INTRODUCTION

The Wyoming Public Health Laboratory (WPHL) serves as the state’s advanced-level diagnostic facility to alert physicians and epidemiologists to outbreaks, provide technical advice, and recognize disease patterns and new pathogens. The WPHL consists of specialized testing sections, including the Microbiology Testing Program, the Chemical Testing Program and the Bioterrorism Response Laboratory Program.

MICROBIOLOGY TESTING PROGRAM

The Microbiology Section of the WPHL is comprised of specialized laboratory areas including Bacteriology, Parasitology, Water Testing, Immunology and Serology, Molecular Microbiology and Emerging Diseases, and Mycobacteriology. These laboratories are dedicated to providing various testing services to the state of Wyoming and its residents to identify, track, control and prevent infectious diseases. Cooperative associations include the Centers for Disease Control and Prevention (CDC), the Environmental Protection Agency (EPA), Wyoming state agencies, city and county health departments, health care providers, schools, coroners, and state and clinical laboratories.

CHEMICAL TESTING PROGRAM

The Chemical Testing Program provides analysis for drugs of abuse to support state agencies, law enforcement and local public agencies involving drug offenders. Blood alcohol testing is performed to support law enforcement in DUI cases. The state intoximeter program is maintained through the Chemical Testing Program. For more information about drug toxicology testing, blood alcohol testing or the intoximeter program, please go online to www.health.wyo.gov/phsd/lab/chemintro.html or call 307-777-7449.

BIOTERRORISM RESPONSE LABORATORY PROGRAM

The Bioterrorism Response Laboratory (BRL) has a comprehensive statewide laboratory response program that provides Wyoming with the infrastructure necessary to respond to bioterrorism threats and emerging infectious diseases. The BRL is the only Biosafety Level 3 laboratory in the state that is CLIA regulated and capable of performing confirmatory testing for bioterrorism agents in humans. The BRL is a confirmatory level member of the Laboratory Response Network; a national coalition of laboratories with designated response capabilities working jointly with the CDC.
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GENERAL INFORMATION

LOCATION, BUSINESS HOURS AND HOLIDAY SCHEDULE

Wyoming Public Health Laboratory
Combined Laboratories Facility
208 S. College Dr.
Cheyenne, WY 82002

Phone: 307-777-7431
Fax: 307-777-6422
24 Hour Public Health Emergency Response: 1-888-996-9104

OFFICIAL BUSINESS HOURS

8:00 AM to 5:00 PM Monday through Friday

ANNUAL HOLIDAY SCHEDULE

The WPHL observes nine official state government holidays:

New Year's Day  Memorial Day  Veterans Day
Equality Day  Independence Day  Thanksgiving
President's Day  Labor Day  Christmas

PUBLIC HEALTH EMERGENCY

If it becomes necessary to contact the WPHL during off hours, please use the 24 Hour Public Health Emergency Response – All Hazards Hotline at 1-888-996-9104.

The WPHL can provide staffing to perform analysis on weekends and holidays during circumstances in which public health may be threatened. Arrangements for after-hours or weekend testing can be made by contacting the laboratory.
WEBSITE, CONTACTS, CERTIFICATIONS

WPHL WEBSITE
The WPHL website has downloadable copies of this manual and test requisition forms as well as additional information on the specialized services provided through WPHL. The site can be accessed through the Wyoming Department of Health homepage or directly at: www.health.wyo.gov/phsd/lab.

LABORATORY CONTACTS

Richard Harris, PhD - Laboratory Administrator
307-777-7431

Jim Walford, BS - Manager, Microbiology Testing Program
307-777-6053

Tom Johnson, BS - Manager, Chemical Testing Program
307-777-7449

Shawna Dereemer, MS - Supervisor, Bioterrorism Response Laboratory Program
307-777-3735

CERTIFICATIONS
WPHL holds Certificate #53D0662169, issued by the Health Care Financing Administration under the Clinical Laboratory Improvement Amendments of 1988 (CLIA- 88).

The Bioterrorism Response Laboratory operates under the Select Agent Program certification #C20031121-0067.

The WPHL also holds a Drug Enforcement Agency (DEA) certificate and a certificate issued by the Environmental Protection Agency (EPA) under the Safe Drinking Water Act (SDWA) Program (PL 93-523).

All WPHL laboratory sections participate in appropriate proficiency testing programs administered by the College of American Pathologists (CAP), the CDC, the EPA and other approved private, federal and state proficiency testing providers.
POLICIES: TESTING AND REPORTING

SURVEILLANCE TESTING

The WPHL is an integral part of disease surveillance performed by the State Epidemiologist. As such, the WPHL provides confirmatory or reference testing for laboratories isolating organisms or otherwise providing laboratory tests, which aid in the diagnosis of reportable infectious diseases. Hospitals and other private or public laboratories are requested to submit subcultures, smears, or serum specimens for reportable diseases to the WPHL as an aid to the surveillance process. These isolates are listed on the Reportable Disease List (see Appendix 1).

REPORTABLE DISEASES

State law requires that attending health care providers and laboratories performing diagnostic testing send notification of reportable diseases to the State Epidemiology Office within required time limits. Note that some diseases must be reported immediately upon identification; others must be reported within 24 hours, and others must be reported within 7 days.

For a copy of the reportable disease report form, see Appendix 1 or go online to http://www.health.wyo.gov/phsd/epiid/reporting.html. For more information, contact the WDH Epidemiology Program at 307-777-7953.

LABORATORY REPORTING

Laboratory reports are sent only to the authorized medical personnel who submitted the specimen. State law requires notification of health officials when reportable communicable disease organisms are isolated and identified. Except for these situations, copies of laboratory reports are only released to others with the written request and permission of the original submitter.
REFERENCE TESTING

The WPHL refers a select number of reportable disease test requests to CDC or state public health laboratories. Requests that are to be performed at a commercial reference laboratory must be initiated directly by the requesting clinical laboratory or health care provider (Refer to Table of Contents to find specific information on reference testing).

LABORATORY FEES

The WPHL has approved rules for fees. For more information on testing fees, please visit the WPHL website at http://www.health.wyo.gov/phsd/lab/testingfees.html.

The WPHL is supported by a combination of state general funds, revenues and federal grants. As a public health laboratory, the purpose of the WPHL is to provide testing for the support of state health priorities that are of public health and public safety importance.

DELIVERY OF SPECIMENS

Specimens may be delivered to the WPHL during normal business hours via:

- **U.S. Postal Service** **Use zip code 82002**
- **UPS, FedEx, etc.: Must use zip code 82007**
- **Delivery in person:** Drop-box located in lobby
- **Courier Service:** A private courier service is contracted to pick up samples at designated clinical laboratories during the week. For more information, see Appendix 2, or go online to: www.health.wyo.gov/phsd/lab/microbiology_section.html.

Please Note: Specimens associated with potential or known disease outbreaks should be sent by overnight carrier.
SPECIMEN COLLECTION PROTOCOL AND SUPPLIES

Specific protocols for the collection and submission of laboratory specimens can be found in the appendices of this manual (see Table of Contents). Please read each collection protocol entirely before packaging and shipping specimens, as failure to follow the protocol may lead to specimen rejection.

Not all collection supplies are available to all providers; some supplies may be reserved for suspect outbreaks, be reserved for certain programs that are enrolled in that particular testing or may require prior consultation with the WPRL or PH Epidemiologists prior to specimen submission. Each collection protocol should have an explanation of availability of testing and any restrictions that may apply.

The WPRL provides some mailing containers and supplies for collection of specimens, which should comply with U.S. Postal Service regulations. Ultimately, it is the responsibility of the shipper to ensure proper packaging and shipment of clinical specimens. Proper packaging should practically eliminate leakage or breakage in transit.

To order collection kits, please fax or mail a completed supply order form. The fax number is 307-777-6422. See Appendix 3 for a copy of the form, or go online to: www.health.wyo.gov/phsd/lab/microbiology_section.html.

Laboratory requisition forms are also available at the WPRL website, or see Appendix 4 for a copy of the form. *Note: specimens submitted for influenza testing require a different requisition form. For a copy of the Influenza Test Request Form, see Appendix 5 or go online to http://www.health.wyo.gov/phsd/lab/influenza.html.
BACTERIOLOGY AND PARASITOLOGY SECTION

John Harrison 307-777-6062

BACTERIAL CULTURE IDENTIFICATION- AEROBIC/ANAEROBIC

Type of Test: Organisms in the Enterobacteriaceae, Haemophilus, and Enterococcus are identified by biochemical systems. All other isolates are identified using 16s r DNA sequencing.

Specimen Requirements: See Appendix 6

Reporting and Interpretation: Isolates are reported by genus and species in most cases. On occasion, genus only is reported. 16s r DNA sequencing identifies to species for isolates with a matching sequence of ≥ 98% to the reference sequence.

Additional Comments: Organisms that are not readily identifiable may be forwarded to the CDC for further identification. Call for proper submission of Neisseria gonorrhoeae cultures.

CORYNEBACTERIUM DIPHTHERIAE CULTURE – DIPHTHERIA

*Contact bacteriology laboratory to make arrangements for specimen submission.

NEISSERIA-GONORRHOEAE CULTURE

*Contact bacteriology laboratory to make arrangements for specimen submission.

ENTERIC SCREEN (FECAL BACTERIA CULTURE)

Type of Test: Bacterial culture screening for Salmonella, Shigella, Campylobacter, Yersinia, Aeromonas hydrophila, Plesiomonas shigelloides, Vibrio and enterohemorrhagic E. coli O157. Shiga toxin testing is performed on broth culture. Presumptive enteric isolates are identified using biochemicals or 16s DNA sequencing. Serogrouping or serotyping is performed on Shigella, Salmonella, and E. coli.

Specimen Requirements: See Appendix 7

Reporting and Interpretation: Negative specimens are reported as "No enteric pathogens isolated". Enteric isolates identified as pathogenic isolates are identified and reported out as genus and species or serogroup.
HAEMOPHILUS INFLUENZAE SEROTYPING

**Type of Test:** Biochemical identification system and 16s DNA sequencing followed by slide agglutination test for serotyping.

**Specimen Requirements:** See Appendix 6

**Reporting and Interpretation:** Isolates identifications are confirmed and serotyped. Reports include the genus/species and serotype. Serotyping is available for type A and B.

**Additional Comments:** Organisms that cannot be readily serotyped may be forwarded to the CDC for further identification.

NEISSERIA MENINGITIDIS SEROTYPING

**Type of Test:** Biochemical identification system and 16s DNA sequencing followed by slide agglutination test for serotyping.

**Specimen Requirements:** See Appendix 6

**Reporting and Interpretation:** Specimens are reported by genus and species. Isolates identified as *N. meningitidis* are serotyped, and serotypes A, B, C, D, X, Y and Z are reported.

**Additional Comments:** Please contact the laboratory before submission of isolates for serotyping.

PARASITE TESTING – STOOL FOR FECAL PARASITES

**Type of Test:** Stools are concentrated and stained slides made and examined for eggs, cysts, and larvae. DFA for *Giardia* and *Cryptosporidium* is performed on each stool.

**Specimen Requirements:** See Appendix 8

**Reporting and Interpretation:** Positive results are reported as genus and species of organism seen as well as stage of life cycle noted. Negative results are reported as "No ova or parasites seen".

**Additional Comments:** The WPHL does not examine blood smears for parasitic infection. Blood smears may be referred to the CDC.
**SHIGA TOXIN TESTING**

**Type of Test:** Screens for both *Escherichia coli* O157:H7 and the non-O157 STEC.

Diarrheal stools are placed on sorbitol MacConkey agar and in MacConkey broth. Suspicious isolates are analyzed using the Premier EIA EHEC (enterohemorrhagic *E. coli*) test, which is specific for Shiga-like toxins I and II (verotoxins).

