

Hospital Name or Procedure Number]

# Specimen Collection & Transport to NPHL Protocol For Nebraska Front-Line Facilities Suspecting Highly Hazardous Communicable Pathogens (HHCP)

---

## **Immediately contact State or Local Public Health Departments of suspect Highly Hazardous Communicable Pathogens:**

- **NNPHL 24/7 Emergency Number (402) 888-5588**
- **DHHS Office of Epidemiology (402) 471-2937 [after hrs 402-471-1983]**
- **Douglas County (402) 444-7214 [after hrs 402-444-7000]**
- **Lancaster County (402) 441-8053 [after hrs 402-441-8000 Communicable Disease]**
- **All Other Counties (402) 471-2937 [after hrs 402-471-1983]**

### **Purpose:**

Although unlikely, a patient could present with a potential highly infectious pathogen at a local acute care hospital, other emergency care settings including urgent care clinics, or critical access hospital. All Nebraska healthcare facilities play an important role, **MUST** have a plan in place, and be prepared to ask travel and exposure history, to recognize signs and symptoms, to identify a patient as a Patient Under Investigation (PUI), immediately isolate the patient, and inform local and state health departments. Every measure will be taken to immediately transfer a patient to the nearest treatment center. However, in the event that transport is delayed, or multiple patients are affected, delay may occur, based on distance, bed availability, or other considerations.

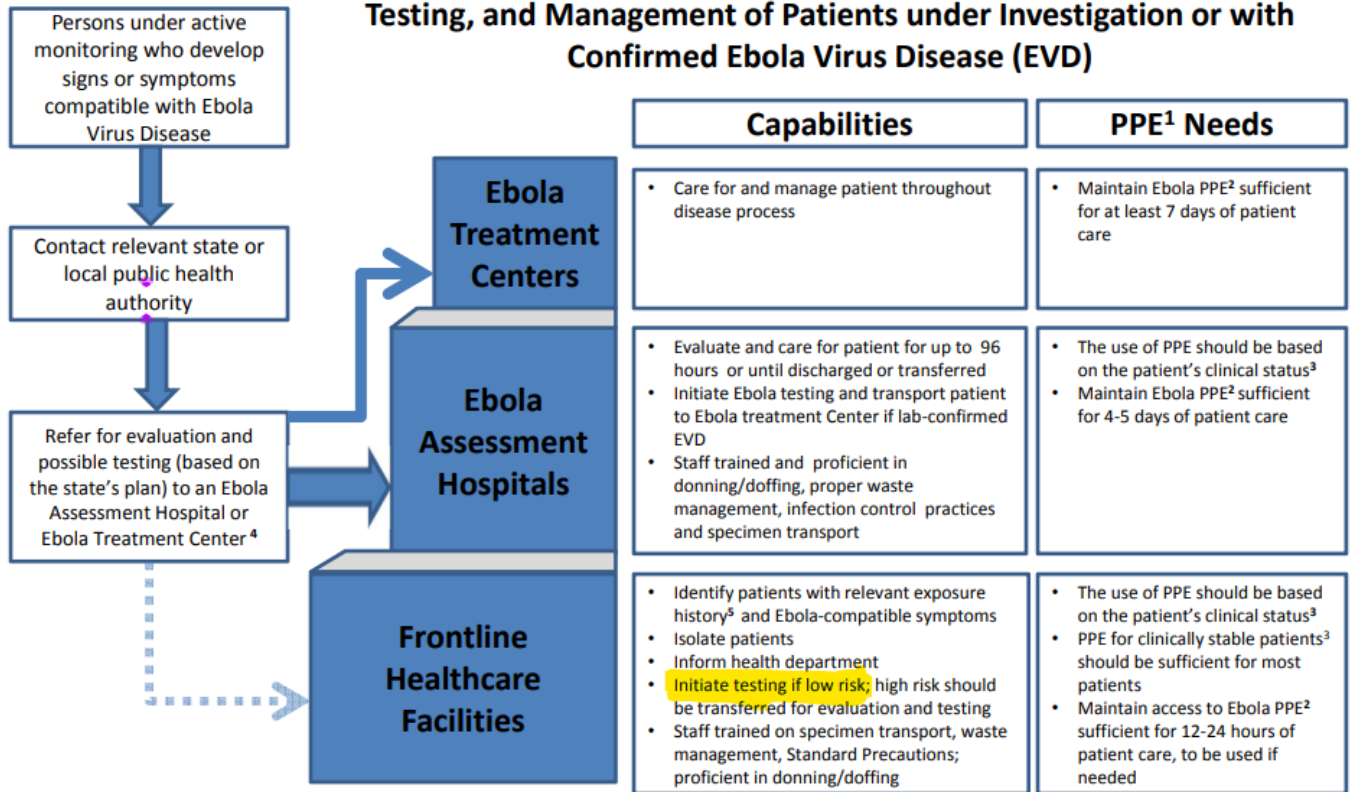
Therefore, these frontline facilities may be expected to provide prolonged care for 12-24 hours and depending on possible pathogen. CDC recommends states adopt “*A Framework for a Tiered Approach*,” outlining different health care facilities roles. Roles include serving as HHCP treatment centers, Assessment hospitals, and Frontline health care facilities. While the focus will be on preparedness for HHCP, it is important that preparedness for other novel, highly hazardous communicable diseases such as Crimean-Congo, Guanarito, Junin, Lassa, Lujo, Marburg, Middle East Respiratory Syndrome (MERS), Severe Acute Respiratory Syndrome (SARS) and highly pandemic avian influenza will also be enhanced through these activities.

