

# The Significance and Effects of Ebola Virus Disease on Human Health

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## DESCRIPTION

Ebola virus, a member of the Filoviridae family, is one of the most lethal pathogens known to everyone. Named after the Ebola River in the Democratic Republic of Congo, where it was first identified in 1976, this virus has caused multiple outbreaks in Central and West Africa, capturing global attention due to its high mortality rate and devastating impact on affected communities. This article aims to provide an in-depth understanding of the Ebola virus, including its origins, transmission, symptoms, diagnosis, treatment, and preventive measures. The Ebola virus comprises several distinct species, with the most common strains being Zaire Ebolavirus (EBOV) and Sudan Ebolavirus (SUDV). Other species include Bundibugyo Ebolavirus (BDBV), Reston Ebolavirus (RESTV), and Tai Forest Ebolavirus (TAFV). These viruses are believed to have originated in bats, which act as natural reservoirs, with humans becoming infected through close contact with infected animals or through person-to-person transmission.

Ebola spreads through direct contact with bodily fluids (blood, saliva, urine, semen) of infected individuals or through contact with contaminated surfaces and materials. It is important to note that the virus is not airborne, meaning it does not spread through respiratory droplets like the common cold or flu. Once contracted, Ebola has an incubation period of 2 to 21 days. Symptoms typically manifest as a sudden onset of fever, fatigue, muscle pain, headache, and sore throat. As the disease progresses, more severe symptoms emerge, including vomiting, diarrhea, rash, impaired kidney and liver function, and internal and external bleeding. These symptoms can lead to multiple organ failure and, in many cases, death. Early diagnosis of Ebola is crucial for effective management and containment. Laboratory testing is required to confirm the presence of the virus, with

techniques such as Polymerase Chain Reaction (PCR) and Enzyme-Linked Immunosorbent Assay (ELISA) commonly used. Prompt isolation of suspected cases and contact tracing are vital to prevent further transmission. Treatment for Ebola primarily involves supportive care, which includes maintaining fluid balance, managing symptoms, and providing intensive care to improve patient outcomes. Experimental treatments, such as antiviral drugs and monoclonal antibodies, are also being explored. However, no specific antiviral drug has yet been approved to treat Ebola. Preventing the spread of Ebola relies on implementing stringent infection control measures. This includes the proper use of Personal Protective Equipment (PPE) by healthcare workers, practicing safe burial procedures for deceased individuals, and implementing quarantine measures in affected areas. Public awareness campaigns play a crucial role in educating communities about the virus, its transmission routes, and preventive measures such as hand hygiene, avoiding contact with infected individuals, and safe handling of wild animals.

Ebola outbreaks have spurred a significant global response, with international organizations, governments, and healthcare professionals collaborating to control the disease and develop effective preventive strategies. The 2014-2016 outbreaks in West Africa, in particular, highlighted the importance of early detection, rapid response, and community engagement. Additionally, the outbreak spurred the development and testing of Ebola vaccines, such as the rVSV-ZEBOV-GP vaccine, which has clinical trials. The availability of vaccines can be preventing and controlling future outbreaks. Ebola virus remains a potent threat to public health, particularly in regions where outbreaks have occurred. Understanding the virus, its transmission routes, and implementing effective preventive measures are crucial in causing the spread of the disease and mitigating its impact on affected communities.

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