**Specimen Requirements:** See Appendix 7

**Reporting and Interpretation:** Shiga toxin can be a standalone request, or is normally part of an enteric screen which includes isolation and identification of enteric pathogens. If no enteric pathogens are isolated, yet the stool sample is positive for Shiga toxins, the specimen is reported as “Positive for Shiga toxins”. If the specimen is negative for Shiga toxins and no enteric pathogens are isolated, the specimen is reported as “No enteric pathogens isolated”.

If the test request was only for Shiga toxins, the report is either “Positive” or “Negative” for Shiga toxins. Specimens or enteric isolates identified as presumptive pathogenic isolates are reported as genus and species or serogroup.

**Additional Comments:** Laboratories screening samples with bloody diarrhea only for O157:H7 should test negative samples for non-O157; or submit sample to the WPHL for non-O157 analysis. The WPHL also accepts non-O157 *E. coli* isolates for STEC analysis.

*Escherichia coli* O157:H7 is included in a category of diarrheagenic *E. coli* that includes over 100 serotypes of Shiga toxin-producers (STEC). These STEC serotypes cause a spectrum of illness that can present as non-bloody diarrhea, severe bloody colitis (hemorrhagic colitis) and hemolytic uremic syndrome (HUS).

**SHIGELLA SEROGROUPING**

**Type of Test:** Bacterial culture followed by slide agglutination for serogrouping of groups A, B, C, and D.

**Specimen Requirements:** See Appendix 6

**Reporting and Interpretation:** The following *Shigella* groups will be reported.

- **Group A:** *Shigella dysenteriae*
- **Group B:** *Shigella flexneri*
- **Group C:** *Shigella boydii*
- **Group D:** *Shigella sonnei*
STREPTOCOCCAL SEROGROUPING

Type of Test: Slide agglutination for serogroups A, B, C, F and G.

Specimen Requirements: See Appendix 6

Reporting and Interpretation: Beta-hemolytic isolates are serotyped against groups A, B, C, F, and G and reported only by serogroup. Some of the more common species and their relationship to the serogroups are listed below:

<table>
<thead>
<tr>
<th>Group Streptococcal Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Group A: S. pyogenes</td>
</tr>
<tr>
<td>• Group B: S. agalactiae</td>
</tr>
<tr>
<td>• Group C: S. equi, S. zooepidemicus</td>
</tr>
<tr>
<td>• Group F: S. anginosus</td>
</tr>
<tr>
<td>• Group G: S. canis</td>
</tr>
</tbody>
</table>

Reporting and Interpretation: Interpretation will be discussed with submitter when reported.

Additional Comments: Streptococcus species isolates implicated in disease processes other than strep throat may be submitted for serogrouping. Serogrouping may be useful, epidemiologically, to relate cases in an outbreak situation. Organisms that cannot be readily serogrouped may be forwarded to the CDC for further identification with prior consultation between the attending physician and the CDC branch chief.

While certain species of Streptococcus may be directly related to certain serogroups, the result of a serogroup cannot be considered confirmation of a species of Streptococcus.
Type of Test: Acceava Strep A, rapid strep antigen test.

Specimen Requirements: See Appendix 9

Reporting and Interpretation: Results are reported as positive or negative. Only positive results are reported via phone to the submitter. All hard copy results are mailed. Testing is performed within 24 hours of receipt except on weekends. Confirmatory cultures are not performed on negative tests.

Additional Comments: Strep throat testing is performed only for schools, public health nurses, and city-county health units. Specimens are not accepted from private physicians or for-profit clinics or hospitals.
BACTERIOLOGICAL ANALYSIS: TOTAL COLIFORM AND *E. coli*

**Type of Test:** The WPHL is EPA certified to analyze water for the presence of total coliforms and *E. coli* using the Colilert and Colisure methods.

The WPHL offers this service to all EPA monitored systems, city, county, state, or federal government agencies, as well as private entities. Individuals seeking to test their domestic wells are encouraged to visit our website at [http://www.health.wyo.gov/PHSD/lab/index.html](http://www.health.wyo.gov/PHSD/lab/index.html) for frequently asked questions.

**Program Enrollment:** All submitters are required to enroll in the Water Testing Program prior to sample submission. There is currently an analytical fee per test which will be invoiced on a quarterly basis. Customers will be mailed sample kits according to their desired testing schedule. For EPA samples, a copy of the results is automatically sent to the EPA. Please call for more information or to enroll in the program.

**Additional Comments:** Wyoming does not have primacy over water supply systems. The EPA carries out compliance and enforcement for the state. Questions concerning EPA monitored systems for analysis and disinfection should be directed to the EPA in Denver at 1-800-227-8917.
Type of Test: Gen Probe Aptima Combo 2 assay is an amplified nucleic acid probe technology, which is used for testing of both *Chlamydia trachomatis* and *Neisseria gonorrhoeae* from a single specimen.

Specimen Requirements: See Appendix 10

Reporting and Interpretation: Specimens are reported as negative, positive and borderline for chlamydia and gonorrhea. A negative result indicates that no nucleic acid was detected for chlamydia or gonorrhea. A positive result indicates that nucleic acid was detected for chlamydia or gonorrhea. A borderline result indicates that the presence or absence of nucleic acid could not be determined. This may be due to inadequate specimen collection, early stage of infection, or concurrent antibiotic therapy with residual organisms still present. Another specimen should be collected and resubmitted. All results are mailed to the provider. The repeat positive results are also called to the provider.

Additional Comments: Both organisms - *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are tested on the same specimen. All results are dependent on adequate specimen collection. Specimens are submitted in a specific transport medium that lyses the organisms, exposing the nucleic acid to be tested. The assay will detect nucleic acid of live, as well as dead organisms, and therefore should not be used as a test of cure.
HEPATITIS A VIRUS: HAV-TOTAL IMMUNE GLOBULIN AND IGM ANTIBODY TEST

**Type of Test:** Bio-Rad enzyme immunoassay HAV-Total and Bio-Rad enzyme immunoassay HAV-IgM

**Specimen Requirements:** See Appendix 11

**Reporting and Interpretation:**

**HAV-Total:**
HAV-Total positive results indicate that the patient has IgG or IgM antibody to the hepatitis A virus. This may indicate that the patient is currently infected or has had a previous infection with the hepatitis A virus. Status of the individual should be made in conjunction with the HAV-IgM test results. Negative results indicate that the patient has no detectable level of antibody to the hepatitis A virus. The patient is considered susceptible to the hepatitis A virus and may be considered a candidate for immunization if they meet high-risk criteria.

**HAV-IgM:**
HAV-IgM positive results indicate that the patient has an acute infection with the hepatitis A virus and should be considered infectious. Negative results indicate that the patient has no detectable level of IgM antibody to the hepatitis A virus. Be advised that the patient could be in the incubation period.

**Additional Comments:** These assays are only available in the case of acute hepatic illness, exposure to hepatitis A cases, or suspect outbreaks after direct consultation with the WDH Epidemiology Program.

The HAV-Total marker detects total antibody and should be used to screen patients to determine if they are immune due to a previous hepatitis A infection or have received the vaccination or if patient is exhibiting signs and symptoms of hepatitis infection. The HAV-IgM marker is present during most acute hepatitis A infections and should be requested if patient is exhibiting signs and symptoms of hepatitis infection to determine if the patient is actively infected and potentially infectious.
HEPATITIS B VIRUS: HBSAB – HBV SURFACE ANTIBODY, HBSAG-HBV SURFACE ANTIGEN AND HBCIGM – HBV CORE IGM ANTIBODY

**Type of Test:** Bio-Rad enzyme immunoassay hepatitis B (HBV) surface antibody, HBV surface antigen and HBV core IgM antibody

**Specimen Requirements:** See Appendix 11

**Reporting and Interpretation:**

**HBV Surface Antibody:**
Positive results indicate that the patient has antibody to HBV. This usually is a result of a resolved infection with HBV or immunization against HBV. Negative results indicate that the patient has no antibody to HBV and they are susceptible to infection with HBV. People vaccinated against HBV may have antibody levels that are present but not detectable.

**HBV Surface Antigen:**
Positive results indicate that the patient has an acute or chronic infection with HBV, and should be considered infectious. Negative results indicate that no detectable hepatitis B viral antigen was detected and status of the patient should be made based on the result of the HBcIgM.

**HBV Core IgM Antibody:**
Positive results indicate that the patient has IgM antibody to HBV, and has recently been infected with HBV. The patient should be considered infectious. Negative results indicate that no detectable level of antibody to HBV was detected and the status of the patient should be made in conjunction with the result of the HBsAg.

**Additional Comments:**
Three viral markers are available to determine the status of a patient: HBsAb - HBV surface antibody, HBsAg - HBV surface antigen, and HBcIgM - HBV core IgM antibody. HbsAg and HbcIgM should be ordered together.

HBV surface antibody testing is offered for an overt blood-borne exposure for state employees and by referral through the WDH HIV/AIDS/Hepatitis Program, in cases of sexual or blood borne contact to a known infectious partner or in cases of acute hepatic illness through publicly funded programs. Routine determination of immune status is no longer available.

HBV surface antigen marker should be requested to detect surface antigen to determine whether the patient has an acute or chronic HBV infection and to determine if the blood is potentially infectious.

HBVcore IgM marker should be requested to detect core IgM antibody and determine whether the patient has an acute HBV infection and to determine if the blood is potentially infectious.
HEPATITIS C VIRUS (HCV): HCV ANTIBODY

Type of Test: Bio-Rad enzyme immunoassay for hepatitis C virus (HCV) antibody

Specimen Requirements: See Appendix 11

Reporting and Interpretation: A positive result is consistent with HCV infection. It may be an acute, chronic, or resolved infection. Positive results are reported based on the CDC recommended algorithm in which high repeat reactive HCV (EIA) values, greater than 3.8 signal to cutoff ratio, may be considered screening test positive. The guidelines report that 95 percent of these cases are RIBA positive on confirmation. An interpretation of this recommendation will be included with the test results. The specimen will not be confirmed by RIBA. However, if the signal to cutoff is less than 3.8 on the screening EIA, the WPHL will reflex to RIBA testing and this report will be included with the final results. Negative results provide no evidence for infection with HCV.

Additional Comments: Enzyme immunoassay HCV antibody marker should be requested to screen for HCV antibody. This screening test does not differentiate between acute, chronic, or resolved infections. The patient may or may not be infectious if screening test is positive. HCV testing is available with no restrictions for testing of patients who meet high-risk criteria if submitted through publicly funded programs.

HIV ANTIBODY TESTING

Type of Test: Bio-Rad enzyme immunoassay for HIV antibodies 1, 2, and O variant.

Specimen Requirements: See Appendix 12

Reporting and Interpretation: Sample results are reported as negative or positive. Negative samples have no detectable antibody to HIV. Positive samples are those that tested positive on initial EIA, repeat EIA, and Western blot. Upon completion of testing, specimens that are initially reactive are repeated in duplicate. If either of the repeat tests is reactive, the specimen is considered repeat reactive and will be confirmed by Western blot.

