NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

UPDATED OCTOBER 2022
Outbreak Response Unit, Division of Public Health Surveillance and Response, National Institute for Communicable Diseases (NICD)
24-hour hotline number: 0800 212 552

Ebola virus disease
Frequently Asked Questions

1. What is Ebola virus disease?

Ebola virus disease (previously known as Ebola haemorrhagic fever), is a severe, often fatal disease in humans and non-human primates. Infection with four of the six known species of the Ebola virus genus cause human illness, respectively named, (Zaire) Ebola virus disease (EVD) Sudan virus disease (SVD), Bundibugyo virus disease (BVD) and Taï Forest virus disease. The disease was originally identified in 1976, when two SVD and EVD outbreaks occurred practically concurrently in South Sudan and near the Ebola River in the Democratic Republic of Congo (DRC). Since then, sporadic outbreaks have occurred in the DRC, Uganda, South Sudan, Congo, and Gabon, with the majority of cases caused by the Zaire ebolavirus, several by Sudan ebolavirus, and two in the DRC by Bundibugyo ebolavirus, resulting in less than 2 500 confirmed cases and mortality rates ranging from 50 to 90% of Ebola patients. Following that, the largest EVD outbreak in West Africa occurred between December 2013 and June 2016, primarily in Sierra Leone, Liberia, and Guinea, with over 28,616 suspected cases and 11,310 deaths reported to the World Health Organization. Further EVD and SVD outbreaks have been recorded between 2017 and 2022, with two reported in 2022 from the DRC (EVD) and one now continuing in Uganda (SVD). In total, eight SVD outbreaks have occurred: five in Uganda in 2000, 2011, 2012 (x2), 2022, and three in Sudan. In addition, Uganda witnessed Bundibugyo virus outbreaks in 2007 and Zaire Ebola virus outbreaks in 2019.

2. Who can get EVD, SVD or BVD?

Ebola virus diseases have a zoonotic origin, and bats are the suspected but unproven animal reservoir of infection. Non-human primates contract EVD, SVD or BVD from bats. Persons in contact with infected non-human primates or bats are at risk of contracting EVD, SVD or BVD. Only one human scientist contracted Taï Forest virus disease following an outbreak in Chimpanzees in Côte d'Ivoire in 1994. Following zoonotic transmission to humans, human-to-human transmission resulting in EVD, SVD or BVD is possible. The persons at risk of contracting EVD, SVD or BVD include healthcare workers, family members or friends in close contact with infected people, and mourners who have direct contact with the bodies of the deceased as part of burial ceremonies.

3. Where does EVD, SVD or BVD occur in South Africa?

EVD, SVD or BVD do not occur in South Africa. There has been a single imported case of EVD documented in South Africa in 1996. The case involved a health care worker travelling to South Africa from Gabon, where an EVD outbreak occurred at the time. One secondary case involving a nurse was also reported in 1996. EVD, SVD or BVD may be imported to South Africa by travelers returning from outbreak affected countries, and have had contact with EVD, SVD or BVD cases. During the West Africa EVD outbreak from 2013-2016, no cases of EVD were imported to South Africa.

4. How are the ebolaviruses transmitted?

Human-to-human transmission of the virus occurs when an infected person's blood or other infectious bodily fluids (which may include vomit, stool, urine, saliva, sweat, semen, and breast milk) come into contact with a contact's broken skin or mucous membranes, including the nose, eyes, and mouth. Direct contact with environments contaminated with an EVD, SVD, or BVD patient's blood or body fluids, such as soiled clothing, bed linen, or used needles, can also result in infection. Burial ceremonies in which mourners wash the body of the deceased person can spread infection. Ebola viruses are not spread in the air or in water, nor through being in the same room as an infected person where contact detailed above has not taken place. The virus may be aerosolized in the hospital setting through suctioning or inserting and removal of tubes.

