

Ebola Virus- A Public Health Menace

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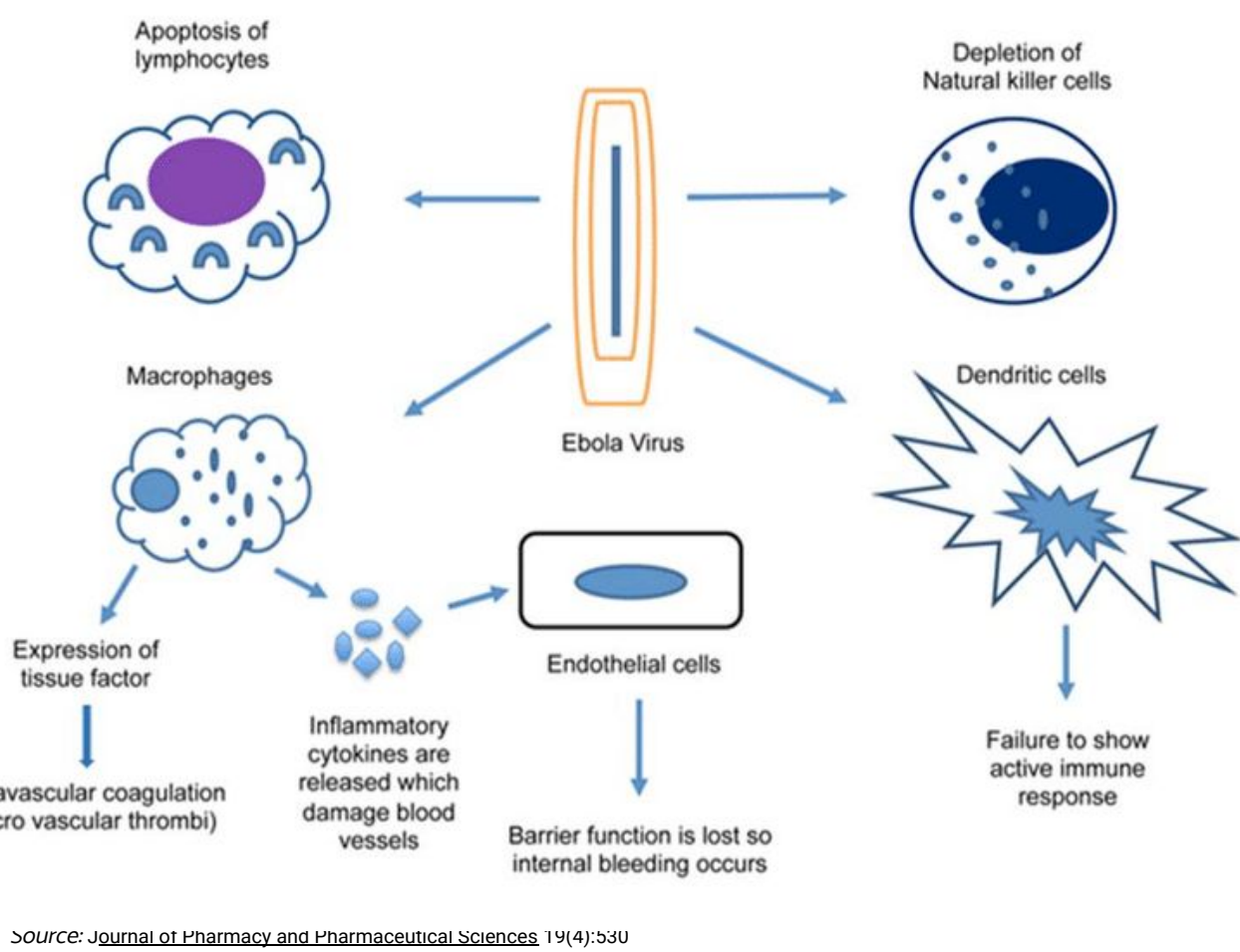


Background:

The name comes from the fact that the virus was first noticed near the “Ebola river of Congo”. Ebola can be transmitted through close body contact. Fluids from an infected person or even a surface they have touched can spread the infection. The ervebo vaccine has been proven to be effective against only certain strains. The management protocol mainly relies on supportive therapy. Public health strategies emphasizing epidemiological surveillance, contact tracing, and quarantine of the patient have been recommended to combat the spread of the virus.

