EBOLA VIRUS DISEASE

Ebola Virus Disease (EVD) is one of numerous Viral Hemorrhagic Fevers. It is a severe, often fatal disease (50%-90% fatality) in humans and non-human primates (such as monkeys, gorillas, and chimpanzees). In 2014, West African countries (Guinea, Liberia, and Sierra Leone) have experienced the largest outbreak of EVD. In 2022, Democratic Republic of Congo and Uganda declared outbreaks of EVD.

1. **Agent**: Ebola Hemorrhagic Fever is caused by infection with a virus of the family *Filoviridae*, genus *Ebolavirus.*

2. **Identification**:

   a. **Symptoms**: Initial signs and symptoms are nonspecific and may include fever, chills, severe headache, sore throat, fatigue, weakness, myalgias, arthralgia and malaise. Fever, anorexia, and weakness are the most common signs and symptoms. Symptoms may appear anywhere from 2 to 21 days after contact with the virus, with an average of 8 to 10 days. Patients may develop a diffuse erythematous maculopapular rash by day 5 to 7 (usually involving the face, neck, trunk, and arms) that can desquamate. Patients can progress from the initial non-specific symptoms after about 5 days to develop gastrointestinal symptoms such as severe watery diarrhea, nausea, vomiting and abdominal pain. Other symptoms such as chest pain, sore throat, loss of appetite and shortness of breath or confusion may also develop. Patients often have conjunctival injection. Seizures may occur, and cerebral edema has been reported. Bleeding is not universally present but can manifest later in the course as petechiae, ecchymosis/ bruising, or oozing from venipuncture sites and mucosal hemorrhage. Frank hemorrhage is less common. Other symptoms may include hiccups (late stage). Pregnant women may experience spontaneous miscarriages.

      See CDC website for the latest information:
      Ebola Disease Signs and Symptoms

   b. **Differential Diagnosis**: Due to these nonspecific symptoms particularly early in the course, EVD can often be confused with other more common infectious diseases such as malaria, typhoid fever, influenza, meningococcemia, and other bacterial infections (e.g., pneumonia).

   c. **Diagnosis**: In the early stages of case investigation, a case is defined by meeting the Center of Disease Control and Prevention (CDC)'s case definition. (CDC: Viral Hemorrhagic Fevers: Ebola (Ebola Virus Disease): Case Definition)

      Suspect Case:
      A person who has both consistent symptoms and risk factors as follows:

      1) Elevated body temperature or subjective fever or symptoms, including severe headache, weakness and fatigue, muscle and joint pain, sore throat, anorexia, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage, bleeding, or bruising; **AND**

      2) Epidemiologic risk factors within the past 21 days before the onset of symptoms (see Page 3) and CDC Website EVD: (Screening Patients).

         A suspect case classification will change if laboratory testing determines suspect case to be negative ("not a case") or positive ("confirmed case") for EVD.

      Confirmed Case:
      A suspect case with laboratory confirmed diagnostic evidence of Ebola virus infection.

3. **Incubation**: Usually 8-10 days, (range 2 to 21 days).

4. **Reservoir**: Unknown. However, on the basis of available evidence and the nature of similar viruses, researchers believe that the virus is zoonotic (animal-borne) with bats being the most likely reservoir. Four of the five subtypes occur in an animal host native to Africa.

5. **Source**: Blood, sweat, vomit, saliva, urine, feces, semen, tears, amniotic fluid, vaginal secretions, or breast milk of EVD cases. Infected bats, rodents, or primates from disease-endemic areas.

6. **Transmission**: Direct contact (through broken skin or mucous membranes) with body fluids from an EVD infected person, such as blood, sweat, vomit, saliva, urine, feces, semen, amniotic fluid, breast milk or through contact with contaminated objects (e.g., clothes, bedding, high touch surfaces, needles, syringes, and medical equipment). Direct handling of bats, forest antelopes, rodents, or nonhuman primates from disease-endemic areas.

7. **Communicability**: A person with EVD becomes infectious to others at the onset of signs and symptoms. People remain infectious as long as their blood contains the virus.

   The Ebola virus can persist in immune-privileged sites (e.g., testes, central nervous system, interior of the eye and placenta). In women who have been infected while pregnant, the virus persists in the placenta, amniotic fluid, and fetus. In women who have been infected while breastfeeding, the virus may persist in breast milk. How long the virus remains in immune-privileged sites is currently being studied.

