

**Delaware Public Health Laboratory  
 Combined Laboratory Specimen Collection Procedures  
 And Bioterrorism Agents**

| TEST                                      | ORGANISM   | TYPE OF SPECIMEN  | METHOD   | TRANSPORT MEDIUM AND TYPE OF CONTAINER | INSTRUCTIONS FOR TRANSPORT                            | PROCESSING TIME                                      | OTHER   |
|---|--|---|--|--|---|--|---|
| Acid Fast Bacilli (AFB) smear and culture | <i>Mycobacterium tuberculosis</i> complex                              | Respiratory, tissue, sterile fluids, and stool  | Smear:<br>Fluorescent Stain<br>Culture:<br>Conventional and liquid culture   | Sterile leak proof container           | Refrigerate (2-8° C), deliver to lab within 72 hours  | 4-6 weeks  | Genetic analysis for other significant Mycobacteria<br>Susceptibility for SIRE-PZA  |
| AFB-M TB PCR                              | <i>Mycobacterium tuberculosis</i> and avium complex                    | Respiratory (sputum, BAL, etc.)   | Real-time PCR  | Sterile leak proof container           | Refrigerate (2-8° C), deliver to lab within 72 hours  | 48 hours from receipt                                | For high risk for TB clients  |
| Arboviruses                               | WNV, EEE<br><br>*****<br>Chikungunya<br>Dengue<br>Zika<br><br>WNV, SLE | Bird brain, kidney, or other organs<br><br>Chicken Blood (sentinel monitoring program)<br><br>*****<br>Serum<br><br>Serum, urine, amniotic fluid, CSF<br><br>Serum, CSF | Real-time RT-PCR<br>ELISA IgM<br><br>EIA-IgM<br><br>*****<br>Real time PCR<br><br>ELISA IgM<br><br>Microsphere Immunoassay | Sterile leak proof container           | Refrigerate (2-8° C), deliver to lab within 72 hours. | PCR<br>2-3 work days<br><br>MIA/ELISA<br>5 work days | Only accept bird organs submitted by DNREC or Tri-State bird rescue<br>Only accept chicken bloods submitted by DNREC<br>*****<br>Contact Epidemiology at 744-4541 for approval. Method dependent on travel history. |
| Carbapenemase Resistant Organism          | Enterobacteriaceae or <i>Pseudomonas aeruginosa</i>                    | Pure isolate  | mCIM<br>AST<br>Real time PCR   | Agar slant or plate                    | Refrigerate (2-8° C) or Room temp                     | 2-3 working days                                     |   |
| Bio-Terrorism agents                      |  | SEE   | SEPARATE   | CHART                                  | BELOW   |  | Call DPH Lab at 223-1520.   |

