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Protocol for Laboratory Testing of Persons Under Investigation for Avian or Novel Influenza

Key Reminders

1. **Human testing for avian influenza and other novel strains must be performed at the Texas Department of State Health Services (DSHS) Laboratory or a Laboratory Response Network (LRN) laboratory.**
2. **Please use the appropriate laboratory-specific submission form when submitting specimens for avian or other novel influenza testing to a public health laboratory.**
3. **All specimens must arrive at the DSHS or an LRN laboratory within 72 hours of collection if refrigerated at 2–8 ºC. If specimens will arrive more than 72 hours after collection, the specimens must be frozen at ≤-70 ºC.**
4. **Ensure that specimens are labeled appropriately with at least two unique patient identifiers.**
   - The name and date of birth on the form must match the name and date of birth on the specimen tube.
   - Include date and time of collection on the laboratory submission form.
   - One submission form must be submitted for each specimen.
5. For avian or other novel influenza testing of patients with an upper respiratory illness, a nasopharyngeal (NP) swab, nasal aspirate or wash, or two swabs combined into one viral transport media vial (i.e., nasal or nasopharyngeal swab combined with an oropharyngeal [OP] swab) is the preferred specimen for testing.
   - Submit specimens in unexpired viral transport medium (VTM).
6. **For patients with lower respiratory tract illness, a lower respiratory specimen should also be collected and submitted to the DSHS or an LRN Laboratory (in addition to an upper respiratory tract specimen).**
7. **For persons under monitoring (PUM) for avian or other novel influenza who develop symptoms, complete the "Avian Influenza Initial Case Investigation Form".**

SPECIMEN TESTING

1. Individuals that are symptomatic following an epidemiological exposure to a suspect or confirmed case of avian or novel influenza will be considered Persons Under Investigation (PUI). Specimens from PUIs should be sent to a qualified public health laboratory with the capability to test for avian and novel influenza viruses (i.e. DSHS or LRN laboratories). Patient must meet clinical and epidemiological criteria determined by the Emerging and Acute Infectious Diseases Unit (EAIDU). This must occur before the specimen can be tested.
2. Real-time reverse transcription polymerase chain reaction (rRT-PCR) testing using Centers for Disease Control and Prevention (CDC)-approved primers should be performed.
   a. Seasonal influenza testing should be performed along with H5. This includes the following primer/probe sets: InfA, InfB, H3, Pdm InfA, Pdm H1, H5a, H5b, and RNase P.
3. Specimens that are positive for unsubtypeable influenza A or H5 will be sent to the CDC for laboratory confirmation.
   a. Specimens positive for unsubtypeable influenza A or H5 are considered "presumptive" positive until there is lab confirmation from the CDC.

4. To test individuals that are not symptomatic consult with EAIDU influenza matter expert prior to collection.

SPECIMEN COLLECTION

1. For PUIs for avian or other novel influenza (PUMs who develop symptoms), complete the "Avian Influenza Initial Case Investigation Form". Local health departments (LHDs) should immediately transmit the completed form by a secure method (e.g., secure fax or encrypted email) to both the public health region and EAIDU.

    - Email: FluTexas@dshs.texas.gov
    - Fax: 512-776-7616

2. Specimens should be collected and submitted for novel/avian and seasonal influenza testing from individuals who report having new onset or worsening of the following signs or symptoms:
    - Fever (temperature of 100°F [37.8°C] or greater) or feverish/chills
    - Diarrhea
    - Cough
    - Nausea
    - Vomiting
    - Runny or stuffy nose
    - Fatigue
    - Sneezing
    - Seizures
    - Muscle or body aches
    - Rash
    - Headaches
    - Eye tearing, redness, or irritation
    - Difficulty breathing/shortness of breath

3. If viral transport media (VTM) is frozen, thaw frozen VTM completely (either by refrigeration or at room temperature) before specimen collection. *Do not heat, microwave, or incubate media prior to use as this may cause inactivation of the virus.*

   Use sterile, polyester-tipped, plastic shaft nasopharyngeal swabs and VTM for specimen collection. Dacron or rayon-tipped swabs with a plastic shaft or any other commercially available sterile collection system intended for virus isolation also may be used.

   Note: Calcium alginate swabs or swabs with wooden shafts are not acceptable for specimen collection as they may inhibit recovery of the virus.