8. **Specific treatment**: There are drugs approved by the United States Food and Drug Administration (FDA) to treat EVD caused by the certain species of Ebola virus. Whether or not other treatments are available, supportive care can significantly improve chances of survival when provided early.

   See CDC website for the latest information: CDC:Viral Hemorrhagic Fevers:Ebola (Ebola Virus Disease) Treatment

9. **Immunity:** People who recover from Ebola infection develop antibodies that last for at least 10 years, possibly longer. It is not known if people who recover are immune for life or if they can become infected with a different species of Ebola.

REPORTING PROCEDURES

1. **Report any case or suspected cases by telephone immediately (Title 17, Section 2500. California Code of Regulations) to:**
   a. Los Angeles County Department of Public Health (LAC DPH) Acute Communicable Disease Control Program (ACDC) at (213) 240-7941. Physicians at ACDC are available 24 hours/day for consultation. Ask for Physician on Call (AOD) during after business hours at (213) 974-1234.

2. **ACDC will notify the:**
   a. CDC Emergency Operations Center at (770) 488-7100.

   b. California Department of Public Health Division of Communicable Disease Control (CDPH DCDC) by calling the Duty Officer at (916) 328-3605 (available 24 hours)

   c. Appropriate ACDC staff.

   d. LAC DPH Public Health Lab (PHL) at (562) 658-1360.

3. **Report Forms:**

   A. **AOD Suspect Viral Hemorrhagic Fever Intake and Checklist (For ACDC/AOD/AMD use for symptomatic contacts/travelers and/or asymptomatic high risk contacts/travelers on case-by-case consideration)**

   B. **Viral Hemorrhagic Fever Contact Investigation Worksheet (For ACDC use)**

   C. **Viral Hemorrhagic Fever Case Report (For ACDC use)**

   D. **Viral Hemorrhagic Fever Exposure Daily Symptom Monitoring Log (For CFS and ACDC to provide to contact/traveler as symptom monitoring tool)**

   E. **REDCap Traveler Interview Form – See "REDCap link (Click here)" in IRIS in the "Daily Monitor" in Filing Cabinet (For CFS use).**

Upon consultation with the reporting clinician, the AOD or a designated staff is to complete:

- **AOD Suspect Viral Hemorrhagic Fever Intake and Checklist**

If received on weekend/holidays, the AOD or a designated staff to complete the following additional forms:

- **AOD Suspect Viral Hemorrhagic Fever Intake and Checklist, and**
- **Viral Hemorrhagic Fever Contact Investigation Worksheet**

Face-to-face interview should only be conducted if case or suspect case is asymptomatic. For symptomatic case or suspect case, interview should be conducted via telephone or electronic means with video function or conduct interview with another person that is familiar with the case or suspect case. AOD is to report to Chief or Deputy Chief of ACDC to determine actions to follow.

4. **Epidemiological Data:**

Travel to designated outbreak area or county: CDC Interim Guidance on Risk Assessment and Management of Persons with Potential Ebolavirus or Marburgvirus Exposure

Contact with blood or bodily fluids (including contaminated objects) of acutely ill or dead persons with suspected or known EVD (such as providing care in home or healthcare setting) without wearing appropriate PPE).

Contact with semen from a man who has recovered for EVD (e.g., oral, vaginal, or anal sex).

Experiencing a breach in infection control precautions resulting in percutaneous, mucus membrane, or skin contact with the blood or body fluids of a patient with known or suspected EVD.

Participated in any of the following activities while in an area with an active EVD outbreak:

Having contact with someone who was sick or died, or any objects contaminated by their body fluids

Attending/participating in funeral rituals, including preparing body for funeral or burial

Working in a healthcare facility or laboratory

Visiting a healthcare facility or traditional healer

Contact with bats or wild animals

Working or spending time in a mine/cave

Direct handling of wild animals or carcasses that may be infected with EVD (such as fruit bats or nonhuman primates).

