

# Ebola Virus Disease

## Traveler Summary

### Key Points

- | Ebola virus disease (EVD) is a rare, severe infection that occurs throughout sub-Saharan Africa.
- | It can be transmitted through direct skin or mucous membrane contact with the blood or bodily fluids of infected patients or corpses or through the placenta.
- | Risk is low for typical travelers.
- | Symptoms include fever, headache, muscle aches, sore throat, general discomfort, abdominal pain, diarrhea, vomiting, and hemorrhage (in some cases).
- | Death or recovery from the illness may occur; symptoms gradually resolve in 7 to 21 days for survivors.
- | Personal protective measures are the main prevention strategy.

### Introduction

EVD is a rare, severe infection that occurs throughout sub-Saharan Africa. Initial symptoms of EVD are nonspecific and similar to other more common diseases, such as malaria.

### Risk Areas

EVD infection is rare, despite sporadic outbreaks in several African countries. Since the late 1970s, outbreaks have been reported in rural areas of Angola, Democratic Republic of the Congo, Gabon, South Sudan, and Uganda. From March 2014 until mid-2016, 30,000 cases occurred in Guinea, Liberia, and Sierra Leone; no transmission has occurred in West Africa since then. Since April 2018, there has been an ongoing outbreak in Democratic Republic of the Congo.

### Transmission

Human-to-human transmission occurs through direct skin or mucous membrane contact with the blood or bodily fluids (including sweat, urine, semen, and breast milk) of acutely ill EVD patients or infected deceased persons (through burial practices) or through the placenta. Persons infected with EVD are not infectious to others until symptoms begin. After death, live virus remains for as long as 7 days on body surfaces, mucosa, and blood and for 3 days in tissues. Transmission also occurs through contact with or consumption of bush meat, contact with infected nonhuman primates, and bats.

Infectious virus has also been found in bodily fluids in the brain, spinal cord, and eyes and in the wombs of pregnant women. Dead Ebola virus breakdown products have been detected in vaginal and rectal swabs. The virus can persist in semen for more than 18 months. Evidence of sexual transmission was found 6 months after recovery in 1 case in Liberia. Masturbation (through contamination of surfaces) is a possible risk.

Patterns of transmission are inconsistent with airborne transmission.

### Risk Factors

Risk is low for typical travelers and business travelers and is similarly low for persons visiting friends and relatives, unless the traveler has direct physical contact with infected bodily fluids from sick persons or corpses or sick animals during an epidemic. Risk is low for persons with direct contact with bodily fluids of recovered patients. Risk is high for health care workers (HCWs) and volunteers, especially those involved in caring for EVD patients. Implementation of recommended precautions reduces risk, although infections have occurred despite stringent precautions (including the use of modern personal protective gear).

### Symptoms

The incubation period is 2 to 21 days (average of 10 days). Symptoms usually begin abruptly with high fever, headache, muscle aches, sore throat, and general discomfort. Abdominal pain, cramps, diarrhea, and vomiting develop on the third day and, in some cases, external and internal bleeding may begin on the fifth day, leading rapidly to shock and death. Survivors

show gradual resolution of symptoms within 7 to 12 days.

## Prevention

Although several candidate vaccines are currently at different stages of development, no clinically proven vaccine is currently available for typical travelers. An experimental vaccine, which has been shown to be highly effective, may be available for health care and frontline workers in outbreak situations. No antivirals for self-treatment are available. Therefore, personal protective measures are the main prevention strategy.

Additionally, if traveling to affected countries:

- | Use alcohol-based hand sanitizers for hand hygiene in health care settings (when hands are not visibly soiled with dirt, blood, or other bodily fluids). If alcohol-based hand sanitizers or soap and water are unavailable, use of a 0.05% chlorine solution applied for a minimum of 40 to 60 seconds until hands are dry is appropriate and likely to be efficacious.
- | Avoid direct contact with people diagnosed with EVD, corpses, nonhuman primates, bats (and caves and other places where bats congregate), and health care environments that may have become contaminated.
- | Avoid consumption of bush meats.
- | Use condoms during sexual activity.

Ebola virus is susceptible to most common disinfectants and alcohol-based products (e.g., hand sanitizers) and can be inactivated by heating for 30 to 60 minutes at 60°C (140°F) or by boiling for 5 minutes.

HCWs are at high risk when actively involved in an outbreak. Strict adherence to stringent procedures as defined by U.S. CDC is necessary. Specialized personal protection equipment is unlikely to be found in standard hospitals throughout Africa.

## Need for Medical Assistance

All cases of suspected EVD should receive prompt medical care in a specialized infectious disease unit because accurate diagnosis requires specialized laboratory facilities and because supportive care is complex.

EVD should be considered in any traveler with an abrupt onset of fever or extreme malaise within 2 to 21 days of return from affected areas.

Persons with unrelated medical problems who are traveling to or residing in areas undergoing a known EVD outbreak may not be accepted by hospitals in Europe or in countries elsewhere to which they would normally be evacuated.

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