Additional Comments: There is a window period with an HIV infection, and a negative result cannot guarantee that a patient is not infected with the HIV virus. All inquiries about HIV test results will be handled by the WDH AIDS Prevention Program. To contact the HIV Prevention Program, call 307-777-5932 or visit their website at: http://www.health.wyo.gov/PHSD/aids/index.html. Only providers approved by the HIV Prevention Program to provide HIV Counseling and Testing may submit HIV tests to the PHL. PEMS Forms are required for all HIV tests and can be ordered by emailing Robert.johnston@health.wyo.gov. Completed PEMS forms are sent to Cheryl Corbin, 6101 Yellowstone, Room 510, Cheyenne, WY 82002.
HIV MULTISPOT FOR HIV 1 AND 2

**Type of Test:** Multi-spot rapid test for confirmation of HIV antibodies.

**Specimen Requirements:** See Appendix 12

**Reporting and Interpretation:**
If the Multispot is positive with a repeat positive HIV EIA, the report is MULTISPOT: HIV-1 REACTIVE - antibodies to HIV-1 present or HIV-2 REACTIVE – antibodies to HIV-2 present.

If both HIV EIA and Multispot are requested and the Multispot is negative with a negative HIV EIA the report is MULTISPOT: NONREACTIVE – HIV-1 and/or HIV-2 antibodies not detected.

If the Multispot is negative with a repeat positive HIV EIA the report is HIV EIA positive with a negative Multispot. The following comment is included “if this patient is considered high risk for HIV, contact the WY PHL for the appropriate collection tube to draw this patient for HIV RNA testing or redraw a second serum specimen in 3-6 weeks”.

**Additional Comments:** The Multispot assay replaces the Western Blot confirmatory test. An EIA screening test is performed for all samples prior to performing the Multispot.
SEROLOGY SECTION

307-777-6062

VIRAL SEROLOGIES

MUMPS, RUBELLA, RUBEOLA AND VARICELLA ZOSTER VIRUS (CHICKEN POX) SEROLOGY

**Type of Test:** The bioMérieux enzyme-linked fluorescent antibody technique is a qualitative assay for detection of mumps, rubeola, and varicella antibodies. Fisher Sure-Vue latex agglutination test is for the qualitative detection of antibodies to the rubella virus.

**Specimen Requirements:** See Appendix 11

**Reporting and Interpretation:**

**Mumps and rubella:**
Results are reported as positive or negative. Specimens reported as positive have detectable antibody, and the patient is considered immune if the assay is for screening purposes only. Specimens reported as negative show no detectable antibody, and patients are considered to be non-immune or susceptible. Detectable antibodies indicate past exposure to either by disease or immunization.

**Rubeola and varicella:**
Results are reported as positive, negative, or equivocal. Positive results show evidence of antibody to the *virus*, either wild virus or vaccination and should indicate immune status. Negative results show no evidence of detectable antibody and indicate that the individual is susceptible. Equivocal results are borderline and another specimen should be submitted since it was not possible to determine the immune status from the specimen.

**Additional Comments:** For symptomatic illness, contact the epidemiology infectious disease section for referral for IgM testing.
SYPHILIS TESTING:

RPR QUALITATIVE & QUANTITATIVE SEROLOGY

**Type of Test:** The RPR (rapid plasma reagin) test is a non-treponemal flocculation test used to screen for syphilis.

**Specimen Requirements:** See Appendix 11

**Reporting and Interpretation:** Specimens are reported as reactive or non-reactive. Results for reactive specimens also include the titer. The titer is the highest dilution giving a positive reaction. Reactive specimens are confirmed at a reference public health laboratory.

**Additional Comments:** Biological false positive reactions have been associated with some infectious diseases, narcotic addiction, and autoimmune diseases. Testing of cord blood is not recommended. Diagnosis of a syphilis infection should not be made on a single reactive result without the support of a positive history or clinical evidence. Qualitative analysis is the initial screening of undiluted specimen. Any specimen that is reactive initially will be quantitated by titering the specimen at doubling dilutions. Quantitation will establish a baseline from which changes in titer can be determined.
FOODBORNE DISEASE INVESTIGATION

**Type of Test:** Toxin assays for *Clostridium perfringens*, *Bacillus cereus* and *Staphylococcus aureus*.

**Reporting and Interpretation:** Enterotoxin production is reported for *Clostridium perfringens*, *Staph aureus*, and *Bacillus cereus*. Presence or absence of *Salmonella*, *Shigella*, *Listeria*, *Campylobacter* and *Vibrio* is reported. If isolated, *Salmonella*, *Shigella*, *Listeria* and *E. coli* O157:H7 will be serotyped.

**Additional Comments:** Foods implicated in a foodborne outbreak are tested for pathogens. Whenever possible, clinical samples (stool) should accompany food samples. All sample collection must be coordinated between the local health department and/or sanitarian and the WPHL. After the initial investigation is completed, appropriate testing will be determined based on symptoms and incubation times for suspected food pathogens.

An excellent resource on the diagnosis and treatment of foodborne illness, including symptomology and onset time frames is the article *Diagnosis and Management of Foodborne Illness* (CDC – MMWR Publication/April 16, 2004/53(RR04);1-33). The article is available online at [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5304a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5304a1.htm).
PULSED FIELD GEL ELECTROPHORESIS (PFGE)

Type of Test: Pulsed Field Gel Electrophoresis (PFGE) is a molecular technique used to determine genetic relatedness within a single bacterial species.

Reporting and Interpretation: Gel patterns are entered into PulseNet, the CDC database that performs comparisons to other similar strains recovered across the nation. Customized reports are provided to the WDH Infectious Disease Epidemiology Program for use in consultation with submitter.

Additional Comments: Used primarily with foodborne bacterial pathogens, PFGE is also useful in nosocomial outbreak situations to determine if isolates from different patients or sources are related. PFGE is used by the WPHL to evaluate bacterial isolates suspected of being part of an outbreak or cluster of disease in the state or at a facility.

SALMONELLA SEROTYPING

Type of Test: Slide agglutination and tube agglutination against various serogroups and serotypes.

Reporting and Interpretation: Submitters (health care providers) will receive reports that include serogroup. Both serogroup and serotype are reported to WDH Infectious Disease Epidemiology Program.

Additional Comments: According to the Wyoming Reportable Disease Requirements, all Salmonella isolates must be sent to the WPHL for serotyping. Naming of Salmonella serotypes has gone through recent revisions by the CDC. Salmonella now consists of two species: enterica and bongori. Enterica has 6 subspecies; enterica, salamae, arizonae, diarizonae, houtenae, indica. Each subspecies has serovars (serotypes) within it.
INFLUENZA PCR

SUBMISSION FOR INFLUENZA TESTING WILL FOLLOW EPIDEMIOLOGY PROGRAM GUIDELINES THROUGH SENTINEL SITES. PLEASE REVIEW THESE REQUIREMENTS BEFORE SUBMITTING.

**Type of Test:** Reverse transcriptase PCR analysis is offered for detection of viral nucleic acid for influenza A and B, and for differentiation between the different genotypes: A H1, A H3, and A H1N1 swine-like.

**Specimen Requirements:** See Appendix 13

**Reporting and Interpretation:** Samples are reported as positive, negative, borderline, or inconclusive for each of the primer probe sets tested, i.e.: AH1, AH3, B, and AH1N1 swine-like. A negative result indicates that the specimen was negative for all primer probe sets tested.

**Additional Comments:** Seasonal and epidemic influenza testing is available only to designated Sentinel sites. Upon assessment of epidemic influenza outbreaks, the State Epidemiologist may enable private providers to submit specimens. This will be announced through the Health Alert Network.

NOROVIRUS PCR

Norovirus testing can be arranged after consultation with the WDH epidemiology disease service at 1-877-996-9000. Stool specimens for norovirus testing may be collected when the case patient is suspected of being part of an outbreak or cluster of illness.

**Type of Test:** Reverse transcriptase PCR analysis for the detection of viral RNA to norovirus 1 and 2.

**Specimen Requirements:** See Appendix 7

**Reporting and Interpretation:** Separate results are given for norovirus 1 and norovirus 2. Results are reported as positive or negative for each. Positive results indicate that viral nucleic acid was detected for the type of norovirus listed. Negative results indicate that no nucleic acid was detected for the type of norovirus listed. Positive specimens are sent to the Regional Calicinet Laboratory for molecular genotyping.
PERTUSSIS

Type of Test: Reverse transcriptase PCR analysis for the detection of bacterial DNA to *Bordetella pertussis*.

Specimen Requirements: See Appendix 14

Reporting and Interpretation: A positive PCR test indicates detection of *Bordetella pertussis* DNA. DNA may be detected in individuals after organisms are no longer viable. Negative results indicate that the absence of detectable pertussis DNA, but should not preclude the possibility of disease in light of signs and symptoms consistent with *B. pertussis*.

Additional Comments: The pertussis PCR test screens specimens using a target assay for the gene IS481, which is present in multiple copies of *B. pertussis*. IS481 is also found in lesser quantities in *Bordetella holmesii* and *B. bronchiseptic*. Therefore, specimens that are positive for the IS481 gene will be confirmed with the PCR test for ptxS1, the pertussis toxin. Specimens that are positive for IS481 and positive for ptxS1 will be reported as positive for *B. pertussis*. Interpretation of PCR results should be considered in conjunction with an evaluation of signs and symptoms and available epidemiological information.

WEST NILE VIRUS

Type of Test: Enzyme immunoassay for detection of West Nile virus (WNV) IgM and/or IgG antibodies.

Specimen Requirements: See Appendix 15

Reporting and Interpretation:

IgM Results:
A positive result indicates infection with WNV has occurred, and usually suggests a relatively recent infection. However, these types of antibodies can be found in the body for up to a year after WNV infection has occurred. A negative result indicates that no antibody was detected. An indeterminate result indicates that the presence or absence of infection could not be determined; this may have been due to substances in the blood, which interfered with the testing. A borderline result indicates that the results are inconclusive.

IgG Results: The IgG test looks for antibodies produced after the infection has passed the early phase. Requests for West Nile Virus IgG should be requested through the WDH Epidemiology Disease service.

Additional Comments: Timing is critical in collection of both CSF and serum for WNV testing. False negative test results are possible when specimens are collected prematurely. CSF specimens for IgM should be collected within 8 days of onset of illness. Acute serum specimens
should be collected after 8 days post onset of illness. Convalescent specimens should be collected 2-3 weeks after collection of acute serum. IgG specimens may be batch tested or sent to a reference laboratory for analysis.
**Type of Test:** The bioMérieux BacT/Alert broth system is used for the culture and isolation of mycobacteria. Auramine-rhodamine stain (fluorescent antibody technique) is used for specimen smears. The Gen-Probe amplified TB test is used for smear positive specimens. (reference tests)

Specimens that are AFB smear positive will be sent to a reference lab for Nucleic Acid Amplification Test (NAAT) which can determine the presence of M. tuberculosis nucleic acid as well as rifampin resistance. If clinicians are highly suspicious that a patient has tuberculosis, consultation with the TB program coordinator should be conducted to determine the need for NAAT on these patient samples.

Drug Susceptibility Tests (DST) for the first four lines of drugs will be automatically performed on the first specimen submitted for each positive case of M. tuberculosis.

**Specimen Requirements:** See Appendix 16

**Reporting and Interpretation:**

**Smear Results:**
Results of specimen smears are reported the same day they are tested. Smear results are reported as positive, negative or rare, and are graded as 1+ to 4+ depending on the number of acid fast bacilli observed on the slide.

Positive smear results are reported by phone the same day they are completed, and hard copies of all results are sent to the submitting physician and to the WDH Tuberculosis (TB) Program.

**Culture Results:**
Cultures must be held for 8 weeks before a final report is available. Cultures are identified by DNA probe. Probes are available for M. tuberculosis complex and M. avium complex. All other culture types will be identified by 16s r DNA sequencing at the WPHL.
Hard copies of the culture results are sent to the submitting physician and the Tuberculosis Program. Amplified TB results are reported as positive, negative, or inconclusive. Copies of the reference laboratory results are sent to the provider.