CONTROL OF CASES & MONITORING OF PERSONS WHO MAY HAVE BEEN EXPOSED TO EVD

Investigate on the Day of Report:

CASE (Confirmed and Suspect Case):

1. Interview Case/Suspect Case by phone (**AOD Suspect Viral Hemorrhagic Fever Intake and Checklist (for AOD), Form A (for ACDC)**):
   - Travel during exposure period to an endemic region in Africa.
   - Contact with fruit bats or enter caves or mines inhabited by these bats.
   - Household exposure to suspect or known EVD patient.
   - Attend funeral of known or suspect EVD patient.
   - Other direct exposure to suspect or known EVD patient.
   - Healthcare exposure as provider, laboratorian, or patient to suspect or known EVD patient.
   - Symptoms and onset date.

2. Obtain Contacts to Case or Suspect Case:
   - Detailed name and contact information for all persons that had exposure to blood or body fluids such as feces, saliva, sweat, urine, vomit, breast milk, amniotic fluid, and semen of the suspect/confirmed case during the infectious period (household, sexual, healthcare facilities, public transportation, work,

school, social events, bars/clubs, friends/relatives, community centers, religious services, other activities, places, or people).
- Obtain name, address, phone number, email, DOB, gender, and relationship to case/suspect case.
- Nature of exposure should be obtained to determine risk classification. **(FORM B: Viral Hemorrhagic Fever Contact Investigation Worksheet)**

3. Provide Education to Healthcare Provider if Case/Suspect Case is currently at a Healthcare Facility such as frontline hospital, clinic, urgent care, etc.

   Infection Prevention and Control Recommendations for Patients in U.S. Hospitals who are Suspected or Confirmed to have Selected Viral Hemorrhagic Fevers (VHF)

   - Isolate in a single patient room (negative pressure room if available) with the door closed, with a private bathroom or covered bedside commode.
   - Follow standard, contact and droplet precautions.
   - Avoid aerosol generating procedures (AGP) if possible. If performing AGPs, conduct in a private room and ideally in an airborne infection isolation room if feasible. Airborne precautions must be followed.
   - Perform only necessary tests and procedures.
   - Use dedicated medical equipment (preferably disposable). All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and hospital policies.
   - Avoid aerosol-generating procedures but, if necessary, perform aerosol-generating procedures in negative pressure room.
   - Follow CDPH EVD PPE guidance for suspected or confirmed EVD patient care in the inpatient hospital setting: Interim Guidance on Personal Protective Equipment (PPE) to Be Used by Healthcare Workers in the Inpatient Hospital Setting During Management of Patients with Suspected or Confirmed Ebola Virus Disease (EVD) in California
   - Use only essential healthcare workers trained in their designated roles for patient care.
   - Obtain the names of all persons (staff, patients, visitors) who may have had close, direct, and unprotected (not wearing protective clothing) contact during the course of their illness and prior to the implementation of isolation precautions (e.g., emergency medical services, admitting staff, emergency room personnel, family/household members, and other patient contacts).
   - Maintain a log of all staff and visitors entering the patient room and/or who may have had close direct contact.
   - Notify facility's Infection Prevention Program and other healthcare personnel of suspected case of Ebola Disease.

CONTACTS AND EXPOSURE RISK LEVELS:

Contact identification and follow-up should occur for all suspect cases where there is a high index of suspicion of EVD and diagnostic testing is indicated, as well as for all confirmed EVD cases (both alive and dead). If laboratory testing determines that a case is ruled out ("not a case"), contact identification and follow-up can cease.

The CDC may also recommend public health risk assessment and post-arrival management of travelers from countries with EVD outbreaks.

The CDC will provide guidelines for classifying travelers based on their level of risk exposure (See CDC website for the latest guidelines):

Interim Guidance on Risk Assessment and Management of Persons with Potential Ebolavirus or Marburgvirus Exposure

Each traveler should be located and interviewed to confirm exposure risk and determine presence or absence of symptoms. (Form E: **REDCap Traveler Interview Form – See "REDCap link (Click here)" in IRIS in the "Daily Monitor" in Filing Cabinet (For CFS use))**

1. **Reported High-Risk exposure – High-Risk Exposures**

- Percutaneous (i.e., piercing the skin), mucous membrane (e.g., eye, nose, or mouth), or skin contact with blood or body fluids (including but not limited to feces, saliva, sweat, urine, vomit, sputum, breast milk, tears, vaginal fluid, and semen) of a person with known or suspected EVD.