| TEST                                   | ORGANISM   | TYPE OF SPECIMEN   | METHOD   | TRANSPORT MEDIUM AND TYPE OF CONTAINER                       | INSTRUCTIONS FOR TRANSPORT   | PROCESSING TIME                     | OTHER  |
|--|--|--|--|--|--|-------------------------------------|--|
| Food                                   | Shiga-toxin <i>E. coli</i><br><i>Listeria</i><br><i>Salmonella</i><br><i>Shigella</i><br><i>Staph. aureus</i><br>BT agents | Food   | Culture for organism<br><br>Real-time PCR or toxin testing | Sterile leak proof container (25-100 grams)                  | Refrigerate (2-8° C), deliver to lab within 72 hours   | 5-6 work days                       | Contact Epidemiology at 744-4541 for prior approval. Must specify target organism on lab slip. |
| Gonorrhea Culture                      | <i>Neisseria gonorrhoeae</i>   | Swab of endocervical, urethral, oropharynx or rectum                                 | Culture for organism                                       | Direct specimen or agar slant or plate                       | Place in CO <sub>2</sub> container, store in an incubator at 35°C and transport within 24 hours. | 2-3 work days                       | Specimens must be received within 1 day of collection  |
| Hepatitis C                            | HCV  | serum  | Antibody<br><br>Viral Load                                 | Serum/SST  | Refrigerate (2-8° C) immediately, deliver to the lab within 72 hours                             | 2-3 work days<br>Batched every week |  |
| Herpes Simplex Virus                   | HSV Virus  | Swab of vesicle, genital lesion, conjunctiva, throat                                 | Culture for virus  | Viral Transport Media (VTM)                                  | Refrigerate (2-8° C) immediately: deliver as soon as possible                                    | 2-10 work days                      | Hold for 10 days if negative   |
| Human Immunodeficiency Virus (HIV 1/2) | Retrovirus   | Serum  | 4 <sup>th</sup> Generation Ag/AB EIA HIV 1/2 Confirmation  | Sterile leak proof container or serum separator tube         | Refrigerate (2-8° C), deliver to lab within 5 calendar days                                      | 2-5 work days                       | Confirmation testing by Geenius  |
| Miscellaneous culture                  | Pathogenic organisms<br><br>Medical Examiner/Autopsy specimens   | Sputum, tissues, body fluids<br>Swab of site to be cultured (i.e. eye, endocervical) | Culture for organism                                       | Culturette with transport media in tube or sterile container | Refrigerate (2-8° C), deliver to lab within 72 hours   | 2-3 work days                       | Blood and anaerobic cultures not performed<br>Hold ME 5 days                                   |
| Mumps and/or Measles                   | Mumps/.Measles Virus   | Naso-pharyngeal /buccal swab   | Real-time PCR  | NP swab in Viral Transport Media (VTM ) or urine             | Refrigerate (2-8° C), deliver to lab within 72 hours   | 2-3 work days                       | Contact Epidemiology at 744-4541 for prior Approval.   |
| Norovirus                              | Noroviruses (GI and GII)   | Stool or vomit   | Real-time RT- PCR  | Sterile container  | Refrigerate (2-8° C) immediately, deliver to the lab within 72 hours                             | 2-3 work days                       | Contact Epidemiology at 744-4541 for prior Approval.   |

| TEST                                     | ORGANISM   | TYPE OF SPECIMEN   | METHOD   | TRANSPORT MEDIUM AND TYPE OF CONTAINER                                     | INSTRUCTIONS FOR TRANSPORT                           | PROCESSING TIME                                 | OTHER  |
|--|--|--|--|--|--|---|--|
| Nucleic Acid Amplification Tests for STD | <i>Neisseria gonorrhoeae</i> ,<br><i>Chlamydia trachomatis</i> , &<br><i>Trichomonas vaginalis</i>                             | Swab from oral, rectal, vaginal, endocervical or urethral<br>Urine | TMA Aptima   | Hologic collection kit for swab or urine                                   | Refrigerate (2-8° C) or Room temp                    | Hologic APTIMA collection kit for swab or urine | Transfer urine to collection tube  |
| Bordetella species                       | <i>Bordetella pertussis</i> , <i>holmseii</i> , or <i>parapertussis</i>  | Naso-pharyngeal Swab (keep dry)                                    | Real-time PCR  | NP Swab, dry   | Refrigerate (2-8° C), deliver to lab within 72 hours | 2-3 work days                                   | Contact Epidemiology for prior approval  |
| Outbreak Surveillance                    | <i>Salmonella</i> ,<br><i>Shigella</i> ,<br>Shiga-toxin <i>E. coli</i> ,<br><i>Listeria monocytogenes</i><br><i>Vibrio</i>     | Grown culture  | Pulse Field Gel Electrophoresis<br>Whole Genome Sequencing | Direct specimens or agar slant/plate                                       | Refrigerate (2-8° C) or Room temp                    | 4-10 work days                                  | Patterns are uploaded to the CDC database  |
| Quantiferon Plus                         | Antibodies to MTB Complex  | serum  | Interferon Gamma Release Assays                            | Four antigen coated tubes from vendor                                      | Refrigerate (2-8° C) or Room temp                    | 4-6 work days                                   | Tubes must be incubated for at least 16 hours at 35°C ambient air                            |
| Rabies                                   | Rabies Virus   | Mammal brain, must contain brain stem and cerebellum               | Fluorescent antibody (FA)                                  | Double bagged or sealed container  | Refrigerate (2-8° C), deliver to lab within 72 hours | 1-2 work day                                    | Do not freeze!<br>Must have human contact to test.   |
| Serotyping                               | <i>Shigella spp.</i> ,<br>Shiga toxin <i>E. coli</i> ,<br><i>Vibrio cholerae</i>   | Grown culture<br>Top 6 "O" groups for non-O157 <i>E. coli</i>      | Slide and tube agglutination                               | Direct specimens or agar slant/plate                                       | Refrigerate (2-8C) or Room temp                      | 4-10 work days                                  | <i>H. influenzae</i> ,<br><i>N. meningitides</i> , <i>S. pneumoniae</i> sent to Regional lab |
| Sequencing                               | Bacteria or Virus  | Pure isolate   | Targeted or Whole Genome                                   | Agar plate or slant  | Refrigerate (2-8° C) or Room temp                    | 4-10 work days                                  | direct specimen in future (clinical or environmental)  |
| Stool Culture                            | <i>Campylobacter</i> ,<br><i>Salmonella</i> ,<br><i>Shigella</i> , Shiga-toxin <i>E. coli</i> ,<br>and other enteric pathogens | Stool or rectal swab   | Culture for organism<br><br>Real-time PCR                  | Cary-Blair or transport media:<br>One marble sized piece or one tablespoon | Refrigerate (2-8° C), deliver to lab within 72 hours | 3-4 work days                                   | Other organisms must be requested on the lab slip if desired                                 |