**NAAT Results:**
Results for NAAT are generally completed within 48-72 hours and will be reported as positive, negative or inconclusive. Rifampin results will be reported as positive or negative.

**DST Results:**
Drug susceptibility test results will be reported as resistant or sensitive to each drug tested. Copies of the reference laboratory results will be attached to the final report.
Wyoming Bioterrorism Response Laboratory (BRL) Program operates under the auspices of the Wyoming Public Health Laboratory (WPHL). The BRL is associated with the National Laboratory Response Network and is working with community laboratories to establish a statewide laboratory response capability and capacity.

The BRL is a member of the Laboratory Response Network, which is overseen by the Centers for Disease Control and Prevention (CDC). This affiliation helps ensure that the most consistent, highest quality testing protocols for bioterrorism (BT) agents are available for use with human and environmental specimens for the residents of the State of Wyoming.

The BRL is regulated by the Select Agent Program. The Select Agent Program is the federal government program under which laboratories are regulated to work with the agents of bioterrorism that cause diseases in both animals and humans. Many of these diseases can spread quite readily on their own, do not require any microbiological manipulation or weaponization to make them effective agents for terrorism and can infect humans as well as domestic or wild animals.

Several potential BT agents are endemic in Wyoming’s wildlife, requiring differentiation between naturally occurring disease and an intentional release. Rapid identification of a suspect BT agent is essential to provide valuable information in patient treatment, support criminal investigations and to ensure that safety measures are implemented to protect human and animal health and safety.

Wyoming’s Laboratory Response Network

The BRL has designed, developed, and implemented a comprehensive statewide laboratory response program that provides Wyoming with the infrastructure necessary to respond to bioterrorism threats and emerging infectious diseases.

Sentinel Laboratories

Sentinel clinical laboratories, which include all local medical laboratories that perform bacteriology in the state, have been identified, assessed, and provided training and resources for participation in Wyoming’s Laboratory Response Network (LRN). Laboratories that meet the following criteria are considered to be a part of the sentinel level of Wyoming’s LRN:

- Located within the state of Wyoming.
- Operates as a clinical laboratory with CLIA or equivalent certification.
- Performs basic microbiological culturing and organism testing on specimens and isolates recovered from humans, as associated with sentinel laboratory activities within the LRN.
CONFIRMATORY LABORATORIES

At the confirmatory laboratory level, WPHL’s BRL is coordinating with the Wyoming State Veterinary Laboratory, the Wyoming Game & Fish Wildlife Disease Laboratory, and the Department of Agriculture’s Analytical Services Laboratory to develop a laboratory network that is prepared for multiple potential terrorist events. In Wyoming, many of the bioterrorism agents of most interest are endemic in some wildlife species; laboratory cooperation and coordination are necessary to adequately prepare for a potential bioterrorism threat.

WPHL’S BIOTERRORISM RESPONSE LABORATORY

The BRL is the only biosafety level 3 laboratory in the state that is CLIA regulated and capable of performing confirmatory testing for bioterrorism agents in humans. The BRL is a member of the National Laboratory Response Network and has implemented rapid molecular technologies including: Time-Resolved Fluorescence (TRF), DNA sequencing, and Polymerase Chain Reaction (PCR). Through these technologies, the BRL has the capacity for rapid presumptive testing of the agents that cause anthrax, plague, tularemia, brucellosis, chickenpox, vaccinia, and other emerging infectious diseases. This laboratory response program model ensures consistent, quality testing procedures and a defined surge capacity for any disease outbreak and enhances the WPHL’s ability to respond to emerging infectious diseases.
SUBMISSION OF SUSPICIOUS POWDERS

The general public and health care professionals should first contact their local law enforcement for an initial investigation. Powder samples may be submitted to the BRL through a law enforcement agency. If a credible threat is present, the investigating law enforcement agency should contact the BRL to coordinate the details of submission. Powder samples are generally transported to the BRL by the submitting law enforcement agency.

SUBMISSION OF SUSPECT ORGANISMS FOR CONFIRMATORY TESTING

Isolates from clinical samples will be accepted from a hospital laboratory or any other clinical laboratory in the state. Samples may be submitted if normal bacteriological methods are unable to rule out an agent of concern. Agents associated with bioterrorism events that can be ruled out or confirmed at the BRL include: *Bacillus anthracis*, *Francisella tularensis*, *Yersinia pestis*, and *Brucella sp.*

Packaging and Transport of Suspect Organisms: The BRL recommends that all bioterrorism rule-out isolates be packaged and shipped following current shipping guidelines for infectious substances. An All Hazards Test Request form should be completed and included with the isolate.

Testing Availability: All testing conducted by the BRL is evaluated and performed based on the individual circumstances of the situation. General testing is available Monday through Friday, with emergency specimens also tested during off-hours.

Reporting/Interpretation: Results are called to the submitter and interpretations customized to the specimen/test situation and discussed with health care providers.
REFERENCE TESTING

SPECIMEN SUBMISSION TO COMMERCIAL REFERENCE LABORATORIES

Due to budget constraints, the WPHL is unable to refer specimens directly from our facility to commercial testing laboratories. All specimens testing to be performed at a commercial reference laboratory must be initiated directly by the requesting clinical laboratory or health care provider.

REFERENCE TESTING AND SPECIMEN SUBMISSION TO CDC

For other tests not covered in this manual, please contact the WPHL at (307) 777-7431. The CDC will accept certain specimens for unusual diseases, but only by prior arrangement through a state public health laboratory. The CDC requires that all samples be accompanied by completed CDC patient history forms. The WPHL will request that the submitter complete the appropriate paperwork prior to transfer of the specimen to the CDC.

The CDC responds well to emergency situations for both public and private health; however, for some reference or diagnostic work, it may take several weeks to months before CDC reports are received.

Tests at CDC Ft Collins
http://www.cdc.gov/ncidod/dvbid/index.html

- Lyme
- Plague
- Tularemia
- Dengue
- Tick-borne relapsing fever
- Arboviral diseases
- Colorado Tick Fever

Tests at CDC Atlanta

- RMSF
- Botulism
- E. coli serotyping
- Other misc. tests are available upon consultation at 307-777-6053

Antimicrobial Susceptibility Confirmation Testing
The WPHL no longer requires submission of MRSA or VRE isolates for confirmation. Drug susceptibility testing is not available at the WPHL, and should be either done at the local hospital laboratory, or sent out to a reference laboratory.

Contact John Harrison at 307-777-6062 for consultation.
Testing Referred to Other Laboratories

**CLOSTRIDIUM BOTULINUM – BOTULISM (REFERENCE TEST)**

**Type of Test:** Detection of *Clostridium botulinum* toxin associated with food samples are referred to the CDC in Atlanta.

**Specimen Requirements:** 15 cc serum, 25 g fresh stool, and suspect food leftovers if available. Provide patient’s age, date of onset, and symptoms. Call the WPHL to get instructions on collection and shipment. Ship by overnight delivery on cold packs, *not* dry ice.

**Ship directly to:**
- Botulism Lab
- Dr. Susan Maslanka
- CDC
- 1600 Clifton Road
- Atlanta, GA 30333

**Label outside of box:**
“MEDICAL EMERGENCY - CALL CDC ON ARRIVAL - 404-639-2888”

**Reporting and Interpretation:** Antitoxin is available through CDC Epidemiology and is provided in the event of a confirmed case of adult botulism.

**Additional Comments:** In the event of suspect adult or infant botulism, notification should immediately be made to CDC Epidemiology and CDC Laboratory, as well as WDH’s State Epidemiologist. If the event is after normal business hours, use the CDC pager number and notify CDC security if a specimen is being sent by Fed Ex.

**Notification**
- Monday - Friday 8:00 - 5:00 EST
- CDC Epidemiology Dr. Tauxe 404-639-2888 (pronounced tokes)
- CDC Laboratory Dr. Susan Maslanka 404-639-0895

**After hours**
- CDC Botulism Pager 404-571-1334
- CDC Security 404-639-2888 (use for Fed Ex reference #)

**Wyoming Department of Health**
- During Work Hours: 1-877-996-9000
- After Hours: 1-888-996-9104
VIRAL DFA (REFERENCE TEST):
MEASLES, RUBELLA, MUMPS, VARICELLA ZOSTER VIRUS

Type of Test: Direct fluorescent antibody stain to detect virus inside human cells

Specimen Requirements: Collect a lesion roof and two swabs of potentially virus containing cells from a characteristic lesion by un-roofing the lesion with a wooden stick end of a sterile swab, place the lesion roof into an empty 15 mL conical tube. Using a new swab vigorously scrape the base of the lesion with the swab. Avoid drawing excessive blood with this technique, as blood can adversely affect the test results. Place the swab into the viral media transport tube, repeat with a second swab and place in the same tube. Label the tube with patient name and date of collection and seal with parafilm. Complete a WPHL test request form – mark ‘Other’ on the form and write in ‘VZV DFA’.

Shipping Requirements: Ship as diagnostic specimens, using mailers provided by WPHL or comparable approved shipping containers. Swabs can be shipped at room temperature.

CTF AND LYME TESTING (REFERENCE TEST)

Type of Test: Colorado Tick Fever (CTF) and Lyme disease is available through the CDC. Test requests require prior approval of the laboratory supervisor or director.

Specimen Requirements: Submit at least 2mL serum in leak-proof plastic tube. Do not heat inactive specimens. Label specimen with patient name or unique identifier. Submit specimen with a completed requisition form and a completed CDC form #50.34 http://www.cdc.gov/nczved/divisions/dvbid/specimen/arboviral_shipping.html#form
Specimens for Lyme disease must include an additional form: the Lyme disease report form. Paired sera are preferred, but a single acute specimen will be accepted and tested for IgM.

Shipping Requirements: Diagnostic specimens are now regulated by the DOT & ICAO/IATA Dangerous Goods Regulations. Anyone offering packages for transport containing diagnostic sample must be trained according to these regulations. For more information please refer to CDC’s Scientific Resources Program. http://www.cdc.gov/ncezid/dsr/

Reporting and Interpretation: Test results and interpretations are made by the CDC testing laboratory. Copies of those reports will be forwarded to the submitter.

Additional Comments: All specimens to be forwarded to the CDC must be accompanied by a CDC history form (#50.34). Processing of these specimens will not take place until after this form is received and properly completed. Under certain circumstances, an additional history form must be completed to aid in epidemiological study of the disease. All bacterial, viral, mycological, or rickettsial requests not specifically listed in this manual will be referred to another laboratory.
HANTAVIRUS SEROLOGY (REFERENCE TEST)

**Type of Test:** Enzyme immunoassay

**Specimen Requirements:** Contact WPHL

**Reporting and Interpretation:** Results are noted as positive, negative, or equivocal. If the patient has had an illness compatible with a Hanta associated respiratory illness, and the specimen was drawn three or more weeks from onset of illness, a positive IgM is reasonable evidence that the illness was associated with a Hantavirus infection. A negative IgM response in a single specimen may not rule out the possibility of infection, as the specimen may have been collected prematurely. A significant rise in IgG antibodies between acute and convalescent specimens is also suggestive of a recent infection. A positive IgG response in the absence of an IgM response may indicate past infection.

**Additional Comments:** Hantavirus specimens are sent to a reference laboratory for analysis. PHL will consult with EPI prior to submission approval.

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RABIES TESTING REFERRAL

For rabies antibody testing after vaccinations, please contact the Rabies Laboratory at the Kansas State University at 1-785-532-4483.

