price: $29.00

87077 (Each add’l ID)
Price: $25.00

Transport Temperature: 2-8°C

**Leishmania Detection**
Specimen Requirements: Lesion smear of tissue

Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 3 to 6 weeks

**CPT Code:**
87207
Price: $30.00

Transport Temperature: Ambient

**Leishmania Serology by IFA**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 3 to 6 weeks

**CPT Code:**
86717
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Leptospira Serology by INDX Dip-S-Ticks or IgM EIA**
Specimen Requirements: 2 mL serum
Paired acute and convalescent serum specimens are recommended.

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
86720
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Listeria Culture Isolation/ Identification** *(see Bacterial Culture, Aerobic)*

**Lyme Disease Culture** *(see Borrelia burgdorferi culture)*

**Lyme Disease Serology** *(see Borrelia burgdorferi serology)*

M

**Malaria Detection/ Identification** *(see Plasmodium Detection)*

**Malaria Serology** *(see Plasmodium Serology)*

**Measles PCR** *(see Rubeola (Measles) Direct Detection by Real Time PCR)*

**Measles Serology** *(see Rubeola Serology)*

**Meningococcal Infection** *(see Neisseria spp. including N. meningitidis Culture)*

**MERS Co-V**
Detects Middle Eastern Respiratory Syndrome Virus from individuals meeting MERS-CoV clinical and/or Epidemiological criteria. History of travel to a geographic location where MERS-CoV cases have been detected, contact with a probable or confirmed MERS-CoV case, or other epidemiologic links for which MERS-CoV testing may be indicated as part of a public health investigation.

Specimen Requirements: Respiratory specimens; Nasopharyngeal or oropharyngeal swabs, lower respiratory aspirates/washes.

Turn-around Time: 1 to 3 working days. Results are telephoned to the submitter.

CPT Code:
87798
Price: Fee Waived

Transport Temperature: 2-8°C

**Methicillin Resistant Staphylococcus aureus (MRSA)** *(see Antimicrobial Resistant Bacteria Confirmation)*

**Modified Acid Fast Stain**
Specimen Requirements: Send specimens in sterile container. Add sterile saline or broth to tissues or other non-liquid specimens. Send isolates on LJ medium.

Turn-around Time: 1 to 2 working days. Positive results will be called to the submitter.
CPT Code:
87206 (smear)
Price: $18.00

Transport Temperature: Ambient

Mold Culture Isolation/ Identification (see Fungal Culture)

**Mumps Direct Detection by Real Time PCR**
Specimen Requirements: Oral/buccal or oropharyngeal Dacron swabs in viral transport media or 50 ml minimum of urine. Urine should be centrifuged at 2500xg for 15 min at 4° C. Resuspend sediment in 2 ml viral transport media. Specimen Requirements: 10 mL serum and 25 gm stool.

Note: Urine may not be positive until 4 days after symptom onset.
*CSF may be submitted in meningitis/encephalitis-suspect cases with prior consult.*

Turn-around Time: 1 to 2 working days. Positive results are telephoned to the submitter.

CPT Code:
87798
Price: $107.00

Transport Temperature: 2-8° C within 24 hours or freeze at -70° C and transport on dry ice.

**Mumps IgG Serology by EIA**
Specimen Requirements: 1 mL serum
Screen or paired acute and convalescent specimens

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter.

CPT Code:
86735
Price: $25.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Mumps IgM Serology by IFA**
Specimen Requirements: 1 mL serum
Collect specimen two (2) days after onset of illness and include date of onset.

Turn-around Time: Testing performed at North Dakota Public Health Laboratory as needed. Results are available within 2-3 days. Results are telephoned to the submitter.

CPT Code:
86735
Price: $22.00

Transport Temperature: 2-30°C (Refrigeration preferable)

*Mycobacterium spp. Culture Isolation/ Identification*
Specimen Requirements: Send specimens in sterile container. Add sterile saline or broth to tissues or other non-liquid specimens. Send isolates on LJ medium or in liquid media vials. See *Mycobacterium spp. (AFB or TB) Testing Collection and Transport*
instructions.

Turn-around Time: Smear reports are faxed to submitter by 5 p.m. the same day specimen is processed. Positive results are telephoned to the submitter; cultures are monitored for 6 weeks prior to negative report. Cultures positive for Mycobacterium tuberculosis complex will be reflexed for *Mycobacterium tuberculosis complex Antimicrobial Susceptibility Testing*.

NOTE: After a patient has tested positive for *M. tuberculosis*, no more than three specimens per week from the same body site will be processed to determine response to therapy and infectious status, without prior consultation. To determine response to therapy, specimens should be obtained no sooner than 7 days post initiation of therapy.

**CPT Codes:**
- 87206 (smear)
  - Price: $18.00
- 87015 (concentration)
  - Price: $20.00
- 87116 (culture)
  - Price: $38.00
- 87176 (tissue digestion)
  - Price: $12.00

Transport Temperature: Heparinized blood-ambient; all other specimens-2-8°C

**Mycobacterium spp. Identification by Nucleic Acid Probe**
Specimen Requirements: Isolates sent on LJ slants or in liquid media vials, or as reflex testing on positive primary specimens submitted for culture.

Turn-around Time: 1 to 3 working days for submitted isolates, others dependent on growth rate.

NOTE: On initial isolation of an AFB from a new patient, both *M. tuberculosis* complex and *M. avium* complex probes will be run on the isolate. After *M. tuberculosis* complex has been confirmed in the patient, subsequent cultures received during the next six weeks will only be probed for *M. tuberculosis* complex.

**CPT Codes:**
- 87555 (*M. tuberculosis*)
- 87560 (*M. avium* probe)
- 87550 (*M. gordonae or M. kansasii*)

Price: $35.00 each

Transport Temperature: Ambient

**Mycobacterium tuberculosis complex Antimicrobial Susceptibility Testing**
Specimen Requirements: Isolates sent on LJ slants or in liquid media vials, or primary specimens submitted for culture. Reflex testing is performed on *Mycobacterium tuberculosis* complex isolates identified in this laboratory.

Agents tested include Isoniazid (two concentrations), Rifampin, Ethambutol and PZA.

Turn-around Time: 7 to 14 working days from date susceptibility testing is begun.

NOTE: Susceptibility testing for *M. tuberculosis* will be performed only on the first isolate from the patient, and will be repeated on
subsequent isolates from specimens received 2 months after initiation of therapy. Other susceptibility testing, including molecular drug susceptibility testing or second line drug testing is available upon consultation.

**CPT Code:**
87190 (each)
Price: $20.00 each

Total Price: $100.00

Transport Temperature: Ambient

*Mycobacterium tuberculosis* Nucleic Acid Amplification Testing with Rifampin resistance marker
Specimen Requirements: Processed concentrated respiratory specimen or primary respiratory specimen. See *Mycobacterium* spp. (AFB or TB) Testing Collection and Transport instructions.

Turn-around Time: 1 to 2 working days. *Call ahead to make testing arrangements.* Results are telephoned to the submitter.

NOTE: Nucleic acid amplification testing (NAAT) is recommended on specimens of patients highly suspected or known to have TB.

If NAAT is not ordered and an AFB smear is positive, the laboratory will contact the submitter to offer NAAT testing for *M.* *tuberculosis* complex.

**CPT Code:**
87556
Price: $107.00

Transport Temperature: 2-8°C

*Mycology Culture* *(see Fungal Culture)*

*N* *Neisseria gonorrhoeae* Culture Isolation/ Identification
Specimen Requirements: Primary culture or isolate on MTM or chocolate media; identification performed by Nucleic Acid Probe.

Turn-around Time: 2 to 3 working days. Positive results are telephoned to the submitter.

NOTE: For public health surveillance, please submit all *N. gonorrhoeae* isolates to the laboratory. This is at no cost to the submitter (See Culture for Storage).

**CPT Codes:**
87081 (Culture screen)
Price: $38.00

87590 (ID)
Price: $38.00

87185 (beta lactamase)
Price: $9.00

Transport Temperature: Ambient
**Neisseria gonorrhoeae** Direct Detection by Nucleic Acid Amplification
Specimen Requirements: Endocervical, male urethral, throat or rectal swab in APTIMA Uni-Sex Swab Specimen Collection Tube, vaginal swab in APTIMA Vaginal Specimen Collection Tube, or urine in APTIMA Urine Specimen Collection Tube. See Chlamydia/Gonorrhea Amplified Testing Collection and Transport instructions.

Turn-around Time: Routinely tested three (3) days/week (Monday, Wednesday, and Friday). Positive results are telephoned to the submitter.

NOTE: Can be run in tandem with *Chlamydia trachomatis* Direct Detection by Amplification (see Combination Amplification Test).

**CPT Code:**
87591
Price: $44.00

Transport Temperature: 2-30°C

**Neisseria spp. (including N. meningitidis)** Culture Isolation /Identification/Typing
Specimen Requirements: Primary specimen or isolate on chocolate media

Turn-around Time: 2 to 4 working days. Positive *N. meningitidis* results are telephoned to the submitter.

NOTE: Serogrouping is routinely performed on *N. meningitidis* isolates from sterile body sites such as blood or cerebral spinal fluid. Please submit all *N. meningitidis* isolates from sterile body sites to the laboratory for serogrouping and storage for future epidemiologic purposes.

**CPT Codes:**
87081 (Culture screen)
Price: $38.00

87185 (beta lactamase)
Price: $9.00

Transport Temperature: Ambient

**Newborn Screening Panel**
Specimen Requirements: Dried Blood Spots. See Newborn Screening Collection and Transport instructions.

Total Price: $134.00

Turn-around Time: 3 to 5 working days. Abnormal results are telephoned to the submitter. Contact the laboratory for further information.