4. **For patients with upper respiratory tract illness**, please collect:
   a. A NP swab, or
   b. A nasal aspirate or wash, or
   c. Two swabs combined into one VTM vial (i.e., nasal or NP swab combined with an OP swab).

   If these specimens cannot be collected, a single nasal, or OP swab is acceptable.

5. **For patients with lower respiratory tract illness**, please collect a lower respiratory tract specimen (e.g., an endotracheal aspirate or bronchoalveolar lavage fluid) in addition to an upper respiratory tract specimen.

6. Additional specimens may be requested depending on the patient's symptoms (e.g., a conjunctival swab maybe requested if the patient reports eye redness, tearing, or irritation).

7. If possible, in order to increase the potential for virus detection, multiple respiratory specimens from different sites may be obtained from the same patient on at least two consecutive days.

8. After specimen collection, insert the fiber tip of the swab into the VTM specimen vial and break off the shaft so that the swab fits completely within the tube. Please tighten the cap securely and refrigerate or freeze immediately.
   a. The VTM specimen vial should contain at least 2-3 mL of VTM (e.g., containing protein stabilizer, antibiotics to discourage bacterial and fungal growth, and buffer solution).

SPECIMEN STORAGE

1. Refrigerate (2–8 ºC) or freeze (≤-70 ºC) specimen vials immediately after collection.

2. Specimens should be stored in an upright position with caps tightened.

3. If collected specimens will arrive at the DSHS or LRN laboratory within 72 hours of collection, store at 2–8ºC. If collected specimens will arrive more than 72 hours after collection, freeze at ≤-70ºC. Specimens received by the DSHS or LRN laboratory more than 72 hours after collection (including those received cold) will be rejected as unsatisfactory for testing unless those specimens were frozen after collection (≤-70°C), shipped on dry ice, and received frozen by the DSHS or LRN laboratory.

4. Ship specimens to the DSHS or LRN laboratory as soon as possible after collection. Timely transport to the laboratory will increase the likelihood of recovering the influenza virus from specimens.

SPECIMEN LABELING AND LABORATORY SUBMISSION FORM COMPLETION

For submission to LRN laboratories

1. Each submitter should use the appropriate LRN submission forms when submitting specimens to a specific LRN.

2. If submitters do not have the appropriate LRN submission forms for the particular LRN then the submitter should contact the specific LRN to which they want to submit the specimen(s) to obtain

LRN-specific lab submission forms.

For submission to the DSHS Laboratory

1. Each submitter should have a "master" G-2V Specimen Submission Form that includes their unique submitter number, name, and address. This master G-2V form should be reserved to make copies for future specimen submissions. If submitters have not yet established a unique submitter number with DSHS, they must contact Laboratory Reporting at (512)776-7578. Laboratory Reporting can also provide current copies of submission forms- including a copy of the current G-2V form- to existing submitters.

2. Ensure that the patient name and date of birth are written on each specimen vial. A corresponding DSHS G-2V laboratory submission form must accompany **each** specimen vial. *The patient name and date of birth on the specimen vial must match the name and date on the corresponding laboratory form.* If submitting multiple specimen sources, please additionally label each specimen with source and date/time of collection.

3. Fill out the G-2V laboratory form as thoroughly as possible (see page 6 for more information). The following items are **required**:

    - Section 1, Submitter Information:
        - Submitter/TPI Number
        - NPI Number
        - Submitter name, address, and contact information
    - Section 2, Patient Information:
        - Patient name, date of birth, sex, and full address
        - Date and **time** of specimen collection
        - ICD diagnosis code(s)
        - Level of care (select inpatient or outpatient)
    - Section 3, Specimen Source or Type (please check appropriate box or boxes)
    - Section 4, Virology
        - Check the box labeled "Influenza surveillance {Influenza real-time RT-PCR}"
        - Please indicate if the patient received the current season's influenza vaccine and the date it was received
        - Please indicate if the patient has had recent travel (especially out of state or international) or animal contact (i.e., avian, swine, cattle, or other animals)
    - Section 5, Ordering Physician Information
        - Ordering Physician's Name and NPI Number
    - Section 6, Payor Source
        - Check the box labeled "IDEAS".

      Note: Submitters who do not complete the form correctly and are billed will not be reimbursed.

PACKAGING SPECIMENS FOR SHIPMENT

Note: Please refer to pages 7–8 of this document for detailed diagrams of packing and shipping instructions.

