Editorial

# Ebola virus disease outbreak in West Africa

## INTRODUCTION

Ebola virus disease (EVD) earlier known as ebola hemorrhagic fever is caused by infection with a virus of the family *Filoviridae*, genus *Ebolavirus*. EVD is an abrupt onset, severe often fatal disease in humans and nonhuman primates, including monkeys, gorillas, and chimpanzees. There are five identified subspecies of *Ebolavirus*. Four of the five have caused the disease in humans: *Ebolavirus* (*Zaire ebolavirus*); Sudan virus (*Sudan ebolavirus*); Taï Forest virus (*Taï Forest ebolavirus*, formerly *Côte d'Ivoire ebolavirus*); and Bundibugyo virus (*Bundibugyo ebolavirus*). The fifth, Reston virus (*Reston ebolavirus*), has caused disease in nonhuman primates but not in humans.[1] The present outbreak in West Africa is by the *Zaire ebolavirus*.

The first *Ebolavirus* species was discovered in 1976 in what is now the Democratic Republic of the Congo (DRC) near the Ebola River. Since then, about 24 outbreaks (1976-2012) have appeared sporadically mostly in Central African countries of DRC, Gabon, South Sudan, Ivory Coast, Uganda, and Republic of the Congo. The current outbreak is in West Africa involving countries of Guinea, Liberia, Sierra Leone and Nigeria including a total of 3069 cases and 1552 deaths (WHO EVD update - West Africa, 28th August 2014).[2]

## TRANSMISSION

Fruit bats of the family *Pteropodidae* are considered to be the natural reservoir and humans, and nonhuman primates are accidental hosts Ebola viruses in Africa. The infection is transmitted to humans through close contact with the blood, secretions, organs or other body fluids of infected animals such as chimpanzees, gorillas, monkeys, and fruit bats. Once the infection occur in humans, secondary human to human transmission occurs as like that of human immunodeficiency virus that is, direct contact (broken skin or mucous membranes) with the blood or secretions or organs or other body fluids of an infected person exposure to objects (such as needles) that have been contaminated with infected secretions. Exposure to Ebola viruses can occur in health care settings where hospital staffs are not wearing appropriate protective equipment, such as masks, gowns, and gloves. Proper cleaning and disposal of instruments, such as needles and syringes, is also important. If instruments are not disposable, they must be sterilized before being used again. Without adequate sterilization of the instruments, virus transmission can continue and amplify an outbreak.


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## CASE DEFINITIONS

1. Suspected case: Patient having history of travel or close contact with symptomatic person traveling from EVD affected areas in the past 21 days, with high grade fever more than 101°F, along with one or more of the following additional symptoms: Headache, body ache, unexplained hemorrhage, abdominal pain, diarrhea and vomiting
2. Probable case: Any suspected case evaluated by a clinician or any deceased suspected case (where it has not been possible to collect specimens for laboratory confirmation) having an epidemiological link with a confirmed case
3. Confirmed case: A case with the above features and laboratory confirmed diagnostic evidence of *Ebolavirus* infection at a Bio Safety Level-3 facility by any one of the following: IgM (ELISA), antigen detection and reverse transcription polymerase chain reaction (RT-PCR).[3]

## CLINICAL DIAGNOSIS

Clinically patient should be diagnosed based on signs and symptoms with a history of travel from Ebola affected areas or exposure to EVD patients. All suspected patient should be investigated for IgM (ELISA), antigen detection and RT-PCR to confirm. However, this test result may not help in the clinical management of the patient. For proper care and management patient also should be investigated for liver function test, kidney function test, electrolytes, hemacrit, repeated platelet count, hemoglobin and white blood cell. Diagnosing EVD in an individual who has been infected for only a few days is difficult, because the early symptoms are nonspecific to *Ebolavirus* infection and are often seen in patients with more commonly occurring diseases.

## MANAGEMENT OF CASES IN A HOSPITAL

Currently, no specific therapy is available in the treatment of EVD. General medical support is critical.

Supportive therapy with special attention to intravascular volume repletion, electrolytes, nutrition, and comfort care

is of benefit to the patient.[4] For high-grade fever, patient should be treated with only tablet paracetamol. Tepid sponging should be done repeatedly to bring down the temperature immediately in case of high-grade fever. Plenty of oral fluid may be advised in mild hypotensive cases or those who have no vomiting and diarrhea. Patient should be transfused with platelets when the count is below 20,000/cmm or bleeding from any sites irrespective of platelet count. In the case of severe shock and vomiting patient may be treated with intravenous fluid with crystalloid or colloid. Blood transfusion may be required in some cases those who have severe gastrointestinal bleeding and shock. Management should include replacement of coagulation factors and heparin if disseminated intravascular coagulation develops. Patient may require dialysis in a severe case of renal failure due to acute tubular necrosis. Patient may require ICU support for breathlessness due to lung involvement or critical condition. Survivors can produce infectious virus particles for prolonged periods. Therefore, strict barrier isolation in a private room away from traffic patterns must be maintained throughout the illness. Patient's urine, stool, sputum, and blood, along with any objects that have come in contact with the patient or the patient's body fluids (such as laboratory equipment), should be disinfected with a 0.5% sodium hypochlorite solution. Recovery often requires months, and delays may be expected before full resumption of normal activities. Weight gain and return of strength are slow. *Ebolavirus* continues to be present for many weeks after resolution of the clinical illness.

***Muktikesh Dash*[1,2]**

[1]Department of Microbiology, Sriram Chandra Bhanja Medical College and Hospital, Cuttack,
[2]Utkal University, Vani Vihar, Bhubaneswar, Odisha, India

**Address for correspondence**:
Dr. Muktikesh Dash,
Department of Microbiology, Sriram Chandra Bhanja Medical College and Hospital, Cuttack - 753 007, Odisha, India.
E-mail: mukti_mic@yahoo.co.in

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