- Direct physical contact with a person with EVD (alive or dead) or with objects contaminated with the body fluids of a person with EVD (alive or dead) while not wearing recommended PPE.

- Providing health care to a patient with known or suspected EVD without use of recommended PPE or experiencing a breach in infection control precautions that results in the potential for percutaneous, mucous membrane, or skin contact with the blood or body fluids of a patient with EVD while working in an Ebola treatment hospital or associated facility (e.g., laboratory) or while taking care of a patient with EVD.

- Direct contact with or the occurrence of a breach in infection control precautions while handling a dead body in an Ebola outbreak area, the body of a person who died of EVD or had an illness compatible with EVD, or who died of unknown cause after any potential exposure to EVD.

- Living in the same household as a person with symptomatic known or suspected EVD.

a. Symptomatic:
   - Clinical criteria, which includes fever of ≥100.4°F/38.0°C, OR any of the following symptoms: severe headache, weakness, fatigue, muscle pain, joint pain, sore throat, loss of appetite, vomiting, diarrhea, abdominal pain, unexplained bruising or bleeding, red eyes, skin rash, or hiccups.
   - Call ACDC doctor on call (AOD) at 213-240-7941 immediately for consultation and to arrange safe transport to a healthcare facility for EVD evaluation. Ask for Physician on Call (AOD) after business hours at (213) 974-1234.
   - ACDC will assess situation and determine the need to perform Ebola virus testing and conduct contact tracing.
   - Health Officer Order of Isolation may be considered if suspect case tests positive for EVD and if necessary to ensure compliance.

b. Asymptomatic:
   - Health Officer Order of Quarantine in accordance with CDC guidelines.
   - DPH will conduct daily monitoring via text message, email, phone or video call for fever and symptom assessment for 21 days from the date of last exposure with EVD. Daily monitoring log (Form D) is available as a resource for contact if needed.
   - Travel restrictions: travel is not permitted for high-risk contact, even if not showing symptoms.
   - Exclusion from workplaces for the duration of the public health order.
   - Exclusion from public places (e.g., shopping centers, movie theatres) and congregate gatherings.
   - Notify ACDC immediately if fever or other symptoms develop at 213-240-7941. Ask for Physician on Call (AOD) after business hours at (213) 974-1234.
   - For life threatening emergency, call 911 and inform travel history/or risk exposure, current symptoms, and being monitored by DPH.

2. **Present in Designated EVD Outbreak Area and reports situations with Additional Exposure Potential, but no High-Risk exposures**:
   - Reports no High-Risk exposures: CDC Interim Guidance High Risk Exposures (see Box 2.) **and**
   - Reports situations with additional exposure potential **and**
   - Having been in a designated EVD outbreak area within the previous 21 days CDC Interim Guidance High Risk Exposures (See Box 1.)

a. Symptomatic:

- Clinical criteria, which includes fever of ≥100.4°F/38.0°C, OR any of the following symptoms: severe headache, weakness, fatigue, muscle pain, joint pain, sore throat, loss of appetite, vomiting, diarrhea, abdominal pain, unexplained bruising or bleeding, red eyes, skin rash, or hiccups.
- Call ACDC doctor on call (AOD) at 213-240-7941 immediately for consultation. Ask for Physician on Call (AOD) after business hours at (213) 974-1234.
- ACDC will assess situation and determine need to admit and isolate patient for medical examination, perform Ebola virus testing, and conduct contact tracing.
- Health Officer Order of Isolation may be considered if necessary to ensure compliance.

b. Asymptomatic:
   - DPH will conduct intermittent monitoring, at a minimum midway through and at the end of 21-day monitoring period (21 days since departure from outbreak area) via text message, email, or phone if contact had any of the following:
     - Visiting a health care facility or traditional healer in an outbreak area.
     - Burial work or attending a funeral or burial in an outbreak area.
     - Providing health care or environmental cleaning in a EVD treatment unit (ETU).
     - Providing environmental cleaning in a non-ETU health facility in an outbreak area.
     - Entry into a patient care area of a ETU for any other reason.
     - Providing health care in an outbreak area to acutely ill patients not known to have EVD.
     - Clinical laboratory work associated with a ETU or other health care setting in an outbreak area.
     - Visiting a cave in the outbreak area.
     - Exposed to bats or non-human primates in the outbreak area.
     - Consuming bushmeat in the outbreak area.
   - Travel restrictions: advance notification to DPH is required. DPH to notify destination and dates of travel to health department.
   - Notify ACDC immediately if fever or other symptoms develop at 213-240-7941. Ask for Physician on Call (AOD) after business hours at (213) 974-1234.
   - For life threatening emergency, call 911 and inform travel history and being monitored by DPH.
   - Daily monitoring log (Form D) is available as a resource.