1. **If the specimens will arrive at the DSHS or LRN laboratory within 72 hours of the time of collection, specimens can be shipped on cold or freezer packs.** Specimens that arrive at room temperature will be rejected as unsatisfactory for testing. No exceptions will be made for specimens that are unexpectedly delayed in transit.

2. **If the specimens will arrive at the DSHS or LRN laboratory more than 72 hours after the time of collection, ship specimens frozen on dry ice. If dry ice is used, a dry ice label should be placed on the outer cardboard box.** Specimens that are shipped on dry ice but are not received frozen by the DSHS or LRN laboratory will be rejected as unsatisfactory for testing.

   Note: DSHS does not provide dry ice boxes or labels designating dry ice shipments. Submitters

who ship using dry ice are responsible for ensuring that their shipments meet regulations. Contact the local LRN about the shipping supplies they provide.

3. Pack enough coolant (i.e., cold/freezer packs or dry ice) in the Styrofoam box to ensure that the specimens remain at the appropriate temperature until they arrive at DSHS or the LRN.

4. Follow the triple containment rules for specimen shipments.
   - Primary container = the VTM specimen vial in which the patient specimen (e.g., swab) is placed
   - Secondary container = leak proof container with absorbent material
   - Tertiary container = sturdy outer container (e.g., cardboard shipping box with internal Styrofoam box)

5. Ensure that the tertiary shipping container (i.e., the outer cardboard shipping box) is properly labeled for "Biological Substance, Category B" shipments. The required labels include:

   - UN 3373/Category B Biological Substances label
   - Directional arrows label
   - Submitter's address and contact person's information
   - Shipping address and contact person's information
   - Dry ice label (if applicable)

   Note: It is your responsibility as the shipper to make sure that all packaging and labeling meet the current regulatory criteria.

6. Be sure that the cap on the specimen vial (primary container) is tightened and the secondary container is sealed.

   Place the primary container (the specimen in the VTM vial) into the secondary container with enough absorbent material (e.g., paper towels) to absorb the entire contents if leakage/breakage occurs. Place the secondary container inside the tertiary container (e.g., cardboard shipping box with internal Styrofoam box). Do not tape the Styrofoam lid. Place a completed laboratory submission form for **each** specimen in the shipment on top of the lid of the Styrofoam box, inside the outer cardboard box. Tape the cardboard shipping box to close it.

   Note: If dry ice is used, do not tape the Styrofoam box; this allows venting of the carbon dioxide as the dry ice evaporates.

SHIPPING SPECIMENS

1. Collect specimens early in the week (i.e., Monday through Wednesday) and ship them to the laboratory no later than the day after collection. Any specimens collected on Thursday must be delivered to the laboratory on the same day as collection. This practice ensures that specimens are delivered to the laboratory before the weekend so they can be properly stored and testing procedures can begin as soon as possible. **Do not ship specimens on a Friday or the day before a holiday unless special arrangements have been made in advance with the DSHS or LRN laboratory**.

2. Ship specimens using overnight/priority shipping**.**
   a. **Inform your testing laboratory and epidemiology staff (regional and EAIDU) that specimens are being sent.**
      i. If sending to DSHS Austin, contact the DSHS Virology Laboratory (512-776-2452) and EAIDU (FluTexas@dshs.texas.gov or 512-776-7676).
      ii. If sending to an LRN, contact the specific LRN (https://www.dshs.texas.gov/laboratory-services/programs-laboratories/emergency-response/emergency-response-laboratory-response) and the LHD (https://www.dshs.texas.gov/regional-local-health-operations/public-health-regions/texas-local-public-health).
   b. **Provide a tracking number** for the shipment**.**
   c. Transport temperature: Store the specimen at 2º-8ºC if the specimen will be received at

the laboratory within 72 hours of collection; ship the specimen on cold packs. Otherwise, the specimen must be stored frozen (≤-70ºC) and shipped on dry ice.

3. If shipping specimens to DSHS Austin Laboratory, ship specimens to:

   Texas Department of State Health Services
   Laboratory Services Section, MC1947
   1100 West 49th Street
   Austin, TX 78756-3194

4. If shipping specimens to the DSHS State Public Health Laboratory, call the Specimen Acquisition group at (512) 776-7598. For other mailing and shipping questions, call the Container Preparation Group at (512) 776-7661.

