وزارة الصحة
Ministry of Health

Ebola virus Disease (EVD)

National Preparedness and Response plan

May 2026

Center for Disease Control and Prevention

Table of contents

Background

Ebola Virus Disease (EVD) [Ebola Haemorrhagic Fever (EHF)] is a severe, often fatal illness in humans with case fatality rate of up to 90%. The disease is primarily seen in remote villages in Central and West Africa, near tropical rainforests. The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission. Fruit bats are considered to be the natural host of the Ebola virus. Severely ill patients require intensive supportive care. Currently, no licensed specific treatment or vaccine is available for use in people or animals.

Ebola first appeared in 1976 in 2 simultaneous outbreaks, in *Nzara*, Sudan, and in *Yambuku*, Democratic Republic of Congo. The latter was in a village situated near the Ebola River, from which the disease takes its name. Table 1 shows the major EVD outbreaks in Africa since 1976.

Ebola virus is a lipid-enveloped RNA virus belonging to the *Filoviridae* family of thread-like viruses. Genus Ebola virus is 1 of 3 members of the *Filoviridae* family (filovirus), along with genus Marburg virus and genus *Cuevavirus*. Genus Ebola virus comprises 5 distinct species:

1. Bundibugyo ebolavirus (BDBV),
2. Zaire ebolavirus (EBOV),
3. Reston ebolavirus (RESTV)
4. Sudan ebolavirus (SUDV) and
5. Taï Forest ebolavirus (TAFV)

BDBV, EBOV, and SUDV have been associated with large EVD outbreaks in Africa.

Current Ebola outbreak situation update

On May 17, 2026, the World Health Organization declared that the Ebola outbreak caused by the Bundibugyo virus in both the Democratic Republic of Congo and Uganda constituted a “public health emergency of international concern” under the International Health Regulations (2005), while emphasizing that it did not currently meet the level of a “pandemic emergency .”

Key epidemiological data

• Reports as of 17 May 2016: 8 Laboratory-confirmed cases, 246 suspected cases, 80 Suspected death.

• The cases were concentrated in Ituri province in eastern Democratic Republic of Congo .

• Two confirmed cases have been recorded in the Ugandan capital, Kampala, involving travelers arriving from the Democratic Republic of Congo .

• There are indications of widespread community transmission and the possibility of undetected cases .

• Reports of deaths among healthcare workers suggest the possibility of healthcare-associated transmission and weaknesses in infection control procedures .

• There are currently no vaccines or treatments specifically approved for Bundibugyo virus, compared to the Zaire Ebola strain .

Risk assessment for Oman

The current risk level for the Sultanate of Oman is assessed as **Low to Medium.**

While there are no regular direct flights from Oman to the affected areas in eastern Democratic Republic of Congo, the WHO's declaration of the Ebola outbreak as a Public Health Emergency of International Concern (PHEIC) and confirmed cases in Kampala (a regional travel hub) create a potential importation risk through indirect international travel. However, Ebola's transmission route—limited to direct contact with body fluids and unsafe handling of corpses, with no airborne spread—means widespread community transmission remains unlikely if early detection and isolation measures are promptly implemented. Oman's strong epidemiological surveillance, laboratory capacity, infection prevention and control procedures, and robust health entry screening at airports and ports further mitigate the risk and support rapid response capability.

Mode of Transmission

Natural reservoir of Ebola viruses has not yet been proven. In Africa, fruit bats, particularly species of the genera *Hypsignathus monstrosus, Epomops franqueti and Myonycteris torquata* are considered possible natural hosts for Ebola virus. The virus spreads through:

- Close contact with the blood, secretions, organs or other bodily fluids of infected animals (chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines)
- Direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and
- Indirect contact with environments contaminated with such fluids.
- Health-care workers have frequently been infected while treating patients with suspected or confirmed EVD when infection control precautions are not strictly practiced.

Signs and symptoms Typical Signs and Symptoms of EVD	**Some patients may experience**
• **Fever** • **Headache** • **Joint and muscle aches** • **Weakness** • **Diarrhoea** • **Vomiting** • **Stomach pain** • **Lack of appetite**	• A rash • Red eyes • Hiccups • Cough • Sore throat • Chest pain • Difficulty breathing • Difficulty swallowing • Bleeding inside and outside of the body

Case Detection and Control

The purpose of epidemiological surveillance is to confirm the outbreak, to identify all cases and contact subjects, to detect patterns of epidemic spread, to estimate the potential for further spread of the disease, and to determine whether control measures are working effectively. It must be implemented promptly upon arrival of disease in the country.

