



# Hygienic Laboratory

*The University of Iowa*

## Viral Detection & Viral and Bacterial PCR

### Submission Requirements

- The specimen should reflect the pathology of disease. The clinical symptoms may identify the target organ and suggest the appropriate specimen to collect. Refer to the following page for "Instructions for Specimen Collection by Type".
- Label each specimen transport tube with the patient name or unique identifier.
- **UNLABELED SPECIMENS WILL NOT BE TESTED.**
- A completed Viral Detection & Viral and Bacterial PCR Test Request Form must accompany each specimen.

### Specimen Collection and Handling

- Use M4 transport tube provided in kit or equivalent viral transport medium.
- Do not use calcium alginate swabs or swabs on wooden shafts.
- Place swabs in M4 transport medium, and do not remove. Individual swabs from anterior nasal and throat may be combined into a single M4 transport tube.
- Specimens for influenza testing should be collected within three days of onset of symptoms.
- Many of these specimens are also acceptable for PCR testing, such as for *Bordetella pertussis*. Instructions for testing for *B. pertussis* (whooping cough) are on a separate instruction sheet.
- Specimens for Norovirus (Norwalk-Like Virus) RT-PCR testing should not be mixed with M4 transport medium but should be maintained at 2-8°C.
- Refrigerate specimens at 2-8°C immediately after collection. **DO NOT FREEZE.**
- Wrap the specimen in absorbent material, and place into a biohazard bag.
- Package specimens from each patient individually.

### Complete Test Request Form

- Complete a Test Request Form with the following information:
  - Name, birth date, and gender of patient
  - Specimen type and date of specimen collection
  - Mark the desired analyte (all that apply) on the Test Request Form.
  - Date of symptom onset
  - Clinical diagnosis
  - Complete patient history, travel history, and other relevant patient information

### Shipping Instructions

- Include completed Test Request Form in side pocket of biohazard bag.
- Place specimen(s) in the Styrofoam container with SUFFICIENT FREEZER PACKS on top to maintain specimen(s) at 4°C until shipment. **DO NOT USE WET ICE.**
- Place container into the cardboard shipping carton, close lid, and seal.
- Specimens must arrive at the UHL within 24-72 hours after collection.
- **SEND TO UHL at Oakdale Campus in Iowa City (See address below).**
- Ship multiple specimens in packaging compliant with USPS or IATA regulations.

### Contact Information

- For test request forms and kits: 319/335-4466
- For additional forms, go to <http://www.uhl.uiowa.edu/kitsquotesforms>
- For questions: Virology, 319/335-4500 or PCR, 319/335-4376

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Specimen Collection and Shipping Instructions

### Selection of Specimens

- **Enteroviruses: (Echo, Coxsackie A, Coxsackie B, Enterovirus, Polio):** Stool, rectal swab, posterior nasopharyngeal swab, CSF (CNS infection), vesicular/lesion fluid or scrapings (vesicular/rash infection), conjunctival swab (eye infection), pericardial fluid (Coxsackie B), or autopsy material.
- **Herpes Simplex Virus:** Lesion swab, lesion fluid, CSF (PCR), ocular (PCR only).
- **Varicella Zoster Virus:** Vesicle aspirate or vesicle swab.
- **Mumps:** Oral/buccal swab. CSF in the case of encephalitis/meningitis. Also collect acute and convalescent sera: Acute 3 to 5 days after onset of symptoms. Convalescent 2 to 4 weeks after onset of symptoms.
- **Respiratory:** The specimen type and source may greatly impact the ability to detect influenza virus and other respiratory pathogens (RSV, Parainfluenza 1,2,3, Adenovirus, and Rhinovirus). Nasal aspirates and washes are optimal specimens (contain the greatest number of viruses). Swab specimens generally contain fewer virus particles than aspirates and washes but posterior nasopharyngeal swabs are preferable to anterior nasal swabs or throat swabs. Sputum, bronchial washes, and tracheal aspirates are excellent specimens from patients with lower respiratory symptoms (*Mycoplasma pneumoniae*, *Legionella pneumophila*, and *Chlamydia pneumoniae*).