For rabies testing of animals suspected of having rabies, please contact the Wyoming State Veterinary Laboratory
1174 Snowy Range Road, Laramie, WY 82070, (307) 742-6638 or 1-800-442-8331.

If an individual has been bitten by an animal, please contact Dr. Karl Musgrave, State Public Health Veterinarian at 307-421-8591 or for more information check out the following website: http://www.health.wyo.gov/phsd/epiid/rabies.html
APPENDIX 1: REPORTABLE DISEASE LIST AND FORM

Wyoming Department of Health Reportable Diseases and Conditions

A report is required by law from both the attending healthcare provider/hospital and the laboratory performing diagnostic testing.

Wyoming laboratories are responsible for reporting results when a reference laboratory is used.

Mail reports to: Wyoming Department of Health, 6101 Yellowstone Road Suite 510, Cheyenne, WY 82002 OR
Fax reports (Except HIV/AIDS) to our secure fax machine at (307) 777-5573 OR
*electronic reporting at https://prismdata.health.wyo.gov is preferred for diseases marked with *

For all LABORATORY questions please call (307) 777-7431; REPORTING questions please call (307) 777-7953

DISEASES IN RED: Immediate Notification at 1-888-996-9104
Diseases in Black: Reportable within 24 hours of diagnosis by fax or telephone

LAB: In addition to reporting, submit an isolate or other appropriate material, in accordance with IATA Dangerous Goods Regulations to: State Public Health Laboratory, Combined Laboratories Facility, 208 S College Dr, Cheyenne, WY 82002

1. Amebiasis (Entamoeba histolytica)
2. Anaplasmosis/Ehrlichiosis
3. Anthrax (Bacillus anthracis)
4. Babesiosis (Babesia sp)
5. Bartonellosis (Bartonella sp)
6. BOTULISM (Clostridium botulinum)
7. Brucellosis (Brucella sp)
8. California Serogroup Virus (neuro- and non-neuro invasive)
9. Campylobacteriosis (Campylobacter sp)
10. Cholera (Vibrio cholerae)
11. Coccidioidomycosis (Coccidioides immitis)
12. Colorado Tick Fever
13. Creutzfeldt-Jakob Disease (including classic CJD and variant CJD)
14. Cryptosporidiosis (Cryptosporidium parvum)
15. Cyclosporiasis (Cyclospora cayetanensis)
16. Dengue Fever
17. Diphtheria (Corynebacterium diphtheriae)
18. Eastern Equine Encephalitis Virus (neuro- and non-neuro invasive)
19. Ehrlichiosis/Anaplasma
20. Encephalitis
21. Escherichia coli, shiga toxin-producing
22. Giardiasis (Giardia lamblia)
23. Gonorrhea (Neisseria gonorrhoeae)
24. Haemophilus influenzae (sterile site)
25. Hantavirus Disease
26. Hemorrhagic Fever VIRUSES
27. Hepatitis A, B*, D, E
28. Hepatitis C
29. HIV/AIDS (Positive/reactive detection tests, all CD4’s, and all viral loads)
30. Influenza (lab confirmed)
31. Influenza-Associated Deaths
32. Kawasaki Syndrome
33. Legionellosis (Legionella sp)
34. Leptospirosis (Leptospira interrogans)
35. Listeriosis (Listeria monocytogenes)
36. Lyme Disease (Borrelia burgdorferi)
37. Malaria (Plasmodium sp)
38. Measles
39. Melioidosis (Burkholderia pseudomallei)
40. Meningitis (all types)
41. Methicillin-Resistant Staphylococcus aureus (MRSA)
42. Related Cases, Clusters, and Outbreaks ONLY
43. Mumps
44. Pertussis (Bordetella pertussis)
45. Plague (Yersinia pestis)
46. Poliomyelitis/Poliomyelitis Infection
47. Powassan Virus (neuro- and non-neuro invasive)
48. Psittacosis (Chlamydia psittaci)
49. Q-Fever (Coxiella burnetii)
50. Rabies (human and animal)
51. Relapsing Fever (Borrelia sp)
52. Rocky Mountain Spotted Fever (Rickettsia rickettsii)
53. Rubella
54. Salmonellosis (Salmonella sp)
55. SEVERE ACUTE RESPIRATORY SYNDROME (SARS)
56. Shiga toxin (stool, broth, isolate, etc.)
57. Shigellosis (Shigella sp)
58. Smallpox
59. Streptococcal Disease, sterile site only
60. “Syphils” (Treponema pallidum)
61. Tetanus (Clostridium tetani)
62. Toxic-Shock Syndrome (Streptococcal, Staphylococcal)
63. Trichinosis (Trichinella sp)
64. Tuberculosis (Mycobacterium tuberculosis complex)
65. Tularemia (Francisella tularensis)
66. Typhoid Fever (Salmonella typhi)
67. Typhus (Rocky Mountain spotted fever)
68. Vancomycin-Intermediate Staphylococcus aureus (VISA)
69. Vancomycin-Resistant Staphylococcus aureus (VRSA)
70. Vancomycin-Resistant Enterococccus (VRE)
71. Varicella (chickenpox only)
72. Vibrio sp (including non-cholera)
73. West Nile Virus (neuro- and non-neuro invasive)
74. Western Equine Encephalitis Virus (neuro- and non-neuro invasive)
75. Yellow Fever
76. Yersiniosis (Y. enterocolitica, Y. pseudotuberculosis)

Other Reportable Conditions

1. Animal Bites
2. Exposures Requiring Rabies Prophylaxis
3. Blood Lead (All levels)
4. Clusters/Outbreaks (GI, respiratory, other illness)
5. Methemoglobinemia/Nitrate Poisoning
6. Suspected Biological, Chemical, or Radiological Incident
7. TOXIN-ASSOCIATED ILLNESS
8. UNEXPLAINED DEATH
9. UNUSUAL ILLNESS OF PUBLIC HEALTH IMPORTANCE

Updated 01/12
Wyoming Department of Health - Confidential Disease Report

A report is required by state law from both the attending health care provider/hospital and the laboratory performing diagnostic testing. Information will be held in confidence and will be used for public health epidemiological purposes only.

Patient Information

Last Name: ___________________________ First Name: ___________________________ Gender □ M □ F
Address: ___________________________ City: ___________________________ State: ______ Zip: ______
Phone: (Home) ___________________________ Phone: (Work) ___________________________ Date of Birth: ______ Age: ______
Occupation: ___________________________ Hispanic: □ Yes □ No □ Unknown
□ White □ Black □ Asian □ American Indian/Alaskan Native □ Pacific Islander □ Unknown □ Other

Provider and Laboratory Information

Disease: ___________________________ Laboratory Findings: ___________________________
Specimen Source: ___________________________ Onset Date: ______ Specimen Collection Date: ______ Result Date: ______
Laboratory Name: ___________________________
Physician: ___________________________ Phone: ___________________________ Physician City: ___________________________
Physician Institution/Clinic: ___________________________
Person Reporting: ___________________________ Phone: ___________________________
Was Patient Hospitalized? □ Yes □ No □ Unknown Where? ___________________________
If Yes, Admission Date: ______ Discharge Date: ______
Check All That Apply: □ Healthcare Worker □ Food Service Worker □ Daycare Worker/Attendee
Name of Facility: ___________________________
Treatment: ___________________________ Pregnant: □ Yes □ No □ Unknown
If this is a report of an STD, were any partners provided treatment? □ Yes □ No Number: ___________________________
Other Comments: ___________________________

Send Reports To:

Epidemiology Section
Wyoming Department of Health
6101 Yellowstone Road, Suite 510
Cheyenne, WY 82002

Secure Fax: (307) 777-5573 / Phone: (307) 777-3593
Epidemiology Section Toll-Free, 24 Hour Hotline: 1-888-996-9104
Thank You for Your Cooperation With Disease Reporting!!!
CLINICAL LABORATORY INSTRUCTIONS FOR COURIER PICK-UP

Delivery of supplies:
Courier services will bring supplies from the WPHL as requested. For additional supplies, please complete a supply order form (see Appendix 3) and fax, mail, or send with the courier to the WPHL.

Packaging of Clinical Samples:
1. Place the labeled primary container (blood collection tube, serum transport tube, etc.) into a biohazard bag with absorbent material, close and place the test request form into the outside pouch.
2. Place packaged samples into a 6.2 UN canister for transport by the courier. Multiple tubes or plates can be sent in one canister but ensure all are properly labeled.

Packaging of Bacterial Isolates:
1. If sending a culture plate, tape the plate closed, place the labeled culture plate into a biohazard bag with absorbent material, close and place the test request form into the outside pouch.
2. If using a tube media, place the tube into a bubble wrap pouch and then place this into the biohazard bag with absorbent material and place the test request form into the outside pouch.
3. Put the packaged culture into a 6.2 UN canister for transport. Multiple tubes or plates can be sent in one canister but ensure all are properly labeled.
4. Place a ‘WPHL’ sticker on the outside of the canister and place in the appropriate pick up location for the courier (refrigerator, counter, etc.).

Logging of daily samples:
We recommend keeping a log of the samples left for the courier each day.

Emergency deliveries:
There is an option for emergency delivery. It is expensive and would need to be requested by the WPHL. If a sample requires immediate transport on holidays or weekends (especially suspect bioterrorism agents) please call 1-888-996-9104 to reach the Wyoming Department of Health 24/7 on call personnel, explain the situation and ask them to contact WPHL staff to request emergency courier service.