Case Definition as of May 2026

A) Suspected case: A person meeting **both of the following criteria**:

1. Clinical criteria:

Fever ≥ 38c accompanied by additional symptoms such as:

- Headache
- Lethargy
- Anorexia/loss of appetite
- Aching muscles or joints
- Stomach pain
- Difficulty swallowing
- Vomiting
- Difficulty breathing
- Diarrhea
- Hiccups
- Unexplained haemorrhage

And

2. Epidemiological criteria: Exposure to risk factors within the past 21 days before the onset of symptoms, such as contact with blood or other body fluids or human remains of a patient known to have or suspected to have EVD; residence in—or travel to—an area where EVD transmission is active; or direct handling of bats or non-human primates from disease-endemic areas.

B) Probable case: Any person who died from suspected Ebola without the possibility of taking laboratory samples for confirmation, but who has an epidemiological link to a confirmed case.

C) Confirmed Case: A case with laboratory-confirmed diagnostic evidence of Ebola virus infection by positive IgM antibody, positive PCR or viral isolation.

Contact Case: Any person exposed to a suspected, probable, or confirmed case **less than 21 days** before identification, through:

- Sleeping in same household
- Direct physical contact during illness
- Contact at funeral
- Touching blood/body fluids
- Touching contaminated clothes/linen
- Breastfeeding by infected person

Follow-up period: 21 days. Contacts can be released after 21 days asymptomatic

Case Notification

- Any suspected case of Ebola Virus Disease should be reported in Tarassud Plus immediately using the Communicable Disease Notification Form.
- Ebola Virus Disease is listed under the "Unusual Disease" category.
- For all suspected cases, detailed documentation of clinical symptoms, travel history, and exposure history must be completed.
- Once laboratory results become available, the notification record must be updated accordingly.

Laboratory Diagnosis

1 Laboratory diagnosis and confirmation

Laboratory confirmation is essential for the diagnosis, surveillance and public health management of suspected Ebola disease and other viral haemorrhagic fevers (VHFs). Clinical features may overlap with those of malaria, typhoid fever, leptospirosis, dengue, meningitis, sepsis, and other imported infections. Diagnostic testing must therefore be coordinated among the treating clinician, the infection prevention and control team, the clinical microbiologist/virologist, the epidemiology/public health team, and the Central Public Health Laboratory (CPHL).

VHF/EVD testing must be discussed with CPHL or the designated reference laboratory before samples are collected or dispatched, unless a locally approved emergency pathway is activated.

Only essential tests needed for immediate clinical management should be requested until VHF/EVD is excluded or a safe testing pathway is agreed.

All non-inactivated specimens from suspected or confirmed VHF/EVD cases must be considered high-risk infectious material and handled using controls appropriate to the assessed risk.

Routine diagnostic testing for differential diagnoses, especially malaria and bacterial sepsis, should not be unnecessarily delayed, but it must be performed using the locally approved risk-assessed pathway.

1.1 Diagnostic methods

Recommended diagnostic methods include:

Real-time reverse-transcription polymerase chain reaction (RT-PCR) for acute diagnosis and confirmation of Ebola viruses.

1.2 Specimens for VHF/EVD testing

Test/purpose	Specimen	Timing	Key requirements
RT-PCR / NAAT	Adults: Two plastic EDTA whole-blood tubes, ideally 5 mL each. Two Serum tubes, ideally 5 ml each Paediatric: minimum 1 mL EDTA whole blood, where feasible. Note: if proper containment for whole blood separation is available at the referring labs, EDTA plasma is preferred	Collect as soon as VHF/EVD is suspected in a symptomatic patient. If the onset is less than 72 hours and the first test is negative, repeat with a new specimen collected at or after 72 hours from symptom onset if the patient remains symptomatic or epidemiological risk persists.	Do not use heparin tubes or glass containers. Do not open, aliquot, separate serum/plasma, or decant at the referring site unless explicitly approved and performed under primary containment.
Result interpretation: A negative RT-PCR result from blood collected less than 72 hours after symptom onset does not reliably exclude Ebola. Repeat testing should be arranged 72 hours after symptom onset if clinical and epidemiological suspicion remains.			

1.3Transport and reporting of results

The referring facility must notify CPHL before dispatch and must provide case notification/risk assessment details, clinical history, symptom onset date, travel/exposure history, requested tests and contact details for urgent reporting.

Specimens must be hand-carried within the facility in a durable, leak-proof secondary container. Pneumatic tube systems must not be used.

External transport must follow the current national and international regulations for infectious substances. Suspected or confirmed EVD specimens for referral are generally transported as Category A infectious substance, UN 2814, using triple packaging by trained/certified personnel.

Short-term storage before dispatch should be at 2-8 °C unless the reference laboratory instructs otherwise. For international/reference laboratory shipment, follow the requested cold chain, including frozen shipment on dry ice when instructed.

