International travel and health

West Africa - Ebola virus disease

Update
Travel and transport

2014 Ebola Virus Disease (EVD) outbreak in West Africa

Travel and transport risk assessment: Recommendations for public health authorities and transport sector

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1. Summary of epidemiological facts and experience

- The incubation period of Ebola virus disease (EVD) varies from 2 to 21 days. Person-to-person transmission by means of direct contact with infected persons or their body fluids/secretions is considered the principal mode of transmission. In a household study, secondary transmission took place only if direct physical contact occurred. No transmission was reported without this direct contact. Airborne transmission has not been documented during previous EVD outbreaks.
- There is no risk of transmission during the incubation period and only low risk of transmission in the early phase of symptomatic patients. The risk of infection during transport of persons can be further reduced through use of infection control precautions (see paragraphs 3.2 and 3.3).
- In the current outbreak, infected travellers have crossed land borders with neighbouring countries and there is a possibility that other cases might occur in neighbouring countries.
- Historically, several cases of haemorrhagic fever (Ebola, Marburg, Lassa, Crimean Congo haemorrhagic fever) disease were diagnosed after long distance travel but none developed the symptoms during the international travel. Long-distance travellers (e.g. between continents) infected in affected areas could arrive while incubating the disease and develop symptoms compatible with EVD, after arrival.

2. Risk of EVD for different groups

2.1. Tourists and businessmen/women returning from affected areas in a country

The risk of a tourist or businessman/woman becoming infected with Ebola virus during a visit to the affected areas and developing disease after returning is extremely low, even if the visit included travel to the local areas from which primary cases have been reported. Transmission requires direct contact with blood, secretions, organs or other body fluids of infected living or dead persons or animal, all unlikely exposures for the average traveller. Tourists are in any event advised to avoid all such contacts.

2.2. Visiting families and relatives

The risk for travellers visiting friends and relatives in affected countries is similarly low, unless the traveller has direct physical contact with a sick or dead person or animal infected with Ebola virus. In such a case, contact tracing should confirm the exposure and prevent further spread of the disease through monitoring the exposed traveller.

2.3. Patients travelling with symptoms and fellow travellers

There is a possibility that a person who had been exposed to Ebola virus and developed symptoms may board a commercial flight, or other mode of transport, without informing the transport company of his status. It is highly likely that such patients would seek immediate medical attention upon arrival, especially if well informed, and then should be isolated to prevent further transmission. Although the risk to fellow travellers in such a situation is very low, contact tracing is recommended in such circumstances.

2.4. Risk for health care workers posted in affected areas

There is a risk for healthcare workers and volunteers, especially if involved in caring for EVD patients. However, if the recommended level of precaution for such settings is implemented, transmission of the disease should be prevented. The risk level can be considered very low to low unless these precautions are not followed, e.g. no personal protective equipment, needle stick injury etc.

3. Recommendations for public health authorities and transport sectors

3.1. Recommendations for countries

3.1.1. Raise the awareness and knowledge of travellers

Travellers leaving for or arriving in an area where EVD is occurring should be provided at points of entry (e.g. in airports or ports on boarding or arrival areas or at ground crossing points) with information on the potential risk of EVD (see proposed template below). Information should also be spread among communities that may include cross-border travellers and near all relevant international borders.

The information provided should emphasize that travellers or residents in the affected areas of countries can minimize any risk of getting infected if they avoid:

- Contact with blood or bodily fluids of a person or corpse infected with the Ebola virus.
- Contact with or handling of wild animals, alive or dead or their raw or undercooked meat.
- Having sexual intercourse with a sick person or a person recovering from EVD for at least 7 weeks.
- Having contact with any object, such as needles, that has been contaminated with blood or bodily fluids.

Travellers should be informed where to obtain medical assistance at the destination and who to inform (e.g. through hotline telephone numbers).

Returning visitors from the affected areas should be alerted that if they develop infectious disease symptoms (such as fever, weakness, muscle pain, headache, sore throat, vomiting, diarrhoea, rash, or bleeding) within three weeks after return or if they suspect that they have been exposed to Ebola virus (e.g. volunteers who worked in healthcare settings) in the affected areas, they should seek rapid medical attention and mention their recent travel to the attending physician.

