

EBOLA VIRUS: SUMMARY OF THE DISEASE

Disease name

Ebola hemorrhagic fever (Ebola HF)

Description

Ebola is a severe often fatal disease that affects people as well as monkeys, gorillas and chimpanzees (apes).

Origins of the disease

- Ebola first appeared in 1976 in two simultaneous outbreaks, one in a village near the Ebola River in the Democratic Republic of Congo, and the other in a remote area of Sudan.
- The origin of the virus is unknown but fruit bats (Pteropodidae) are considered the likely host of the Ebola virus, based on available evidence.

How it Spreads

- Close contact with the blood, secretions, organs or other bodily fluids of infected animals; possibly eating contaminated meals.
- Human to human: Direct contact (through broken skin or mucous membranes) with the blood, or other bodily fluids or secretions (stool, urine, saliva, semen) of infected people.
- Contact with contaminated objects such as needles, soiled clothing, or bed linen.

Symptoms

- Sudden onset of fever, intense weakness, muscle pain, headache and sore throat,
- Vomiting, diarrhea, impaired kidney and liver functions,
- Rash, internal and external bleeding.
- Around Day 5, most patients develop a maculopapular rash that is prominent on the trunk followed by desquamation in survivors.
- Central nervous system involvement is often manifested by somnolence, delirium, or coma. Wasting becomes evident later, and bleeding manifestations, such as petechiae and hemorrhages, occur in half or more of the patients.
- During the second week, the patient defervesces and improves markedly or dies in shock with multiorgan dysfunction, often accompanied by disseminated intravascular coagulation, anuria, and liver failure.
- Convalescence may be protracted and accompanied by arthralgia, orchitis, recurrent hepatitis, transverse myelitis, psychosocial disturbances, or uveitis.

Treatment

No standard treatment just intensive supportive care: sick people isolated, intravenous fluids or oral rehydration with solutions that contain electrolytes, oxygen and treatment of secondary infections.

EBOLA VIRUS: IF YOUR PATIENT ASKS

If a Person Is Infected With The Ebola Virus, What Are The Chances of Survival?

Mortality is high depending on the subtype:

- Ebola Sudan subtype: ~50%;
- Ebola Zaire subtype: ~80-90%.

Is It Safe to Travel During an Outbreak? What Is The WHO Travel Advice?

- During an outbreak, WHO reviews the public health situation regularly, and recommends travel or trade restrictions when necessary.
- The risk of infection for travelers is very low since person-to-person transmission results from direct contact with the body fluids or secretions of an infected patient.

What Are The General Travel Advices?

- Travelers should avoid all contact with infected patients.
- Health workers traveling to affected areas should strictly follow WHO-recommended infection control guidance.
- Anyone who has stayed in areas where cases were recently reported should be aware of the symptoms of infection and seek medical attention at the first sign of illness.
- Clinicians caring for travelers returning from affected areas with compatible symptoms are advised to consider the possibility of Ebola virus disease.

Is It Safe to Have at Home or Work House-Keepers or Employees From Africa?

Currently the countries primarily affected include Guinea, Sierra Leone, Liberia and Nigeria.

In Africa, confirmed cases of Ebola HF have been reported in:

- Guinea
- Sierra Leone
- Liberia
- Democratic Republic of the Congo (DRC)
- Gabon
- South Sudan
- Ivory Coast
- Uganda
- Republic of the Congo (ROC)
- South Africa (imported)

What is The Incubation Period?

2-21 days.

Men who have recovered from the illness can still spread the virus to their partners through their semen for up to 7 weeks after recovery. For this reason, it is important for men to avoid sexual intercourse for at least 7 weeks after recovery or to wear condoms if having sexual intercourse during 7 weeks after recovery.

EBOLA VIRUS: DISEASE AGENT CHARACTERISTICS

Disease Agent Characteristics

- Family: Filoviridae; Genus: Ebolavirus
- Virion morphology and size: Enveloped, helical, cross-striated nucleocapsid, filamentous or pleomorphic virions that are flexible with extensive branching, 80 nm in diameter and 970-1200 nm in length
- Nucleic acid: Linear, negative-sense, single-stranded RNA, ~18,900 kb in length
- Physicochemical properties: Stable at room temperature and can resist desiccation; inactivated at 60°C for 30 minutes; infectivity greatly reduced or destroyed by UV light and gamma irradiation, lipid solvents, β -propiolactone, formaldehyde, sodium hypochlorite, and phenolic disinfectants.

Vector and Reservoir Involved

- Despite substantial work, no filovirus vector has been identified.
- Recent work suggests that ape-to-ape transmission may be responsible for the epizootic wave of this disease, although the fruit bat may also act as a reservoir for this disease.

Blood Phase

- High-titer viremia is present during the acute illness (out to 21 days in Kikwit, DRC outbreak in 1995).
- Prolonged presence of viral RNA in semen and vaginal fluids (>100 days) has been demonstrated in a limited number of patients.
- Asymptomatic viremia before symptoms has not been described but has not been rigorously pursued.