Results must be communicated immediately to the requesting clinician, the public health pathway and CPHL/national surveillance focal point according to the approved reporting protocol. A line list of tested cases should be maintained by the laboratory and shared through the authorised public health channel.

Annexure 6: laboratory Guidance for sample handling and management for VHF/EVD

Purpose

This annex provides minimum requirements for the safe receipt, handling, testing, referral, storage, decontamination and disposal of specimens from patients with suspected or confirmed Ebola disease or other viral haemorrhagic fevers. It applies to CPHL and all hospital laboratories that may receive specimens from such patients.

Definitions and biosafety principles

VHF/EVD specimen: any blood, body fluid, tissue, swab, culture, extract or waste generated from a patient in whom VHF/EVD is suspected or confirmed, until the relevant infection is excluded.

DRA: designated receiving area approved for restricted access handling of high-risk specimens.

Primary containment: Class II biological safety cabinet (BSC), sealed centrifuge rotor/safety cup, isolator or equivalent validated containment device used to prevent exposure to aerosols, splashes and droplets.

All work must follow a documented risk assessment considering agent hazard, procedure, specimen type, volume, staff competency, engineering controls, PPE, spill risk, waste route and emergency response.

Core biosafety rule: Do not open, aliquot, pipette, vortex, centrifuge, smear, culture, extract or otherwise manipulate non-inactivated VHF/EVD specimens on the open bench.

Responsibilities

Role	Key responsibility
Requesting clinician/ward	Recognise suspected cases, isolate patients, consult the infection specialist and CPHL, request only essential tests, and ensure correct specimen collection and documentation.
Clinical microbiologist/virologist/infection consultant	Lead laboratory risk discussions, approve essential local tests, coordinate referral testing and interpretation, and advise on repeat and differential diagnostic testing.
Laboratory manager / senior scientist	Activate the DRA pathway, assign trained staff, check PPE and equipment readiness, supervise specimen receipt, and ensure records, waste, and decontamination are completed.
Specimen courier/transport staff	Transport specimens by approved route only, using leak-proof secondary containment; never use pneumatic tubes.
Biosafety / IPC / occupational health	Support risk assessment, PPE training, exposure management, incident follow-up, staff monitoring and corrective actions.

General instructions for all Laboratory staff

1. The laboratory must be notified before any suspected VHF/EVD sample is sent.
2. A senior laboratory staff member must receive the specimen directly and confirm that the request and risk assessment are complete.
3. Only trained and authorised staff should handle or test the specimen. Staff numbers should be kept to the minimum necessary.
4. A log must record all staff involved in specimen receipt, transport, processing, cleaning, waste disposal and incident response.
5. Specimen handling, storage and movement must be minimised.
6. The outside of the primary specimen container and secondary container must be decontaminated before leaving the patient area and again as indicated on arrival in the DRA.
7. Specimens must remain in the custody of a designated staff member until testing, referral, storage or disposal is complete.
8. Wherever possible, samples must be inactivated before they are tested.
9. Any spill, leak, broken tube, PPE breach or exposure must be reported immediately and managed according to this annex.

Designated Receiving Area (DRA) minimum requirements

Requirement	Minimum standard
Access control	Physically separated, restricted access, door closed during work, clear warning sign: Restricted access - high-risk specimen handling.
Primary containment	Certified Class II BSC or validated isolator for all open handling. BSC certification must be current, and records must be available.
Centrifugation	Sealed centrifuge rotors or safety cups only. Load/unload safety cups in the BSC and open after 15-30 mintes
Equipment	Dedicated centrifuge/safety cups, pipettes, racks, spill kit, disinfectant, sharps container, leak-proof waste containers, hand hygiene facilities, eyewash/emergency wash bottles.
Specimen storage	Dedicated refrigerator/freezer if needed. Storage outside the DRA should be avoided unless specimens are securely triple-contained and approved by the risk assessment.
Documentation	DRA logbook, specimen receipt form, staff exposure record, decontamination checklist, waste movement log and equipment decontamination record.
Emergency readiness	Written spill/exposure SOP displayed or immediately available. Staff must know the exit route, the shower/eyewash location and emergency contact numbers.

PPE for Laboratory specimen handling

PPE must be selected according to the local risk assessment and should be donned before entering the DRA or handling the specimen. PPE must not be the only control measure; engineering controls and safe work practices are required.