5. If shipping specimens to an LRN laboratory, contact that LRN for shipping information.

Instructions for Completing the G-2V Specimen Submission Form* for Human Testing for Avian Influenza Viruses at DSHS

*Note: Instructions in this document refer to the DSHS G-2V Specimen Submission Form (FEB 2024).

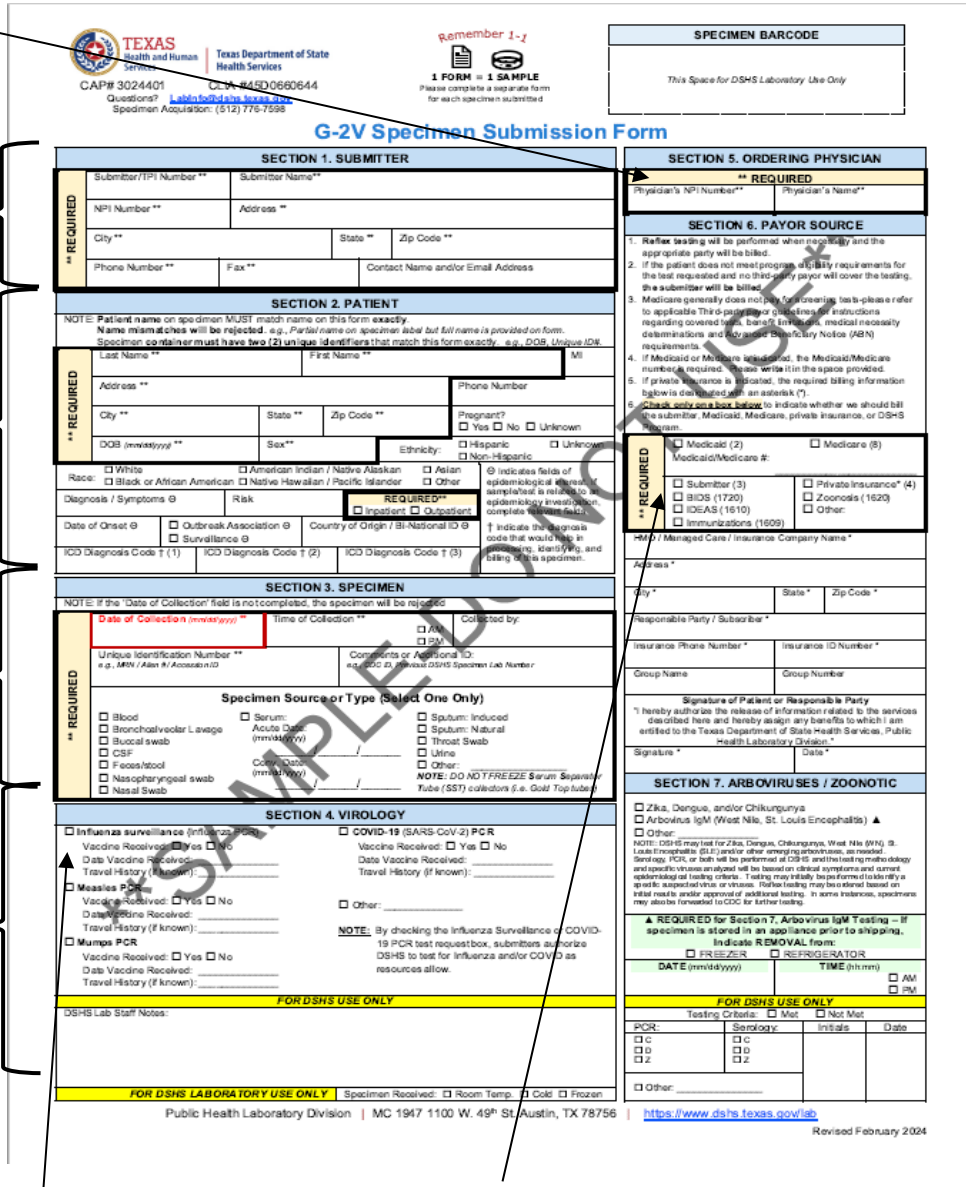
Complete Section 5, "Ordering Physician Information," by providing the physician's name and NPI number.

Ensure Section 1, "Submitter Information," has the correct submitter name, address, phone, and contact information. This section should be pre-populated on your master form**.

Complete Section 2, "Patient Information," with **diagnosis/symptoms, date and time** of specimen collection, patient name, address, date of birth, Inpatient/Outpatient, and any other pertinent information (e.g., diagnosis or symptoms).