3. **Present in Designated EVD Outbreak Area and reports NO situations with Additional Exposure Potential, and no High-Risk Exposures:**
   - Reports no High-Risk exposures: CDC Interim Guidance High Risk Exposures (see Box 2.) **and**
   - Reports no situation with Additional Exposure Potential **and**
   - Having been in a designated EVD outbreak area within the previous 21 days Designated Ebola disease outbreak area

   a. Symptomatic:
      - Clinical criteria, which includes fever of ≥100.4°F/38.0°C, OR any of the following symptoms: severe headache, weakness, fatigue, muscle pain, joint pain, sore throat, loss of appetite, vomiting, diarrhea, abdominal pain, unexplained bruising or bleeding, red eyes, skin rash, or hiccups.
      - Call ACDC doctor on call (AOD) at 213-240-7941 immediately for consultation. Ask for Physician on Call (AOD) after business hours at (213) 974-1234.
      - ACDC will assess the situation and determine if need to admit and isolate patient for medical examination, perform Ebola virus testing, and conduct contact tracing.
      - Health Officer Order of Isolation may be considered if necessary to ensure compliance.

b. Asymptomatic:
   - Instruct contact to self-monitor for fever and EVD symptoms until 21 days after departure from OB area. Daily monitoring log (Form D) is available as a resource for contact if needed.
   - DPH will conduct symptom monitoring at the end of the 21-day period (21 days since departure from outbreak area).
   - Travel restrictions: advance notification to DPH is required. DPH to notify destination and dates of travel to health department.
   - Notify ACDC immediately if fever or other symptoms develop at 213-240-7941. Ask for Physician on Call (AOD) after business hours at (213) 974-1234.
   - For life threatening emergency, call 911 and inform travel history and being monitored by DPH.

4. **Present in outbreak country but NOT Designated EVD Outbreak Area:**
   - Having been in a country with widespread Ebola transmission within the previous 21 days and reports no High-Risk Exposures.

a. Symptomatic:
   - Clinical criteria, which includes fever of ≥100.4°F/38.0°C, OR any of the following symptoms: severe headache, weakness, fatigue, muscle pain, joint pain, sore throat, loss of appetite, vomiting, diarrhea, abdominal pain, unexplained bruising or bleeding, red eyes, skin rash, or hiccups.
   - Instruct the contact to call their PCP for medical evaluation and inform of their travel history and being monitored by DPH.
   - For life threatening emergency, call 911 and inform travel history and being monitored by DPH.

b. Asymptomatic:
   - Instruct contact to self-monitor for fever and EVD symptoms until 21 days after departure from OB country. Daily monitoring log (Form D) is available as a resource for contact if needed.
   - Travel restrictions: none.
   - Instruct the contact to call their PCP for medical evaluation and inform of their travel history and being monitored by DPH.
   - For life threatening emergency, call 911 and inform travel history and being monitored by DPH.

Monitoring and Management of Healthcare Providers (HCP) in US caring for a suspect or confirmed Ebola patient:

- Healthcare facility should conduct daily monitoring of all personnel exposed to the case or suspect case.
- HCP with high-risk exposures who are asymptomatic should receive medical evaluation and follow-up and be restricted from work during the 21-day monitoring period.
- HCP with potential unrecognized exposures in the absence of high-risk exposures should be evaluated by employee health. Post exposure management including work restrictions should be determine in collaboration with public health.
- Notify ACDC immediately if fever or other symptoms develop at 213-240-7941. Ask for Physician on Call (AOD) after business hours at (213) 974-1234
- If a healthcare worker in a U.S. healthcare facility who was believed to be wearing recommended PPE correctly is diagnosed with Ebola, and no known breach was identified, then all other healthcare workers taking care of the Ebola patient in that facility will be considered in the **High-Risk** category.