### Instructions for Specimen Collection by Type

- **Lesion Swab:** A vesicle or pustule is unroofed using a sterile beveled hypodermic needle. Using a polyester swab moistened with transport medium, scrub the base of the opened lesion with sufficient vigor to ensure that cells are collected on the swab. Place the swab in transport tube containing M4 medium provided.
- **Vesicle Aspirate:** Wipe area with sterile saline. Aspirate fluid from vesicle with 26- or 27-gauge needle attached to tuberculin syringe, and rinse syringe immediately with 1-2 ml of transport medium provide.
- **Nasopharyngeal Swab:** Insert Dacron-tipped wire swab through the nostril into the nasopharynx until tip reaches distance equivalent to that from the ear to the nostril of the patient. Rotate swab several times, remove, and place swab in tube containing M4 transport medium provided. **Nasal Wash:** Instill several milliliters of sterile saline into nostrils while patient's head is tilted back. Bring patient's head forward and catch saline flowing from the nostrils in a small container. Pour specimen (1-2ml) into transport tube containing M4 medium provided.
- **Nasal Aspirate:** A small catheter with a suction trap or a bulb aspirator is inserted through the nostrils into the nasopharynx. Apply suction while slowly removing the catheter or aspirator tip. The catheter or aspirator should be flushed with the transport medium provided. Transfer entire specimen back into the transport tube.
- **Nasopharyngeal Swab:** Insert Dacron-tipped wire swab through the nostril into the nasopharynx until tip reaches distance equivalent to that from the ear to the nostril of the patient. Rotate the swab several times, remove, and place swab in tube containing M4 transport medium provided.



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Specimen Collection and Shipping Instructions

- **Combination Swabs (e.g., Throat and Nasal):** Obtain throat swab and nasal swab as described below, and place both swabs in tube containing M4 transport medium provided.
- **Throat Swab:** Rub the tonsils and posterior pharynx with Dacron-tipped plastic swab. Place the swab in tube containing M4 transport medium provided.
- **Nasal Swab:** Place Dacron-tipped swab in each nostril and allow remaining in place for several seconds. Place the swabs in tube containing M4 transport medium provided.
- **Throat Wash:** Patient should gargle with smallest convenient volume of saline or M4 transport medium provided, and then expectorate into a cup. Transfer cup contents back into the transport tube.
- **Sputum:** If possible, have the patient rinse mouth and gargle with water prior to sputum collection. An early morning specimen is best. Instruct the patient not to expectorate saliva or postnasal discharge into container. Collect specimen resulting from deep cough in sterile screw-cap container. Satisfactory quality implies the presence of mucoid or mucopurulent material and is of greater significance than volume. Ideally, a sputum specimen should have a volume of 3-5ml, although smaller quantities are acceptable if the quality is satisfactory.
- **Oral/buccal swab:** Collect fluid by swabbing the buccal cavity (the space between the cheek and teeth). The parotid duct drains in this space near the upper molars. Massage the parotid gland area just in front of the ear and near the angle of the jaw for 30 seconds prior to collecting secretions on the swab. Swab the area between the cheek and gum by sweeping the swab near the upper molar to the lower molar area. Place swab in M4 viral transport medium and do not remove swab.
- **Stool:** Place 2-4 grams (the size of a navy bean) into a sterile container.
- **Rectal Swab:** Insert swab 4-6 cm into rectum, and roll swab against mucosa. Place swab in transport tube containing M4 medium provided.
- **Urine:** Collect 2-5 ml of midstream, clean-voided urine in sterile container, or use a catheter urine specimen
- **Tissues:** Place small biopsy specimens into transport tube containing M4 medium. Place larger specimens in sterile container. Add M4 medium to prevent drying.
- **Ocular Swab:** Swab lower conjunctiva with flexible, fine-shafted swab pre-moistened with sterile saline. Place swab into transport tube containing M4 medium provided.
- **Corneal or Conjunctiva Scraping:** Place scraping into transport tube containing M4 medium provided.
- **CSF:** Collect and ship in sterile container.