PPE element	Updated requirement
Base clothing	Laboratory scrubs or Howie-style/solid-front laboratory coat as the base layer, with closed shoes and covered legs.
Body protection	Disposable fluid-resistant or impermeable gown. Use a coverall/apron if large-volume fluid contamination is anticipated.
Respiratory protection	Fluid-resistant surgical mask for low-risk closed handling if approved by risk assessment. A fit-tested N95/FFFP3 respirator is recommended for non-inactivated open handling, spill response, centrifuge incidents, or any procedure with aerosol/splash potential.
Eye and face protection	Goggles and/or a full-face shield to protect mucous membranes from splashes and droplets.
Hand protection	Double nitrile gloves. Outer gloves should cover gown cuffs and be changed when contaminated, damaged or between tasks.
Foot protection	Closed fluid-resistant footwear. Disposable overshoes/boots for spill response or potential floor contamination.
Doffing support	Buddy/observer for high-risk doffing where feasible. A doffing checklist should be used.

Recommended donning sequence

1. Perform hand hygiene.
2. Put on a base laboratory coat/scrubs and closed footwear.
3. Put on impermeable/fluid-resistant gown.
4. Put on a respirator or fluid-resistant mask according to risk assessment; perform a seal check for the respirator.
5. Put on eye protection/face shield.
6. Put on inner gloves.
7. Put on outer gloves over gown cuffs.
8. Put on overshoes/boots if required.

Recommended doffing sequence

1. Remove outer gloves carefully and discard them as high-risk infectious waste.
2. Perform hand hygiene on inner gloves only if the local validated doffing protocol includes this step; otherwise change gloves if contaminated.
3. Remove the gown by rolling it inside-out without touching the outer surface.
4. Remove face shield/goggles by the strap or arms without touching the front.
5. Leave the contaminated handling area.
6. Remove respirator/mask last by straps only.
7. Remove inner gloves and perform hand hygiene immediately.
8. Dispose of PPE according to the approved high-risk infectious waste route.

Glove hygiene: Do not wash gloved hands. Do not use alcohol hand rub or disinfectant on gloves as a substitute for glove change unless this is a validated local protocol and glove compatibility has been confirmed.

Specimen receipt and opening

1. Inspect the outer packaging for leakage or damage before opening. If leakage is suspected, stop and activate the spill/incident SOP.
2. Open secondary packaging only in the DRA. Keep request forms separate from specimen bags.
3. Verify patient identifiers, specimen type, collection time, onset date, exposure/travel history and tests requested.
4. Do not open the primary tube unless the procedure is essential, approved by the risk assessment, and performed in a certified Class II BSC or equivalent containment.
5. Avoid procedures that generate aerosols or splashes. Do not vortex non-inactivated samples. Use mechanical pipetting only; mouth pipetting is prohibited.
6. After processing, return specimens to sealed containment for referral, secure storage or approved disposal.

Centrifugation

Avoid centrifugation unless essential and specifically approved in the risk assessment.
Use sealed rotors or sealed safety cups only. Inspect tubes before centrifugation.
Load and unload sealed cups/rotors in the BSC. If a tube breakage is suspected, keep the centrifuge closed, inform the supervisor, wait for aerosols to settle and open only following the spill/centrifuge incident SOP.
Record centrifuge use and decontamination after the procedure.

Routine laboratory testing by the section

Section	Updated requirement
Haematology	Perform only tests essential for management. Prefer closed-tube/closed-sampling analysers after risk assessment. Manual blood films should be avoided unless essential for malaria diagnosis; if performed, prepare/fix in a BSC according to a validated method and local SOP.
Coagulation	Use closed systems where available. Avoid open manual methods unless approved by senior laboratory/haematology staff and performed under containment.
Blood bank/transfusion	Avoid routine open-system testing if safer alternatives are available. Use emergency blood release protocols where clinically necessary and consult haematology/transfusion medicine. Any compatibility testing must follow a written risk-assessed pathway.
Biochemistry	Use closed analysers where possible. Do not place primary high-risk specimens onto analysers without a risk assessment, a manufacturer-compatible decontamination process and a waste pathway. Heat or chemical inactivation must be locally validated for each analyte if used.
Microbiology	Do not culture specimens from suspected VHF/EVD cases unless discussed with a microbiology/virology consultant and justified for management. Any plating/open manipulation must occur in a BSC with disposable tools; primary cultures should be contained and incubated as per risk assessment.
Virology / VHF diagnostics	VHF/EVD-specific testing must be performed at CPHL . Local extraction should only be performed where validated, authorised, and supported by appropriate containment, PPE, waste, and decontamination pathways.
Serology / immunology	Do not perform routine serology on non-inactivated specimens unless risk-assessed and approved. If inactivated specimens are tested, results may be provisional if inactivation affects assay performance; repeat testing may be needed after VHF is excluded.
Histopathology/cytology	Do not process unfixed tissue from suspected VHF/EVD cases. No frozen sections. Formalin-fixed tissue processing requires specialist advice; a full autopsy should not be performed unless in a designated high-containment facility with public health approval.