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|---|--|-----------------------------------|-----------------------|---|--|-----------------|--|
| Syphilis Serology                                 |  |                                   |                       |   |  |                 |  |
| RPR (Rapid Plasma Reagin)                         | <i>Treponema pallidum</i>  | Serum                             | Nontreponemal antigen |   |  | 3-5 work days   |  |
| TPPA (Treponemal Pallidum Particle Agglutination) | <i>Treponema pallidum</i>  | Serum                             | Treponemal antigen    | Serum/sterile container                 | Refrigerate (2-8° C), Deliver within 5 calendar days of collection | 3-5 work days   |  |
| VDRL (Venereal Disease Research Laboratory)       | <i>Treponema pallidum</i>  | CSF                               | Nontreponemal antigen |   |  | 5 work days     | Test performed on CSF only                           |
| VZV   | <i>Varicella Zoster Virus</i>  | Swab of vesicle or lesion         | Real time PCR         | Dry swab                                | Refrigerate (2-8° C), deliver to lab within 72 hours               | 2-3 work days   |  |
| Throat culture                                    | <i>Beta Strep or significant organisms</i>   | Swab of throat                    | Culture for organism  | Culturette with transport media in tube | Refrigerate (2-8° C), deliver to lab within 72 hours               | 1-2 work days   |  |
| Urine culture                                     | Pathogenic bacteria  | Clean catch urine                 | Culture for organism  | Sterile container                       | Refrigerate (2-8° C), deliver to lab within 72 hours               | 2-3 work days   |  |
| Viral Influenza                                   | Influenza A & B, A subtyping; B genotyping   | Swab of throat or nasopharynx     | Real-time RT-PCR      | Viral Transport Media (VTM)             | Refrigerate, deliver to lab within 72 hours                        | 2-3 work days   |  |
| Viral Respiratory Panel                           | Influenza A, Influenza A subtype H1, Influenza A subtype H3, Influenza B, Respiratory Syncytial Virus (RSV), Human Metapneumovirus (hMPV), Rhinovirus/Enterovirus, and Adenovirus. | All respiratory specimens         | GenMark eSensor RVP   | Viral Transport Media (VTM)             | Refrigerate (2-8°C)  | 2-3 work days   | Contact Epidemiology for prior approval              |
| Wound culture                                     | Pathogenic bacteria  | Swab of site Specify area of body | Culture for bacteria  | Culturette or sterile container         | Refrigerate, deliver to lab within 72 hours                        | 2-3 work days   | Specify if looking for specific bacteria (i.e. MRSA) |