### **Principle:**

In collaboration with public health officials, all healthcare facilities should be prepared to collect specimens for on-site laboratory setting as well as transferring specimens to the Nebraska Public Health Laboratory. Each facility must ensure there is no delay in the care of these patients by being prepared to test, manage, and treat alternative etiologies of febrile illness (e.g., malaria in travelers) as clinically indicated.

The following collection and transport procedures are designed to be a template in which each facility can incorporate into the hospital’s preparedness plan. CDC funding awarded to the state of Nebraska had allowed the Nebraska DHHS and the NPHL to train on infection control and biosafety/biosecurity and to assist healthcare facilities build the best possible preparedness plan.

## Interim Guidance for Hospital Preparedness for Evaluation, Testing, and Management of Patients under Investigation or with Confirmed Ebola Virus Disease (EVD)



1 Personal protective equipment (PPE)  
 2 See <http://www.cdc.gov/vhf/ebola/hcp/procedures-for-ppe.html> for information on recommended personal protective equipment (PPE) for all healthcare workers entering the room of a patient hospitalized with Ebola Virus Disease (EVD). All staff who may be required to use Ebola PPE should be trained for their roles and demonstrate proficiency in putting on (donning) and taking off (doffing) of PPE  
 3 Follow Emergency Department Algorithm for guidance on PPE <http://www.cdc.gov/vhf/ebola/pdf/ed-algorithm-management-patients-possible-ebola.pdf>.  
 4 Patients should be preferentially referred to an Assessment Hospital for testing and evaluation. If severely ill and/or high clinical suspicion of EVD referral to an Ebola Treatment Center could be considered, based on the state's plan. Confirmed EVD patients should be transferred to an Ebola Treatment Center. Rarely, patients may be temporarily referred to Frontline Healthcare Facilities when it is not feasible to refer to an Assessment Hospital or Treatment Center (e.g. based on distance, bed availability, or other considerations). In some cases, a hospital may be prepared to serve in more than one role.  
 5 Patient has lived in or traveled to a country with widespread Ebola transmission or a country that has had cases in urban settings with uncertain control measures or had contact with an individual with confirmed EVD within the previous 21 days <http://www.cdc.gov/vhf/ebola/exposure/risk-factors-when-evaluating-person-for-exposure.html>.

Download PDF version: <https://www.cdc.gov/vhf/ebola/pdf/evaluation-testing-management-of-patients.pdf>

### General considerations for collection (and management) of specimens of a PUI:

- Hospital preparedness plans including specimen collection for EVD/all highly infectious pathogens should be established, staff trained and exercised prior.
- Set up onsite coordinator or incident command to oversee at all times, the safe care of a patient under investigation (PUI) with potential to have a high-consequence pathogen.
- Establish a well-defined isolation area, in which clean and dirty areas are highly visible. No direct contact with a PUI without wearing appropriate personal protective equipment (PPE) in these defined dirty areas.
- Each step of every PPE donning/doffing procedure must be supervised by a trained observer to ensure proper completion of established PPE protocols.
- Staff working in isolation area should refrain from direct interaction with other staff and patients until PPE has been safely removed in a designated, confined area. All hospital facilities are encouraged to adhere to the donning and doffing links below, following all evaluation recommendations and PPE precautions, especially upon caring for a PUI patient presenting with vomiting and diarrhea.