Template message for travellers and EVD

- Ebola Virus Disease is rare.
- Infection is by contact with blood or body fluids of an infected person or an animal infected or by contact with contaminated objects.
- Symptoms include fever, weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, and in some cases, bleeding.
- Cases of Ebola have recently been confirmed in XXX and YYY.
- Persons who come into direct contact with body fluids of an infected person or animal are at risk.
- There is no licenced vaccine.
- Practice careful hygiene.
- Avoid all contact with blood and body fluids of infected people or animals.
- Do not handle items that may have come in contact with an infected person's blood or body fluids.
- If you stayed in the areas where Ebola cases have been recently reported seek medical attention if you feel sick (fever, headache, achiness, sore throat, diarrhoea, vomiting, stomach pain, rash, or red eyes).

3.1.2. Raise the awareness and knowledge of health care providers

Health care providers managing returning travellers need to question them on travel history and consider the possibility of EVD in person coming back from affected areas. A person suspected of having been exposed to Ebola virus should be evaluated regarding the risk of exposure .

If the risk of exposure is considered very low, the person should be reassured, asked to monitor his/her temperature and symptoms for 21 days and seek immediately care if developing symptoms. Other pathologies (e.g. malaria) should be investigated and the patient monitored regularly. Admission to hospital in these observation phases is not necessary.

Essential information to be provided to health care providers should include the following:

- The most common symptoms experienced by persons infected with the virus are the sudden onset of fever, intense weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, impaired kidney and liver function, and at advanced stage, both internal and external bleeding. Laboratory findings include low white blood cells and platelet counts and elevated liver enzymes.
- The incubation period (interval from infection to onset of symptoms) varies between 2 to 21 days.
- People are infectious as long as their blood and secretions contain the virus. Men who have recovered from the disease can still transmit the virus through their semen for up to seven weeks after recovery from illness.
- Malaria, typhoid fever, shigellosis, leptospirosis, yellow fever, dengue and other viral haemorrhagic fevers are differential diagnoses to consider in these patients.
- If the risk of exposure is deemed high, (e.g. a healthcare worker having experienced a needle stick injury with a potentially contaminated needle) a transfer to a specialized centre should be considered.
- More information can be obtained at:
  • Disease Outbreak News (DON) on Ebola

• Ebola virus disease fact sheet

3.1.3. Prepare health system response

In anticipation of EVD introduction, **public health authorities** need to:

- Sensitise staff working at “points of entry”, in healthcare settings or involved in first response (emergency departments, ambulance services, GP offices, fire department, civil defence, airport operators, aircraft operators, port health authority) for early and advanced symptoms of viral haemorrhagic fever.
- Emphasize systematic recording in health clinics of travel history of those with relevant symptoms.
- Establish a standard diagnostic procedure for EVD and for common differential diagnoses at an early stage (e.g. malaria, dengue, typhoid fever, shigellosis, cholera, leptospirosis, plague, rickettsiosis, relapsing fever, meningitis, hepatitis, yellow fever and other viral haemorrhagic fevers).
- Establish a protocol for notification to the competent public health authorities at an early stage if an EVD case is suspected.
- Identify and establish laboratory procedures and operational channels to perform Ebola virus diagnostic testing in the country or refer to the closest WHO Collaborating Centre or reference laboratories able to perform viral haemorrhagic fever diagnostics if cases are suspected.
- Ensure basic training of health care workers on principles of provisional barrier and use of personal protective equipment.
- Emphasize to personnel working in the travel sector the importance of infection control methods.
- Keep the regulatory authorities (e.g. national civil aviation authority) informed and involved in decision-making.