Transport Temperature: Ambient
### Acylcarnitine Disorders by Tandem Mass Spectrometry (MS/MS)*

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatty Acid Oxidation Disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carnitine Uptake Defect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Chain L-3-Hydroxyacyl CoA Dehydrogenase Deficiency (LCHAD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium Chain Acyl-CoA Dehydrogenase Deficiency (MCAD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trifunctional Protein Deficiency (TFP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Long Chain Acyl-CoA Dehydrogenase Deficiency (VLCAD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organic Acidemia Disorders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-OH 3-CH3 Glutaric Aciduria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Methylcrotonyl-CoA Carboxylase Deficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>β-ketothiolase Deficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glutaric Acidemia Type I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isovaleric Acidemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylmalonic Acidemia (Cbl A and B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylmalonic Acidemia (mutase deficiency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple CoA Carboxylase Deficiency (MCD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Long Chain Acyl-CoA Dehydrogenase Deficiency (VLCAD)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amino Acid Disorders by Tandem Mass Spectrometry (MS/MS)*

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argininosuccinic acidemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Citrullinemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homocystinuria (due to CBS deficiency)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maple syrup urine disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tyrosinemia type I</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Biotinidase*

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>82261</td>
<td>$6.00</td>
</tr>
</tbody>
</table>

### Classic Galactosemia

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>82775</td>
<td>$28.90</td>
</tr>
</tbody>
</table>

### Congenital Adrenal Hyperplasia (CAH)*

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>83498</td>
<td>$11.50</td>
</tr>
</tbody>
</table>

### Congenital Hypothyroidism (CH)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>84437 (T4)</td>
<td>$20.41</td>
</tr>
<tr>
<td>84443 (TSH)</td>
<td>$23.05</td>
</tr>
</tbody>
</table>

### Cystic Fibrosis (IRT)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>83516</td>
<td>$15.97</td>
</tr>
</tbody>
</table>

### Biotinidase*

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>82261</td>
<td>$6.00</td>
</tr>
</tbody>
</table>

### Classic Galactosemia

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>82775</td>
<td>$28.90</td>
</tr>
</tbody>
</table>

### Congenital Adrenal Hyperplasia (CAH)*

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>83498</td>
<td>$11.50</td>
</tr>
</tbody>
</table>

### Congenital Hypothyroidism (CH)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>84437 (T4)</td>
<td>$20.41</td>
</tr>
<tr>
<td>84443 (TSH)</td>
<td>$23.05</td>
</tr>
</tbody>
</table>

### Cystic Fibrosis (IRT)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>83516</td>
<td>$15.97</td>
</tr>
</tbody>
</table>

### Phenyketonuria (PKU)

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>84030</td>
<td>$19.06</td>
</tr>
</tbody>
</table>

### Hemoglobinopathies by Isoelectric Focusing

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>83020</td>
<td>$17.66</td>
</tr>
<tr>
<td>87143 (HGB Confirmation)</td>
<td>$12.00</td>
</tr>
</tbody>
</table>

### Severe Combined Immunodeficiency (SCID Immunodeficiency: TREC)*

<table>
<thead>
<tr>
<th>Code</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBD</td>
<td>$6.00</td>
</tr>
</tbody>
</table>

* Tests referred to the Wisconsin State Newborn Screening Laboratory

The cost of reflex confirmatory testing (TSH, Hemoglobinopathies by HPLC and Cystic Fibrosis DNA Mutational Analysis) has been incorporated into the cost of the Newborn Screening panel, and no additional charges will be assessed.

**Nocardia spp. Culture Isolation/ Identification (see Fungal Culture)**

**Nocardia spp. Serology**

Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 3 to 6 weeks.
CPT Code: 86744  
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Norovirus Direct Detection by Nucleic Acid Amplification**
Specimen Requirements: 2 mL stool in a sterile container. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 3 working days. Positive results are telephoned to the submitter.

CPT Code: 87798  
Price: $107.00

Transport Temperature: 2-8°C

**Orthopoxvirus, including Variola (Smallpox), Direct Detection by Real Time PCR**
Specimen Requirements: Lesion swab in Universal Viral Transport Media plus an additional lesion swab transported dry in a sterile container.

*NOTE: Contact your local health department or the State Epidemiology Department (406-444-0273) to ensure the patient meets criteria for testing. Please contact the Montana Public Health Laboratory prior to submission regarding sample collection and transport instructions.*

A suspect Orthopoxvirus requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please notify the laboratory by telephone at time of shipment.

Turn-around Time: 1 to 3 working days. Results are telephoned to the submitter.

CPT Code: 87798  
Price: Fee Waived

Transport Temperature: 2-8°C

**Orthopoxvirus, Other Than Variola, Direct Detection by Real Time PCR**
Specimen Requirements: Lesion swab in Universal Viral Transport Media plus an additional lesion swab transported dry in a sterile container. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 3 working days. Results are telephoned to the submitter.

CPT Code: 87798  
Price: Fee Waived

Transport Temperature: 2-8°C
**Ova and Parasite Exam**
Specimen Requirements: Stool transported in tubes containing Formalin and PVA or Total Fix preservative. Collect stool into a clean specimen container. Using the spoon inside the transport material, immediately transfer about 1 teaspoon of stool to a vial of 10% buffered formalin, and then transfer a similar quantity of stool to a vial containing PVA. Stool should be emulsified into the transport media. Formalin and PVA transport kits are available from the laboratory upon request.

For optimal recovery, a series of three (3) specimens should be submitted.

Turn-around Time: 1 to 2 working days. Positive results are telephoned to the submitter.

**CPT Codes:**
87177 (concentration/ID)
87209 (Trichrome stain)

Price: $27.00 (each)

Total Price: $54.00

Transport Temperature: Ambient

**P**

**Paragonimus Detection**
Specimen Requirements: Lung tissue

Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 3 to 6 weeks

**CPT Code:**
87207
Price: $30.00

Transport Temperature: 2-8°C

**Paragonimus Serology**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia

Turn-around Time: 3 to 6 weeks

**CPT Code:**
86317
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Parasite Detection (see Ova and Parasite Exam)**

**Paratyphoid Fever (see Salmonella spp.**)

**Parovirus Serology IgG & IgM by EIA**
Specimen requirements: 2 mL serum
Turn-around Time: 2 to 4 weeks

**CPT Code:**
86747
Price: $30.00

Transport Temperature: 2-8°C

*Pasteurella spp. Culture Isolation/ Identification* (see *Bacterial Culture, Aerobic*)

*Penicillium spp. Culture Isolation/ Identification* (see *Fungal Culture*)

**Pertussis** (see *Bordetella pertussis*)

**Phenylalanine (PKU) Monitor by Fluorescent Immunoassay**
Specimen Requirements: Dried Blood Spots. See Newborn Screening Collection and Transport instructions.

Used to monitor levels in patients diagnosed with phenylketonuria (PKU)

Turn-around Time: 1 to 2 working days. All PKU Monitor results are telephoned to the clinician of record.

**CPT Code:**
84030
Price: Fee Waived. Phone the laboratory for more information.

Transport Temperature: Ambient

**Pinworm Examination (Enterobius vermicularis)**
Specimen Requirements: Microscopic identification of eggs collected in the perianal area is the method of choice for diagnosing enterobiasis. In the morning, before defecation and washing, press transparent adhesive tape ("Scotch test") on the perianal skin and then place the tape on a slide. Alternatively, the tape can be attached to the glass slide in a loop, and then folded over the glass surface after application to the perianal skin.

Turn-around Time: 1 to 2 working days. Positive results are telephoned to the submitter.

**CPT Code:**
87172 (concentration/ID)
Price: $27.00

Transport Temperature: Ambient

**Plague** (see *Yersinia pestis Culture Isolation*)

**Plasmodium Detection**
Specimen Requirements: Blood smear, thick and thin; unstained or stained with Giemsa or Wright’s Stain, and whole blood in EDTA tube (for possible PCR testing).

Turn-around Time: 1 to 2 working days. Positive samples for confirmation and specimens for PCR testing are referred to the Centers for Disease Control, Atlanta, Georgia.

**CPT Code:**
Transport Temperature: Ambient

**Plasmodium Serology by IFA**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 2 to 4 weeks

NOTE: Serology is performed only on patients whose blood slides are repeatedly negative, and have compatible travel history.

**CPT Code:**
86750
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Pneumococcal Infection (see Streptococcus pneumoniae)**

**Premarital Testing (see Rubella IgG Serology)**

**Pseudomonas spp. Culture Isolation/ Identification (see Bacterial Culture, Aerobic)**

**Pulsed Field Gel Electrophoresis (PFGE) for Enterics**
Specimen Requirements: Send *Salmonella spp.*, *Shigella spp.*, toxin-producing *E. coli*, *Listeria spp.*, and *Vibrio* isolates on solid media or on swab in Cary-Blair transport medium.

*Testing is performed at no cost for epidemiological purposes.*

For public health surveillance, please submit all isolates of *Salmonella spp.*, *Shigella spp.*, toxin-producing *E. coli*, *Listeria spp.*, and *Vibrio*. *Campylobacter spp.* isolates are also encouraged when multiple isolates are identified.

**CPT Code:**
None
Price: Fee Waived*

Transport Temperature: Ambient

**Pulsed Field Gel Electrophoresis (PFGE) (for other organisms)**
Specimen Requirements: Send non-fastidious Gram-negative rods or Gram-positive isolates on solid media or on swab in Cary-Blair transport medium.

NOTE: Minimum of three (3) isolates required. *Please contact the laboratory in advance regarding availability of testing for that isolate, and for the necessary number of isolates.*

**CPT Codes:**
87152 (DNA Fingerprinting)
Price: $100.00

87152 (PFGE Additional Enzymes)
Q

**Q-Fever (Coxiella burnetti) Phase 1 and 2 IgG Serology by Indirect Immunofluorescence**

Specimen Requirements: 1 mL serum

Paired acute and convalescent serum specimens are recommended.

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter.

**CPT Code:**
86638
Price: $25.00

Transport Temperature: 2-30°C (Refrigeration preferable)

QuantiFERON – Gold (QFT – Gold) In-Tube Testing

This assay is an in vitro test for the determination of latent Tuberculosis infection and can be used as an alternative to the TB skin test (PPD).

Specimen Requirements: Stimulated plasma, obtained from vacutainer tubes specifically coated with antigens. Requires access to a 37°C incubator. See QuantiFERON®-TB Gold In-Tube Testing Collection and Transport instructions.

Special pricing may be available when performing batch testing for one facility. Batch testing is defined as 20 or more specimens submitted from the same facility at the same time. Please call the laboratory for additional information or pricing.