Isolation and Quarantine

DPH will implement isolation and quarantine measures as needed to assure the public's health. ACDC Director or authorized designee may assume responsibility for initiation of H-455 Request for Legal Intervention and contact Chief, Public Health Investigation (PHI). DPH AOD will determine if legal orders are necessary,

coordinate with the DPH Health Officer if available, and contact LAC DPH Chief PHI for execution. Refer to the LAC DPH Legal Order Manual, page 15, 7f, for full guidance.

DIAGNOSTIC PROCEDURES

Ebola virus testing will be performed only after consultation and approval with ACDC and CDC to determine if the individual meets criteria for testing as a suspect case of EVD. These criteria include:

- One or more of the following symptoms including measured (≥100.4°F/38.0°C) or subjective fever, severe headache, fatigue, muscle pain, vomiting, diarrhea, abdominal pain, or unexplained hemorrhage.

AND

- An epidemiological risk factor within the 21 days preceding the onset of symptoms.

Notify the LAC DPH Public Health Laboratory (PHL) Director prior to collection and transport of any testing for EVD (562-658-1330). Prior approval for testing must be obtained before specimen collection. It is required to provide the epidemiological risk factor to PHL for appropriate and accurate test results. After hours, weekends, or holidays contact the County Operator and ask for the PHL Director at 213-974-1234.

The LAC DPH PHL is authorized to perform molecular testing for EVD. PHL staff will assist in proper Category A specimen packaging and transport of specimens to PHL for testing. All molecular results are confirmed by CDC. Specimens should be collected within > 72 hours after the patient first developed symptoms.

Required specimens for molecular testing are:

- Two (2) whole blood samples collected in plastic lavender top (EDTA) vacutainer tubes. Each tube must contain a minimum of 4 mL blood.
- For pediatric patients, collect 2 tubes of whole blood with a minimum of 1 mL whole blood in a pediatric-sized collection plastic tube preserved with EDTA.

Wear appropriate PPE when collecting clinical specimens from suspect or confirmed cases. Depending on the patient's stage of illness, refer to PPE guidance for healthcare workers during management of clinically stable or clinically unstable patients with suspect or confirmed EVD.

Standard labeling of specimens with a minimum of two patient identifiers and collection date should be followed. Forms required for EVD diagnostic testing at the LAC DPH Public Health Laboratory include:

1) Public Health Laboratory Test Request Form
2) CDC Form 50.34

Do not submit specimens in glass containers or in heparinized tubes. Do not attempt to aliquot (separate and remove serum or plasma from the primary collection container). Each whole blood sample should separately be double bagged in a specimen biohazard bag with absorbent paper, stored at 2-8°C (do not freeze), and transported on cold packed in separate Category A packaging. PHL staff will assist in packaging of specimen. (One specimen per Category A packaging) Courier should not be used for transport of suspected EVD specimens. The LAC DPH PHL will arrange for transport.

Refer to CDC website for the Guidance for Collection, Transport and Submission of Specimens for Ebola Virus Testing (12/06/2022): https://www.cdc.gov/vhf/ebola/laboratory-personnel/specimens.html

Consultation for collecting and submitting any additional and/or other specimens (e.g., tissue samples) for EVD testing must be made with PHL Director (562-658-1300). Approval for testing must be made with CDC.

If a patient is determined to meet criteria for ebolavirus testing, the patient is considered a suspect case of EVD and should be managed under isolation precautions until receiving a negative ebolavirus test result on a sample collected > 72 hours after the patient first developed symptoms. Any presumptive positive ebolavirus test result must be confirmed by CDC.

If the specimen test result is negative and the patient's symptoms have been present for less than three days, a second sample should be collected 72 hours after symptoms and in consultation with ACDC, CDC and PHL.

ROUTINE DIAGNOSTIC (NON-EBOLAVIRUS) TESTING PROCEDURES

Routine testing to monitor the patient's clinical status and diagnostic testing for other potential causes of the patient's illness should be pursued while ebolavirus testing is underway with consultation with ACDC and CDC. If a hospital facility is unable to provide appropriate clinical care and laboratory diagnostic testing for a suspect case of EVD, the patient should be transferred to a facility that is able to provide appropriate management until ebolavirus testing is completed.