**Division of Public Health Laboratory  
Bioterrorism Laboratory Specimen Collection Procedures**

| DISEASE OR AGENT                     | SPECIMEN SELECTION FROM SAMPLES |   | TEST METHOD  | TRANSPORT MEDIUM/ INSTRUCTIONS   | PROCESSING TIME | COMMENTS   |
|--------------------------------------|---------------------------------|---|--|--|-----------------|--|
| Anthrax<br><i>Bacillus anthracis</i> | Clinical-*                      | <b>Lesion-</b> collect liquid or material under scab  | qPCR on original specimen.   | clean, sterile, leak proof container or 2 dacron swabs at room temp  | 8-24 hrs.       | <b>Biopsy in 10% formalin for histochemical stain tested at CDC</b>        |
|                                      |                                 | <b>Blood:</b> whole blood/plasma (EDTA, purple-top tube) or serum (red/black top tube)  | qPCR: on original specimen.  | Refrigerate at 2-8°C   | 8 -24 hrs       | Blood cultures cannot be incubated at DPHL<br>May require Chain of Custody |
|                                      |                                 | <b>Bacterial Isolates*</b> –From respiratory specimens, pleural fluid, aspirates, tissue, ascites, CSF, stool, Blood, Etc.          | Culture rule out   | Grown isolate on agar plate sent at room temp  | 24-72 hrs       | <b>Sputum &amp; stool have minimal recovery</b>                            |
|                                      |                                 |   | qPCR: on original specimens  | Refrigerate at 2-8°C   | 8-24 hrs.       | May require Chain of Custody   |
|                                      | Environmental and Non-Clinical  | <b>Swabs, Powder, Wipe, Letter, Seed or Plant Material:</b> half pea size   | Culture  | Dacron or polyester swabs or sterile leak proof container  | 24-72 hrs       | <b>Chain of Custody required</b>   |
|                                      |                                 |   | qPCR on original specimen  | Dacron or polyester swabs or sterile leak proof container  | 8-24 hrs.       |  |
|                                      | Food                            | <b>Notification of DPHL by DPH Epidemiology Section is necessary as soon as possible due to the large amount of media necessary</b> | Culture and qPCR<br><b>Collect large representative sample (25 g).</b> | Refrigerated samples & those collected at room temperature should be transported at 2-8°C.<br>Transport frozen samples on dry ice. | 2-5 days        |  |

\*Cultures from clinical specimens should be performed by the sentinel laboratory

| DISEASE AND AGENT   | SPECIMEN SELECTION FROM SAMPLES  |   | TEST METHOD  | TRANSPORT MEDIUM/ INSTRUCTIONS                       | PROCESSING TIME             | COMMENTS  |   |
|---|--|---|--|--|-----------------------------|---|---|
| Brucellosis<br><br><i>Brucella melitensis</i><br><br><i>Brucella abortus</i><br><br><i>Brucella suis</i><br><br><i>Brucella canis</i> | Clinical *   | <b>Bacterial Isolates*</b> -from body fluids or tissues. Bone marrow, Blood, spleen, liver, abscesses, CSF, joint fluid, lymph nodes, etc.                                    | Culture*: rule-out and confirmation  | Grown isolate on agar plate sent at room temp        | 5-10 days                   | qPCR: requires culture confirmation<br><br><b>Blood culture cannot be performed at DPHL</b><br><br>May require Chain of Custody |   |
|   |  |   | qPCR: on grown organism only.  | Grown isolate on agar plate sent at room temp        | 8-24 hrs.                   |   |   |
|   |  | <b>Blood:</b> whole blood (EDTA, purple-top tube) or serum (red/black top tube)   | qPCR: available on original specimen.  | Refrigerate at 2-8°C                                 | 8-24 hrs.                   |   |   |
|   |  | <b>Blood:</b> serum (red/black top tube) acute and convalescent specimens   | Brucella Microagglutination Test (BMAT) <b>done at CDC</b>   | Refrigerate at 2-8°C                                 | Will need to be sent to CDC |   |   |
|   | Environmental and Non-Clinical   | <b>Swabs, Powder, letter Seed or Plant Material:</b> half pea size sample in a sterile sealed bag or sterile tube.  | Culture  | Use Dacron or polyester swabs or a culturette        | 5-10 days                   |   | <b>Chain of Custody required</b><br>qPCR: requires culture confirmation |
|   |  |   | qPCR on original specimen and grown organisms.   | Use Dacron or polyester swabs, <b>no</b> culturettes | 8-24 hrs.                   |   |   |
| Food  | <b>Milk and Cheese</b><br><br><b>Notification of DPHL by DPH Epidemiology Section is necessary as soon as possible due to the large amount of media necessary to process food.</b> | Culture and qPCR: available PCR on TSB enrichments<br>Send all suspect food double bagged in a sterile, leak proof container.<br><b>Attempt to collect at least 25 grams.</b> | Refrigerated samples & those collected at room temperature should be transported at 4C. Frozen samples should be transported on dry ice. | 5-10 days  |                             |   |   |