Turn-around Time: Routinely batch tested on Monday, Wednesday, and Friday of each week. Positive results are telephoned to the submitter.

**CPT Code:**
86480 (Single Test)
Price: $90.00

Transport Temperature: Ambient

R

**Rabies Detection for Diagnostic Purposes (Animal Testing)**

Animal testing is not performed by our laboratory.

Refer specimens to the Veterinary Diagnostic Laboratory in Bozeman, (406) 994-4885

**Rabies Detection for Diagnostic Purposes (Human Testing)**

Human Testing for Diagnostic Purposes, consult with the Epidemiology Section (406) 444-0273 for pre-approval prior to testing. Consult the laboratory for specific sampling requirements and proper handling and transport.

Human Diagnostic Testing is referred to the Centers for Disease Control, Atlanta, Georgia.

Turn-around Time: Preliminary results (PCR) are available as soon as possible, usually the same day as receipt.

**CPT Code:**
None
Price: Fee Waived

Transport Temperature: Call for instructions

**Rabies Serology for Immune Status Antibody Testing by RFFIT**
Testing not available through this laboratory

Testing available from:
Atlanta Health Associates, Alpharetta, Georgia (770) 667-8023
http://www.atlantahealth.net

Kansas State University, Manhattan, KS (785) 532-4483
http://www.ksvd.org/rabies-laboratory/rffit-test/

**Rapid Toxic Screen, (for Chemical Exposure)**
*Consult with the Epidemiology Section (406) 444-0273 for pre-approval prior to testing. Arrangements must be made with the laboratory regarding proper collection, packaging, and transport of blood and urine specimens.*

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 36 hours

**CPT Code:**
None
Price: Fee Waived

Transport Temperature: 2-8°C for whole blood, -70°C for urine (call for instructions)

**Retail Meat Testing *(E. coli)* **
Specimen Requirements: 375g minimum of ground beef or beef trim and chicken rinse samples. **Must be received within 24 hours of collection.**

Turn-around Time: 2 to 3 working days for negative samples; up to 5 days for a positive sample. Results are telephoned to the submitter.

**CPT Code:**
None
Price: $70.00

Transport Temperature: 2-8°C within 24 hours

**Retail Meat Testing *(Listeria)* **
Specimen Requirements: 25g minimum of ground beef, poultry or ready to eat meat samples, and environmental swabs. **Must be received within 24 hours of collection.**

Turn-around Time: 2 to 3 working days for negative samples; up to 5 days for a positive sample. Results are telephoned to the submitter.

**CPT Code:**
None
Price: $75.00
Transport Temperature: 2-8°C within 24 hours

**Retail Meat Testing (Salmonella)**

Specimen Requirements: 25g minimum of ground beef or beef trim, 325g minimum of ready to eat meats, 50 ml whole-bird poultry rinse, carcass sponges and environmental swabs. **Must be received within 24 hours of collection.**

Turn-around Time: 2 to 3 working days for negative samples; up to 5 days for a positive sample. Results are telephoned to the submitter.

**CPT Code:**
None
Price: $70.00

Transport Temperature: 2-8°C within 24 hours

**Ricin Rapid Tests**

Specimen Requirements: Environmental samples only

**NOTE:** Contact your local health department or the State Epidemiology Department (406-444-0273) to ensure the sample meets criteria for testing. Please contact the Montana Public Health Laboratory prior to submission regarding sample collection and transport instructions.

Turn-around Time: 1 to 3 working days. Results are telephoned to the submitter.

**CPT Code:**
None
Price: Fee Waived

Transport Temperature: Ambient

**Rickettsial Serology (see Rocky Mountain Spotted Fever, Typhus Fever Serology)**

**Rochalimea spp. Culture Isolation/ Identification (see Bartonella spp. Culture)**

**Rochalimea spp. Serology (see Bartonella Serology)**

**Rocky Mountain Spotted Fever (RMSF) IgG Serology by Indirect Immunofluorescence**

Specimen Requirements: 1 mL serum
Paired acute and convalescent serum recommended.

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter.

**NOTE:** Colorado Tick Fever testing will be automatically performed on all requests for Rocky Mountain Spotted Fever.

**CPT Codes:**
86757 (RMSF)
Price $25.00

86790 (CTFV)
Price: $30.00

Total Price: $55.00
Transport Temperature: 2-30°C (Refrigeration preferable)

**Rubella IgG Serology by EIA**
Specimen Requirements: 1 mL serum
Screen or paired acute and convalescent specimens
Please note that beginning in 2014, results will be reported in International Units (IU)

Turn-around Time: Routinely batch tested once per week. Significant results are telephoned to the submitter.

**CPT Code:**
86762
Price: $25.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Rubella IgM Serology by EIA**
Specimen Requirements: 1 mL serum.
Collect specimen at least two (2) days after onset of rash, and include date of onset.

Turn-around Time: Testing performed at North Dakota Public Health Laboratory as needed. Results are available within 2-3 days. Results are telephoned to the submitter.

**CPT Code:**
86762
Price: $39.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Rubeola (Measles) Direct Detection by Real Time PCR**
Specimen Requirements: Throat, nasopharyngeal or nasal Dacron swabs in viral transport media or 50 ml minimum of urine.
Urine should be centrifuged 2500xg for 15 min at 4°C. Resuspend sediment in 2 ml viral transport media.
CSF may be submitted in meningitis/encephalitis-suspect cases with prior consult

Note: Collect specimens as soon after the rash as possible. Detection is optimum with a collection the day one (1) through 3 (three) of rash onset.

Turn-around Time: 1 to 2 working days. Positive results are telephoned to the submitter.

**CPT Code:**
87798
Price: $107.00

Transport Temperature: 2-8°C within 24 hours or freeze at -70°C and transport on dry ice.

**Rubeola (Measles) IgG Serology by EIA**
Specimen Requirements: 1 mL serum
Screen or paired acute and convalescent specimens.

Turn-around Time: Routinely batch tested once per week. Significant results are telephoned to the submitter.

**CPT Code:**
86765
Rubeola (Measles) IgM Serology by Indirect Immunofluorescence
Specimen Requirements: 1 mL serum
Collect specimen at least two (2) days after onset of rash, and include date of onset.

Turn-around Time: Testing performed at North Dakota Public Health Laboratory as needed. Results are available within 2-3 days. Results are telephoned to the submitter.

CPT Code:
86765
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

Salmonella spp. (including S. typhi) Culture Isolation/Identification
Specimen Requirements: Stool in Cary-Blair transport or other commercial enteric transport media, or isolate in Cary Blair transport or on solid media. See Enteric Panel for specific instructions.

Biochemically confirmed Salmonella spp. will be serotyped for epidemiologic purposes at no additional cost.

For public health surveillance, please submit all isolates of Salmonella spp. to the laboratory. See Enteric Isolate Surveillance.

Turn-around Time: 2 to 4 working days. Positive identification results are telephoned to the submitter.

CPT Codes:
87045 (Culture ID)
Price: $18.00

87077 (Each add’l ID)
Price: $25.00

Transport Temperature: 2-8°C for stool, ambient for isolates

Schistosoma Detection
Specimen Requirements: Stool or urine in leak-proof sterile container

Turn-around Time: 1 to 2 working days. Positive samples are referred for confirmation to the Centers for Disease Control, Atlanta, Georgia

CPT Codes:
87177 (concentration/ID)
87209 (Trichrome stain)
Price: $27.00 (each)
Total Price: $54.00

Transport Temperature: Ambient for stool, 2-8°C for urine
**Schistosoma Serology by FAST-ELISA**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
86682
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Shigella spp. Culture Isolation/Identification**
Specimen Requirements: Stool in Cary-Blair Transport, or other commercial enteric transport media, isolate in Cary Blair transport or on solid media. See Enteric Panel for specific instructions.

For public health surveillance, please submit all isolates of *Shigella spp.* to the laboratory. See Enteric Isolate Surveillance.

Turn-around Time: 2 to 4 working days. Positive results are telephoned to the submitter.

CPT Codes:
87045 (Culture ID)
Price: $18.00

87077 (Each add’l ID)
Price: $25.00

Transport Temperature: 2-8°C for stool, ambient for isolates

**Sin Nombre Virus** (see Hantavirus Serology)

**Sporothrix Culture Isolation/ Identification** (see Fungal Culture)

**Sporothrix Serology by Latex and/or Tube Agglutination**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
86317
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Staphylococcus spp. Culture Isolation/ Identification** (see Bacterial Culture, Aerobic)

**STEC** (see *Escherichia coli* Shiga-Like Toxin Assay or Enteric Panel)

**St. Louis Encephalitis IgM Serology by EIA**
This test may be ordered individually. Due to the cross-reactivity of West Nile Virus (WNV) and St Louis Encephalitis Virus (SLE), SLE serology may be performed on specimens with a borderline WNV test result.
Specimen Requirements: 2 mL serum and/or 1 mL CSF
Date of onset is required, and the city or county of patient’s residence is requested.

Referred to the Centers for Disease Control in Fort Collins, Colorado
Turn-around Time: 4 to 6 weeks

CPT Code:
86653
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Stool Culture (see Enteric Panel)**

*Streptococcus Group A Screen, Culture Method*
Specimen Requirements: Throat swab in silica gel

Turn-around Time: Cultures are monitored for 2 working days prior to reporting as negative. Positive results are telephoned to the submitter

CPT Code:
87081 (Culture screen)
Price: $38.00

Transport Temperature: Ambient

*Streptococcus pneumoniae Culture Isolation/ID (see Bacterial Culture, Aerobic)*

*Streptococcus spp. Culture Isolation/ Identification (see Bacterial Culture, Aerobic)*

**Strongyloides Detection (see Ova and Parasite Exam)**

**Strongyloides Serology by EIA**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
86317
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Syphilis Serology Screen (Qualitative) by VDRL**
Specimen Requirements: 2 mL serum or 1 mL CSF

Turn-around Time: Routinely batch tested twice per week. Positive results are reflexed to quantitative VDRL.

CPT Code:
86592
Price: $15.50
Transport Temperature: 2-30°C (Refrigeration preferable)

**Syphilis Serology Screen (Quantitative) by VDRL**

Specimen Requirements: 2 mL serum or 1 mL CSF

Turn-around Time: Routinely batch tested twice per week. Significant results are telephoned to the submitter.