Additionally, patients with an ebolavirus infection may present with concurrent infections (e.g. co-infection with malaria). Responsible patient care requires hospitals and laboratories to evaluate patients for other causes of illness, regardless of whether or not ebolavirus testing is indicated.

Laboratories should adhere to protocols compliant with the Occupational Safety and Health Administration (OSHA) blood-borne pathogen standard for blood and other potentially infectious material including proper PPE use to minimize workplace exposure of personnel to bloodborne pathogens. In addition, laboratory staff should perform site- and activity-specific risk assessments before beginning testing. When manipulating clinical specimens from patients with suspected ebolavirus infection, staff should use a combination of engineering controls, work practices, and PPE to protect their mouth, nose, eyes, and bare skin from coming into contact with patient specimens. CDC considers the risk of laboratory personnel contracting an ebolavirus or other viral causes of hemorrhagic fevers during routine clinical testing to be low if the laboratory adheres to the safety procedures consistent with the Bloodborne Pathogens Standard.

a. Clinical Laboratory Testing
   - Complete blood count (CBC), including differential and platelet count
   - Sodium, potassium, bicarbonate, blood urea nitrogen, creatinine, and glucose concentrations
   - Liver function tests
   - Coagulation testing, specifically prothrombin time (PT), expressed as an international normalized ratio (INR)
   - Chemical urinalysis (dipstick)
   - Blood culture for bacterial pathogens. The early initiation of blood cultures may be important, even if the patient will be transported prior to culture results, as blood cultures may be an essential component of the ultimate diagnosis.

Based on clinical evaluation, diagnostic testing for other common causes of acute febrile illness in returning travelers may be indicated, including malaria and common causes of respiratory and gastrointestinal illnesses. If warranted based on presenting symptoms, consider use of multiplex PCR panels that detect common respiratory or gastrointestinal pathogens in addition to evaluation for the following:

b. Differential Diagnostic may Include but Not Limited to:
   - Malaria
   - SAR-CoV-2
   - Influenza
   - Respiratory Syncytial Virus
   - Typhoid Fever

For full guidance, refer to Guidance for U.S. Hospitals and Clinical Laboratories on Performing Routine Diagnostic Testing for Patients with Suspected EVD Disease website (04/20/2023): https://www.cdc.gov/vhf/ebola/laboratory-personnel/safe-specimen-management.html

PREVENTION-EDUCATION

1. Reinforce the importance of ensuring strict infection control practices in healthcare facilities and among healthcare and other ancillary personnel.

2. Environmental Infection Control for hospitals taking care of patients with suspected or confirmed EVD:

   a. Environmental services staff (EVS) must wear recommended PPE to protect against direct skin and mucous membrane exposure of cleaning chemicals, contamination, and splashes or spatters during environmental cleaning and disinfection activities. https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/CDPH-PPE-Guidance-EVD.aspx

b. Use a U.S. Environmental Protection Agency (EPA)-registered hospital disinfectant with a label claim for an enveloped virus (e.g., Ebola virus) to disinfect environmental surfaces in rooms of patients with suspected or confirmed Ebola virus infection.
c. Avoid contamination of reusable porous surfaces that cannot be made single use.
d. To reduce exposure among staff to potentially contaminated textiles (cloth products) while laundering, discard all linens, non-fluid-impermeable pillows or mattresses, and textile privacy curtains as a regulated medical waste.
e. For full guidance, refer to Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus on the CDC website: https://www.cdc.gov/vhf/ebola/clinicians/cleaning/hospitals.html

3. Educate healthcare staff on the importance of strict adherence to proper use of standard, contact, droplet, and airborne precautions.

   Utilize proper PPE at all times. Healthcare facilities should be providing ongoing training on correct use of recommended PPE for their healthcare workers (including but not limited to: EVS, laboratory staff, or ancillary personnel who may be involved with EVD patient care) with special emphasis on careful and meticulous doffing procedures. This should include a trained observer to monitor for strict infection control practices, and eliminate any possible contamination, self-inoculation, and potential secondary cases of EVD in healthcare workers. https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/CDPH-PPE-Guidance-EVD.aspx

4. Educate healthcare workers on the safe specimen handling for routine laboratory diagnostics.
   a. Minimize routine blood specimen draws and specimen handling.
   b. Clean equipment according to manufacturer's instructions.