Complete Section 3, "Specimen Source or Type," by checking the appropriate box. One submission form must be submitted for each specimen source.

Complete Section 4, "Virology," by selecting the box marked "Influenza surveillance {Influenza real-time RT-PCR}". In the blank space to the right or below of Influenza surveillance, write "suspect avian influenza" or "suspect novel influenza". If applicable, indicate patient travel history.

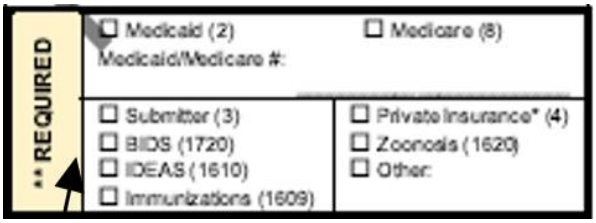


☐ Influenza surveillance {Influenza PCR}
Vaccine received: ☐ Yes ☐ No
Date vaccine received: _____
Travel history (if known): _____

Suspect

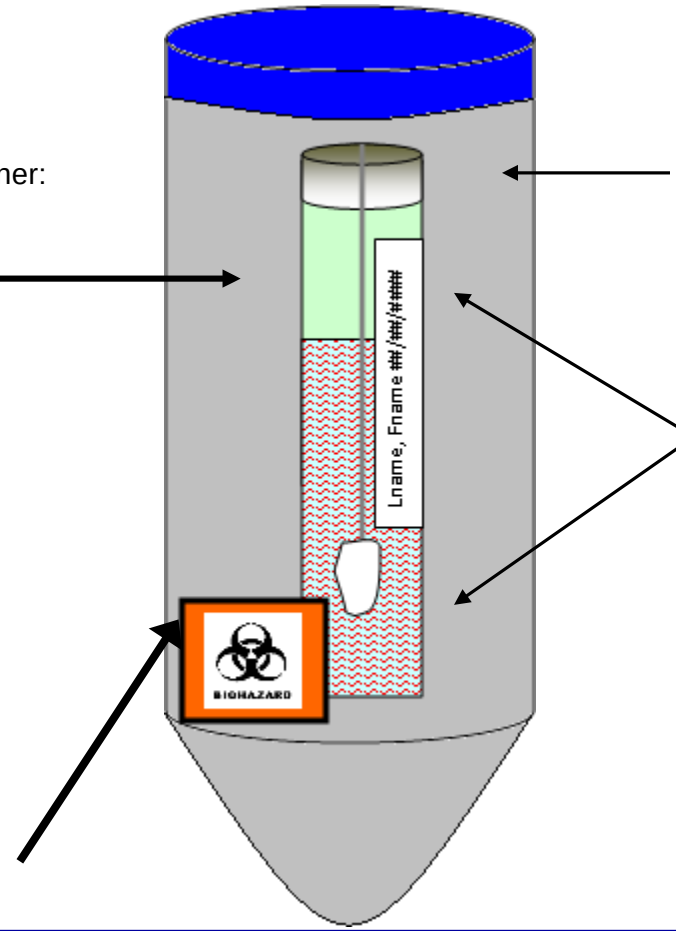
Avian Influenza

Complete Section 6, "Payor Source," by selecting the box marked "IDEAS". **The submitter will be billed if the box is not checked.**