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| DISEASE AND AGENT   | SPECIMEN SELECTION FROM SAMPLES           |  | TEST METHOD  | TRANSPORT MEDIUM/ INSTRUCTIONS                                | PROCESSING TIME | COMMENTS  |
|---|---|--|--|---|-----------------|---|
| Glanders<br><i>Burkholderia mallei</i><br>Melioidosis<br><i>Burkholderia pseudomallei</i> | Clinical*                                 | <b>Bacterial Isolates*</b> - From blood, abscess, urine, tissue aspirates, sputum, etc.      | Culture*: rule-out and confirmation on grown organism. | Grown isolate on agar plate sent at room temp                 | 4-7 days        | qPCR requires culture confirmation<br>Blood culture cannot be performed at DPHL<br>May require Chain of Custody |
|   |   |  | qPCR** on grown organism only.                         | Grown isolate on agar plate sent at room temp                 | 8-24 hrs.       |   |
|   |   | <b>Bone marrow, blood:</b> whole blood (EDTA, purple-top tube) or serum (red/black top tube) | qPCR**: on original specimen.                          | Refrigerate at 2-8°C  | 8-24 hrs.       |   |
|   | Environmental and Non-Clinical            | <b>Swabs, Powder, letter Seed or Plant Material:</b> half pea size                           | Culture.   | Use Dacron or polyester swabs or sterile leak proof container | 4-7 days        |   |
|   |   |  | qPCR** on original specimen and grown organisms.       | Use Dacron or polyester swabs, <b>no</b> culturettes          | 8-24 hrs.       |   |
| Food  | <b>No method available at DPHL or CDC</b> |  |  |   |                 |   |

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\*\* qPCR detects both *Burkholderia mallei* and *Burkholderia pseudomallei*. Culture /biochemical tests are used in conjunction with qPCR to differentiate between species.

| DISEASE AND AGENT                   | SPECIMEN SELECTION FROM SAMPLES |  | TEST METHOD                          | TRANSPORT MEDIUM/ INSTRUCTIONS  | PROCESSING TIME | COMMENTS  |
|-------------------------------------|---------------------------------|--|--------------------------------------|---|-----------------|---|
| Q fever<br><i>Coxiella burnetii</i> | Clinical                        | <b>Blood (EDTA) collected in acute phase before antibiotic therapy, whole blood or serum</b> | qPCR only                            | Refrigerate at 2-8°C  | 8-24 hrs.       | May require Chain of Custody<br>Blood culture cannot be performed at DPHL |
|                                     | Environmental                   | <b>Powder, letter, wildlife/aquatic life/livestock specimens, etc</b>                        | qPCR: available on original specimen | Use Dacron or polyester swabs, <b>no</b> culturettes or sterile leak proof containers | 8-24 hrs.       | <b>Chain of Custody required</b><br>qPCR requires confirmation by CDC     |
|                                     | Food                            | <b>No method available at DPHL or CDC</b>  |                                      |   |                 |   |

| DISEASE AND AGENT  | SPECIMEN SELECTION FROM SAMPLES |   | TEST METHOD                           | TRANSPORT MEDIUM/ INSTRUCTIONS  | PROCESSING TIME | COMMENTS   |
|--|---------------------------------|---|---------------------------------------|---|-----------------|--|
| Novel Coronavirus 2012<br><br>Middle Eastern Respiratory Syndrome-Coronavirus (MERS-CoV) | Clinical                        | <b>Respiratory:</b> Nasopharyngeal, Oropharyngeal swabs, Aspirates, washes, Sputum in a clean, sterile, leak proof container. | qPCR                                  | Specimens should be stored at 2-8°C for up to 72 hours after collection. If longer, freeze at -70 or below. | 8-24 hrs.       | Submitter must contact DPH Department of Epidemiology before sending samples |
|  |                                 | <b>Blood:</b> whole blood (EDTA, purple-top tube) or serum (red/black top tube)   | qPCR: available on original specimen. | Refrigerate at 2-8°C  | 8-24 hrs.       | Submitter must contact DPH Department of Epidemiology before sending samples |
|  | Environmental Food              | <b>No Method available at DPHL or CDC</b>   |                                       |   |                 |  |