Survival/Persistence in Blood Products

- Unknown

Transmission by Blood Transfusion

- Never reported.
- Nosocomial secondary spread is strongly associated with parenteral risks, suggesting that blood from ill patients is infectious.

Chronic Carriage

- Viremia accompanies the acute stage and disappears about the time of defervescence in survivors during the second week of illness following detection of specific antibody.
- Limited data suggest that viral nucleic acid may persist in some tissues for several months.

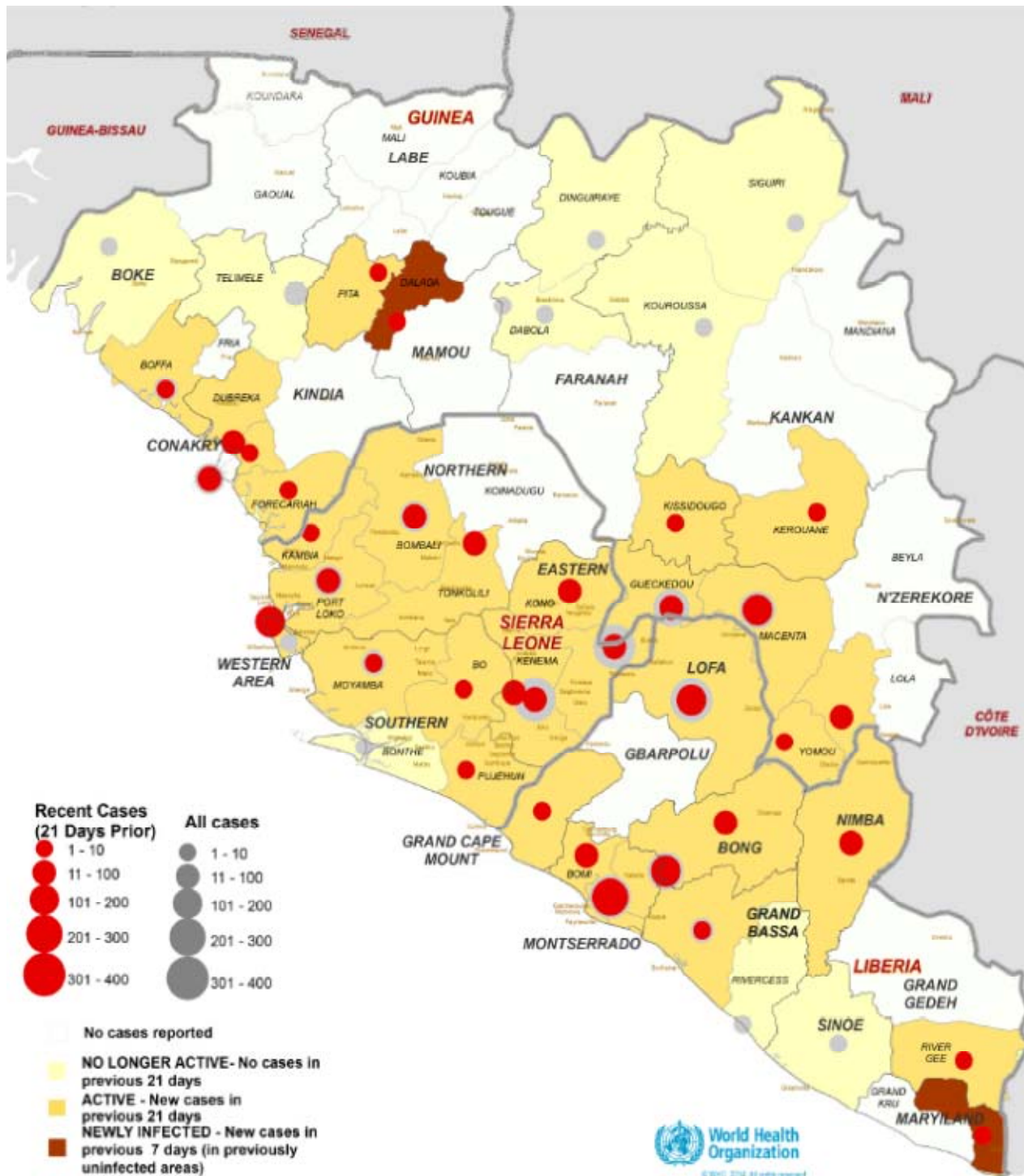
Laboratory Test(s) Available

- No FDA-licensed blood donor screening test exists.
- Virus culture, antigen detection, immunohistochemistry, and NAT applicable to diverse body fluids and/or tissues, in addition to IgG and IgM antibody serology and electron microscopy, have all proved feasible for diagnostic and epidemiologic studies in various settings for Ebola.