Inactivation and assay performance

Inactivation of specimens must not be assumed. Use only validated or reference-laboratory-approved methods and document the method, time, temperature/concentration, operator and any deviation.

Heat inactivation may alter results for enzymes, serology, proteins and some molecular assays. Local verification is required before using inactivated material for clinical interpretation.

Chemical lysis buffers used for molecular testing should be used only according to validated SOPs, including required contact time and volume ratio.

If material is transferred outside the DRA or primary containment after inactivation, the laboratory must have a written procedure describing verification or assurance of inactivation and residual risk controls.

Decontamination of work surfaces and equipment

Use a disinfectant approved by the institution and effective against enveloped viruses/Ebola virus, following the manufacturer's concentration and contact time.

For visible blood/body fluid contamination or VHF/EVD specimen spills, use 10,000 ppm available chlorine or another locally approved high-level disinfectant suitable for the surface, with required contact time before wiping.

For routine environmental disinfection of clean surfaces after work, use 1,000 ppm available chlorine or another approved disinfectant, unless manufacturer guidance indicates otherwise.

Wipe down BSC surfaces, centrifuge safety cups/rotors, racks, pipettes and outer containers after use. Avoid damaging equipment by following manufacturer compatibility guidance.

Complete a decontamination checklist after each handling episode.

Spill management

1. Stop work immediately and alert staff in the area.
2. Restrict access. If aerosol generation is possible, leave the room and allow aerosols to settle in accordance with the local SOP.
3. Don enhanced PPE, including respiratory protection, eye/face protection, double gloves and overshoes/boots if floor contamination is possible.
4. Cover the spill with absorbent material; apply disinfectant from the edge towards the centre without creating splashes.
5. Maintain required contact time, then collect waste into a high-risk infectious waste container.
6. Clean with detergent/water if needed and disinfect again.
7. Report and document the incident, exposure assessment and corrective actions.

Waste management

All materials that contact suspected or confirmed VHF/EVD specimens, including PPE, disposable consumables, absorbent materials, tube racks if disposable and cleaning materials, must be treated as high-risk infectious waste.

Waste should be contained in leak-proof primary containment and robust secondary containment. Avoid storing high-risk waste in communal areas.

Waste should be autoclaved using a validated cycle or incinerated according to national/local requirements. Autoclave cycle records and biological/chemical indicator results should be retained.

Liquid waste from analysers must be risk assessed. Decontaminate or dispose according to manufacturer guidance and local biosafety approval.

Waste movement must be logged, including date/time, responsible staff and final treatment/disposal method.

Packaging and external transport.

Do not open, aliquot or decant referral specimens before shipment unless specifically instructed by CPHL/reference laboratory.

Use triple packaging: leak-proof labelled primary container with absorbent material, leak-proof secondary container, and rigid outer packaging meeting applicable transport requirements.

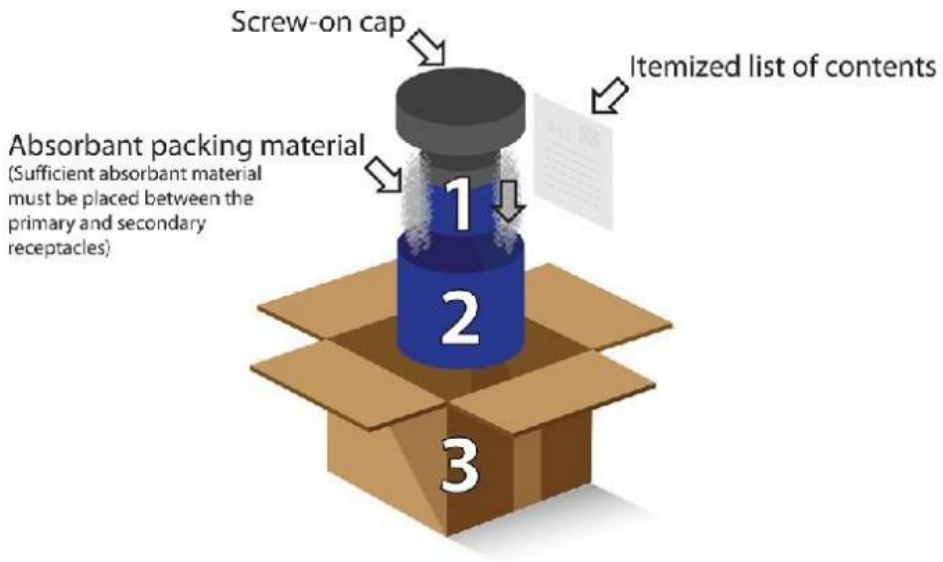
For suspected or confirmed EVD/VHF referral specimens, package and label according to Category A infectious substance requirements, UN 2814, unless national authority/reference laboratory gives a different written instruction.