<http://www.cdc.gov/vhf/HHCP/hcp/procedures-for-ppe.html>

Donning Complete: <http://app1.unmc.edu/nursing/heroes/pdf/vhfppe/donningBiologicalPPE-HHCPPatients-8.5x11-CC-v1.02.pdf>

Doffing Complete: <http://app1.unmc.edu/nursing/heroes/pdf/vhfppe/doffingBiologicalPPE-HHCPPatients-8.5x11-CC-v1.01.pdf>

- The nursing staff must be trained on the CDC Guidance on PPE and collect specimens within the patient isolation area (Hot Zone). However, if laboratorians or phlebotomists are required to enter the isolation area and collect specimens, they must first be trained in the same CDC guidelines as other healthcare staff working in the patient isolation area, adhering to the key principles listed within the links above:
  - ❖ All healthcare workers involved in the care of a PUI must previously have received repeated training and have demonstrated competency in performing all high-consequence pathogen infection control practices and procedures, and specifically in donning/doffing proper PPE.
  - ❖ While working in PPE, healthcare workers caring for PUI should have no skin exposed.
  - ❖ Keep written logs of all staff entering room of a PUI, including laboratorians, nursing and other healthcare staff. The log should be signed at entry and exit of the room, to track all contacts, if an exposure occurs.
  - ❖ Establish fever-watch requirements for all personnel, including laboratorians, who handle specimens.
  - ❖ Specimens collected for laboratory testing should be packaged and shipped without attempting to open collection tubes or aliquot specimens.
  - ❖ Specimens must be supervised by incident command or coordinator at all times from time of collection until courier arrives.
  - ❖ NPHL phlebotomy procedures, and laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and medical care, to stabilize the patient. **State/local public health officials can provide guidance on the testing of specimens for patient care.** Hospital directors and biosafety officers must first perform risk assessments to determine the potential for aerosols generated from each procedure prior to any in-house testing and adjust PPE requirements, practices and safety equipment controls. Additional information can be found in the following link: <https://www.cdc.gov/quarantine/interim-guidance-risk-assessment-HHCP.html>

## **Exercise and Edit NPHL Checklist (Partner Method) Template to best fit your facility.**

Template next page

# Checklist (Partner Method)

## Collection of Specimens Suspected to Contain Highly Hazardous Communicable Diseases

### **Permission Required by State or Local Public Health Department:**

- Your Local Health Department 24/7/365 contact number: \_\_\_\_\_
- DHHS Office of Epidemiology (402) 471-2937 [after hours 402-471-1983]

### **Notify NNPHL (24/7 pager 402.888.5588) Prior to Collection:**

Arrangement of type of transport and courier will be based on each individual case.

### **CHECK & ORGANIZE YOUR SUPPLIES!**

#### **Gather supplies to take into PUI isolation area (hot zone):**

- Appropriate specimen container(s) as advised by the public health laboratory
- Appropriate collection supplies such as appropriate
  - Collection device i.e.) vacutainer adapter system with safety lock needle or syringe and needle with transfer device (butterfly not considered safe in this setting)
  - Collection prep supplies i.e.) alcohol pads, iodine preps, cotton balls, Band-Aids
  - Tourniquet
  - Other specimen collection devices for respiratory, such as nasopharyngeal swab
- Disinfectant wipes
- Alcohol wipes
- Large adsorbent pads/chux
- Medical waste container and sharps container
- Multiple sizes of gloves
- Printed patient labels with 2 identifiers
- Permanent Blue or Black pen or marker
- Small bio-hazard bags with ABSORBENT MATERIAL (included in kit)
- Large bio-hazard bags (included in kit)
- Trained observer/Partner checklist (included in kit)
- **DO NOT TAKE TRANSPORT KIT INTO HOT ZONE**

#### **Follow facility PPE protocol**

**Enter hot zone with needed supplies, small/large specimen bags and checklist**

### **Tasks performed in isolation area (hot zone):**

#### **Designated Staff:**

- **Health Care Personnel HCP-Collector: Collect specimen(s)**
- **Trained Observer TO: READ STEP-BY-STEP CHECKLIST**

**Work slowly, methodically, be aware of possible contamination. If a breach is observed, STOP critically think through the situation.**