   Printable Fact sheet: https://www.cdc.gov/vhf/ebola/resources/pdfs/Ebola-lab-guidance-508.pdf

5. General Education for EVD Prevention:
   a. Wash hands often with soap and water or use an alcohol-based hand sanitizer.
   b. Avoid close physical contact with suspect or confirmed EVD patients.
   c. Gloves and appropriate personal protective equipment should be worn if taking care of suspect case at home.
   d. Avoid touching items that may have come in contact with a sick person's blood or body fluids, such as clothes, personal items, high touch surfaces, bedding, needles, or medical equipment.
   e. Avoid touching the body of someone who has died of EVD unless wearing proper personal protective equipment.
   f. Avoid visiting endemic areas where fruit bats are known to roost, if conducting work or research activities or tourist visits in mines or caves inhabited by fruit bats, wear gloves and other protective clothing (including masks)

   https://www.cdc.gov/vhf/ebola/prevention/index.html

OTHER RESOURCES:

1) Procedures for Safe Handling and Management of Ebola-Associated Waste (10/20/2022) http://www.cdc.gov/vhf/ebola/prevention/ebola-associated-waste.html

2) Web-Based PPE Training. Guidance for Donning and Doffing PPE During Management of Patients with Ebola Virus Disease in U.S. Hospitals (10/7/2022) http://www.cdc.gov/vhf/ebola/hcp/ppe-training/index.html

3) Guidance for Employers and Healthcare Personnel Working in Ebola Areas (10/25/2022) http://publichealth.lacounty.gov/acd/docs/EbolaHCWGuide.pdf

4) Think Ebola: Early Recognition Is Critical for Infection Control (10/06/2022) https://www.cdc.gov/vhf/ebola/clinicians/evaluating-patients/think-ebola.html

5) Interim Guidance for Environmental Control in Hospitals for Ebola Virus (10/20/2022) https://www.cdc.gov/vhf/ebola/clinicians/cleaning/hospitals.html

6) Ebola-Associated Waste Management (10/06/2022) https://www.cdc.gov/vhf/ebola/clinicians/cleaning/waste-management.html

7) Information on the Survivability of the Ebola Virus in Medical Waste (10/19/2022) https://www.cdc.gov/vhf/ebola/clinicians/cleaning/ebola-virus-survivability.html

Appendix 1. Summary of Management for Contacts/Travelers by Exposure Category

	Reported High-Risk exposure	**Present in Designated Ebola Outbreak Area and reports situations with additional exposure potential, but no High-Risk exposures**	**Present in Designated EVD Outbreak Area and reports NO situations with Additional Exposure Potential, and no High-Risk Exposures**	**Present in outbreak country but NOT Designated EVD Outbreak Area**
Symptom monitoring frequency	2x/day self-monitoring DPH conducts daily monitoring	2x/day self-monitoring DPH conducts monitoring midway and at the end of 21 days after departure from outbreak area	2x/day self-monitoring DPH conducts monitoring at the end of 21 days after departure from outbreak area	Recommend 2x/day self-monitoring until the end of 21 days after departure from outbreak area
Health education	- Signs and symptoms - When to self-isolate - How to notify ACDC if sx	- Signs and symptoms - When to self-isolate - How to notify ACDC if sx	- Signs and symptoms - When to self-isolate - How to notify ACDC if sx	- Signs and symptoms - When to self-isolate - When to notify PCP
Movement restriction	Quarantine	None	None	None
Travel	Not permitted	Advance notification to ACDC	Advance notification to ACDC	None
If symptomatic during initial interview	Isolate and notify AMD and PHNS	Isolate and notify AMD and PHNS	Isolate and notify AMD and PHNS	Contact/traveler to call PCP for evaluation
If develop symptoms during monitoring period	Contact/traveler to call ACDC	Contact/traveler to call ACDC	Contact/traveler to call ACDC	Contact/traveler to call PCP for evaluation

*** Refer to CONTACTS AND EXPOSURE RISK LEVELS above for details**

Appendix 2. VHF Symptomatic Traveler Algorithm