



CENTRO INTERNAZIONALE RADIO MEDICO (C.I.R.M.)

Ente Morale D.P.R. 29 Aprile 1950 n. 553 – O.N.L.U.S.

**CENTRO ITALIANO RESPONSABILE DELL'ASSISTENZA TELEMEDICA
MARITTIMA (T.M.A.S.)**

**EBOLA OUTBREAK IN WEST AFRICA
HOW TO MINIMIZE RISKS**

2nd Edition Updated August 2014

Dipartimento Studi e Ricerche

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Introduction

Infections with Ebola viruses originating from Africa cause a severe disease in humans, Ebola virus disease (EVD). Since the first documented EVD outbreak in Zaïre (now: the Democratic Republic of Congo) in 1976, five species of the genus *Ebolavirus* (Filoviridae family) have been identified from samples collected from humans and non-human primates during outbreaks of the disease. Ebola viruses and Marburg virus, another member of the Filoviridae family, are classified as biosafety level 4 pathogens (BSL-4; risk group 4) and require special containment measures and barrier protection, in particular for healthcare workers.

The onset of EVD is sudden and early symptoms include flu-like illness, with fever, muscle pain (myalgia), fatigue (weakness), headache and sore throat. The next stage of the disease is characterised by symptoms and clinical manifestations from several organ systems. Symptoms can be gastrointestinal (vomiting, diarrhoea, anorexia and abdominal pain), neurological (headaches, confusion), vascular (conjunctival/pharyngeal injections), cutaneous (maculopapular rash), and respiratory (cough, chest pain, shortness of breath), and can include complete exhaustion (prostration). During the first week, patients often deteriorate suddenly, while diarrhoea and vomiting are getting worse. All of these symptoms correspond to the prodromal phase of EVD. After one week, haemorrhagic manifestations can appear in more than half of the patients (bloody diarrhoea, nosebleeds, haematemesis, petechiae, ecchymosis and puncture bleedings). Some patients develop profuse internal and external haemorrhages and disseminated intravascular coagulation. Patients in the final stage of disease die in the clinical picture of tachypnoea, anuria, hypovolemic shock and multi-organ failure.

The incubation period is usually four to ten days but can vary from two to 21 days. The case-fatality ratio for Zaïre ebola virus (EBOV) infections is estimated to be between 50% and 90%.

Ebola viruses are highly transmissible by direct contact with infected blood, secretions, tissues, organs or other bodily fluids of dead or living infected persons.

Airborne transmission has not been documented and person-to-person transmission is considered the principal mode of transmission for human outbreaks regardless of how the index case was infected. Burial ceremonies are known to play a role in transmission. Transmission to humans can also occur by contact with dead or living infected animals, e.g. primates (such as monkeys and chimpanzees), forest antelopes, duikers, porcupines and bats. Bats remain the most likely, but still unconfirmed, reservoir host for Ebola viruses. EBOV can survive in liquid or dried material for a number of days.

EBOV can be inactivated by UV radiation, gamma irradiation, heating for 60 minutes at 60 °C or boiling for five minutes. The virus is susceptible to sodium hypochlorite and disinfectants. Freezing or refrigeration will not inactivate Ebola virus.

The 2014 new Ebola virus outbreaks

An outbreak of Ebola virus disease (EVD) in West Africa, with onset in early February 2014, originated in Guinea and Liberia. The first cases were reported from the forested region of south-eastern Guinea. As of 7 April 2014, the Ministry of Health in Guinea reported 151 clinically compatible cases of EVD, 54 of which were laboratory-confirmed. Ninety-five of these patients died. Liberia has reported 21 cases clinically compatible with EVD, including ten

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deaths. In Mali, the Ministry of Health has reported six suspected cases as of 7 April 2014, two of which have tested negative for Ebola virus infection. Samples from the four remaining suspected cases have been sent to CDC and the Institut Pasteur in Dakar for testing.

The 2014 is the first documented EVD outbreak in West Africa. However, this outbreak was not entirely unexpected as Guinea shares an ecological system known to be associated with Ebola virus outbreaks, and some limited serological evidence of Ebola virus infections in humans has been documented.

The map below downloaded from the website of the US Centers for Disease Control and Prevention shows the outbreak distribution map at the 14 August 2014.