Only staff trained and certified in the relevant dangerous goods requirements may package/ship Category A substances.

Place the request form and documentation outside the secondary container, never inside the same specimen bag as the primary tube.

Use a pre-agreed transport route with specimen tracking and recipient confirmation.

Figure-1: Triple Package for infectious substances



1. Primary receptacle (leakproof, 95kPa)
2. Secondary receptacle (leakproof)
3. Outer container (w/list of itemized contents)

Exposure management

1. Stop work immediately and call for assistance.
2. For needlestick or broken skin exposure: wash the affected area with soap and water; do not scrub aggressively.
3. For eye, nose or mouth exposure: irrigate immediately with water or saline using eyewash/emergency wash bottles.
4. Remove contaminated PPE/clothing safely. Shower if there is heavy contamination.
5. Report immediately to the laboratory supervisor, infection control, occupational health, clinical microbiologist/virologist and public health/EOC pathway.
6. Document the exposure, specimen details, patient risk category, PPE worn, task being performed, immediate actions and exposed staff details.
7. Arrange urgent clinical risk assessment and follow-up. Monitoring period and public health restrictions should follow national guidance for the suspected/confirmed agent.

Infection Prevention and Control of Ebola in Healthcare Settings

1. Administrative Interventions:

Health care facilities should observe and ensure that the facility is prepared for managing suspected/confirmed cases with Ebola including the following:

- ED and outpatient departments should implement infectious diseases triage (Reference to triage guideline https://drive.google.com/file/d/1YMraWcN8rRkN8GH-9MkQTGoumFGPP9ED/view?usp=sharing
- Health care workers should be aware of the signs and symptoms of Ebola and are encouraged to apply them to hospital visitors for early detection and isolation.
- Use of signage to remind HCWs of the signs and symptoms.
- Patients who are identified as suspected cases of Ebola must be placed in single isolation room.
- The case definition and algorithm issued by the MoH is available and disseminated to all HCWs and training on cases recognition provided especially for triage staff.
- Visitors restriction should be applied for suspected/confirmed cases.

2. Transmission Precautions:

- **Apply standard precautions for all patients:**
  Strict adherence to standard precautions should be applied for all patient care assumes that every person coming to the facility is a risk for infection transmission, includes:
  - Perform hand hygiene according to WHO five moments
  - Use of PPEs according risk exposure
  - Respiratory hygiene (cough etiquette)
  - Aseptic technique
  - Environmental cleaning and disinfection

- **Transmission-based precautions for suspected/confirmed Ebola:**
  Adhere to transmission-based precautions in addition to the standard precautions:
  - **Airborne & contact precautions**: Should be implemented for suspected/confirmed Ebola patients

3. Patient Placement

Place suspected or confirmed Ebola patients as follows:

- A patient must be placed in a single isolation room with a dedicated toilet facility
- When single rooms are not available, cohort **confirmed patients** together ensuring at least 1.5 meters between beds and there is a dedicated toilet facility, **DON'T** cohort the **suspected** cases as this may facilitate the transmission of infection.
- Put visible and clear isolation sign for all HCWs, patients and visitors
- Ensure availability of PPE at the entrance of the isolation room
- Use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers).
- All non-dedicated, non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instructions and hospital policies
- Use the log sheet for all persons who enter the isolation room
- Restrict entry, only, to those considered essential
- Do not move patients in the isolation room/unit in or out unless absolutely necessary
- Do not interchange staff in this area with other areas in the hospital

4. Personal Protective Equipment (PPE) for Health Care Workers (HCWs):

Personal protective equipment should be donned in an ante room before entering the patient's room and should be used for all patient contact.

- The following PPE to be used by HCWs upon entry into patient rooms or care areas in the respected order:
  1. Gowns (fluid resistant or impermeable, long-sleeved disposable gown)
  2. Eye protection (i.e., goggles or a face shield that covers the front and sides of the face)
  3. Gloves
  4. NIOSH-approved particulate respirator equipped with N95 filters or higher e.g PAPR
- Additional PPE might be required in certain situations (e.g., copious amounts of blood, other body fluids, vomitus, or feces present in the environment), including but not limited to:
  1. Full body (overall) water-proof suit that covers the whole body from head to toes
  2. Disposable shoe covers (the use of closed shoes is mandatory)
- Recommended PPE should be worn by HCWs upon entry into patient rooms or care areas.