NOTE: Reflex confirmatory TP-PA testing is performed on all positive serum VDRL specimens.

**CPT Code:**
86593
Price $16.00

Transport Temperature: 2-30°C (Refrigeration preferable)

T

**Tick-borne Disease IgG Serology Panel by IFA, Bacterial Agglutination**

Includes RMSF, CTFV, Q-Fever, Tularemia and Brucella antibodies. The panel can be ordered with or without Lyme Disease antibodies.

Specimen Requirements: 3 mL serum
Paired acute and convalescent serum recommended.

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter. These tests may be ordered as a panel, but will be billed individually.

Note: Although not a tick-borne disease, Brucella testing is performed on all requests for Tularemia due to antigen cross reactivity.

**CPT Codes:**
86622 (Brucella)
86757 (RMSF)
86790 (CTFV)
86638 (Q-Fever)
86668 (Tularemia)

Total Price: $125.00

86618 Lyme Screen
Total Price w/Lyme: $165.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Tick-borne Relapsing Fever (see Borrelia hermsii Serology)**

**Toxocara Serology by EIA**

Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

**CPT Code:**
86317
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Treponema pallidum** (See Syphilis Serology or Treponema pallidum Particle Agglutination Assay)

**Treponema pallidum** Particle Agglutination Assay
Specimen Requirements: 2 mL serum

Turn-around Time: Routinely batch tested once per week. Positive results are telephoned to the submitter.

CPT Code:
86780
Price: $38.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Trichinella Serology**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
86784
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Trypanosomiasis Detection (including Trypanosoma cruzi / Chagas Disease)**
Specimen Requirements: Blood smear, unstained or stained with Wright’s or Giemsa.

Turn-around Time: 1 to 2 working days. Positive smears are referred for confirmation to the Centers for Disease Control, Atlanta, Georgia

CPT Code:
87207
Price: $38.00

Transport Temperature: Ambient

**Trypanosomiasis Serology (including Trypanosoma cruzi / Chagas Disease)**
Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
86682
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)
Tuberculosis (See *Mycobacterium spp.*)

Tularemia Culture (See *Francisella tularensis* culture)

Tularemia Serology (See *Francisella tularensis* serology)

Typhoid Fever (see Enteric Panel or *Salmonella spp.*)

**Typhus Fever IgG Serology by Indirect Immunofluorescence**

Specimen Requirements: 2 mL serum
Paired acute and convalescent serum specimens are recommended.

Referred to the Centers for Disease Control, Atlanta, Georgia
Turn-around Time: 3 to 6 weeks

CPT Code:
86256
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

U

V

**Vancomycin Resistant Enterococci (VRE) (See Antimicrobial Resistant Bacteria Confirmation)**

**Varicella Zoster Virus (VZV) (Herpes Zoster Virus) Direct Detection by Real Time PCR**

Specimen Requirements: Vesicular lesion swab in Universal Viral Transport Media. See Molecular (Nucleic Acid Amplification) Testing Collection and Transport instructions.

Turn-around Time: 1 to 3 working days. Positive results are telephoned to the submitter.

CPT Code:
87798
Price: $107.00

Transport Temperature: 2-8°C

**Varicella Zoster Virus (VZV) (Herpes Zoster Virus) IgG Serology by EIA**

Specimen Requirements: 1 mL serum
Screen or paired acute and convalescent specimens.

Turn-around Time: Routinely batch tested once per week; available each working day, as needed. Significant and STAT results are telephoned to the submitter.

To qualify for STAT testing, all of the following criteria must be met:

1. The patient is at high risk for complications and has been recently exposed to a known case of chickenpox. High risk patients are defined as immunocompromised persons, pregnant women, premature infants whose mothers are not immune, premature infants < 28 weeks gestation, and premature infants < 1000 grams at birth
2. The patient does not have a history of chicken pox and/or does not know their immune status.
3. Exposure has been recent enough that the 96-hour window for administration of VZIG is achievable if the testing determines the patient to be susceptible to VZV infection.

**CPT Code:**
86787
Price: $25.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**VDRL Serology (see Syphilis Serology)**

**Vibrio spp. Culture Isolation/ Identification**
Specimen Requirements: Stool in Cary-Blair transport, or other commercial enteric transport media, or isolate submitted in Cary-Blair transport or on solid media. Specify agent on request form.

Turn-around Time: 2 to 4 working days. Positive results are telephoned to the submitter.

**CPT Codes:**
- 87046 (Culture ID)
  Price: $18.00
- 87077 (Each add’l ID)
  Price: $25.00

Transport Temperature: 2-8°C for stool, ambient for isolates

**W**

**West Nile Virus (WNV) IgG Serology by EIA**
Specimen Requirements: 1 mL serum. Paired acute and convalescent specimens recommended.
Date of onset is required, and the city or county of patient’s residence is requested.

Turn-around Time: Routinely batch tested once per week; during seasonal outbreaks, testing may be performed each working day, depending on workload. Positive results are telephoned to the submitter.

**CPT Code:**
86789
Price: $25.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**West Nile Virus (WNV) IgM Serology by EIA**

**NOTE:** Serology is the recommended method of testing for WNV in both serum and cerebral spinal fluid (CSF), because viremia (as detected by PCR) is very transient.

Specimen Requirements: 1 mL serum and/or 1 mL CSF
Date of onset is required, and the city or county of patient’s residence is requested.

**NOTE:** Negative results on specimens drawn less than 9 days from date of onset should have a convalescent serum tested if active disease is suspected.

Turn-around Time: Routinely batch tested once per week; during seasonal outbreaks, testing may be performed each working day,
depending on workload. Positive results are telephoned to the submitter. Certain specimens may be referred to the Centers for Disease Control in Fort Collins, Colorado for confirmation using more specific Plaque Reduction Neutralization tests, and equivocal (borderline) results may be reflexed to St. Louis Encephalitis IgM Serology.

**CPT Code:**
86788
Price: $25.00

Transport Temperature: 2-30°C (Refrigeration preferable)

---

**Yeast Culture (see Fungal Culture)**

*Yersinia enterocolitica Culture Isolation/Identification*

Specimen Requirements: Stool in Cary-Blair transport, or other commercial enteric transport media, or isolate submitted in Cary-Blair transport or on solid media. Specify agent on request form.

Turn-around Time: 2 to 4 working days. Positive results are telephoned to the submitter.

**CPT Codes:**
87046 (Culture ID)
Price: $18.00

87077 (Each add’l ID)
Price: $25.00

Transport Temperature: 2-8°C for stool, ambient for isolates

*Yersinia pestis Culture Isolation/ Identification/Rapid Test Methods*

Specimen Requirements: Isolate submitted on solid medium or tissue transported cold in sterile saline.

*Note: A suspected Y. pestis culture requires Infectious Disease packaging (Class 6.2) and trackable shipping. Please notify the laboratory by telephone at time of shipment.*

*Please contact the laboratory prior to submission regarding environmental samples, rapid test methods, and transport instructions.*

Turn-around Time: Cultures will be held for five (5) working days before reporting as negative. Results are telephoned as soon as possible to the submitter. Rapid test methods are performed in Molecular Diagnostics and are available within 6 - 8 hours of specimen receipt.

**CPT Codes:**
87081 (Culture screen)
Price: Fee Waived

87798 (PCR)
Price: Fee Waived

Transport Temperature: 2-8°C for tissue, ambient for isolates
**Yersinia pestis Serology by Passive Hemagglutination**

Specimen Requirements: 2 mL serum

Referred to the Centers for Disease Control, Fort Collins, Colorado

Turn-around Time: 4 to 6 weeks

CPT Code:
86793
Price: $30.00

Transport Temperature: 2-30°C (Refrigeration preferable)

**Z**

**Zika MAC Elisa IgM**

Specimen Requirements: 50µl of serum or cerebral spinal fluid

Turn-around Time: This test takes three days to complete. Specimens are routinely batched and tested on Wednesdays, results available on Fridays. MTLSB will call significant results to the submitter.

NOTE: A [Montana Zika Virus Infection Suspicion Checklist](#) should accompany the requisition, and the submitting facility should inform their local health department before sending specimens.

CPT Code:
86790
Price: $85.00

Transport Temperature: Refrigerated (2-8°C or frozen)

**Zika Virus Testing by CDC Triplex Real-Time PCR Assay**

This PCR assay detects Zika, Chikungunya, and Dengue Virus

Specimen Requirements: Serum only or serum and urine. **Serum must be submitted with urine.**

*Serum should be collected within <= 14 days of symptom onset in a separator (gold or tiger top tube) or decanted into a sterile screw-capped vial (labeled “serum”) and secured with parafilm

*1 ml aliquot of urine poured off into a sterile screw-capped vial (labeled “urine”) and secured with parafilm. **Do not submit urine in its original collection container (i.e. urine cup)**

Additional specimen types that are accepted with a consult include CSF and amniotic fluid.

Turn-around Time: Specimens are tested on the day of arrival and reported within 24 hours if accompanied by the completed testing form and local health department/Epi consult

NOTE: All testing requires a completed [Montana Zika Virus Infection Suspicion Checklist](#). Contact your local health department or the State Epidemiology Department (406-444-0273) to ensure the patient meets criteria for testing.

CPT Code:
Urine and Serum:
Price: $175.00

Serum only:
Price: $107.00
Transport Temperature: Store at 4°C and ship in a biohazard bag with cold packs within 48 hours of collection.

**Montana Zika Virus Infection Suspicion Checklist Example**

**Montana Zika Virus Infection Suspicion Checklist**

Local Public Health Jurisdictions please complete this worksheet in consultation with the provider and submit to CDEpi if testing is requested.

<table>
<thead>
<tr>
<th>Name of Patient:</th>
<th>Phone:</th>
<th>DOB:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>Phone:</td>
<td>Gender: Male Female</td>
</tr>
<tr>
<td>Provider name:</td>
<td>Phone:</td>
<td></td>
</tr>
<tr>
<td>Clinic/Hospital Name:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Reason for Zika Test Request**

**How was the Patient Exposed to Zika Virus?**
(Please check the box in below section then complete details for that exposure.)