See CDC webpage for more info

| DISEASE AND AGENT   | SPECIMEN SELECTION FROM SAMPLES |  | TEST METHOD  | TRANSPORT MEDIUM/ INSTRUCTIONS  | PROCESSING TIME | COMMENTS   |
|---|---------------------------------|--|--|---|-----------------|--|
| Ricin toxin<br><br>Ricinine biomarker determination             | Clinical                        | <b>Urine:</b> Collect minimum 25-50mL in plastic urine specimen cup with o-ring.   | LC/MS/MS: available at CDC                         | Freeze at -20 to -80°C following IATA PI 650 & CDC Chemical Exposure Guidelines                           | 12-36 hrs       | *Method available through LRN network  |
| Ricin toxin<br><br>Ricin toxin is detected using the TRF method | Environmental                   | <b>Swabs, Powder</b> (cotton, polyester, Dacron, rayon, or foam).<br><br>Wipes (non-cotton gauze, polyester blend, Handi-Wipes").<br><br>Plant material in an envelope, paper, powder, water, soil (2.0±0.1g). | Time-resolved fluorescence assay (TRF): available. | Place into a leak proof, sealed, <b>non-glass</b> transport device.<br><br>Transport at room temperature. | 8-24 hrs        | <b>*Do not collect samples in containers made of glass. If possible avoid collection from any glass surface.</b><br><br><b>Chain of Custody required</b> |
|   | Food                            | <b>Food, drink:</b> collect 2.0±0.1g, place in sterile, leak proof, plastic container.<br><br><b>NO GLASS CONTAINERS.</b>  | Time-resolved fluorescence assay (TRF): available. | Place into a leak proof, sealed, <b>non-glass</b> transport device.<br><br>Refrigerate at 2-8°C.          | 8-24 hrs        | <b>*Do not collect samples in containers made of glass. If possible avoid collection from any glass surface.</b><br><br><b>Chain of Custody required</b> |



| DISEASE AND AGENT                          | SPECIMEN SELECTION FROM SAMPLES |  | TEST METHOD   | TRANSPORT MEDIUM/ INSTRUCTIONS  | PROCESSING TIME | COMMENTS  |
|--|---------------------------------|--|---|---|-----------------|---|
| Tularemia<br><i>Francisella tularensis</i> | Clinical*                       | <b>Bacterial Isolates*</b> - From respiratory specimens, bronchial/tracheal wash, sputum, throat, lesions, tissue                                    | Culture*: rule-out and confirmation on grown organism.  | Grown isolate on agar plate sent at room temp   | 24-72 hrs       |   |
|  |                                 |  | qPCR on grown organism only.  | Grown isolate on agar plate sent at room temp   | 8-24 hrs.       | qPCR: requires culture confirmation<br><b>Sputum/throat-Minimal recovery -- not recommended</b> |
|  |                                 | <b>Blood:</b> whole blood (EDTA, purple-top tube) or serum (red/black top tube)  | qPCR on original specimen.  | Refrigerate at 2-8°C  | 8-24 hrs.       | Blood culture cannot be performed at DPHL<br>May require Chain of Custody                       |
|  | Environmental                   | <b>Swabs, Powder, Letter Seed or Plant Material:</b> half peas size sample   | Culture   | Use Dacron or polyester swabs or a culturette or sterile leak proof container   | 2-7 days        | <b>Chain of Custody required</b><br>qPCR: requires culture confirmation                         |
|  |                                 |  | qPCR on original specimen and grown organisms.  | Use Dacron or polyester swabs, <b>no</b> culturettes  | 8-24 hrs.       |   |
|  | Food                            | <b>Notification of DPHL by DPH Epidemiology Section is necessary as soon as possible due to the large amount of media necessary to process food.</b> | Culture and qPCR<br>Send all suspect food double bagged in a sterile, leak proof container.<br><b>Attempt to collect at least 25 grams.</b> | Refrigerated samples & those collected at room temperature should be transported at 4C.<br>Transport frozen samples on dry ice. | 2-7 days        | <b>Chain of Custody required</b><br>qPCR: requires culture confirmation                         |