- PPEs to be removed and discarded in sequence:
  1. Gloves
  2. Goggles or face shield

3. Gown
4. Respirator and perform HH after each step of doffing

- Before leaving the patient room or care area, PPE should be carefully removed and discarded without contaminating one's eyes, mucous membranes, or clothing with potentially infectious materials.
- Hand hygiene should be performed immediately after removal of PPE.

5. Patient Care Considerations

- Limit the use of needles and other sharps as much as possible
- Phlebotomy, procedures, and laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and medical care.
- Any injection equipment or parenteral medication container that enters the patient treatment area should be dedicated to that patient and disposed of at the point of use
- Alert laboratory staff to the nature of the specimens prior to sending them to the clinical laboratory. Specimens should remain in the custody of designated laboratory personnel until testing is completed. Due to the potential risks associated with handling infectious materials, laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and patient care
- While obtaining clinical laboratory specimens from the patient, use infection control precautions for patient care outlined in this document. Place specimens in sealed plastic bags, then transport them in a clearly labeled, durable, leak-proof container directly to the specimen handling area of the laboratory. Care should be taken not to contaminate the external surfaces of containers
- All needles and sharps should be handled with extreme care and disposed in puncture-proof, sealed containers
- Sharp containers and biohazard bags used in patient care area should be changed when each is 2/3rd full

6. Aerosol Generating Procedures (AGPs)

Additional precautions when performing AGPs:

- Perform procedures in a negative pressure room
- Limit the number of persons present in the room to those essential for patient-care and support
- Perform hand hygiene before and after contact with the patient and his or her surroundings and after PPE removal
- Conduct environmental surface cleaning following procedures (see section below on environmental infection control)

- If re-usable equipment and PPE (e.g. Powered air purifying respirator, elastomeric respirator, etc.) are used, they should be cleaned and disinfected according to manufacturer instructions and hospital policies

7. Management of Potentially Exposed Healthcare Workers

- Facilities should develop policies for monitoring and management of potentially exposed HCWs
- Persons with percutaneous or mucocutaneous exposures to blood, body fluids, secretions, or excretions from a patient with suspected EVD should:
  - Stop working and immediately wash the affected skin surfaces with soap and water
  - Mucous membranes (e.g., conjunctiva) should be irrigated with copious amounts of water or eyewash solution
  - Immediately contact occupational health/supervisor for assessment and access to postexposure management services in the health care facility.
- HCWs who develop sudden onset of fever, intense weakness or muscle pains, vomiting, diarrhea, or any signs of hemorrhage after an unprotected exposure (i.e. not wearing recommended PPE at the time of patient contact or through direct contact to blood or body fluids) to a patient with EVD should:
  - Not report to work
  - If already in work place, he/she should immediately stop working
  - Notify their supervisor
  - Seek prompt medical evaluation and testing
  - Notify infection control/public health departments
  - Refrain from working until they are deemed no longer infectious to others
- For asymptomatic HCWs who had an unprotected exposure (i.e. not wearing recommended PPE at the time of patient contact or through direct contact to blood or body fluids) to a patient with EVD:
  - Should receive medical evaluation and follow-up care including fever monitoring twice daily for 21 days after the last known exposure
  - Hospitals should consider policies ensuring twice daily contact with exposed HCWs to discuss potential symptoms and document fever checks
- May continue to work while receiving twice daily fever checks
- Consultation with an infectious diseases expert is recommended for exposed persons who develop fever within 21 days of exposure

8. Environmental Cleaning and Disinfection

- Clean the environmental surfaces and medical equipment contaminated with blood, other body fluids, secretions, or excretions and biological spills in **2 steps** process. Clean first with all-purpose enzymatic detergent with water and apply disinfectant.

- Although the most common product used for environmental cleaning in the field is chlorine, a variety of other products found in MoH healthcare facilities can be used for disinfection that are considered **efficacious and less corrosive** (list U.S. Environmental Protection Agency (EPA)- with emerging viral pathogens claims) example Virex II 2.5.6 and Cavicide 1.

- **IF** using chlorine hypochlorite solutions products ensure it has claim to kill Ebola virus. Follow the correct dilution.

  - For environmental surfaces: Use 0.5% (5000 ppm of available chlorine). Observe 10 minutes of contact time. Needs rinsing.

  - For biological spills: cover the spill with a paper towel or cloth and pour hypochlorite solution of 0.5%. Observe 15 minutes' contact time. Clean the surfaces and re-clean again, if needed.