EBOLA VIRUS: UPDATES AND NEWS

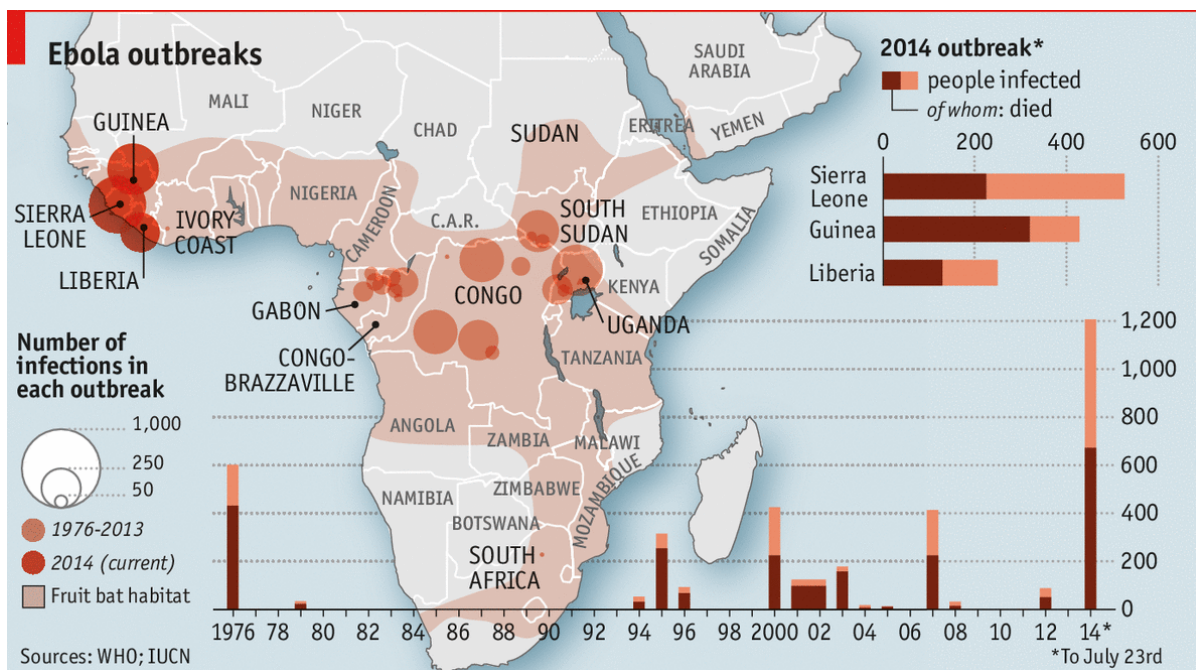
Situation Report

18 September 2014: The total number of probable, confirmed and suspected cases in the current outbreak of Ebola virus disease (Ebola) in West Africa was 5335, with 2622 deaths, as at the end of 14 September 2014. Countries affected are Guinea, Liberia, Nigeria, Senegal and Sierra Leone.



Geographical distribution of new cases and total cases in Guinea, Liberia, and Sierra Leone

EBOLA VIRUS AWARENESS CAMPAIGN – UPDATES



Experimental Treatment and Vaccines for Ebola

- ZMAPP

ZMapp, being developed by Mapp Biopharmaceutical Inc., is an experimental treatment, for use with individuals infected with Ebola virus. It has not yet been tested in humans for safety or effectiveness. The product is a combination of three different monoclonal antibodies that bind to the protein of the Ebola virus.

- Vaccines

There are currently no FDA approved vaccines for Ebola. The NIH (National Institute of Allergy and Infectious Diseases) is working on developing an Ebola vaccine. NIH recently announced they are expediting their work and are launching phase 1 clinical trials of an Ebola vaccine.

The early-stage trial will begin initial human testing of a vaccine co-developed by NIAID and GlaxoSmithKline (GSK) and will evaluate the experimental vaccine's safety and ability to generate an immune system response in healthy adults.

The study is the first of several Phase 1 clinical trials that will examine the investigational NIAID/GSK Ebola vaccine and an experimental Ebola vaccine developed by the Public Health Agency of Canada and licensed to NewLink Genetics Corp. The others are to launch in the fall.

In parallel, NIH has partnered with a British-based international consortium that includes the Wellcome Trust and Britain's Medical Research Council and Department for International Development to test the NIAID/GSK vaccine candidate among healthy volunteers in the United Kingdom and in the West African countries of Gambia (after approval from the relevant authorities) and Mali.

NIH is also supporting the Crucell biopharmaceutical company in its development of an Ebola/Marburg vaccine as well as Profectus Biosciences in its development of an Ebola vaccine. Additionally, NIH and the Thomas Jefferson University are collaborating to develop a candidate Ebola vaccine based on the established rabies vaccine.

Two other companies, Tekmira and Biocryst Pharmaceuticals, receive funding from the Department of Defense's Defense Threat Reduction Agency and have therapeutic candidates for Ebola in early development. The Department of Defense is working with a company called Newlink to develop an Ebola vaccine candidate. BioCryst, with NIH support, is working to develop an antiviral drug to treat Ebola virus that is expected to begin Phase 1 testing later this year.