Packaging and Labeling of Biological Substances, Category B

Do not put any patient information on outer or secondary containers or lids



Primary Container:
e.g., VTM
specimen vial

****Properly labeled with patient identifiers****

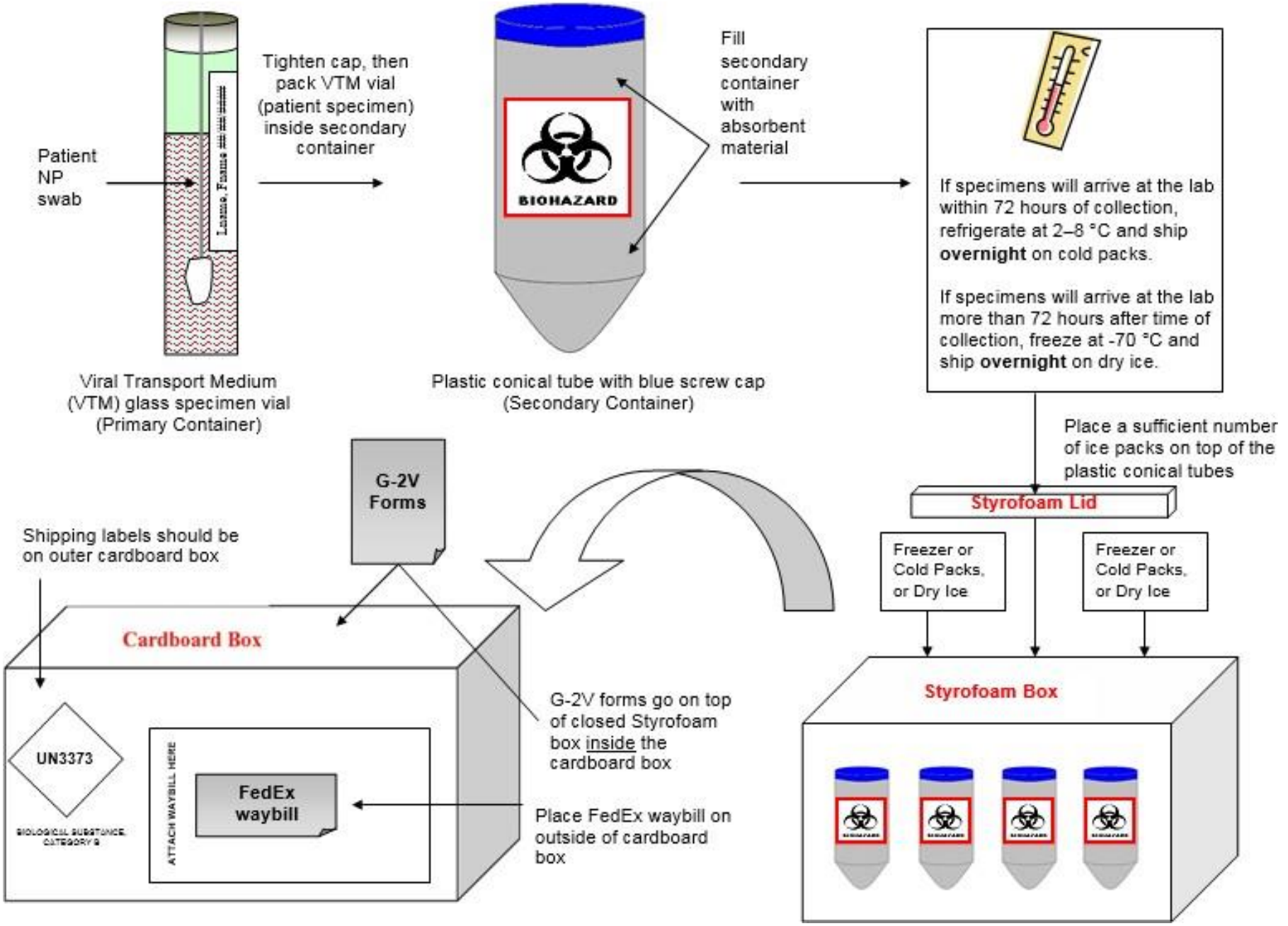
Secondary Container:

e.g., Plastic conical tube with blue screw cap

Pack with absorbent material (e.g., paper towels)

Biohazard label should already be on secondary container.

DO NOT put biohazard label on outer container.


Patient NP swab
Tighten cap, then pack VTM vial (patient specimen) inside secondary container
Fill secondary container with absorbent material
BIOHAZARD
If specimens will arrive at the lab within 72 hours of collection, refrigerate at 2–8 °C and ship **overnight** on cold packs.
If specimens will arrive at the lab more than 72 hours after time of collection, freeze at -70 °C and ship **overnight** on dry ice.
Viral Transport Medium (VTM) glass specimen vial (Primary Container)
Plastic conical tube with blue screw cap (Secondary Container)
Place a sufficient number of ice packs on top of the plastic conical tubes
Styrofoam Lid
Freezer or Cold Packs, or Dry Ice
Freezer or Cold Packs, or Dry Ice
Styrofoam Box
G-2V Forms
Shipping labels should be on outer cardboard box
Cardboard Box
UN3373
BIOLOGICAL SUBSTANCE, CATEGORY B
ATTACH WAYBILL HERE
FedEx waybill
G-2V forms go on top of closed Styrofoam box inside the cardboard box
Place FedEx waybill on outside of cardboard box