5. How do the ebola viruses affect animals?

Bats are assumed to be the infection's reservoir. Nonhuman primates such as monkeys, gorillas, and chimpanzees can experience serious disease, including bleeding, after contracting EVD, SVD, or BVD. Two more ebola viruses, Reston and Bombali, are thought to cause disease in nonhuman primates rather than humans. Reston outbreaks occurred in lab monkeys in Reston, Virginia in 1989, imported from Asian macaque monkeys, and was later found to infect pigs in Pennsylvania, Texas, and Italy, as well as bats. In 2018, PREDICT US researchers found the Bombali virus in bats from Bombali, Sierra Leone, Guinea, and Kenya.

6. What are the signs and symptoms of EVD, SVD, BVD in humans?

Ebola viruses have an incubation period of 2 to 21 days (on average, 8 to 10 days) after which the person will start to have symptoms. The disease caused by infection with the different ebolaviruses cannot be distinguished clinically. Usually persons will give a history of having had contact with an infected person, or being in an environment where infected persons were cared for. After the incubation period, the symptoms may include fever, weakness and lethargy, muscle pain, headache and sore throat, followed by vomiting, diarrhoea, abdominal pain, and sometimes a rash. Some patients may have bleeding inside and outside of the body; this is the most serious complication. Death often occurs through dehydration and less frequently through haemorrhagic complications

7. How is EVD, SVD, BVD diagnosed?

EVD, SVD or BVD can only be confirmed through a laboratory blood test. EVD, SVD or BVD can only be diagnosed once a person develops signs and symptoms of the disease; there is no test available to detect infection whilst a person is in the incubation period. Specific laboratory tests include serological screening for IgG and IgM antibodies, PCR detection of the virus (RNA) or virus isolation. Antigen detection is particularly useful in the early acute stage of illness. These specialized laboratory tests, including virus isolation, are performed under biosafety level 3 plus or 4 conditions (i.e. maximum bio-containment), available at the National Institute for Communicable Diseases.

8. How is EVD, SVD, BVD treated?

Only approved in 2020 are monoclonal antibody therapy for the Zaire Ebola species. Experimental treatments are ongoingly under evaluation in animal models for therapy against the different ebolaviruses species. Standard management for EVD, SVD or BVD is limited to supportive therapy including fluid management, provision of oxygen, maintenance of blood pressure and treatment of complicating secondary infections. Severely ill patients require intensive supportive care. Some patients will recover with the appropriate medical care. During the 1976-2014 ebola viruses diseases outbreaks, the estimated case fatality rate was 65.4% (CI 95% [54.6%; 75.5%]) and varied by outbreak. A species effect was identified, with the Zaire species having a higher case fatality rate than the Sudan and Bundibugyo species. The Zaire species' case fatality rate tended to decrease with time.

9. How is EVD, SVD, BVD prevented?

The two Zaire ebola vaccines that have been granted licenses since 2019 and 2020 are only partially effective against the Zaire Ebola virus, which causes the bulk of outbreaks and was developed in response to the worst Ebola epidemic in history, as aforementioned lasting from 2014 to 2016, in West Africa. Only candidate vaccines are available for the Sudan ebola virus, and trials in the Ugandan outbreak are being done. Several more candidate vaccines for Zaire and Sudan ebolaviruses are being evaluated in clinical trials around the globe.

Once an initial case of EVD, SVD or BVD occurs in a community, prevention of secondary cases through appropriate infection control is critical. Infection control includes avoiding direct contact with the blood, or other body fluids and secretions of infected people and animals through the use of personal protective equipment (including gloves, masks, gowns and goggles). Mourners should avoid direct contact with the body of the deceased person. Patients suspected to have EVD, SVD or BVD should be isolated and treated by trained healthcare workers employing strict infection prevention and control measures. Healthcare workers should apply strict precaution by wearing personal protective equipment.

10. Where can I find more information?

Medical/clinical related queries: NICD Hotline +27 82 883 9920 (for use by healthcare professionals only) Laboratory related and result queries: Dr Jacqueline Weyer: (Tel) +27 11 386 6376 or 6339, jacquelinew@nicd.ac.za or Dr. Naazneen Moolla: (Tel) +27 11 386 6338, naazneenm@nicd.ac.za. Guidelines are available on the NICD website at www.nicd.ac.za on the 'Diseases A-Z' tab.