Problems with the courier:
Questions or concerns with the courier service should be directed to Shawna Dereemer or Gale Stevens at 307-777-7431. To contact Action Cargo regarding changes to a pick up time or location call: 1-307-266-2229.
<table>
<thead>
<tr>
<th>Town</th>
<th>Facility Name</th>
<th>Address</th>
<th>tentative pick up time</th>
<th>Note**</th>
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<td>Johnson County Memorial Hospital</td>
<td>497 W. Lott</td>
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<td>1233 E. 2nd St.</td>
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<tr>
<td>Cheyenne</td>
<td>Wyoming Public Health Laboratory</td>
<td>208 S. College Dr. 82002</td>
<td>16:30</td>
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</tr>
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<td>West Park Hospital</td>
<td>707 Sheridan Ave.</td>
<td>15:00</td>
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<tr>
<td>Douglas</td>
<td>Memorial Hospital of Converse County</td>
<td>111 S. 5th St.</td>
<td>15:30</td>
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<tr>
<td>Evanston</td>
<td>Wyoming State Hospital</td>
<td>Highway 150 South</td>
<td>15:00</td>
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<td>Evanston Regional Hospital</td>
<td>190 Arrowhead Dr.</td>
<td>15:00</td>
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</tr>
<tr>
<td>Ft. Washakie</td>
<td>Wind River Service Unit</td>
<td>29 Black Coal Dr.</td>
<td>15:00</td>
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</tr>
<tr>
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<td>Campbell County Memorial Hospital</td>
<td>501 S. Burma Ave.</td>
<td>15:00</td>
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</tr>
<tr>
<td>Green River</td>
<td>Castle Rock Medical Center</td>
<td>1400 Uinta Dr.</td>
<td>16:25</td>
<td></td>
</tr>
<tr>
<td>Jackson</td>
<td>St. John's Hospital</td>
<td>625 E. Broadway</td>
<td>14:45</td>
<td></td>
</tr>
<tr>
<td>Kemmerer</td>
<td>South Lincoln Medical Center</td>
<td>711 Onyx St.</td>
<td>15:00</td>
<td></td>
</tr>
<tr>
<td>Lander</td>
<td>Lander Valley Medical Center</td>
<td>1320 Bishop Randall Dr.</td>
<td>15:30</td>
<td></td>
</tr>
<tr>
<td>Laramie</td>
<td>Ivinson Memorial Hospital</td>
<td>255 N. 30th St.</td>
<td>15:30</td>
<td></td>
</tr>
<tr>
<td>Laramie</td>
<td>Albany County Public Health</td>
<td>609 S. 2nd St.</td>
<td>15:35</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Facility Name</td>
<td>Address</td>
<td>Time</td>
<td>Notes</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------------------</td>
<td>--------------------------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>Lovell</td>
<td>North Big Horn Hospital</td>
<td>1115 Lane 12</td>
<td>15:00</td>
<td></td>
</tr>
<tr>
<td>Lusk</td>
<td>Niobrara Health and Life</td>
<td>921 Ballencee</td>
<td>14:20</td>
<td>Will Call</td>
</tr>
<tr>
<td>Newcastle</td>
<td>Weston County Health Services</td>
<td>1124 Washington Blvd</td>
<td>13:30</td>
<td></td>
</tr>
<tr>
<td>Pinedale</td>
<td>Pinedale Medical Clinic</td>
<td>619 E. Hennick St.</td>
<td>14:00</td>
<td>Will Call</td>
</tr>
<tr>
<td>Powell</td>
<td>Powell Hospital</td>
<td>777 Avenue H</td>
<td>14:30</td>
<td></td>
</tr>
<tr>
<td>Rawlins</td>
<td>Memorial Hospital of Carbon County</td>
<td>2221 W. Elm St.</td>
<td>15:10</td>
<td></td>
</tr>
<tr>
<td>Riverton</td>
<td>Columbia Riverton Memorial Hospital</td>
<td>2100 W. Sunset Dr.</td>
<td>15:30</td>
<td></td>
</tr>
<tr>
<td>Rock Springs</td>
<td>Memorial Hospital of Sweetwater County</td>
<td>1200 College Dr.</td>
<td>15:55</td>
<td></td>
</tr>
<tr>
<td>Sheridan</td>
<td>Sheridan County Memorial Hospital</td>
<td>1401 W. 5th St.</td>
<td>14:45</td>
<td></td>
</tr>
<tr>
<td>Sheridan</td>
<td>Sheridan Veterans Affairs Medical Center</td>
<td>1898 Fort Road</td>
<td>15:00</td>
<td></td>
</tr>
<tr>
<td>Sundance</td>
<td>Crook County Memorial Hospital</td>
<td>713 Oak St.</td>
<td>12:30</td>
<td>Will Call</td>
</tr>
<tr>
<td>Thermopolis</td>
<td>Hot Springs Memorial Hospital</td>
<td>150 E. Arapahoe</td>
<td>15:30</td>
<td></td>
</tr>
<tr>
<td>Torrington</td>
<td>Community Hospital</td>
<td>2000 Campbell Dr.</td>
<td>15:25</td>
<td></td>
</tr>
<tr>
<td>Wheatland</td>
<td>Platte County Memorial Hospital</td>
<td>201 14th St.</td>
<td>15:45</td>
<td></td>
</tr>
<tr>
<td>Worland</td>
<td>Washakie Memorial Hospital</td>
<td>400 S. 15th St.</td>
<td>16:40</td>
<td></td>
</tr>
</tbody>
</table>

Note: Will-call facilities will need to call the courier, Action Cargo Express, 2-3 hours prior to the listed time at 1-888-484-6555 to ensure the courier stops for samples. If the call is placed too late, the sample will likely not be picked up until the following day.
### APPENDIX 3: MICROBIOLOGY SUPPLY ORDER FORM

**WPHL Supply Order Form**
1. Keep a copy for your records
2. Name, address, and phone number required
3. Quantity specified
4. Serology limited to 50/order
5. FAX, mail, or email form
   (One protocol will be packed with each order)

**TO:**

**FROM:** Wyoming Public Health Laboratory  
Combined Laboratories Facility  
200 C. College Drive  
Cheyenne, WY 82007  
Phone: 307.777.7491  
FAX: 307.777.8422

**SOME SUPPLIES MAY BE AVAILABLE FOR DESIGNATED SITES ONLY**

<table>
<thead>
<tr>
<th>QTY</th>
<th>Lab Requisition Forms (Only)</th>
<th>QTY</th>
<th>Collection Kits (See protocol handout for kit components)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WPHL Requisition Form</td>
<td></td>
<td>Chlamydia/GC Unisex Swab</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chlamydia/GC Urine</td>
</tr>
<tr>
<td></td>
<td>Other (Please specify)</td>
<td></td>
<td>Chlamydia/GC Vaginal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chlamydia/GC Mailer only</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QTY</th>
<th>Miscellaneous Components (Only)</th>
<th>QTY</th>
<th>Collection Kits with Mailers</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fecal Bacteria/Norovirus Kit (FB)</td>
</tr>
<tr>
<td></td>
<td>Needle Holders</td>
<td></td>
<td>Fecal Parasite Kit (FP)</td>
</tr>
<tr>
<td></td>
<td>Needles</td>
<td></td>
<td>HIV Oral Fluid Kit</td>
</tr>
<tr>
<td></td>
<td>Urine Collection Cups</td>
<td></td>
<td>HIV Venipuncture Kit</td>
</tr>
<tr>
<td></td>
<td>Vacutainers (Red Top)</td>
<td></td>
<td>Pertussis Kit (BP)</td>
</tr>
<tr>
<td></td>
<td>Throat Swabs</td>
<td></td>
<td>Serology Kit</td>
</tr>
<tr>
<td></td>
<td>WPHL Stickers (Courier only)</td>
<td></td>
<td>Tuberculosis Kit</td>
</tr>
<tr>
<td></td>
<td>West Nile Virus Shipper (WNV)</td>
<td></td>
<td>Varicella Zoster Kit (VZV)</td>
</tr>
<tr>
<td></td>
<td>Cold - Pak and Protocol</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Infectious Canister (Courier Only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNb. Shripper</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(For Infectious Substances-limit 2 per request)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other (Please specify)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QTY</th>
<th>Outbreak Supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GI Outbreak Kit</td>
</tr>
</tbody>
</table>

**WPHL use only**

Date Filed _____/_____/_____
Initials ________________

**Contact Information for Receiving Facility**

Name ____________________ Phone # __________________
APPENDIX 4: LABORATORY REQUISITION FORM

Wyoming Public Health Laboratory
Combined Laboratories Facility
208 S. College Drive
Cheyenne, WY 82002
307.777.7431  FAX 307.777.5422

Submitter Information:
Name: __________________________________________
Address: ________________________________________
City/State/Zip: __________________________
Telephone: ________________________________
Doctor: ______________________________________

Patient Information or Patient ID Label (HIV sticker)
Last Name | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______
First Name | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______ | ______

Age ______ DOB ______
Date Collected ______/_____/_____ Date of Onset ______/_____/_____
Convalescent Collection Date ______/_____/_____

Specimen Type
☐ Blood  ☐ Throat  ☐ Urine
☐ Serum  ☐ Isolate  ☐ Endocervical
☐ Oral Fluid  ☐ Stool  ☐ Urethral
☐ CSF  ☐ Wound  ☐ Nasopharyngeal
☐ Other: ________________  ☐ Food  ☐ Rectal

Test Request

Immune Status
☐ Mumps
☐ Rubella
☐ Pneumonia
☐ Varicella

Hepatitis
☐ Hepatitis B Surface Antigen
☐ Hepatitis B Core IgM
☐ Hepatitis C
☐ Hepatitis A Total
☐ Hepatitis A IgM

STD
☐ HIV 1 & 2 Plus O
☐ VDRL (CSF only)
☐ RPR
☐ FTA-ABS

CT/GC and West Nile Virus on Back

Culture/ID
☐ Rapid Strep Screen
☐ Bacterial Culture/ID
☐ Enteric Screen (FB)
☐ Salmonella Serotyping
☐ E. coli EHEC
☐ Ova & Parasites
☐ MRSA
☐ DRSP
☐ VRE
☐ TB Culture with Smear
☐ TB Identification

PCR
☐ Pertussis
☐ Norwalk Virus

Miscellaneous
☐ Hanta Virus
☐ Other: ________________________________
### CT/GC

**Patient Information**

- **Patient’s Residence**
  - Zip Code: ____________

- **Race** (check all that apply)
  - White
  - Black or African American
  - American Indian or Alaska Native
  - Asian
  - Native Hawaiian or Other Pacific Islander

- **Ethnicity**
  - Hispanic
  - Non-Hispanic
  - Unknown

- **Reason for Visit**
  - Symptomatic
  - Exposed to STD in past 60 days
  - IUD Insertion
  - Patient Request
  - Pregnancy Test Only Visit
  - Client Meets Screening Criteria
  - Positive CT-3 month rescreen

- **Risk History** (check all that apply)
  - More than 1 partner in past 60 days
  - New partner in past 60 days
  - Positive for CT in past 60 days
  - No risk history

- **Clinical Signs** (check all that apply)
  - Cervical Friability
  - Mucopus
  - PID
  - Urethritis
  - None

- **Treatment**
  - Did you presumptively treat this patient for Chlamydia?
    - Yes
    - No

- **Specimen collected by**: ____________

### West Nile Virus

**Patient Information**

- **Date of onset of illness** ______/_____/_______
- **Hospitalized?** ☐ Yes ☐ No
- **Hospital Name**: ____________
- **Date of Admission** ______/_____/_______

- **Type of Specimens and Dates Collected**
  - Acute Serum Date Collected ____________
  - Convalescent Serum Date Collected ____________
  - CSF Date Collected ____________

- **Patient Symptoms** (check all that apply)
  - Fever >38.0°C
  - Headache
  - Altered Mental Status
  - CSF pleocytosis
  - Pregnant
  - Breast Feeding

- **Select illness most concurrent with symptoms**
  - WEST NILE FEVER
  - WNV MENINGITIS
  - WNV ENCEPHALITIS
  - WNV POLIOMYELITIS

- **Attending Physician Name**: ____________
- **Telephone Number**: ____________
- **FAX Number**: ____________

**CSF RESULTS:**

- Total WBC ______
- Differential ______
- % POLYS ______
- % LYMPHS ______
- PROTEIN ______mg%
- GLUCOSE ______mg%

**LAB USE ONLY**

### CALL/REJECTION LOG

- ☐ IU discrepancies
- ☐ No test request
- ☐ No collection date
- ☐ No requisition form
- ☐ No demographics
- ☐ Expired collection device

- **Date contacted**: ____________
- **Person contacted**: ____________
- **Initials**: ____________
APPENDIX 5: INFLUENZA COLLECTION FORM

Public Health Laboratory
208 S. College Dr.
Cheyenne, WY 82002
307-777-7431

REQUISITION FOR INFLUENZA CULTURE

INSTRUCTIONS
- Specimens should be collected within 3 days of symptom onset
- Specimens should be collected & shipped according to attached protocol
- Specimens must arrive at the lab within 48 hours of collection
- Maintain Specimen at 2-4 °C and ship on COLD PAK to the WPHL with the completed form.
- Use Fed Ex account 2987-4494-5 for shipping flu cultures only.

(Please print clearly with black ballpoint pen.)

