

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.