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# EBOLA VIRAL DISEASE (EVD)

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## ABSTRACT

*Ebola virus disease (EVD) has been creating a terror effects all around the globe and has been declared as epidemic in most part of the world .The causative micro organism of EVD is ebola virus, ebola virus is spread by the direct contact with bush-animals(mostly monkeys and bats). Ebola is also spread by the person infected by EVD. Ebola can produce a number of symptoms in both adults and childrens are high fever, blood vomiting, diarrhoea. The intensity of this disorder can be lowered by diagnosing and taking proper treatment.*

***KEY WORDS***

*Ebola virus, Epidemic, Transmission.*

## INTRODUCTION

Ebola virus is an emerging viral infection that is a present, global public health problem. There are many cases of EVD in the present day. This new infection can be seen around the world in the present days. This infection is a kind of variant of Ebola virus infection (**Figure 1**).

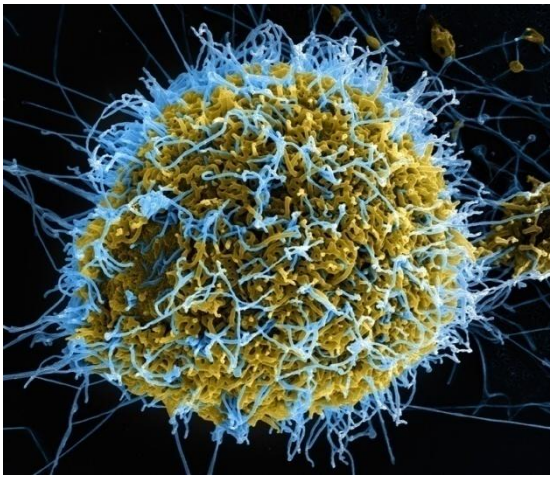

**Figure 1: Atomic force microscopy image of the reasserted ebola virus**

The problematic virus was firstly detected in areas of Sudan and Zaire in 1976 and this virus is most widely studied virus in the present day. Due to the nature of this viruse the transmission is contact person to person. Hence the rapid spreading and difficulty in control of this infection can be expected [(1)].

Ebola, also called the African deadly virus. Ebola virus (EV) or Ebola virus disease (EVD), formerly known as Ebola hemorrhagic fever. It is strain of the *Filoviridae* family (filovirus) that is endemic in fruit-Bat [(2).] As of 1976 the known EV five species of genus are *Zaïre ebolavirus, Sudan ebolavirus, Reston ebolavirus, Taï Forest ebolavirus and Bundibugyo ebolavirus.* Ebola

virus have been reported to spread from person to person, transmission of EVD requires direct contact with blood, secretions, organs or other bodily fluids of dead or living infected persons or animals or with material or utensils heavily contaminated with such fluids.

The first cases were reported from Guéckédou prefecture, a forested region of south-eastern Guinea near the border with Liberia and Sierra Leone. After a slowdown in April, the outbreak has accelerated during the last two months. This is the largest EVD outbreak ever reported, both in terms of number of cases and geographical spread. It is also the first time EVD has spread to large cities.

As of 27 July 2014, the cumulative number of cases reported to have been infected in the three countries was 1 323, including 729 deaths (combined case-fatality rate = 55%). This includes one case exported from Liberia to Nigeria. The distribution and classification of the cases are as follows, based on best available information reported by ministries of health through the World Health Organization, Regional Office for Africa.

## HISTORY

For the first time Ebola was identified by the scientist peter poit (medical school graduate training as a clinical microbiologist) in areas of Sudan and Zaire, Ebola virus disease observed simultaneously in zaire and yumbuku . Due to the presence of river Ebola in the village of yumbuku it is named as Ebola. During the first outbreak of Ebola in Sudan infected people are about in 284 in number with mortality rate of 53% Given the current situation of Ebola virus disease (EVD) in West Africa, the Pan American Health Organization / World Health Organization (PAHO/WHO) advises its Member States to remain vigilant for potential introduction of EVD in the Americas, to raise the awareness and knowledge of health care providers and to strengthen the implementation of standard precautions for infection prevention and control in health care facilities at all levels[(2)].

**HOW IT SPREAD**

Like most viruses, it enters the body through the transmembrane –skin, blood stream, open wounds. It goes from person to person through close contact and direct touch, in-direct touch or saliva. Infected persons may be able to infect others beginning 10 to 21 days or more days becoming sick.

People with ebola virus infection should be considering potentially contagious as long as they are symptomatic and possible up to 10-21 days following illness on set [(4).] Indirect contact with environment and fomites soiled with contaminated bodily fluids (e.g. needles) may also occur. Airborne transmission has not been documented during previous EVD outbreaks. There is no risk of transmission during the incubation period.