<table>
<thead>
<tr>
<th>Patient Name (Last)</th>
<th>(First)</th>
<th>(MI)</th>
<th>DOB</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Address</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td></td>
<td></td>
<td>Age</td>
<td>Male/Female</td>
</tr>
<tr>
<td>Hispanic: ☐ Yes ☐ No ☐ Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race: ☐ White ☐ Black ☐ Asian/Pacific Islander ☐ Native American ☐ Other ☐ Unknown</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submitting Laboratory Name and Address (return address)</td>
<td>Phone Number</td>
<td>Fax Number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending Physician Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMPLETE ENTIRE SECTION BELOW TO ENSURE CORRECT TESTING INFORMATION

<table>
<thead>
<tr>
<th>Date of onset of illness: <em><strong>/</strong></em>/____</th>
<th>SAMPLE TYPE</th>
<th>DATE COLLECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid Flu Test Results:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Negative ☐ No rapid test performed</td>
<td>☐ Nasopharyngeal swab</td>
<td><em><strong>/</strong></em>/____</td>
</tr>
<tr>
<td>☐ A positive ☐ B positive</td>
<td>☐ Nasal swab</td>
<td><em><strong>/</strong></em>/____</td>
</tr>
<tr>
<td>☐ A&amp;B positive (Not Differentiated)</td>
<td>☐ Nasal wash/aspirate</td>
<td><em><strong>/</strong></em>/____</td>
</tr>
<tr>
<td>☐ Other</td>
<td>☐ Other</td>
<td><em><strong>/</strong></em>/____</td>
</tr>
</tbody>
</table>

Was patient hospitalized? ☐ Yes ☐ No
If yes: Hospital ________________________________
Date Admitted ___/___/____

Flu Vaccination ☐ Yes ☐ No
☐ Body Aches ☐ Diarrhea
☐ Vomiting ☐ Other ____________

Page 1 of 2
<table>
<thead>
<tr>
<th>Drug</th>
<th>Start Date</th>
<th>Number of days</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamiflu (Oseltamivir)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Relenza (Zanamivir)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rimantadine</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Amantadine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Did the patient receive antiviral medication?  
- Yes  
- No  
- Unknown

If yes, complete the table below

Did the patient work in a health care facility/setting?  
- Yes  
- No  
- Unknown

If yes: Name of facility/setting

Does the patient attend school?  
- Yes  
- No  
- Unknown

If yes: School

Does the patient attend daycare?  
- Yes  
- No  
- Unknown

If yes: Daycare
APPENDIX 6: BACTERIAL CULTURE IDENTIFICATION

Includes:

- Anaerobes
- Neisseria gonorrhoeae
- *Haemophilus influenzae* serotyping
- *Neisseria meningitidis* serotyping
- Shigella serogrouping
- *Streptococcus* serogrouping
- Foodborne pathogens for PFGE
- *Salmonella* serotyping

Acceptable specimens: Submit a pure isolate of the organism on solid media. Growth should be apparent before submission to the laboratory.

Criteria for rejection: Clinical material for primary isolation will not be accepted.

Additional Comments: Drug-resistant *Streptococcus pneumoniae* isolates from sterile sites such as CSF and other body fluids are required to be sent to the WPHL. Testing MRSA, VRE, and ESBL isolates is strictly an epidemiological tool and prior consultation is required before isolates can be sent to WPHL for testing.
APPENDIX 7: FECAL BACTERIA/NOROVIRUS SPECIMEN COLLECTION PROTOCOL

Acceptable Specimens: Stool specimen in enteric transport medium (ETM)

Criteria for Rejection: Raw specimens (no transport medium), overfilled ETM containers, specimens received > 96 hours old and norovirus not refrigerated.

PLEASE READ ALL DIRECTIONS FIRST AND FOLLOW THEM CAREFULLY. WASH HANDS BEFORE BEGINNING THE PROCEDURE

1. The stool transport vial is labeled ETM and contains a red transport media. **Do not discard or drink this liquid.**
2. **DO NOT** pass the specimen into the toilet.
3. **DO NOT** pass the specimen directly into the collection vial.
4. **DO NOT** urinate on the specimen or into the collection vial.
5. **DO NOT** allow any water to mix with the specimen.
6. Pass the stool specimen into any clean and dry container such as a bedpan, a plastic bag, a plastic plate, or newspaper.
7. Carefully open the ziploc package and remove the ETM vial. Using the spoon attached to the cap, collect small amounts of stool from areas that are slimy, watery, or bloody and place them into each vial. If the stool is hard, collect small amounts from both ends and the middle and place into each vial.

**IMPORTANT:** Fill each vial with enough specimen until the liquid reaches the fill line located on the label. Do not fill above the fill line.

**IMPORTANT:** Make certain that all vials are tightly capped to avoid leakage.

8. Wash hands thoroughly with soap and water. Write patient name and date collected on the ETM label.
9. Complete the PHL form and check enteric screen, and ship via courier, USPS or overnight delivery.

**10. IMPORTANT NOTE:** Specimens being collected for enteric bacterial pathogens may be kept at room temperature for up to 96 hours. **FOR NOROVIRUS:** If the specimen is being collected to **screen for Norovirus**, keep the specimen refrigerated and ship overnight on cold packs.

If any liquid from the vials or stool specimen come in direct contact with eyes or skin, rinse the area with plenty of water. If any discomfort of irritation develop, contact a physician.
Acceptable Specimens: Stool submitted transport media (PVA and Formalin)

Criteria for Rejection: Raw Specimens (no transport media)
Overfilled specimen containers

PLEASE READ ALL OF THE DIRECTIONS FIRST AND FOLLOW THEM CAREFULLY. WASH HANDS BEFORE BEGINNING THE PROCEDURE.

1. You have been asked to collect a stool sample for laboratory analysis. The collection set contains 2 tubes.

2. **DO NOT DISCARD OR DRINK THE LIQUID IN THE TUBES.**

**DO NOT PASS THE SPECIMEN IN THE TOILET!**

**DO NOT PASS THE SPECIMEN DIRECTLY INTO THE COLLECTION TUBES.**

**DO NOT URINATE IN THE SPECIMEN OR INTO THE SPECIMEN TUBES.**

**DO NOT ALLOW ANY WATER TO MIX WITH THE SPECIMEN.**

3. Pass the stool specimen into a clean and dry container such as a bedpan, a plastic bag, a plastic plate, or a newspaper.

4. Carefully open each tube. Using the spoon attached, collect small amounts of the stool from areas that are slimy, watery, or bloody and place them into each tube. If the stool is hard, collect small amounts from both ends of the middle and place into each tube. **IMPORTANT: PLACE STOOL INTO THE TUBE UNTIL THE VOLUME REACHES THE FILL LINE LOCATED ON THE LABEL. DO NOT OVERFILL!!**

5. Fill only one tube at a time and replace the spoon/cap onto the same tube that it came from. Don’t mix spoon/caps with other tubes. **MAKE SURE THAT THE CAPS ARE TIGHTLY CAPPED TO AVOID LEAKAGE. WASH HANDS AFTER SPECIMEN COLLECTION.**

6. Write the patient name and date collected on the labels of each tube. Place all of the vials back into the Ziploc bag and place all into the biohazard bag with absorbent paper. Return the containers to your physician or laboratory where you received them.

7. **IN CASE OF EXPOSURE TO EYES OR SKIN, FLUSH WITH WATER AND CONTACT A PHYSICIAN.**

8. Before mailing to the laboratory, make sure that the laboratory requisition form is filled out completely, and **place the completed form inside the cardboard mailer and outside the aluminum mailer.**
APPENDIX 9: THROAT CULTURE PROTOCOL FOR GROUP A STREP

SUPPLIES:
1 Polyester Tipped Applicator    1 Laboratory Requisition Form*

SIGNS AND SYMPTOMS:
Obtaining swabs only from patients/students who have actual signs of streptococcal pharyngitis will eliminate unnecessary sample collection and testing. The most important indicators of strep pharyngitis are:
* Rapid onset of sore throat and fever above 101°F
* Exudate of tonsils or pharynx
* Enlarged tonsils; red pharynx

PROCEDURE:

1. Assemble your equipment; wash hands or wipe with a cleansing wipe. (It is **important** to use the polyester tipped applicator supplied by the WPHL.)
2. Place the individual in a comfortable position, either sitting or lying down and instruct them to tilt their head backward. Have them open their mouth wide; direct maximum lighting toward the back of the throat.
3. Remove swab from swab sheath carefully so swab is not contaminated. Depress the tongue with tongue depressor so that the uvula and the back of the throat are visible.
4. Vigorously swab the **tonsillar area and posterior pharynx** with the swab. Obtaining the secretions from the exudate from this region ensures proper collection. (Excess blood or mucus on the swab specimen may interfere with the test performance and may yield a false positive result. Avoid touching the tongue, cheeks, teeth, and any bleeding areas of the mouth with the swab when collecting specimens.)
5. Replace swab in the swab sheath and print name **legibly** on the swab sheath.

SUBMITTAL OF THROAT SWABS:
* All throat swabs must be accompanied by a completed Laboratory Requisition form.

* Please complete ALL the information requested in the patient information area of the form. *(Date of birth is now required)*

* Make sure that the submitter information area is completed including your phone number.

* In the test request area of the form, check the Rapid Strep Screen box.

* If you are mailing the specimen to the lab, please remember that throat swabs are considered diagnostic specimens and should be packaged according to USPS regulations.

* Please make sure that your swabs are sent immediately after you are done with your patient/student(s). This will ensure that test results are reported in a timely manner.
APPENDIX 10: CHLAMYDIA/GONORRHEA SPECIMEN COLLECTION PROTOCOL

Acceptable Specimen: Urine, urethral swab, endocervical swab, vaginal swab.

Criteria for Rejection: Urine specimens > 30 days old, all swabs > 60 days old. Improper transport media, (must be collected in proper Gen Probe Aptima transport media).

APTIMA VAGINAL SWAB SPECIMEN
1. Use only the single swab package designated as “Vaginal Swab”.
2. Carefully insert the swab into the opening of the vagina about 2 inches and gently rotate the swab for 10-30 seconds. Make sure the swab touches the walls of the vagina.
3. Withdraw the swab without touching the skin.
4. Immediately place the swab into the transport tube.
5. Carefully break the shaft against the side of the tube.
6. Tightly screw the cap onto the tube and mail to the laboratory.

APTIMA ENDOCERVICAL SWAB SPECIMEN
1. Remove excess mucus from cervical os and surrounding mucosa using white swab provided. **Discard swab.**
2. Insert blue unisex collection swab from kit into endocervical canal.
3. Rotate swab clockwise for 10-30 seconds to ensure adequate sampling.
4. Withdraw swab carefully, avoiding contact with vaginal mucosa.
5. Insert swab into transport tube and break off at score line.
6. Cap tightly, label tube, and mail to laboratory.
APTIMA URINE SPECIMEN FOR MALE OR FEMALE

1. **Patient should not have urinated for at least 1 hour prior to collection.**
2. **Do not clean** area prior to collection.
3. Direct patient to collect 20-30 mL of **initial urine stream** in urine cup. Larger volumes will dilute specimen and reduce test sensitivity.
4. The disposable kit pipette has a 2 mL mark at the base of the bulb. Squeeze the bulb and **draw up 2 mL urine** from the cup.
5. Dispense into the urine transport tube.
6. The resulting liquid level will be **between the two bold lines** in the middle of view window on the side of the tube. **Do not** over or under fill the tube.
7. Cap tightly, label tube, and mail to the laboratory.
8. **Do not** send urine in specimen cup. Dispose of urine cup and pipette. **Do not** reuse.

APTIMA URETHRAL SWAB SPECIMEN

1. **Patient should not have urinated for at least 1 hour prior to collection.**
2. Insert **blue unisex collection swab** from kit 2-4 cm into urethra.
3. Gently rotate swab clockwise 2-3 seconds to ensure adequate sampling.
5. Cap tightly, label tube, and mail to laboratory.