- [ ] Travel to Zika impacted area(s)*
  - a. Country or Specific Location of exposure: 
  - b. Travel Dates: __/__/____ to __/__/____  
  - Arrival Departure
- [ ] Unprotected sex with an exposed partner
  - a. Country or Specific Location of exposure: 
  - b. Date(s) of sexual exposure: __/__/____ to __/__/____  
  - c. With a (circle) Male Female
  - d. Did the partner have a positive Zika Test? (circle) Not tested Yes No
  - e. Did the partner have symptoms of Zika infection? (circle) No Yes
  - f. If yes, when was the onset date? __/__/____

**Patient’s Clinical Presentation**
(Please check the box for each symptom. If yes, onset date is required.)

- No Yes Onset Date
  - Maculopapular Rash
  - Acute onset of Fever
  - Conjunctivitis
  - Arthralgia
  - Guillain-Barre
  - If Pregnant, _______ Weeks _______ Days
  - Comments:

**Clinical Disease and Vaccination History (Check box if yes.)**

- Yellow Fever Disease
- Japanese Encephalitis
- Dengue

- Diagnosed with disease
- Vaccinated against disease

**Would the provider like any information about Zika virus for you or your patients? If so, please describe.**

**Local Health Jurisdiction Information**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Jurisdiction:</th>
<th>Phone:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of Patient: (circle) Provider MT PHL Local Lab CDEpi Other Date:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Providers must report suspect cases to their local health department. LHJs are encouraged to contact the CDEpi 444-0273 to consult about the need for testing for individuals outside of the surveillance criteria.


Zika Checklist v3c.docx 7/25/2016
Collection and Transport of Specimens

Chlamydia/Gonorrhea Amplified Testing Collection and Transport

The Unisex Swab Specimen Collection Kit, Vaginal Swab Specimen Collection Kit, and Urine Specimen Collection Kit are stored at room temperature.

**Endocervical Swab Collection**

1. Use the Unisex Swab Specimen Collection Kit (white label).
2. Remove excess mucus from the cervical os and surrounding mucosa using the white shafted cleansing swab. Discard the white shafted swab.
3. Insert the blue-shafted specimen collection swab into the endocervical canal.
4. Gently rotate the swab clockwise for 10 to 30 seconds in the endocervical canal to ensure adequate sampling.
5. Withdraw the swab carefully; avoid any contact with the vaginal mucosa.
6. Remove the cap from the swab specimen transport tube and immediately place the specimen collection swab into the transport tube.
7. Carefully break the blue swab shaft at the score line; use care to avoid splashing of contents.
8. Re-cap the swab specimen transport tube tightly.
9. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and the collection date.

**Vaginal Swab Collection**

1. Use the Vaginal Swab Specimen Collection Kit (orange label).
2. Patient can collect own specimen in a health care facility. Vaginal swab collection is preferred over urine collection in women when a pelvic examination is not performed.
3. Insert the specimen collection swab into the vagina about two inches inside the opening of the vagina.
4. Gently rotate the swab clockwise for 10 to 30 seconds touching the walls of the vaginal to ensure adequate sampling.
5. Withdraw the swab carefully; avoid any contact with skin.
6. Remove the cap from the swab specimen transport tube and immediately place the specimen collection swab into the transport tube.
7. Carefully break the swab shaft at the score line; use care to avoid splashing of contents.
8. Re-cap the swab specimen transport tube tightly. Make certain the transport tube is labeled with a minimum of patient name; collection date is also helpful.

**Male Urethral Swab Collection**

1. Use the Unisex Swab Specimen Collection Kit (white label).
2. The patient should not have urinated for at least one hour prior to sample collection.
3. Insert the blue-shafted specimen collection swab 2 – 4 cm into the urethra.
4. Gently rotate the swab clockwise for 2 to 3 seconds in the urethra to ensure adequate sampling.
5. Withdraw the swab carefully.
6. Remove the cap from the swab specimen transport tube and immediately place the specimen collection swab into the transport tube.
7. Carefully break the blue swab shaft at the score line; use care to avoid splashing of contents.
8. Re-cap the swab specimen transport tube tightly.
9. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and the collection date.

**Rectal Swab Collection**

1. Use the Unisex Swab Specimen Collection Kit (white label).
2. Use the small blue-shafted collection swab, not the larger white shafted cleansing swab.
3. Insert the small blue-shafted collection swab approximately 3 – 5 cm into the rectum and rotate against the rectal wall several times (at least 3 times).
4. Swabs that are grossly contaminated with feces should be discarded and the collection repeated.
5. Withdraw the swab carefully.
6. Remove the cap from the swab specimen transport tube and immediately place the specimen collection swab into the transport tube.
7. Carefully break the blue swab shaft at the score line; use care to avoid splashing of contents.
8. Re-cap the swab specimen transport tube tightly.
9. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and the collection date.

**Throat Swab Collection**

1. Use the Unisex Swab Specimen Collection Kit (white label).
2. Use the small blue-shafted collection swab, **not the larger white shafted cleansing swab**.
3. Using a tongue depressor, insert the small blue shafted collection swab and vigorously rub the tonsils and the posterior pharynx.
4. Carefully remove the swab, not touching any area of the mouth.
5. Remove the cap from the swab specimen transport tube and immediately place the specimen collection swab into the transport tube.
6. Carefully break the blue swab shaft at the score line; use care to avoid splashing of contents.
7. Re-cap the swab specimen transport tube tightly.
8. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and the collection date.
9. Complete the requisition form; be sure to record the specimen source.

**Urine Collection**

1. Use the Urine Specimen Collection Kit (yellow label).
2. The patient should not have urinated for at least one hour prior to sampling.
3. Direct patient to provide a first-catch urine (approximately 20 to 30 mL of the initial urine stream) into a urine collection cup. Collection of larger volumes of urine may reduce test sensitivity. Female patients should not cleanse the labial area prior to providing the specimen. This is NOT a clean-catch urine – we want the initial urine stream, which contains sloughed cells.
4. Remove the cap and transfer 2 mL of urine into the urine specimen transport tube using the disposable pipette provided. The correct volume of urine has been added when the fluid level is between the black lines on the urine specimen transport tube label.
5. Re-cap the urine specimen transport tube tightly. This is now known as the processed urine specimen.
6. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and the collection date.

**Swab and Urine Specimen Transport**

After collection, ensure that specimens are properly labeled.

Fill out the **standard laboratory request form**.

Place the corresponding transport tube in an **individual** zip lock bag containing absorbent material and seal bag tightly. Place the form in the sleeve of the zip lock bag; DO NOT put the request form inside the zip lock bag.

Store swab specimen transport tubes and processed urine specimens (those in urine specimen transport tubes) at 2°C to 30°C. Place transport tubes in white mailing canisters and send to the laboratory by mail or courier.

**Note:** Although swab specimens in the specimen transport tube must be tested within 60 days of collection and urine specimens in the specimen transport tube must be tested within 30 days of collection, we advise you to submit specimens in a timely manner so that test results can be obtained as soon as possible.

Utilize the MTPHL courier service if available, or ship specimens to the following address:
Montana Public Health Laboratory
(Street Address)
1400 Broadway
Helena, MT  59601

Or
PO Box 4369
Helena, MT  59604-4369

<table>
<thead>
<tr>
<th><strong>Result Reporting</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive results are telephoned to the provider; additionally, positive GC results are telephoned to the DPHHS STD Program.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Specimen Rejection</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specimens with unresolved labeling issues, leaking containers, expired containers, or with insufficient volume may be rejected. The provider will be notified and asked to resubmit.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Requests for Additional Information or Specimen Collection Questions:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>For additional information or questions, or to order collection kits, contact the laboratory at 800-821-7284 or 406-444-3444.</td>
</tr>
</tbody>
</table>
Molecular (Nucleic Acid Amplification) Testing Collection and Transport

For technical assistance in determining proper specimen selection for specific agents, call the laboratory at 800-821-7284.

Universal Viral Transport Media for Viral Agents is supplied by the laboratory. Store the kits at room temperature.

