

Ebola Virus- a new Bioterrorism

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Few months back, another bioterrorism of Ebola virus has already cropped up in West Africa and causing epidemic, drew close attention to WHO.. The World Health Organization has declared the Ebola outbreak in West Africa to be an international public health emergency on Friday as doctors and officials in this region reported a spike in cases over the past two days that has inundated the already threadbare health care systems of Liberia, Sierra Leone, and Guinea. Those countries lacked even the basic amenities of a public health network. Meanwhile, several doctors and health workers witnessed a surge in cases over the past 48 hours that has broken the once predictable rhythm of the epidemic. The current outbreak, in which at least 1,711 people have so far been infected, of whom 932 have died, is the most severe in the almost 40 years since Ebola was identified in humans. Some 140 or 150 health-care workers have been infected, 80 of them fatally. EVD was first identified in Sudan and the Democratic Republic of the Congo. The disease typically occurs in outbreaks in tropical regions of Sub-Saharan Africa. From 1976 (when it was first identified) through 2013, fewer than 1,000 people per year have been infected. The largest outbreak to date is the ongoing 2014 West Africa Ebola outbreak, which is affecting Guinea, Sierra Leone, Liberia and Nigeria. But now, the virus seems to have gripped the world's interest due to its destructive potential. Ebola takes between two and 21 days from the moment of infection to flare up and become symptomatic. Ebola hemorrhagic fever is definitely a condition that has the capability to infect millions. The Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever is a severe condition caused by a virus from the genus Ebolavirus, family Filoviridae, order Mononegavirales. These four viruses are Bundibugyo virus

(BDBV), Ebola virus (EBOV), Sudan virus (SUDV), Tai Forest virus (TAFV). The fifth virus, Reston virus (RESTV), is not thought to be disease-causing in humans. During an outbreak, those at highest risk are health care workers and close contacts of those with the infection. Known to be a condition that is transmitted from animals to humans, this virus spreads through direct contact with the bodily fluids of an infected person or animal. Airborne transmission has not been documented during previous EVD outbreaks. They are, however, infectious as breathable 0.8–1.2 micrometre laboratory generated droplets because of this potential route of infection, these viruses have been classified as Category A biological weapons. Recently the virus has been shown to travel without contact from pigs to non-human primates. The virus may be acquired upon contact with blood or bodily fluids of an infected animal (commonly monkeys or fruit bats). Spread through the air has not been documented in the natural environment. Fruit bats are believed to carry and spread the virus without being affected. Once human infection occurs, the disease may spread between people as well. Male survivors may be able to transmit the disease via semen for nearly two months. Healthcare workers may contract the disease through transmission as well through contact with infected bodily fluids, handling the meat from infected animals and contact with the bodily fluids of an infected person who has passed away. Interestingly, this condition is also a hospital acquired infection and is commonly transmitted to hospital staff. Medical workers who do not wear appropriate protective clothing may also contract the disease, apart from that, high risk individuals include diabetics, immunocompromised patients, patients with kidney and liver failure and HIV infected people. The incubation period for this disease is about one week. After this period a person will commonly see the signs that are considered as ‘early symptoms’. According to Doctors, the early symptoms include fever, rashes, headache, nausea, vomiting and stomach pain. Apart from that a person may also experience symptoms like pain in the lower back, arthritis like pain all over the body, diarrhea and a sore throat, Bleeding from the mouth, ears, nose and ears, increased sensitivity to pain on the skin, genital swelling, conjunctivitis, rashes all over the body and reddening of the roof of the mouth. Early symptoms of EVD may be similar to those of malaria, dengue fever, or other tropical fevers, before the disease progresses to the bleeding phase.. People infected with Ebola virus show some symptoms of involvement of circulatory system like impaired blood clotting. In 40–50% of cases, bleeding from puncture sites and mucous membranes (e.g. gastrointestinal tract, nose, vagina and gums) has been reported. In

general, the development of bleeding symptoms often indicates a worse prognosis and this blood loss can result in death. Usually a doctor will be able to diagnose the condition with the symptoms alone, but in order to confirm the diagnosis he/she may prescribe tests like CBC (Complete Blood Count), The diagnosis is confirmed by isolating the virus, detecting its RNA or proteins, or detecting antibodies against the virus in a person's blood. Isolating the virus by cell culture, detecting the viral RNA by polymerase chain reaction (PCR) and detecting proteins by enzyme-linked immunosorbent assay (ELISA) is effective early and in those who have died from the disease. There is no definitive treatment, and common anti-viral therapies do not work on the Ebola virus. Therefore the goal of the treatment is to treat the symptoms and prevent secondary infections or complications like pneumonia and liver failure.’ According to the WHO reports, on an average, 80% of the people infected with this virus do die. Their death is usually due to a drop in their blood pressure and failure of organs. Ebola has no proven cures and there is no vaccine to prevent infection, so treatment focuses on alleviating symptoms such as fever, vomiting and diarrhoea — all of which can contribute to severe dehydration. Prevention includes decreasing the spread of disease from infected monkeys and pigs to humans. This may be done by checking such animals for infection and killing and properly disposing of the bodies if the disease is discovered. Properly cooking meat and wearing protective clothing when handling meat may also be helpful, as are wearing protective clothing and washing hands when around a person with the disease. Samples of bodily fluids and tissues from people with the disease should be handled with special caution. There aren’t any vaccinations available as of now, so basic hygiene is of importance and a must be followed in order to prevent the onset of the condition. Simple activities like washing your hands well, drinking water from a clean source, maintaining general hygiene and cooking your meat well, can all serve as precautionary measures. Apart from that people should avoid crowded places, or those that are known to have an outbreak. It is also important that if they notice any early symptoms, they should visit a doctor immediately.’ It was important that anyone known to have Ebola should be immediately isolated and treated and kept in isolation for 30 days. "Based on scientific studies, people who have infection can shed virus for up to 30 days. It is not prevalent in India, but people living in remote areas, where living conditions are poor, are always at risk of getting infected. But largely there is no need to worry as such.’ Union health minister Harsh Vardhan on Friday assured that there is no need to panic about the Ebola virus. It is a normal precautionary measure to track any person traveling to the

country from the affected areas. Nearly 44, 000 Indians reside in the regions affected by the deadly disease. Though there has been no case of an Indian contracting the virus so far, the health minister maintained that they would do everything to prevent its spread in India. Airline crews who fly to these areas of the world are taught to identify Ebola and isolate anyone who has symptoms. Quarantine, also known as enforced isolation, is usually effective in decreasing spread. If an infected person survives, recovery may be quick and complete. Prolonged cases are often complicated by the occurrence of long-term problems, such as inflammation of the testicles, joint pains, muscle pains, skin peeling, or hair loss. Eye symptoms, such as light sensitivity, excess tearing, iritis, iridocyclitis, choroiditis and blindness have also been described. EBOV and SUDV may be able to persist in the semen of some survivors for up to seven weeks, which could give rise to infections and disease via sexual intercourse.