SUBMISSION CRITERIA FOR RECTAL AND PHARYNGEAL SPECIMENS

1. Please complete a thorough health history to determine these risk categories before performing any rectal or pharyngeal testing.
   a. **MSM**
   b. Heterosexuals with a history of anal intercourse or oral sex and a high index of suspicion of infection.
APTIMA RECTAL SWAB SPECIMEN

1. Use the blue unisex swab for collection.
2. Insert the swab approximately 3-5 cm into the rectum and rotate against the rectal wall several times (at least 3).
3. Swabs that are grossly contaminated with feces should be discarded and the collection repeated.
4. Insert the swab into the Aptima transport tube and fill out the lab requisition form.
5. Be sure to write “rectal” in the “type of specimen” area.

PHARYNGEAL SWAB SPECIMEN

1. Use the blue unisex swab for collection.
2. Insert the swab approximately 3-5 cm into the rectum and rotate against the back wall of the pharynx.
3. Insert the swab into the APTIMA transport tube and fill out the lab requisition form.
4. Be sure to write PHARYNGEAL in the “type of specimen” area.

IMPORTANT NOTES ABOUT APTIMA TESTING

1. Reliable results are dependent upon ADEQUATE SPECIMEN COLLECTION.
2. FEMALE URINE TESTING IS NOT INTENDED TO REPLACE CERVICAL EXAMS AND ENDOCERVICAL SAMPLES.
3. CRITERIA FOR REJECTION
   a. Use of swab not provided in kit; no swab or two swabs in transport tube.
   b. Leaked in transit.
   c. Expired collection kit.
4. After collection, transport and store specimen at 2-30C.
5. DO NOT pour out the transport liquid in the tube.
6. DO NOT use kit swab for culture.
7. Specimens should be transported in compliance with federal regulations covering transport of biological specimens.
APPENDIX 11: SEROLOGY PROTOCOL

Includes:  Syphilis, Rubella, Rubeola, Mumps, Varicella, Hepatitis

Acceptable specimen:  Blood Serum

Criteria for rejection:  bacterial contamination, gross hemolysis, lipemia, Specimens > 5 days post collection.

1. Use WPHL lab requisition when submitting serological specimens. Please assure that this form is complete and legible with all requested patient information. In order to expedite the reporting of laboratory results, include the complete name, address, and telephone number of the submitting agency.
2. Label specimen tubes with the patient’s name and/or identifying number.
3. Collect a minimum of 2.0ml of serum or 3.0ml of whole blood. It is preferable to submit just serum, but if you cannot separate the serum, send the specimen within 24 hours.
4. If you cannot send the specimen on the day of collection, please refrigerate the sample after it has clotted.
5. Place the specimen in a biohazard bag with absorbent material, placing paperwork on in the outside sleeve and ship via the State Courier Service, or ship according to federal regulations via USPS, or overnight delivery.
6. If you have questions, please contact the serology laboratory at 307-777-7431.
Acceptable specimen: Blood Serum

Criteria for rejection:

1. Submit a minimum of 2 mL of serum, or 5 ml of whole blood in the blood collection tube.
2. Peel the patient number from the HIV request form and apply it directly to the blood collection tube.
3. Insert the blood collection tube in the biohazard bag with absorbent paper.
4. Place the biohazard bag containing the specimen into the aluminum container and cap.
5. Fold the laboratory requisition form and wrap around the outside of the aluminum container and insert this into the cardboard mailing container.
6. Mail the top copy of PEMS form, after the client has returned for results and post-test counseling (or after one month if the client has not returned for results) to the HIV program. Refer to specific instructions in the PEMS manual that you received training on.
7. If unsure how to complete or submit paperwork to the HIV program, call 777-5800.

TIPS

- Use HIV mailing containers for HIV specimens only.
- Use the proper amount of postage on the mailers. All postage due mailers will be returned to you unopened.
- Allow two weeks for the return of HIV results and the scheduling of post-test counseling.

Comments: Oral fluid testing has been discontinued as of January 1, 2011.
Influenza Virus Collection Protocol

Specimen Collection:

Specimen should be collected within 3 days of onset of symptoms.
- Use only Dacron swabs provided. (Do not use wood or calcium alginate swabs.)

**Preferable Specimen:** Nasopharyngeal Swab

- Acceptable Specimen: Nasal swab, pharyngeal swab, nasal aspirate/wash
- Collect swab (or aspirate) and place in viral transport medium.
- Break shafts of swabs to permit closure of tube with screw cap.
- Screw cap on tube securely to avoid leakage.
- Label each specimen with patient’s name and collection date.

**Refrigerate specimen(s) until ready to ship.**

Shipping:

- **Mail specimens only Monday-Thursday** using overnight delivery or state courier.
- Package each specimen individually in a biohazard bag with absorbent paper.
- **Complete the request form entirely** and place in the biohazard bag pocket.
- Multiple specimens collected the same day may be shipped in the same shipping container.
- Place frozen ice packs in with the specimens to maintain at 4ºC.
- Close container and seal with tape.
- If sending by courier, write WPHL on the side of the box.
- Ensure that courier knows the specimens require refrigerated transporation.

**NOTE:** Store all transport media according to package instructions.

- Store collected specimens at 4ºC until shipment!

**SPECIMENS MUST ARRIVE AT THE LABORATORY WITHIN 24-48 HOURS OF COLLECTION.**

If you have any questions concerning collection or shipment, please call the Influenza Lab.

Wyoming Public Health Laboratory
- Microbiology Section ~ 208 S. College Drive
- Cheyenne, WY  82002    307-777-7431
- Fax: 307-777-6422
APPENDIX 14: COLLECTION AND SUBMISSION OF SPECIMENS FOR BORDETELLA PERTUSSIS

Acceptable Specimen:

Criteria for Rejection:

1. Label swab sheath with the patient name.
2. Obtain nasopharyngeal specimen by passing swab through the nose until it touches the posterior nasopharynx. This technique should initiate a cough. Allow the swab to remain for a few seconds after the cough.
3. Replace swab in sheath, fold the sheath and swab in half, place into biohazard bag, and insert specimen into the aluminum mailing container and cap.
4. Fill out the laboratory requisition slip, place inside cardboard mailer, cap and transport immediately to the Public Health Laboratory.
5. If you wish to submit a nasal aspirate, the specimen should be sent on cold packs within 24 hours of collection. Please contact the laboratory prior to submission of aspirates.

**NOTE:** Only supplies provided in this kit should be used for testing. Other types of swabs may inhibit PCR analysis. Positive PCR results will be phoned to submitter when completed.

**Clinical Case definition:** A cough illness lasting at least 2 weeks with one of the following: paroxysms of coughing, aspiratory "whoop," or post-tussive vomiting, without other apparent cause (as reported by a health professional)

**Confirmed Case:** A case that is culture positive and in which an acute cough illness of any duration is present; or a case that meets the clinical case definition and is confirmed by positive PCR; or a case that meets the clinical case definition and is epidemiologically linked directly to a case confirmed by either culture or PCR. (Reference: CDC Case Definitions for Reportable Diseases).
APPENDIX 15: WEST NILE VIRUS

SUBMISSION PROTOCOL FOR TESTING OF HUMAN SERA
AND CEREBROSPINAL (CSF) FLUID SPECIMENS

SHIPPING CONTAINER:

Shipping containers will be provided by the WPHL upon request. Limit 4 per order. Please put specimens in a biohazard bag with absorbent paper. Specimens must be maintained at 2-4°C and shipped in a cooler using two (2) cold packs, not regular ice. Multiple specimens may be sent per shipment but each specimen should be placed in its individual biohazard bag. There is no need to keep specimens frozen. The requisition form(s) should be placed on the outside of the cooler to keep paperwork dry.

SPECIMEN TYPES AND DELIVERY:

Testing for WNV is done on serum and CSF specimens. Please send at least 2.0 ml of serum and 1.0 ml of CSF for proper testing to proceed. For serum samples, whole blood should be collected from the patient by venipuncture into standard red top or serum separator tubes. Do not use whole blood collection tubes containing anticoagulants. After allowing 30 minutes for clot formation, these sample tubes should be centrifuged and the serum fraction withdrawn. Store serum in externally threaded plastic tubes.

IDEAL TIMING OF SPECIMEN COLLECTION IS CRITICAL TO INTERPRETATION

CSF should be collected between 2 and 8 days post onset of illness.
Acute serum samples should be collected at least 8 days after onset of illness.
Convalescent serum samples should be taken two (2) to three (3) weeks after the acute sample was collected.

NOTE: If the acute serum sample is taken prior to eight (8) days post-symptom onset, antibodies may not have had time to develop and a false negative result may be obtained. Convalescent samples will be needed on patients whose acute samples are drawn prior to 8 days post-symptom onset, to ascertain the true West Nile Virus status of the patient.

TESTS PERFORMED:

Specimens will be tested using the CDC IgM capture ELISA. Borderline and indeterminate results may require convalescent samples. Specimen results that are repeat borderline or indeterminate may need to be confirmed by Plaque Reduction Neutralization Test. For those tests where IgM is negative, borderline, or indeterminate and the specimen was collected more than 60 days post onset of symptoms, the specimen will automatically be referred to IgG testing. IgG tests will be batched-reflexed and turnaround time for test results may be increased.
Specimen collection and mailing containers are available free of charge from the Wyoming Public Health Laboratory. Properly collect the sample and label the tube with the patient name or ID number, place it inside the Biohazard bag with absorbent paper, place it in the aluminum container, and secure the lid. COMPLETELY FILL OUT THE REQUISITION FORM PROVIDED, NOTE THE TYPE OF SPECIMEN BEING SUBMITTED, AND WRAP IT AROUND THE OUTSIDE OF THE ALUMINUM CONTAINER. Place entire contents inside the cardboard container, secure the lid and refrigerate until you are ready to mail the specimen. **Those specimens received without proper identification must be verified by the submitter, or they will be rejected.**

1. **Sputum-** Collect an early morning specimen, between 5-10 mL, on three consecutive days. Indicate whether the specimen was induced or expectorated. Post-nasal drainage, saliva, and pooled specimens are not appropriate samples. **Samples < 2 mL will be rejected on sputums only.**
2. **Bronchial Washings and Broncheoalveolar Lavage Fluids-** Collect between 5-10 mL in a sterile container.
3. **Gastric Lavage Fluids-** Collect an early morning sample before the patient has eaten. If the specimen cannot be processed within 4 hours, it should be neutralized. For each 35-50 mL of gastric fluid, add 1.5 mL of 40% anhydrous disodium phosphate (NA2HPO4).
4. **Urine-** Collect a minimum of 40 mL by midstream clean catch or catheterization on 3 consecutive days. 24 hour pooled specimens, catheter bag samples, and volumes less than 40 mL are unacceptable. **Urine specimen must be delivered the same day or shipped refrigerated overnight.**
5. **Body Fluids-** (CSF, pleural, peritoneal, pericardial, etc.) Collect 10-15 ml (2 mL for CSF) of fluid in a sterile container. Bloody specimens may be anti-coagulated with a small amount of heparin.
6. **Wounds, Skin Lesions, Aspirate Fluid, Abscess Contents-** Clean the skin with alcohol; aspirate as much fluid as possible into a sterile container.
7. **Tissue-** Aseptically collect 1 g of tissue into a sterile container without fixative or preservative. Add enough sterile saline to prevent drying.

**NOTE: BLOOD AND STOOL SPECIMENS ARE NOT ACCEPTED FOR MYCOBACTERIAL PROCESSING. CONSULT WITH THE LABORATORY REGARDING THESE SPECIMENS.**