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The 2014 Ebola outbreak is showing a high degree of aggressiveness being considered one of the largest Ebola outbreaks in history and the first in West Africa. It is affecting four countries in West Africa: Guinea, Liberia, Nigeria, and Sierra Leone. World Health Organization (WHO) and other domestic and international partners are collaborating to orchestrate an international response to the current Ebola outbreak in West Africa. **Although Ebola outbreaks can devastate families and communities, the infection can be controlled through the use of recommended protective measures in clinics and hospitals, at community gatherings, or at home.**

Case counts to yesterday (21 August 2014) are summarized below:

	<i>Suspected and Confirmed Case Count</i>	<i>Suspected Case Deaths</i>	<i>Laboratory Confirmed Cases</i>
Total	2473	1350	1460
Guinea	579	396	423
Liberia	972	576	242
Nigeria	15	4	12
Sierra Leone	907	374	783

Risks and protection measures

For tourists, visitors or residents in affected areas, the risk of infection is considered very low if some elementary precautions are followed, e.g. avoiding contact with symptomatic patients and/or their bodily fluids or with corpses and/or bodily fluids from deceased patients.

In addition, generic precautions for travelling in West African countries also apply for preventing infection with Ebola virus, **e.g. avoiding close contacts with alive or dead wild animals and consumption of 'bushmeat', washing and peeling fruits and vegetables before consumption, practising 'safe sex', and following careful hand-washing routines.**

Those who are providing medical care in the outbreak area are advised to wear protective clothing, including masks, gloves, gowns, and eye protection and practice proper infection prevention and control measures.

The Italian Ministry of Health did provide simple and extremely useful recommendations for departing travelers and for incoming travelers that are reported below. **These measures offer relevant protection against EVD and we strongly recommend to follow them carefully.**

HEALTH ADVICE FOR DEPARTING TRAVELLERS

Ebola Virus Disease (EVD) is rare.

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Cases of EVD have recently been confirmed in West Africa countries: Guinea, Liberia, Nigeria, Sierra Leone.

Airborne transmission has not been documented

Symptoms include fever, weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, and in some cases, bleeding.

To minimize the risk of infection, travelers to, or residents who are coming back to, affected countries for EVD epidemic must:

- **avoid contact with symptomatic patients and/or their bodily fluids**
- **avoid contact with corpses and/or bodily fluids from deceased patients**
- **avoid contact with wild animals, both alive and dead, and consumption of 'bush meat'**
- **washing hands regularly, using soap or antiseptic**
- **washing and peeling fruit and vegetables before consumption;**

There is no licensed vaccine.

If you stayed in the areas where EVD 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).

HEALTH ADVICE FOR INCOMING TRAVELLERS

Outbreaks of Ebola and imported cases of the disease have been occurring in West Africa (Guinea, Liberia, Nigeria, Sierra Leone).

The infection is highly transmissible:

- **by direct contact with infected blood or other bodily fluids of dead or living infected persons and animals**
- **through objects that have been contaminated with infected bodily fluids.**

Persons who come into direct contact with body fluids of an infected person or animal, ill or dead, are at risk for the EVD.

Symptoms include fever, weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, and in some cases, bleeding.

You are advised:

to monitor your state of health for 21 days.

If during this period you should become ill with fever, weakness, muscle pain, headache and sore throat, vomiting, diarrhoea, rash), please consult a physician by phone, informing him/her about your recent travel.



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Practical suggestions to ships

Having few or no contacts with ashore, ships can represent a quite safe place and seafarers have therefore no risk of contracting EVD.

In fact, as already mentioned in this paper, transmission occurs **by direct contact with infected blood, secretions, tissues, organs or other bodily fluids of dead or living infected persons**. Hence, ships can continue safely to sail to Ebola-affected countries ports, provided that professional sailors on these ships will not go ashore.

Hand hygiene is the most important infection control measure (not only for Ebola infection).



When to wash your hands

- Before and after you eat
- Before, during and after you prepare food
- After you use the bathroom or change diapers
- After you blow your nose, sneeze or cough
- Before and after taking care of someone who is sick
- After touching animals, their toys, leashes, or waste (poop)
- After touching something that could be dirty (garbage can, dirty rags, etc.)
- Before and after you clean a wound, give medicine or insert contact lenses
- Whenever your hands look dirty

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Avoid to import food or water in ports of Ebola-affected areas. Packages should not pose a risk. Ebola virus is spread through direct contact with blood or body fluids (such as urine or saliva) from an infected person. Packages visibly soiled with blood or body fluids should not be handled. Wear disposable impermeable gloves when cleaning visibly contaminated surfaces.

For any ill seafarer with fever on board a ship visiting ports of Ebola-affected areas, even if Ebola is not considered, ask for medical advice to CIRM.

Address specific questions about Ebola outbreak to CIRM preferably by e-mail at one of the following addresses:

telesoccorso@cirm.it

telesoccorso@cirmservizi.it