Pathogenesis:

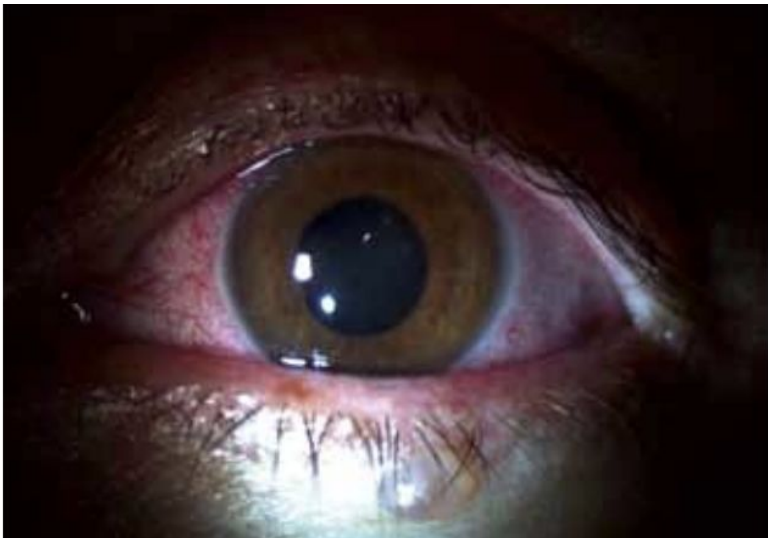
The Ebola virus quickly spreads through a person’s immune system. The virus first infects the dendritic cells, compromising them to show the disease to T cells. With no active T cells, they are not able to respond to the infection and stimulate B cells to make antibodies. The failed immune response allows rapid replication. Infected cells release proteins that cause coagulation damaging the linings of blood vessels and causing leakage. Inflammation causes damage to many tissue types.



Source: Journal of Pharmacy and Pharmaceutical Sciences 19(4):330

Research:

A recent report by Sankaran shows reemergence of Ebola Viral disease in monkeys who have been treated with antibodies from the infection in the past. This involved a study with 20% of a monkey population who previously survived Ebola showing evidence of persistent Ebola virus infection- specifically in the brain ventricular system, where cerebrospinal fluid is produced, circulated, and contained- even when the virus was cleared from all other organs. These findings suggest that the virus can hide and persist in specific regions of the body, like the vitreous chamber of the eyes, seminiferous tubules of the testes and the ventricular system of the brain, even though it clears out of all other organs. This highlights the need for long-term follow-up of Ebola virus disease survivors- including the ones who have been treated with therapeutic antibodies- to prevent the re-emergence of infection in them.



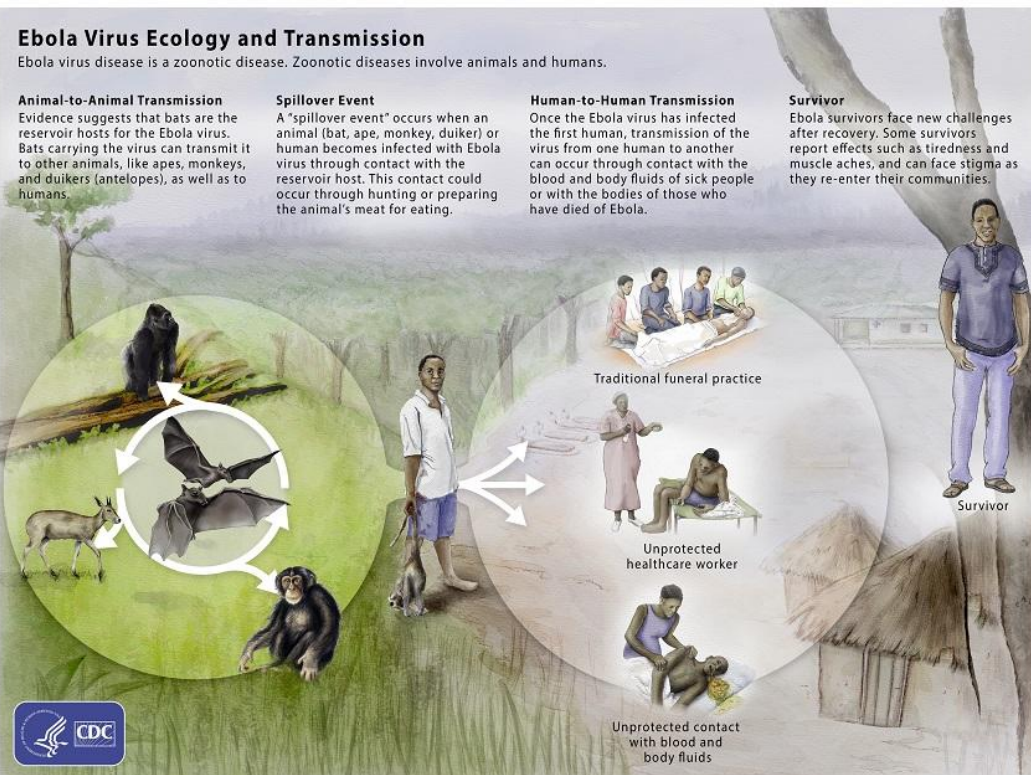
Chancellor JR, et al Emerg Infect Dis. 2016 Feb;22(2):295-7.