\*Cultures from clinical specimens should be performed by the sentinel laboratory if possible

| DISEASE AND AGENT  | SPECIMEN SELECTION FROM SAMPLES |  | TEST METHOD     | TRANSPORT MEDIUM/ INSTRUCTIONS  | PROCESSING TIME                 | COMMENTS   |
|--|---------------------------------|--|-----------------|---|---------------------------------|--|
| Vaccinia virus<br>"pox" type virus related to smallpox and is used to induce immunity against smallpox | Clinical                        | <b>Lesions</b> -vesicular fluid, skin, scab, crust or roof of vesicle.<br>Fresh biopsy of pustule or vesicle.<br>Dry or wet swab of lesion.<br>Viral cell culture lysate in a sterile, leak proof container<br><br><b>(PERFORMED ONLY WHEN VACCINIA IS SUSPECTED, NOT SMALLPOX).</b> | qPCR            | Place in a sterile, leak proof, unbreakable container.<br><br>Refrigerate at 2-8°C. | 12 hours from receipt of sample | <b>NOTES: These results are preliminary. Positive qPCR results must be confirmed by CDC.</b><br><br>Clinical specimens may require Chain of Custody. |
| Non Variola Orthopox (vaccinia, cowpox, monkeypox)   | Environmental                   | <b>Powder, letter, etc.:</b> Submit dry powders or substances in sterile non-glass container. At minimum, collect at least two non-cotton swabs and place in separate sterile non-glass container s.   | qPCR: available | <b>Do not use viral transport media</b><br><br>Transport at room temperature.       | 8-24 hrs                        | <b>NOTES: These results are preliminary. Positive qPCR results must be confirmed by CDC.</b><br><br><b>Chain of Custody required</b>                 |

See CDC webpage for more info

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|--|---------------------------------|---|------------------|---|-----------------|----------|
| Chicken pox virus<br><b>Varicella zoster virus (VZV)</b><br><br>used as a rule-out test for low-moderate risk patients for possible smallpox | Clinical                        | <b>Lesions:</b> vesicular fluid ,scabs, crust or roof of lesion in a sterile, leak proof container<br><br><b>DRY SWAB IS PREFERRED.</b> | qPCR: available. | <b>Do not use viral transport media.</b><br><br>Refrigerate at 2-8°C. | 8-24 hrs.       |          |
|  |                                 | <b>Blood:</b> whole blood (EDTA, purple-top tube) or serum (red/black top tube)   |                  | Refrigerate at 2-8°C.   |                 |          |
|  | Environmental Food              | <b>No method available at DPHL or CDC.</b>  |                  |   |                 |          |

| DISEASE AND AGENT  | SPECIMEN SELECTION FROM SAMPLES |  | TEST METHOD  | TRANSPORT MEDIUM/ INSTRUCTIONS              | PROCESSING TIME                 | COMMENTS   |
|--|---------------------------------|--|--|---|---------------------------------|--|
| Smallpox virus<br><i>Variola major</i><br><br><b>NOTE:</b><br><b>Low risk patient testing only</b> | Clinical                        |  |  |   |                                 | For patients in low and moderate risk categories according to the evaluation criteria in the CDC rash illness protocol DPHL can perform rule-out tests for Smallpox, which includes vaccinia, VZV (Varicella-zoster virus), and herpes simplex virus.<br><br>Other methods can be conducted after RT-PCR R/O (cell culture, direct DFA, IFA).<br><br><b>DO NOT ORDER THESE TESTS IF PATIENT FALLS INTO HIGH RISK CATEGORY. REFER TO THE SMALLPOX HIGH RISK CHART!!!!</b> |
|  |                                 | <b>Autopsy specimens:</b><br>Including portions of skin containing lesions, liver, kidney, etc., for virus isolation should be frozen in a sterile, leak proof container | Cell culture   | Ship frozen on dry ice                      | 4-10 days                       |  |
|  |                                 | <b>Biopsy:</b> Place dried vesicular fluid on a slide ("touch prep")   | qPCR   | Package in slide box, <b>do not freeze.</b> | 12 hours from receipt of sample |  |
|  |                                 | <b>Lesions, Vesicles or pustules:</b> scabs, crust or roof of lesion in a sterile, leak proof container  | Cell culture   | Refrigerate at 2-8°C                        | 4-10 days                       |  |
|  |                                 | <b>Blood:</b> whole blood (EDTA, purple-top tube) or serum (red/black top tube)  | IFA test for detection of specific antibodies in serum | Refrigerate at 2-8°C                        | 2-24 hours after initial set up | Clinical Specimens may require Chain of Custody.   |