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Instructions</th>
</tr>
</thead>
</table>
| Bronchial Alveolar Lavage (BAL) /Bronchial Washings | For Viral Agents, mix an equal portion of the BAL with Universal Viral Transport Media. Store in cold conditions and ship on cold packs.  
For Bacterial Agents, collect in sterile container. Store in cold conditions and ship on cold packs. |
| Cerebral Spinal Fluid (CSF)       | Place 1 – 2 mL in sterile container without viral transport media. Store in cold conditions and ship on cold packs. |
| Cervical Swab                     | Place swab into Universal Viral Transport Media, break off at the score line, and tightly cap. Store in cold conditions and ship on cold packs. |
| Nasopharyngeal Aspirate           | Introduce 1-2 mL of sterile saline into the nasopharyngeal cavity, aspirate into sterile vial. Store in cold conditions and ship on cold packs. *Note: If the specimen is also being submitted for viral agents, please submit in Universal Viral Transport Media. Store in cold conditions and ship on cold packs. |
| Nasopharyngeal Wash               | Use only sterile saline to collect the NP wash. Instruct the patient to sit with head slightly tilted backwards, and to hold the sterile collection cup. Instruct the patient on how to constrict the muscles at the back of the throat by saying the “K” sound rapidly and repetitively. Inform the patient that this process may prevent the saline from draining down the throat. Fill a 5 cc syringe with warm sterile saline. Gently push the tip of the patient’s nose back with your thumb, and quickly inject 1 – 2 mL of sterile saline into each nostril. Instruct the patient to contain the saline in the nostrils for approximately 10 seconds while repetitively saying the “K” sound. After 10 seconds, ask the patient to tilt their head forward and collect the saline in the sterile cup. Cap the washings tightly. Refrigerate the nasopharyngeal washings until transport and ship on cold packs. *Note: If the specimen is also being submitted for viral agents, please submit in Universal Viral Transport Media. Store in cold conditions and ship on cold packs. |
| Nasopharyngeal Swab               | Use a flexible wire dacron or polyester swab. Do not use Calcium Alginate swabs or swabs with wooden shafts. Instruct the patient to sit with head slightly tilted backwards. Bend the flexible wire in a small arc, and insert the swab into the nostril back to the nasopharyngeal cavity. The patient’s eyes will momentarily tear. Slowly rotate the swab as it is being withdrawn.  
For Viral Agents, place swab into Universal Viral Transport Media, trim swab shaft, and tightly cap. Store in cold conditions and ship on cold packs.  
For Bacterial Agents, place swab in sterile tube without transport. |
| Rectal swabs (for CRE)            | Collection of paired rectal swab: Carefully insert both swab tips approximately one (1) cm beyond the anal sphincter and rotate gently. Do not collect highly soiled swabs.  
Place swab pair back in original transport tube. Swabs in the transport tube can be stored at 15-28°C for up to five days and transported at ambient temperature. |
<p>| Serum                             | Collect 5-10 mL of whole blood in serum separator tube. Allow blood to clot, centrifuge and aliquot resulting sera. Store in cold conditions and ship on cold packs. If serum has already been frozen, ship on dry ice. |</p>
<table>
<thead>
<tr>
<th><strong>Stool</strong></th>
<th>Collect at least 2 mL of stool in a leak-proof, clean, dry container. Do not add transport media. Store in cold conditions and ship on cold packs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Throat Swab</strong></td>
<td>Use a plastic-shafted Dacron swab. Do not use Calcium Alginate swabs or swabs with wooden shafts. Using a tongue depressor, insert the swab and vigorously rub the tonsils and the posterior pharynx. Carefully remove the swab, not touching any area of the mouth. For Viral Agents, place swab into Universal Viral Transport Media, trim swab shaft, and tightly cap. Store in cold conditions and ship on cold packs. For Bacterial Agents, place swab in sterile tube without transport.</td>
</tr>
<tr>
<td><strong>Tissue Specimens</strong></td>
<td><strong>Autopsy or Biopsy</strong>  For Viral Agents, place each specimen in separate sterile containers containing small amounts of Universal Viral Transport Media. Store and ship on cold packs or dry ice. <em>Do Not submit formalized tissue.</em> For Bacterial Agents, place each specimen in separate sterile containers containing small amounts of sterile saline or PBS. Store and ship on cold packs. <em>Do Not submit formalized tissue.</em></td>
</tr>
<tr>
<td><strong>Vesicles/Vesicular Fluid/ Scrapings</strong></td>
<td>Aspirate fluid from multiple fresh unbroken vesicles and place into 1-2 mL of Universal Viral Transport Media. Remove the top of the vesicle and place the skin of the vesicle top into a sterile tube without transport. Store both samples in cold conditions and ship on cold packs.</td>
</tr>
<tr>
<td><strong>Whole Blood</strong></td>
<td>Collect 5 -10 mL whole blood in EDTA anticoagulant. Store in cold conditions and ship on cold packs.</td>
</tr>
</tbody>
</table>

Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.), collection date and specimen source. Place each specimen container in an individual biohazard zip lock bag containing absorbent material and seal bag tightly.

Fill out the [standard laboratory request form](#) completely and place in the outer sleeve of the biohazard zip lock bag. Do not place the request form inside the biohazard zip lock bag.

Ship specimens promptly, maintaining cold temperature from collection until receipt at the laboratory. For those specimens that must be shipped in a cold condition, use cold packs and Styrofoam containers. Mailers will be returned for reuse. Transport by UPS, FedEx, mail or courier.
**Mycobacterium spp. (AFB or TB) Testing Collection and Transport**

All specimens are potentially infectious; handle carefully.

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sputum or Nebulized Sputum</td>
<td>Collect three early morning specimens on successive days (within 48 hours) and submit daily in separate containers. Good specimens are material brought up by the lungs after a productive cough or nebulization. Send a minimum of 5 mL in a sterile container.</td>
</tr>
<tr>
<td>Urine</td>
<td>Collect multiple first morning &quot;clean catch&quot; specimens on three successive days. Send a minimum of 40 mL in a sterile container.</td>
</tr>
<tr>
<td>Gastric</td>
<td>Collect three early morning fasting specimens on successive days. Send a minimum of 10 mL in a sterile container. Add 10 mg of sodium bicarbonate to neutralize the acidity. Send promptly after collection; these specimens should be processed as soon as possible.</td>
</tr>
<tr>
<td>Bronchial Washings</td>
<td>Submit first sputum specimen following bronchoscopy as well as the bronchial washings. Send a minimum of 5 mL in a sterile container.</td>
</tr>
<tr>
<td>Tissues</td>
<td>Collect aseptically and place in sterile container. Add about 1 mL sterile broth or sterile saline to tissues and swabs to prevent dehydration.</td>
</tr>
<tr>
<td>CSF or Other Sterile Body Fluids</td>
<td>Submit in sterile collection tube; at least 2 mL is needed for an adequate test.</td>
</tr>
<tr>
<td>Blood or Bone Marrow</td>
<td>Collect in heparinized tube or add sterile heparin (0.2 mg/mL) to prevent clotting. Send a minimum of 1 mL in a sterile container.</td>
</tr>
<tr>
<td>Stool</td>
<td>Submit 1 gram of raw stool in a sterile container. Send on ice.</td>
</tr>
<tr>
<td>Swab (Not Optimal)</td>
<td>Specimens submitted on swabs are discouraged. Please make every effort to submit tissue or aspirated fluid, as these are preferred sources.</td>
</tr>
</tbody>
</table>

Use only sterile materials in the collection of the specimen. Collect specimen directly into the sterile bottle provided or into a sterile container, refrigerate specimen until transported, and send as soon as possible. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and collection date. Screw lid onto specimen container tightly so specimen does not leak; place each specimen container in an individual biohazard zip lock bag containing absorbent material and seal bag tightly.

Fill out the [standard laboratory request form](#). Place form in outside sleeve of biohazard zip lock bag and put into TB mailing container. Respiratory specimens should be packaged and transported cold by mail or courier. All other specimens may be transported at ambient temperature.
**Mycology (Fungal) Culture Collection and Transport**

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tissue</td>
<td>Place tissue in sterile screw cap container and cover with 1 mL of sterile saline or broth. Refrigerate until time of mailing.</td>
</tr>
<tr>
<td>Blood</td>
<td>Collect 8 mL blood aseptically in a yellow Vacutainer tube (contains 0.05% SPS). This specimen can be used to inoculate a vented biphasic blood culture bottle containing TSB, TSA, or BHI agar and broth in a ratio of 1 part blood to 10 parts broth. Incubate at room temperature. Subculture onto Sabouraud's agar slants according to established procedures. Submit either slants or blood culture bottles for culture identification.</td>
</tr>
<tr>
<td>Bone marrow</td>
<td>Collect approximately 0.3 mL of bone marrow in a heparinized tube. Store specimen at room temperature or incubate until mailing. Ship in sterile screw cap container.</td>
</tr>
<tr>
<td>Bronchial wash, Pleural fluid, Joint fluid, Sputum</td>
<td>Send in sterile screw cap container. May be sent in TB transport container. Refrigerate specimen until mailing.</td>
</tr>
<tr>
<td>CSF</td>
<td>Send a minimum of 1.0 mL in sterile screw cap container. Store specimen at room temperature or incubate until mailing.</td>
</tr>
<tr>
<td>Hair</td>
<td>Remove about 10 hairs with roots using forceps and send in a sterile container. NOTE: Hairs that break off at scalp level when using forceps must be removed with a knife. Scraping the scalp rarely yields infected hairs. Store and transport at room temperature.</td>
</tr>
<tr>
<td>Skin</td>
<td>Wipe lesions well with alcohol sponge (cotton will leave too many fibers on skin). Scrape the entire periphery of the lesion(s) with a sterile scalpel. Send scrapings in a sterile container. Store and transport at room temperature.</td>
</tr>
<tr>
<td>Nails</td>
<td>Clean nail with alcohol sponge. Scrape and discard outer portion of nail. Collect scrapings from inner nail and send in envelope or between glass slides. Send an entire nail, if it has been removed, in a sterile screw cap container. Store and transport at room temperature.</td>
</tr>
</tbody>
</table>

Please Note: Both a TB culture and a fungal culture can be processed from a single specimen by request. Make certain that test request form is clearly marked.

Place each specimen container in an individual biohazard zip lock bag containing absorbent material and seal bag tightly. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and collection date.

Fill out the [standard laboratory request form](#). Place form in outside sleeve of biohazard zip lock bag and put into mailing container. Transport at ambient temperature by mail or courier.
Newborn Screening Collection and Transport

Newborn screening specimen cards for collection of dried blood spot samples are available from the laboratory. See Supply Request Form. These forms contain the requisition form along with the attached filter paper collection device.

Store specimen cards in a cool dry place on edge; flat stacking compresses the filter paper fibers. Do not handle the filter paper portion, as skin oils will prevent saturation.

Complete all the information on the requisition form legibly in block capital letters.

Sample Collection

The usual puncture site is illustrated below (shaded areas).

1. Sterilize and dry skin. Puncture heel with sterile lancet.
2. Allow large blood droplet to form.
3. Touch filter paper to blood and allow to soak through completely in each circle. Total saturation of the circles must be evident when the paper is viewed on both sides. Do not apply blood to both sides.
4. Be certain to properly fill all five (5) circles on the card. These need to all be satisfactory spots.
5. Use of capillary tubes is not recommended because they tend to roughen the filter paper and cause over absorption.
6. Allow blood spots to air dry thoroughly for 2-3 hours at room temperature. Keep away from direct sunlight and heat. Do not stack filter papers before thorough drying. Protective cover can be used to hold specimen while drying.
7. Cover with end flap only after specimen is completely dry.
8. Inspect the dried blood spots for adequacy prior to transport. Do not send unsatisfactory specimens.
9. Transport specimen by UPS or courier at ambient temperature within 24 hours of collection.