- ✓ Pre-position supplies on tray/table, adjacent to patient arm used to collect blood.
- ✓ Logistically place supplies, work from clean to dirty side with medical waste container nearby.
- ✓ Set out at least 20 disinfectant wipes and remove gloves from box for easy access.
- ✓ Prep patient according to specimen type required, (blood, respiratory, etc.)
- ✓ **HCP-Collector**: collects appropriate specimen(s), blood must be in **specific order: Clear, Blue, Red, Gold, Green, Purple Grey** top. Mix well, place on clean disinfectant wipe.
- ✓ **CHANGE OUTER GLOVES USING GOOD GLOVE-IN-GLOVE TECHNIQUE**, hand sanitize with new wipe and discard, put on new outer gloves.
- ✓ With new Disinfectant wipe, pick up top of tube.
- ✓ Pick up 2<sup>nd</sup> wipe in other hand, and clean bottom of tube with good friction
- ✓ Holding the bottom of tube with the wipe, use the other hand pick up opened alcohol pad to clean TOP indented rubber stop on vacutainer lid.
- ✓ Lay specimen container down on new disinfectant wipe to dry, discard used wipes and pads.
- ✓ Repeat disinfection step with each tube or device collected, using new wipes.
- ✓ Let each tube or container dry during next glove change.
- ✓ **CHANGE OUTER GLOVES USING GOOD GLOVE-IN-GLOVE TECHNIQUE**, hand sanitize, put on new outer gloves.
- ✓ Place pre-printed label on specimen(s) or manually write with two (2) identifiers.
- ✓ Write initials, date and time on each specimen collected on label with ink pen.
- ✓ **TO**: hold SMALL biohazard bag open, touching only sides (do not hold top).
- ✓ **HCP-Collector**: with new wipe, pick up and place only one specimen into SMALL bag containing adsorbent material, **avoid touching gloves to the sides of the bag**. Discard used wipe.
- ✓ **TO**: will place the SMALL biohazard bag flat on sterile wipe or pad.
- ✓ **HCP-Collector**: Take new wipe in each hand, thoroughly clean outside of bag on both sides, work tube to bottom. Clean from bottom to top.
- ✓ Fold bag over several times to expel air, and rub seal closed.
- ✓ Multiple specimens - Repeat, placing each additional specimen into separate SMALL bag (including short draws-Do NOT discard or store). Fold, seal place on clean wipe.
- ✓ **TO**: hold LARGE biohazard bag open at side.
- ✓ Lead Partner #1 with new wipe, pick up and place SMALL folded bag(s) into LARGE bag.
- ✓ **TO**: place LARGE bag flat on new adsorbent pad.
- ✓ When all specimens are in larger bag, Lead Partner #1: take new wipe in each hand, rub outside of the bag on both sides, work specimen(s) to bottom if possible. Fold the bag several times to expel air, rub seal shut.
- ✓ **HCP-Collector**: **CHANGE OUTER GLOVES USING GOOD GLOVE-IN-GLOVE TECHNIQUE**, hand sanitize with new wipe and discard, donn new outer gloves
- ✓ **HCP-Collector**: Using new wipe between fingertips and bag, carefully hand off larger bag to clean side, placing directly into white Tyvek™ envelope without touching envelope. (Fig 1).
- ✓ Document number and types of specimens collected, notify the incident commander or lead nurse on clean side when the specimens are ready.



Figure



## **Final Packaging Steps performed in Clean Zone:**

First, coordinate with NPHL (24/7 emergency pager 402.888.5588) on what method of transport will be provided. NPHL should provide either a government courier or a commercial courier. Personnel designed to package on clean side near isolation room can wear routine lab coat and gloves.

- I. **Government Courier** - Use HHCP kit cooler provided by NPHL with UN2814 box.
- II. **Commercial Courier** - Use only Cat A box inside cooler. MUST be DOT certified within 2 years. DO NOT USE COOLER TO SHIP, not acceptable rigid container.
  - **Ground courier** - arranged by NPHL [24/7 number (402) 888-5588] Shipper's Declaration required
  - **FedEx** – Airbill, Shipper Declaration required. See below.
- III. Transport to Onsite Laboratory - Use hard sided cooler if transporting through patient or public areas. MUST be triple packaged. See below.

## **I. Government Courier – Pick Up at ED/ Isolation Unit. Use HHCP cooler provided by NPHL containing UN2814 Infectious Substance box:**

Prior to transfer of double bagged specimen from hot zone to clean area, unpack all cooler/kit items on cart (avoid nurses' station), place in order of use. Keep cooler lid open.