If a case of EVD is suspected in a traveller, **health care facilities** attending the individual should apply the same procedures as if the EVD has already been confirmed. This includes:

- Implementing contact tracing among staff and patients who have been in direct contact with the suspected patient.
- Setting up medical monitoring of identified contacts (fever and prodromal symptoms);
- Notifying immediately to the competent public health authorities.
- Ensuring barrier management in all areas where the suspected patient has been treated (contaminated zone, transition or sluicing zone, “clean” zone).
- Retaining waste and any type of body fluids from patient’s side in the contaminated zone until appropriate decontamination and disposal provisions are in place.
- Handling and shipping patient’s samples according to the international procedures for “transport of category A infectious substances”.

Suspect cases coming from areas affected (e.g. returning travellers with symptoms) identified on an aircraft) should immediately receive medical attention and be isolated to prevent further transmission (see 3.2).

3.1.4. Screening passengers at points of entry (ports , airports or ground crossing) is not recommended

Screening of passengers at **points of entry (arrival or departure) is costly and expected to have very limited impact because it is very unlikely to detect any arriving person infected with EVD. This is particularly true for EVD with its incubation period of 2 to 21 days**

and symptoms that are not specific. As part of this, the use of thermal scanners that rely on the presence of 'fever' in arriving passengers is costly, unlikely to detect any arriving person infected with EVD and is not encouraged.

Travel restrictions, closure of borders at points of entry are not recommended

3.2. Recommendations for international air transport

In case of a passenger presenting with symptoms compatible with EVD (fever, weakness, muscle pain, headache, sore throat, vomiting, diarrhoea, bleeding) on board of an aircraft, the following measures should be immediately considered, in accordance with operational procedures recommended by the International Air Transport Association (IATA):

- Distancing of other passengers if possible from the symptomatic passenger (re-seating); with the ill travellers preferably near a toilet, for his/her exclusive use.
- Covering nose and mouth of the patient with a surgical facemask (if tolerated).
- Limiting contacts to the passenger to the minimum necessary. More specifically, only one or two (if ill passenger requires more assistance) cabin crew should be taking care of the ill passenger and preferably only the cabin crew that have already been in contact with that passenger. This cabin crew should be using the Universal Precaution Kit (see below).
- Hand washing with soap after any direct or indirect contact with the passenger.
- Immediate notification of authorities at the destination airport in accordance with procedures promulgated by the International Civil Aviation Organization (ICAO).
- Immediate isolation of passenger upon arrival.

Dedicated crew member to assist the ill traveller, should be using suitable personal protection equipment (PPE) such as that recommended by ICAO Universal Precaution Kit (http://www.capsca.org/CAPSCARefs.html) for dealing with the traveller and for cleaning procedures on board as needed.

The possibility of transmission to other co-passengers and crew on board the aircraft should be assessed by health care providers on arrival. If the investigation concludes that the passenger has symptoms compatible with EVD and had a risk exposure in affected countries in the past 21 days, passengers as well as crew members may be at risk if they have been in direct contact with body fluids or heavily contaminated objects.

The following epidemiological measures based upon proximity to the index patient should be considered:

- **Passengers and crew with reported direct contact**
  To gather this information, any records of significant events on the flight should be obtained from the airline. Co-travellers and crew members who report direct body contact with the index case should undergo contact tracing.
- **Passengers seated in an adjacent seat to the index patient**
  As direct contact is the main route of transmission for Ebola virus, only passengers who were seated in an adjacent seat to the index

case on the side, in front or behind, including across an aisle, should be included in contact tracing.

- **Cleaning staff of affected aircraft section**
  If the case is suspected or diagnosed after leaving the aircraft, the staff who cleaned the section and seat where the index case was seated should also undergo contact tracing.

At the request of airport or port health authority, airlines may also ask some or all passengers to provide information on their itinerary and their contact details where there is a particular reason to believe they may have been exposed to infection on board of aircraft (e.g. per the ICAO public health passenger locator form)[1]. Additionally, countries may consider requiring arriving aircraft to complete and deliver the health part of the aircraft general declaration (in those cases where the information is not communicated to the airport of arrival while in flight) concerning persons on board with communicable diseases or sources of infection (IHR Annex 9).