9. Textiles (Linen and Laundry)

- Soiled and contaminated linens should be treated as **highly infectious waste, it should be disposed after use.**

10.Waste Management

Waste generated inside the patient's room with Ebola should be placed inside the infectious waste sealed container and transported offsite in triple containers (yellow plastic bag, sealed impervious hard container and dedicated yellow waste trolley). Follow the other recommendations below:

- Liquid medical waste such as feces and vomitus can be disposed in the sanitary sewer following local sewage disposal requirements. **Use proper PPE** and care should be taken to avoid splashing when disposing of these materials

- When discarding solid medical waste (e.g., needles, syringes, and any disposable items used during the patient healthcare activities) contaminated with blood or other body fluids from EVD patients, contain the waste with minimal agitation during handling. Package the waste according to the Healthcare Waste Management National Guidelines ensuring health and environmental safety in the

treatment and disposal plants.

- If decontaminating waste on-site: use a gravity-displacement autoclave to treat hazardous waste immediately, this will minimize hazards during the transportation off site.

- Or send the properly package healthcare waste offsite through Beaah Company immediat

11.Management of the Deceased

There is risk of transmission when an EVD patient dies because the body and body fluids of a deceased person remain contagious for several days after death. Family and community members are at risk if burial practices involve touching and washing the body. Thus preparing the deceased body requires extreme caution to avoid disease transmission.

In our setting the religion and culture play a major role when it comes to washing and burying practices. The team has obtained fatwa from Ministry of Endowments & Religious Affairs (Sheikh Dr. Kahlan Bin Nabhan Al Kharusi: The assistant Grand Mufti) to address this issue from the religious aspect . The followings are important measures to ensure safe burial practices using religious exemptions allowed in such cases:

- Body washing must be avoided inside and outside the hospital setting by personnel not trained or used to put and remove appropriate PPE.
- Personnel dealing with the body should wear:
    - double gloves (use thick rubber gloves as the second pair)
    - impermeable gown
    - disposable shoe covers (the use of closed shoes is mandatory)
    - Either a face shield that fully covers the front and sides of the face or goggles
    - N95 mask
- Health care facility staff should:
    - Be aware of the family's cultural practices and religious beliefs
    - Help the family understand why some practices cannot be done because they place the family or others at risk for exposure.
    - Identify a family member who has influence with the rest of the family and who can make sure family members avoid dangerous practices such as washing or touching the body
    - Counsel the family about why special steps need to be taken to protect the family and community from illness. If the body is prepared without giving information and support to the family and the community, they may not want to bring other family members to the

health facility in the future. They may think that if the patient dies, the body will not be returned to them.

- **Prepare the body safely:**
  - Considering that EVD deceased person is highly infectious, it is adequate to spray the body with some water if washing the body is a religious requirement otherwise it's better to avoid
  - Spray the body and the area around it with 1:10 bleach solution
  - Put the body in double fluid-resistant bag. After placing the body in the first bag, disinfect the outer surface of the bag using a hospital-approved disinfectant before placing the body in a second bag and then disinfect the outer surface of the second bag
  - If body bags are not available, wrap the body in two thickness of cotton cloth and soak with 1:10 bleach solution. Then wrap the body in plastic sheeting. Seal the wrapping with plastic tape
  - Spray the body bag with 1:10 bleach solution
  - Place the body in a coffin if one is available
  - Burial should take place as soon as possible after the body is prepared in the health facility
  - All equipment, table and counter surfaces, stretchers, body boards and transport trolleys must be cleaned and disinfected after every patient using hospital-approved disinfectants
- **Transport the Body Safely**:
  - The body can be transported by hospital ambulance or another vehicle prepared for this purpose to the closest burying area
  - EVD Isolation Precautions should remain in force when the body is being transported to the burial site
  - Take the shortest route possible to limit any possibility of disease transmission through accidental contact
  - Any Person who must touch or carry the body during transport should wear the same protective clothing as is worn in the isolation area

    Note: The driver does not need to wear protective clothing if there is no contact with the body
  - Take a closed container or sprayer with 1:10 bleach solution in the event of any

accidental contact with the body or infectious body fluids. Also use it to clean up spills in the transport vehicle

- **Prepare Burial Site**
  - The grave should be at least 2 meters deep
  - Explain to the family that viewing of the body is not possible. Help them to understand the reason for limiting the burial ceremony to a limited number of close family members only
  - The prayer for the death person can take place by a limited number of his close relatives outside the isolation room. It can also be done as per usual practice after burying body or family can choose to do absence prayer

Rumor and information management

All Ebola-related information must originate from official sources only—the Ministry of Health (MOH) and designated spokespersons. Sensitize the MOH call center and hotline to answer public inquiries and counter misinformation in real-time. Coordinate with media and social media department to disseminate accurate, consistent messaging in Arabic and English. Monitor rumors and false information daily, and promptly issue corrections through official MOH channels. The general public should receive accurate, timely, and practical information on the outbreak and measures to reduce risk, while avoiding misinformation and unnecessary fear.