Ebola Virus. Source: NIAID

Why Is Ebola Still A Problem?

Ebola will stay a problem due to migration. Infected humans and animals spread the disease with all of their movements and contact made. Infected people traveling through countries are the probable cause of outbreaks.



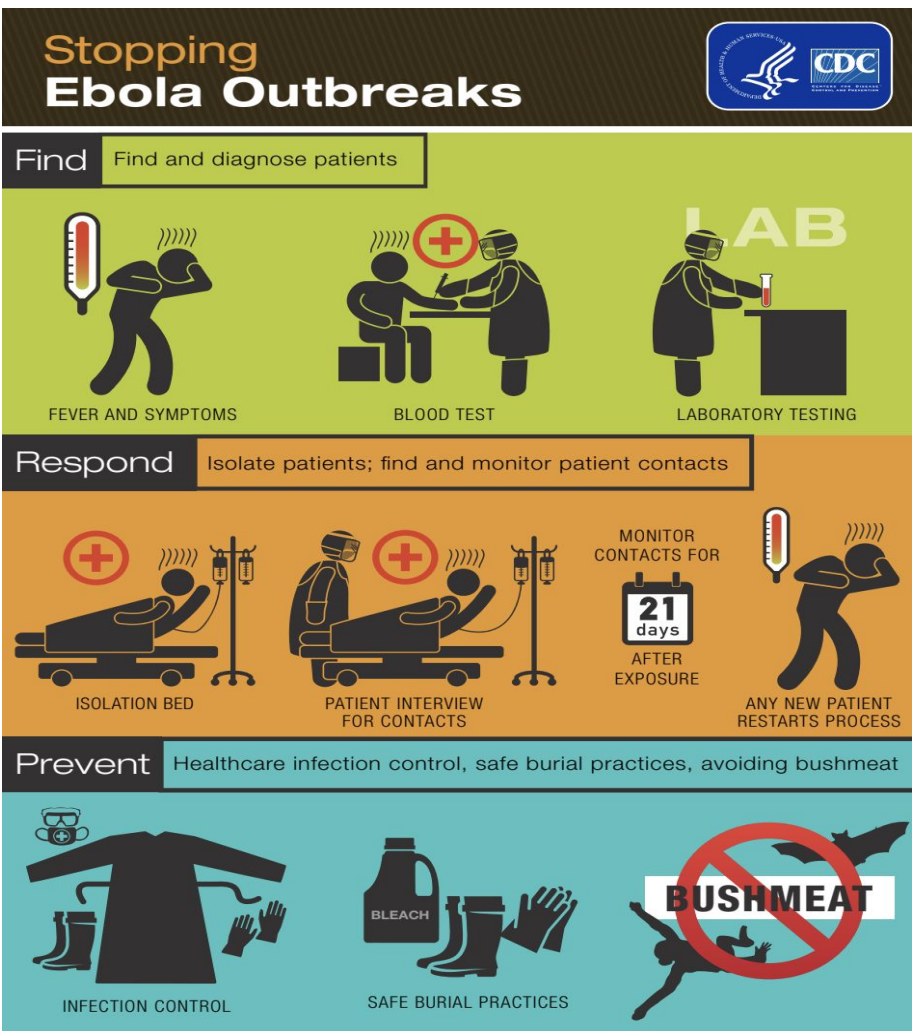
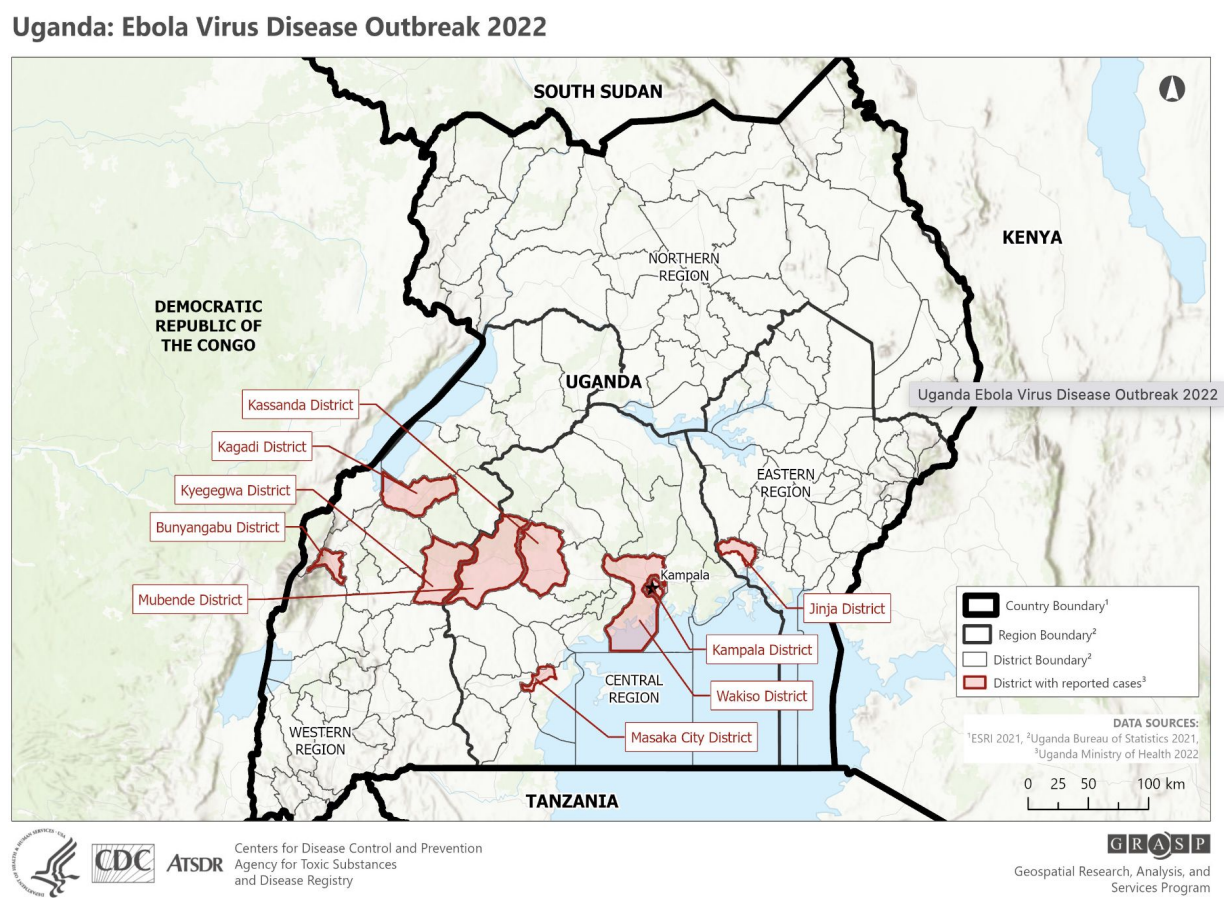
Should Americans Be Concerned?

Ebola is a serious disease, in West Africa. It has a mortality rate of 70 percent. The Marburg disease like Ebola, is a severe hemorrhagic fever and a genetically unique zoonotic disease. Both have a majority of the same symptoms and effects. Both Ebola and Marburg have high mortality rates, and persistent outbreaks throughout the years. CDC has warned US health officials on April 7, 2023 about the current outbreaks of Marburg disease, because of its close similarities to Ebola.



Source: CDC

Where is Ebola Today?



Source: CDC

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