### **Gather supplies for packaging (clean zone):**

- Locate Transport Kit; unpack on cart/table near hot zone.
- Open compartment on the top of cooler, set aside Red Secure Cable Ties
- Open cooler and remove the folder. Retrieve following forms:
  - Collection Instruction Checklist – give to trained observer to read each step-by-step instruction
  - Chain of Custody Form
  - NPHL Order Requisition Form
- Remove white Category A box, open, and remove round vessel, twist off lid and remove bubble wrap. Place each on table.
- Remove and set aside the Silver Thermal Pouch and the White Tyvek™ Envelope.
- Locate the small pre-frozen gel-pack, which originally came with kit, but should be frozen in your facility freezer.
- Keep the cooler lid open.
- Give SMALL & LARGE biohazard bags with absorbent material to HOT zone staff prior to collection.
- Keep the cooler lid open.

### **Trained observer on clean side read out-loud step-by-step checklist – Observe for proper packaging:**

- ✓ Wearing regular lab coat and gloves, hold white Tyvek™ envelope open (only touching sides) while staff from hot/warm zone reaches over to places directly into envelope without touching gloves to envelope. (Above Fig 1).

- ✓ After LARGE bag has been placed into white Tyvek™ envelope, lay on table/cart. Expel air and pull tape to seal. Fold envelope to compact.
- ✓ Place Tyvek™ envelope into silver thermo-pouch (Fig 2).
- ✓ Place prefrozen gelpack into pouch, compact.
- ✓ Pull strip off and seal pouch.
- ✓ Place pouch into round vessel (Fig 3).
- ✓ Thread lid onto vessel to close (do NOT over-tighten lid).
- ✓ Place vessel into UN2814 Infectious Substance box.
- ✓ Close each lid in numerical order.
- ✓ Pull strip on lid #3 press down on lid #4 to seal.
- ✓ **Complete NPHL test order requisition, include approval name/phone and place in the folder.**
- ✓ **REMOVE all PPE.**
- ✓ Write in Responsible Person and emergency phone number on label located on the side of box.
- ✓ Do not touch cooler with gloved hands.
- ✓ Place UN2814 box back into cooler, place bubble wrap around box so content does not shift.
- ✓ **Close the lid of cooler without PPE. Keep the cooler from being touched with gloved hands.**
- ✓ Place red security ties through loops, pull tight to secure. Use both ties if available.
- ✓ If chain-of-custody (COC) is required, write red security ties number(s) on COC form. (Fig 4)
  - Complete top part of COC. Add patient labels all 3 copy pages.
  - List name of person who collected specimens on “Collected by” line.
  - Thereafter, each entity handling kit must print, sign name, provide reason for handling.
  - Document exact numbers, types of specimen tubes on the COC form.
  - Request driver’s license when courier arrives. Write license ID number on form.
  - Courier MUST sign COC form.
  - Place yellow & pink copy of chain-of-custody back in folder. Keep white copy for 2 years.
- ✓ Hand folder back to courier. Courier should keep folder on person, as manifest.
- ✓ Notify NPHL [24/7 number (402) 888-5588] of estimated time of arrival (ETA).

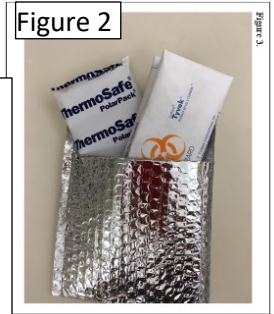


Figure 2



Figure 3



Figure 4

Contact NPHL State Training Coordinator with questions. 402.559.3590

## II. Commercial Courier (arranged by NPHL)

NPHL will determine best commercial courier (call 402.559.3590 for assistance).

Use only prelabelled UN2814 box inside cooler. MUST be DOT certified within 2 years.

- **Ground courier** -Shipper Declaration required. <https://www.nphl.org/shipping.cfm>
- **FedEx** – Airbill, Shipper Declaration required. Call STC for assistance 402.559.3590

## III. Transport to Facility’s Onsite Laboratory

Use HHCP transport cooler or other rigid container when transporting through patient or public areas of same facility. MUST be triple packaged, with primary specimen containers double bagged, then securely placed in rigid outer container to transport to the onsite laboratory.

If centrifugation is performed within assessment or treatment facility satellite lab in biocontainment unit and centrifuged specimen must be transported to onsite clinical laboratory, specimens must be repackaged in double biohazard bags and placed in rigid container for transport. Document via log number and type of containers were transport and consider having security or trained observer accompany.