## STRUCTURE OF EBOLA

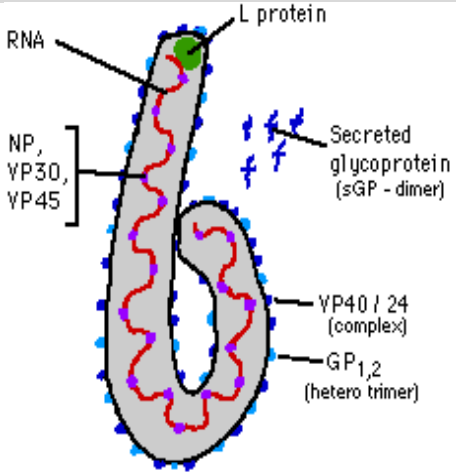


**Figure: 2 Structure of Ebola genome and proteins**

In Ebola virus structure consists of 7 structural proteins: they are Nucleoprotein (NP), 4 viral/virion proteins (VP35, VP40, VP30, VP24,) glycoprotein (GP,), RNA-dependent RNA polymerase (L protein), NP, VP35, VP30, L protein: required for transcription & replication, VP40, GP, VP24: associated with the membrane.

Transcribed into 8 sub-genomic mRNA proteins: 7 structural and 1 nonstructural-

H

**SHAPE OF EBOLA**

- Ebola is a filamentous virus with a single stranded RNA genome with an unusual variable length.
- Ebola virus forms variable lengths, filamentous, capsids that are sometimes branched.
- The core has straighted appearance similar to that of rabdoviruses.

**INCUBATION PERIOD**

Every virus, bacteria or pathogen of any time has a certain incubation period. This period is the time it takes after the pathogen enters the body, for the symptoms to appear. Like all Ebola virus the average incubation period is the incubation period is usually four to ten days but can vary from two to 21 days. The case-fatality ratio for Zaïre ebolavirus infections is estimated to be between 50% and 90%.

## SIGNS AND SYMPTOMS

**In humans**

The symptoms includes, high fever (brutal and prolonged), abdominal pain, joint or body pain, difficulty in swallowing, head ache, nausea, vomiting, dehydration, in some cases bleeding from mouth. Eyes, nose and anus [5,6] .

## DIAGNOSIS

Once an individual with illness compatible with EVD is identified, a sample must be taken (whole blood and / or serum) for the diagnosis, the sample should be taken by trained health personnel with extreme bio security measures and additional protective equipment.

This sample should ideally be taken at the hospital designated to handle cases compatible with EVD and sent to the National Reference Laboratory can only be performed in patients who have already developed symptoms. The confirmation is not possible during the incubation period If patient has died with clinical and epidemiological history compatible with EVD, taking an oral swab is suggested[7].

## PREVENTION AND CONTROL

Human-to-human transmission of the Ebola virus is primarily associated with direct or indirect contact with blood and body fluids. Transmission to health-care workers has been reported when appropriate infection control measures have not been observed [8].

It is not always possible to identify patients with EBV early because initial symptoms may be non-specific. For this reason, it is important that health-care workers at all level apply standard precautions

- Hand hygiene.
- Safe handling and disposal of sharp instruments.
- Use of personal protective equipment (PPE) according to the risk assessment.
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- Clean and disinfect spills, environment, and reusable equipment safely.
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- Use of surgical masks, goggles – preferably with anti-fog visor, waterproof apron, gloves and closed shoes before entering the patient's room.

- Goggles or eyewear must be washed with water and soap in advance and then disinfected with 70% alcohol after.

**Cleaning in the hospital and of households of patients**

***At home:*** If a patient develops symptoms at home before being isolated, the home should be disinfected, and the clothing and the patient's bedding and clothing should be incinerated.

- Clean surfaces with blood or other body fluids with water and detergent prior to disinfection.
- Disinfection should be done with hypochlorite solution 0.05%.
- Use gloves, gowns and closed shoes for cleaning and disinfecting surfaces with blood and / or body fluids.

***In the hospital:*** Both the bedding and clothing of the patient should be placed in a bag before washing and routed separately to the hospital laundry facilities where staff is to be adequately protected. Hand washing these items is not recommended [9].

## CONCLUSION

From Above Survey of information it can be well known that the EVD is a dangerous disorder which is spreading all worldwide and this is a casual thing to be considered that there is chance will be infected in India. It is important to take consideration about this disease it proved deadly one. And thus the intensity of this disorder can be lowered by diagnosing and taking proper treatment.

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