Clinical Testing
Virology

Special requirements for Virus Isolation/Identification
Requests for virology laboratory tests should be based on clinical symptoms. Be specific. Use of vague terminology such as “Viral Studies” should be avoided since this only delays the examination until the laboratory can obtain the required specific clinical information. Do not ship specimens immediately before a weekend or holiday. All virus isolation/identification testing is performed at the Illinois Department of Public Health’s Chicago laboratory. Ship specimens directly to the Department’s Chicago laboratory.

Information Required
Completed Communicable Diseases Laboratory Test Requisition, (IL482-1039)

Virus Isolation

Specimen Requirements for Viral Isolation
Collect the specimen within one to three days after onset of symptoms. For optimal virus recovery, assure receipt at the laboratory within 24 hours of collection. Place frozen packs around the specimen and transport specimens to the laboratory in a leak-proof outer container. If delivery will take longer than 24 hours, store the specimen(s) at -70 C and ship on dry ice.

Enteroviruses (Coxsackie Virus, Echovirus, Enterovirus)
Collect specimens (stool, rectal swab, CSF or throat swab) as late as five to seven days after onset of symptoms. Ship specimens overnight on cold packs.

Respiratory Viruses (Influenza A & B, Parainfluenza 1 – 4, RSV and Adenovirus)
See instructions for “Respiratory/Influenza Virus Specimen Submission” in this manual. Transport to the laboratory according to the instructions included with respiratory kit. For outbreaks, contact the regional health officer.

Autopsy Specimens
Collect specimens aseptically as soon as possible after death. Separate in tubes according to tissue type. Label each tube with the contents and patient identifier. Forward the specimens to the laboratory immediately. If a delay in transport is anticipated, store the specimens at -70° C and ship on dry ice.

Referred Tissue Culture Fluid (TCF) Specimens
Hospital labs may submit TCF specimens for identification and typing. Submit only actively growing TCF specimens showing 2+ or greater CPE. Do not fill the tube with media when transporting to the lab. See the “Instructions for Influenza Isolates Submission as Part of the W.H.O. Surveillance Program” section of this manual for packaging and shipping guidelines.

Collection Materials
See Clinical Supplies Requisition Form for supplies.

Criteria for Rejection
Preservatives added; received without refrigerant; submitted on expired media; dry swab; excessive delay in transit; specimen not labeled

Test Methodology
Virus isolation in tissue culture, identification by fluorescent antibody (IFA/DFA) and influenza subtyping by PCR for Influenza A and hemagglutination-inhibition (HAI) for Influenza B

Interfering Substances
Bacterial, yeast or fungal contamination

<table>
<thead>
<tr>
<th>Disease or Agent</th>
<th>Specimen</th>
<th>TAT (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteroviruses 70 &amp; 71</td>
<td>CSF, throat, stool</td>
<td>7</td>
</tr>
<tr>
<td>Parainfluenza viruses, 1-4</td>
<td>Throat, nasopharyngeal, bronchial wash</td>
<td>7</td>
</tr>
<tr>
<td>Respiratory syncytial virus (RSV)</td>
<td>Throat, nasopharyngeal, bronchial wash</td>
<td>7</td>
</tr>
<tr>
<td>Measles virus (Rubeola)</td>
<td>Throat, urine, CSF, brain tissue</td>
<td>7</td>
</tr>
<tr>
<td>Varicella-zoster (V-Z) virus</td>
<td>Lesion swab, vesicle fluid, CSF, brain tissue, throat, bronchial wash</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 10. Virology

Performed at the Chicago Laboratory
Clinical Testing
Virology

Instructions for the Submission of Specimens for Virus Culture

Specimen Collection and Submission

Instructions for Influenza Virus Submission

Instructions for Influenza Virus Specimen Submission Based on Interim Guidance on Specimen Collection, Processing and Testing for Patients With Suspected Novel Influenza A (H1N1) Virus Infection from the U. S. Centers for Disease and Control and Prevention http://www.cdc.gov/h1n1flu/specimencollection.htm

Instructions for Influenza Isolates Submission as Part of the W.H.O. Surveillance Program

Specimen Collection

1. The optimal time for collecting specimens for influenza virus isolation is during the early acute phase of the illness, preferably within three days of onset. The probability of recovery of virus from asymptomatic patients is slight.

2. The choice of clinical specimen collected should be determined by a physician, a person acting under the direction of the physician or a public health professional familiar with the clinical syndrome. Influenza viruses can be readily isolated from a variety of respiratory specimens, including sputum, nose and throat swabs, and nasal aspirates or washes. The nasopharyngeal swab is the preferred specimen.

3. A processed shell vial aliquot (RMI™ or RMK shell vial) is not an acceptable specimen for recovering virus for HAI subtyping. Processed shell vials will be accepted for influenza PCR testing only.

4. Inoculate a RMK culture tube using the original clinical specimen or shell vial that was identified as containing influenza virus. Incubate the RMK tube at 37 C until CPE of 2+ or greater is present. CPE usually occurs within three to five days.

5. Label the RMK culture tube with the patient’s name and collection date. Complete all the demographic information on the communicable disease laboratory test requisition form.

6. Ship the RMK culture tube with 1mL to 2 mL of media. Do not fill the culture tube with media. Wrap the cap with parafilm or tape to provide additional insurance against leakage. Wrap each tube with absorbent material.

Specimen Transport

1. Maintain the isolate(s) at 37 C until shipping is possible. When packaging for shipment, add cold packs to the shipping container.

2. a. By ground transport
   i. Wrap specimen(s) individually in absorbent material.
   ii. Place wrapped specimen(s) into a biohazard labeled bag and seal securely.
   iii. Place the test requisition(s) in the biohazard bag outside pouch so that it does not come in contact with the specimen sealed inside the bag.
   iv. Place the sealed biohazard bag and test requisition(s) inside the shipping container. The shipping container must be rigid such as a cooler and labeled with the UN 3373 Biological Substance Category B marking.
   v. Close securely.

3. Commercial carrier by ground/air transport
   i. Wrap specimen(s) individually in absorbent material.
   ii. Place the wrapped specimen(s) inside a biohazard labeled 95 kPa bag and seal following the instructions on the bag.
   iii. Place the test requisition(s) in the 95 kPa bag outside pouch so that it does not come in contact with the specimen sealed in the bag.
   iv. Place the sealed 95 kPa bag and completed test requisitions(s) inside the outer shipping container and close securely.
   v. Label the outer shipping container with the appropriate Illinois Department of Public Health laboratory address. Complete the return address section to include the name of the person shipping the package, business name and address and a business phone number.
   vii. The shipping container must include the UN3373 Biological Substance Category B marking.

3. Ship to the laboratory on cold packs as quickly as possible by messenger courier, commercial carrier or United States Postal Service overnight. Avoid shipping specimens over weekends or holidays.

Ship to:
Illinois Department of Public Health Laboratory
Virology Unit
2121 W. Taylor St.
Chicago, IL  60612-4224

Phone: 312-793-4760
Fax: 312-793-1322