Note: Specimens may be UNSATISFACTORY if:
- All circles not completely filled (QNS)
- Blood is layered by application on both sides or by multiple spotting
- Filter paper is scuffed or torn
- Specimen is contaminated or improperly dried
- Information is incomplete
Capillary (Fingerstick Specimens) for Blood Lead Collection and Transport

**Collection supplies are available free of charge by contacting the laboratory. Kits include:**

<table>
<thead>
<tr>
<th>Two (2) Sterile Alcohol Preps</th>
<th>One (1) Capillary collection device</th>
<th>One (1) Transport zip lock bag</th>
</tr>
</thead>
<tbody>
<tr>
<td>One (1) Lancet</td>
<td>One (1) Dry Sterile Gauze Pad</td>
<td>One (1) Instruction sheet</td>
</tr>
</tbody>
</table>

**Performing the Skin Puncture:**

1. Thoroughly wash hands and don powder free gloves.
2. Select the puncture site. Blood can be obtained from:
   - fingertip (for adults and children older than 1 year)
   - the bottom of the big toe (infants only)
   - the heel (infants only)
3. Clean the puncture site with alcohol pad. If the site is extremely soiled or very cold, wash with warm soapy water and towel dry. Use the alcohol swab to briskly scrub the puncture site to remove any environmental contamination and to increase blood flow.
4. Allow the site to air dry or use the sterile gauze to dry the area.
5. Puncture the skin with the lancet.

**Collection of the Sample:**

1. Use the gauze to wipe off the first drop of blood, which contains excess tissue fluid. A rounded drop of blood will form over the puncture site. When the tip of the collection device touches this drop, blood will flow by capillary action into the tube. Care should be taken that the tip of the collection device is in contact with the blood only, not skin. Gently apply continuous pressure to the surrounding tissue; avoid milking the site.

![](image)

Important: The flow of blood must be adequate to fill the capillary rapidly. Do not stop to shake or tap the tube until the capillary is filled. Capillary must be held continuously in a horizontal position during the drawing of the blood.

2. After filling, turn the capillary device immediately to a vertical position to allow the blood to flow into the tube. Remove capillary with holder at the same time. Close tube with attached cap.
3. Apply pressure to the puncture site with a gauze pad to stop bleeding, while mixing the specimen by inverting a minimum of five times.
4. Identify each skin puncture specimen with the patient’s name and collection date.

**Submitting Specimens to the Laboratory for Testing:**

1. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and collection date.
2. Complete a [standard laboratory request form](#) to include the patient’s name, date of birth, gender, collection date, submitter information, and, if applicable, Medicaid billing information.
3. Place the well-mixed blood specimen container into the individual biohazard zip lock transport bag and seal bag tightly. Fold the requisition form and place in sleeve of the bag. Place the zip lock bag(s) into a preaddressed white mailing canister. Store the specimen(s) in the refrigerator until shipped. Specimens are stable for 7 days at refrigeration temperatures.
4. Specimens are transported at ambient temperature by mail or courier.

**Results:**

1. Laboratory test results will be mailed to the submitter upon completion of testing.
2. Should the initial test be elevated, a venous specimen will be requested for verification.
**Venipuncture Specimens for Blood Lead Collection and Transport**

Collection supplies are available free of charge by contacting the laboratory.

**The Venipuncture Collection Kit includes:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>One (1) sterile alcohol preps</td>
<td>One (1) transport zip lock bag</td>
</tr>
<tr>
<td>One (1) needle and holder or one (1) needle and syringe</td>
<td>One (1) dry sterile gauze pad</td>
</tr>
<tr>
<td></td>
<td>One (1) Vacutainer EDTA tube</td>
</tr>
</tbody>
</table>

**Preparation of the Puncture Site:**

1. Thoroughly wash hands and don powder free gloves.
2. Expose the selected antecubital fossa and apply tourniquet to mid-biceps. Scrub the puncture site briskly with the alcohol pad to remove any environmental contamination and to increase blood flow.
3. Allow the site to air dry or use the sterile gauze to dry the area.

**Collection of the Sample:**

1. Prepare needle assembly, either needle and vacutainer holder, or needle and syringe.
2. Perform venipuncture per standard operating procedures. Make sure the vacutainer tube is completely filled before stopping collection. If using a needle and syringe, obtain a minimum of 2 mL of whole blood.
3. Remove tourniquet first, then needle from arm.
4. Apply pressure to the puncture site with a gauze pad to stop the patient’s bleeding. Parent/guardian or child may continue holding direct pressure on the puncture site.
5. If drawn directly into vacutainer tube, immediately mix the specimen manually by inverting a minimum of 10 times.
6. If drawn with a needle into the syringe, immediately inject the blood from the syringe into the vacutainer tube, gently mixing while filling. Continue to mix the specimen by inverting 10 times.
7. Dispose of used needle and syringe equipment into puncture proof Sharps container.
8. Identify each skin puncture specimen with the patient’s name, at a minimum, and collection date.

**Submitting Specimens to the Laboratory for Testing:**

1. Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and collection date.
2. Complete a [standard laboratory request form](#) to include the patient’s name, date of birth, gender, collection date, submitter information, and, if applicable, Medicaid billing information.
3. Place the well mixed, uncotted blood specimen in an individual biohazard zip lock bag containing absorbent material and seal bag tightly. Fold the requisition form and place in sleeve of the bag. Place the zip lock bag(s) into a preaddressed white mailing canister.
4. Store the specimen(s) in the refrigerator until shipped. Specimens are transported at ambient temperature by mail or courier. Specimens are stable for 7 days at refrigeration temperatures.

**Results:**

Laboratory test results will be mailed to the submitter upon completion of testing.
**QuantiFERON®-TB Gold In-Tube Testing Collection and Transport**

The QuantiFERON-TB Gold assay (QFT®) measures the Interferon-gamma (IFN-γ) response in whole blood stimulated with antigen. The kit uses specialized QFT blood collection tubes. The following is a guide for blood collection into these tubes.

**Please read and follow the complete directions carefully!**

**Filling QuantiFERON®-TB Gold blood collection tubes**

QuantiFERON®-TB Gold IT uses the following collection tubes; the set will be provided for you free of charge by calling 800-821-7284, or e-mailing mtphl@mt.gov.

1. Nil Control (Grey cap with yellow ring). The yellow designates a high altitude tube.
2. TB Antigen (Red cap with yellow ring).
3. Mitogen Control (Purple cap with yellow ring).

**These procedures should be followed for optimal results:**

1. Tubes should be at 17 - 25°C at the time of blood filling.
2. Collect 1 mL of blood by venipuncture directly into each QFT blood collection tube in the order Nil, TB-Antigen and Mitogen. As 1 mL tubes draw blood relatively slowly, keep the tube on the needle for 2-3 seconds once the tube appears to have completed filling to ensure that the correct volume is drawn.
3. The black mark on the side of the tubes indicates the 1 mL fill volume. QFT blood collection tubes have been validated for volumes ranging from 0.8 to 1.2 mL. If the level of blood in any tube is not close to the indicator line, it is recommended to obtain another blood sample.
   *If a “butterfly needle” is used, prime tubing with a “purge” tube before filling the QFT tubes.*

**Mixing Tubes**

1. Antigens have been dried onto the inner wall of the blood collection tubes. It is essential that the tubes’ contents be thoroughly mixed with the blood. Thorough mixing will dissolve the heparin, preventing clotting, and allow resolubilization of the stimulating antigen. Mixing is performed by shaking, not just inverting, the tubes vertically ten (10) times, firmly enough to ensure that the entire inner surface of the tube is coated with blood. **Over-energetic shaking may cause gel disruption and could lead to aberrant results.**
2. Label tubes appropriately. Ensure each tube (Nil, TB Antigen, Mitogen) is identifiable by its label or other means once the cap is removed.

**Incubation of Tubes**

1. Following filling, shaking and labeling, the tubes must be transferred to a 37°C ± 1°C incubator as soon as possible, and within 16 hours of collection. If the blood is not incubated immediately after collection, re-mixing of the tubes by inverting 10 times must be performed immediately prior to incubation.
2. Incubate the tubes **UPRIGHT** at 37°C ± 1°C for 16 to 24 **consecutive** hours. The incubator does not require CO₂ or humidification.
3. If tubes are not incubated on site, maintain tubes at room temperature (22°C ± 5°C). Do not refrigerate or freeze the blood samples. Tubes must be received in the Public Health Laboratory within 16 hours of collection for incubation.
4. Following 37°C ± 1°C incubation, blood collection tubes may be transported between 2°C and 27°C. **Specimens must be received in the Public Health Laboratory within 3 days of incubation. If this is not possible, call MTPHL for direction.**
5. Complete a blue MTPHL requisition form; **include date and TIME of draw**, and **whether or not the specimen(s) have been incubated** prior to shipment. Please note this information in the Comments/Pertinent Information section of the blue form.


**QUESTIONS? Contact the MTPHL at 800-821-7284 or mtphl@mt.gov**
**Serology Specimens Collection and Transport**

**TESTING POLICY:** If a convalescent specimen is received, it will be tested in parallel with the original acute specimen, and only the convalescent specimen will be billed.

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute serology specimen</td>
<td>The DATE OF ONSET of symptoms or disease is less than 7 days from the date serum is obtained, usually the first few days of the illness. IgG antibody titers are not elevated. Exceptions: Rubeola, Rubella, and Colorado Tick Fever and Rocky Mountain Spotted Fever may have a significant IgG titer in 7-10 days.</td>
</tr>
<tr>
<td>Convalescent serology specimen</td>
<td>The DATE OF ONSET of symptoms or disease is 2 weeks or greater from the date serum is obtained. IgG antibody levels should be at a significant level. Exception: Legionella sp. antibody levels may not be significant for 4-6 weeks.</td>
</tr>
<tr>
<td>Serology screen only</td>
<td>The patient has a chronic condition, with the DATE OF ONSET of symptoms or disease being a very long period (months to years, OR patient is being screened for antibodies to a certain infectious agent (HIV, Hepatitis B, Rubella, VZV, etc.) ALTERNATIVELY, IgM testing is available. Single specimen test results may be difficult to interpret and an additional specimen may be requested if results warrant.</td>
</tr>
<tr>
<td>Post-convalescent serology specimen</td>
<td></td>
</tr>
</tbody>
</table>

Submit approximately 2 - 4 mL of clear non-hemolyzed serum for testing. Contact the laboratory for exact volumes needed if serum is difficult to obtain. Serum separator tubes can be used. Spin the SST tubes well to completely separate the serum and cells and submit the whole tube. Serum does not have to be poured off. DO NOT submit unspun SST tubes. If serum is not submitted in the original SST tube, place in a leakproof container.