\*\*\*CDC Smallpox Draft Guide C, Part 1 Infection Control Measures for Healthcare and Community Settings, Guide F – Environmental Control of Smallpox Virus, <http://www.bt.cdc.gov/agent/smallpox/infection-control/>

| DISEASE AND AGENT               | SPECIMEN SELECTION FROM SAMPLES   |   | TEST METHOD   | TRANSPORT MEDIUM/ INSTRUCTIONS  | PROCESSING TIME | COMMENTS  |
|---------------------------------|---|---|---|---|-----------------|---|
| VHF<br>Viral hemorrhagic fevers | Clinical  |   |   |   |                 | <b>Biosafety Level 4 facilities should be used for testing for these viruses.</b><br><b>DPHL does not have a BioSafety Level 4 Lab (Ebola testing is performed at DPHL)</b><br>Clinical specimens may require Chain of Custody. |
|                                 | <b>Contact DPH Epidemiology and CDC EOC immediately for testing needs</b> | <b>Blood-</b> whole blood (EDTA, purple-top tube) or serum (red/black top tube) | Ebola PCR can be performed at DPHL with Epidemiology approval<br>Further testing can be done at CDC<br><br>Proper PPE including gloves should be worn while collecting specimen | Decontaminate outside of tube, place in a double leak proof container | 8-24 hrs.       |   |

| DISEASE AND AGENT                | SPECIMEN SELECTION FROM SAMPLES       |  | TEST METHOD   | TRANSPORT MEDIUM/ INSTRUCTIONS   | PROCESSING TIME | COMMENTS   |
|----------------------------------|---------------------------------------|--|---|--|-----------------|--|
| Plague<br><i>Yersinia pestis</i> | Clinical*                             | Bacterial Isolates*-from<br>Respiratory specimens- bronch wash,<br>nasopharyngeal swabs, tissues, fluids   | Culture*: rule-out and confirmation on<br>grown organism.   | Grown isolate on agar<br>plate sent at room temp   | 24-72 hrs       | May require Chain of Custody<br><br><b>Sputum throat-Minimal<br/>recovery not recommended</b><br><br><b>Blood culture cannot be<br/>performed at DPHL</b><br><br>qPCR requires culture<br>confirmation |
|                                  |                                       |  | qPCR: on original specimen and<br>grown organisms.  | Refrigerate at 2-8°C   | 8-24 hrs        |  |
|                                  | Environmental<br>and Non-<br>Clinical | Environmental swabs, letter, powder or<br>liquids<br><b>Seed or Plant Material:</b> half pea size<br>sample in a sterile sealed bag or sterile<br>tube.              | Culture   | Use Dacron or polyester<br>swabs or a culturette   | 4-7 days        | <b>Chain of Custody required</b><br><br>qPCR requires culture confirmation   |
|                                  |                                       |  | qPCR: on original specimen and<br>grown organisms.  | Use Dacron or polyester<br>swabs, <b>no</b> culturettes  | 8-24 hrs.       |  |
|                                  | Food                                  | <b>Notification of DPHL by DPH<br/>Epidemiology Section is necessary as<br/>soon as possible due to the large<br/>amount of media necessary to process<br/>food.</b> | Culture and qPCR<br>Send all suspect food double bagged<br>in a sterile leak proof container.<br><br><b>Attempt to collect at least 25 grams.</b> | Refrigerated samples &<br>those collected at room<br>temperature should be<br>transported at 4°C.<br>Frozen samples should<br>be transported on dry ice. | 2-7 days        |  |

\*Cultures from clinical specimens should be performed by the sentinel laboratory if possible