Passengers, crew members and cleaning staff who have been identified through contact tracing should be assessed for their specific level of exposure. Passive self-monitoring of temperature (e.g. monitoring temperature only if feeling feverish) and symptoms or active self-monitoring (e.g. by regular temperature measurement twice a day) for those at higher risk level should be continued for 21 days.

These measures should also be considered if an individual, who experienced symptoms during the flight, has been identified as a suspect of EVD after arrival.

References

IATA guidelines for air crew to manage a suspected communicable disease or other public health emergency on board
IATA guideline for cleaning crew for an arriving aircraft with a suspected case of communicable disease
ICAO Health related documents (1) Procedures for Air Navigation Services; (2) Annex 6 – Medical Supplies
WHO Aviation Guide which includes information on sanitizing of aircraft

3.3. Recommendations for ships

In case of a passenger presenting with symptoms compatible with EVD (fever, weakness, muscle pain, headache, sore throat, vomiting, diarrhoea, bleeding) on board of a ship, the following precautions must be applied:

- Keep his/her cabin doors closed, if not placed in an medical isolation room on board.
- Provide information about the risk of Ebola transmission to persons who will take care of the patient or enter the isolation area.
- A log listing all people entering the cabin should be maintained.
- Anyone who enters the cabin to provide care to the person in isolation or to clean the cabin must wear PPE with :
    - A surgical protection mask; and eye protection or a face shield
    - Non-sterile examination gloves or surgical gloves;
    - Disposable impermeable gown to cover clothing and exposed skin. A waterproof apron should be worn over a non-impermeable gown or when coming in close contact

with the person in isolation

- Before exiting the isolation the PPE should be removed in such a way as to avoid contact with the soiled items and any area of the face.
- Limit the movement and transport of the patient from the cabin for essential purposes only. If transport is necessary, the patient should wear a surgical mask.
- Clean and disinfect spills without spraying or creating aerosol. Used linen, cloths, eating utensils laundry and any other item in contact with a patient's body fluids should be collected separately and disinfected in such a way as to avoid any creation of aerosol or any contact with persons or contamination of the environment. Effective disinfectant is a dilution of sodium hypochlorite at 0.05 or 500 ppm available chlorine, with a recommended contact time of 30 minutes.
- All waste produced in the isolation cabin must be handled according to the protocol of the ship for clinical waste. If incinerator is available on board, then waste must be incinerated. If waste must be delivered ashore, then special precautions are needed and the port authority should be informed before waste delivery.
- Start case investigation immediately. Protective equipment is not required when interviewing asymptomatic individuals, when a distance of one metre is maintained.
- Close contacts should be identified and asked to do passive self-monitoring of temperature (e.g. monitoring temperature only if feeling feverish) and symptoms or active self-monitoring (e.g. by regular temperature measurement twice a day and for 21 days.

In the event of a suspected diagnosis of EVD on a ship, immediate expert medical opinion should be sought and the event must be reported as soon as possible to the next port of call by the Captain.

The patient should disembark in such a way as to avoid any contact with healthy travellers and wearing a surgical mask. Personnel in contact with the patient during the medical evacuation should wear a surgical protection mask and PPE.

The competent authority at port may need to arrange depending on the situation: medical evacuation or special arrangements for disembarkation and hospitalization of the patient and laboratory diagnosis.

Passengers, crew members and cleaning staff who have been identified through contact tracing should be assessed for their specific level of exposure. Passive self-monitoring of temperature (e.g. monitoring temperature only if feeling feverish) and symptoms or active self-monitoring (e.g. by regular temperature measurement twice a day) for those at higher risk level should be continued for 21 days.

At the request of a governmental port health authority, ship operators shall also facilitate obtaining, from some or all passengers, to provide information on their itinerary and their contact details (should they need to be contacted) when there is a particular reason to believe they may have been exposed to infection on board of the ship. Additionally, countries may consider requiring arriving ships to complete and deliver the Maritime Declaration of Health (IHR Annex 8). Measures taken on board should also be noted on the IHR Ship sanitation control certificate (IHR Annex 3)

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[1] ICAO passenger locator form Annex 9 Appendix 13 http://www.icao.int/safety/aviation-medicine/Pages/guidelines.aspx