Cerebral Spinal Fluid (CSF) may also be submitted for serological testing in certain instances. A serum sample should also be submitted with the CSF for comparison testing.

Specimens should be clearly labeled with two patient identifiers (name, DOB, medical record number, etc.) and collection date. Completely fill out the [standard laboratory request form](#).

Place each specimen container in an individual biohazard zip lock bag containing absorbent material and seal bag tightly. Place the completed laboratory request form in the outer sleeve of the biohazard zip lock bag. Do not place the completed laboratory request form inside the zip lock bag.

If specimen is stored prior to shipment, store at 4°C. If storage is longer than 1 week, freeze the specimen. Specimens may be shipped at room temperature. Labeled pre-addressed mailing canisters are available from the laboratory. Transport by mail or courier.
Clinical Laboratory Requisition Forms

Requisition forms are available by calling the laboratory at 800-821-7284:

The standard laboratory request form, preprinted with your account information; all clinical testing can be ordered with this form.

A newborn screening panel form; this form contains the dried blood spot collection kit.

Examples of each form are included on the following pages, as well as specific instructions on filling out the Newborn Screening form.

General Instructions:

Please fill the forms out completely to include (at a minimum):

Patient Last Name or anonymous identifier (required)
Patient First Name
Patient ID #
Date of Birth
Gender
Medicaid # (if applicable)
NPI (or UPIN) # of Physician/Clinician (preferred)
Physician/Clinician Name (if NPI is not provided)
Specimen Collection Date (required)
Date of Onset of Illness (for serology and molecular testing)
Source of Specimen (If source is serum, indicate if the serum is acute, convalescent, or a screen only)
Test(s) Ordered

There will need to be two forms of patient identification on both the requisition form and the submitted specimen for the submission to be acceptable.

NOTE: Forms are read using an optical scanning device. Please print information clearly in boxes indicated. Do not use preprinted labels or stamps.
Standard Laboratory Testing Requisition Form

<table>
<thead>
<tr>
<th>TEST(S) REQUESTED INFORMATION</th>
<th>Sterilizer Monitoring:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serology:</td>
<td>Autoptic Monitoring-BT Test</td>
</tr>
<tr>
<td>Blood Lead</td>
<td>CRE Confirmation</td>
</tr>
<tr>
<td>Brucella Antibody</td>
<td>E. coli Confirmation</td>
</tr>
<tr>
<td>CTPV IgG Serology</td>
<td>Str. Dysenteriae</td>
</tr>
<tr>
<td>Montavirus IgG &amp; IgM Serology</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Hepatitis - Acute Panel</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Hepatitis A IgM Antibody</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Hepatitis B Surface Antigen</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Hepatitis B Surface Antibody</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Hepatitis B Total Core Antibody</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Hepatitis C Ab with Reflex as needed</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Herpes Simplex Virus IgG Serology</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>HIV Ab/Ag Combo with Reflex Confirmation</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Leptospirosis IgG Serology</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Lyme Antibody with Reflex Confirmation</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Molecular Testing:</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Anoenvus PCR</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Bacteriella pertussis subfragt PCR</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Clostridum AP1 PCR</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Enteric PCR</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Entropliasm DRC PCR</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>STD Testing (APTIMA):</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Chlamydia and Gonorea</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Chlamydia Only</td>
<td>Anti-tuberculosis</td>
</tr>
<tr>
<td>Gonorea Only</td>
<td>Anti-tuberculosis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Test(s) Requested/Pertinent Information/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Swab</td>
</tr>
<tr>
<td>Pleural Fluid</td>
</tr>
<tr>
<td>Rectal Swab</td>
</tr>
<tr>
<td>Serum</td>
</tr>
<tr>
<td>Stoma</td>
</tr>
<tr>
<td>Throat Swab</td>
</tr>
<tr>
<td>Urethral Swab</td>
</tr>
<tr>
<td>Vaginal Swab</td>
</tr>
</tbody>
</table>
**Newborn Screening Requisition Form**

This form has attached special filter paper for collection of the blood spots.

All information contained on the form must be completed.

Complete the patient information (name, sex, ID#, race, and ethnicity) as well as the mother’s name and baby’s provider. It is important to specify the provider that will be providing care for the infant once he or she is released from the hospital. We will not accept hospitalists or obstetricians in this field.

Mark the specimen as to whether this is the first screen performed on the baby, or repeat screen. If the baby was screened at the hospital, and then is followed up with a repeat test at the physician’s office, mark the repeat box.

Accurately complete the birth date and time and the specimen collection date and time. Samples obtained from a child less than 24 hours old must be repeated.

Complete the birth weight in grams.

Answer the questions on transfusion history. In cases when the baby received a transfusion, please include the date of transfusion.

If the baby is on TPN (Total Parenteral Nutrition) at the time of collection, please indicate that on the form.

This same form can be used for monitoring Phenylalanine levels on patients with known PKU disease.
Supply Order Form

Montana Public Health Laboratory
Supply Order Form
Toll Free 800-821-7284 or FAX 406-444-1802

Facility/ATTN: ________________________________
Street Address: ______________________________________
City/State/Zip: __________________________________________
Account Number: ____________________________ Order Date: _______________________
Phone No: ____________________________________ Order Taken By: ____________________

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chlamydia/GC Aptima SWAB Collection Kits (50/box) (Purple box) (for Cervical, Urethral, Rectal or Throat Specimens)</td>
</tr>
<tr>
<td></td>
<td>Chlamydia/GC Aptima URINE Collection Kits (50/box) (yellow box)</td>
</tr>
<tr>
<td></td>
<td>Chlamydia/GC Aptima VAGINAL Collection Kits (50/box) (orange box)</td>
</tr>
<tr>
<td></td>
<td>Tuberculosis Transports</td>
</tr>
<tr>
<td></td>
<td>Ova &amp; Parasite Transports</td>
</tr>
<tr>
<td></td>
<td>QuantIFERON Gold 10 Tube Collection Tubes (3 tubes/set)</td>
</tr>
<tr>
<td></td>
<td>Capillary Blood Lead Collection Kits</td>
</tr>
<tr>
<td></td>
<td>Venous Blood Lead Collection Kits</td>
</tr>
<tr>
<td></td>
<td>Vacutainer Syringe/Needle</td>
</tr>
<tr>
<td></td>
<td>Cary-Blair Transport Medium (for stools and bacteriology cultures)</td>
</tr>
<tr>
<td></td>
<td>Universal Transport Medium (for viral and chlamydia isolation)</td>
</tr>
<tr>
<td></td>
<td>Polyester Flexible Wire Swabs for Nasopharyngeal Collection</td>
</tr>
<tr>
<td></td>
<td>Sterile Tubes (for Pertussis PCR)</td>
</tr>
<tr>
<td></td>
<td>White Specimen Mailing Tubes</td>
</tr>
<tr>
<td></td>
<td>Petri Disk Mailers</td>
</tr>
<tr>
<td></td>
<td>Specimen Bags 6 x 9 (one size only) Mailing Labels</td>
</tr>
<tr>
<td></td>
<td>Autoclave Sterility Indicators (BT Sure Vials)</td>
</tr>
</tbody>
</table>

**Meat Testing**

|          | Whirlpack Bags Gloves Ice Packs |
|          | Listeria Swabs Carcass Samplers |

**Forms**

|          | Standard Laboratory Requisition Forms (blue) |
|          | Neonatal Screening Forms Envelopes |
|          | Meat Inspection Testing Request Forms |

Please Note: These supplies are the property of the State of Montana and are to be used only for business with the Montana Department of Public Health and Human Services.

For more information, visit: www.lab.hhs.mt.gov.
Packaging and Shipping Guidelines

It is the responsibility of the facility to ensure proper packaging and shipping of all potentially infectious and biological substances. Listed below are some general guidelines and links to websites that will provide more detailed information.

Category A (UN2814 “Infectious Substance Affecting Humans”): “An infectious substance in a form capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs. An exposure occurs when an infectious substance is released outside of its protective packaging, resulting in physical contact with humans or animals. Classification must be based on the known medical history or symptoms of the source patient or animal, endemic local conditions, or professional judgment concerning the individual circumstances of the source human or animal. Category A poses a higher degree of risk than Category B.”

Category B (UN 3373 “Biological Substance, Category B”): “An infectious substance NOT in a form generally capable of causing permanent disability or life-threatening or fatal disease in otherwise healthy humans or animals when exposure to it occurs. This includes Category B infectious substances transported for diagnostic or investigational purposes.”

Exempt Human Specimens: Exempt Human Specimen label indicates there is no infectious substance in the package. (Examples include fecal occult blood and dried blood spots.)

For more information, please visit the following sites:

49 CFR PART 172—HAZARDOUS MATERIALS TABLE, SPECIAL PROVISIONS, HAZARDOUS MATERIALS COMMUNICATIONS, EMERGENCY RESPONSE INFORMATION, TRAINING REQUIREMENTS, AND SECURITY PLANS
http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=44acea8f201b183f75c4e90179e00f56&n=49y2.1.1.3.9&r=PART&ty=HTML#se49.2.172.1704

49 CFR PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS
http://www.ecfr.gov/cgi-bin/text-idx?SID=b939d5f0b1d7600fa4adf1a00c1f49d6&node=49:2.1.1.3.10&rgn=div5#49:2.1.1.3.10.2.25.8

http://www.who.int/ihr/infectious_substances/en/

Guidance on regulations for the Transport of Infectious Substances

International Air Transport Association (IATA) Dangerous Good Regulations:
https://store.iata.org/IEC_SearchResults?site-search=dangerous+goods+regulations

DOT: Transporting Infectious Substances Safely

ASM SENTINEL LEVEL CLINICAL LABORATORY GUIDELINES FOR SUSPECTED AGENTS OF BIOTERRORISM AND EMERGING INFECTIOUS DISEASES: Packing and Shipping Infectious Substances
https://www.asm.org/ASM/media/Policy-and-Advocacy/LRN/Sentinel%20Files/PackAndShip.pdf

CDC Packaging and Shipping Training Course