WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
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WER SRI LANKA - 2012

Vol. 39 No.32 **04th – 10th August 2012**

Ebola Haemorrhagic Fever-The Fact Sheet

Background

On 24 July 2012, the Ministry of Health of Uganda notified World Health Organization (WHO) of an outbreak of Ebola Haemorrhagic fever in Kibaale district, Midwestern Uganda. As of July 29, 2012, a total of 20 suspected cases, including 14 deaths have been reported.

Ebola Haemorrhagic Fever (Ebola HF) is a severe disease in humans and nonhuman primates (monkeys, gorillas and chimpanzees) with a high Case Fatality Rate (Case Fatality Rates up to 90% have been reported). It is caused by caused Ebola virus and the disease has appeared sporadically since its initial recognition in 1976. The disease was named after a river in the Democratic Republic of the Congo (formerly Zaire) in Africa, where it was first recognized. Confirmed cases of Ebola HF have been reported in other countries such as Gabon, Sudan, Ivory Coast and Uganda too. Ebola HF usually spreads within health-care settings as a nosocomial infection. It is likely that sporadic, isolated cases occur as well, but go unrecognized. About 1850 Ebola HF cases with over 1200 deaths have been documented since Ebola virus was discovered.

The Infectious Agent

Ebola virus is one of two members of a family of RNA viruses called the Filoviridae. There are five identified subtypes of Ebola virus called *Ebola-Zaire, Ebola-Sudan, Ebola-Ivory Coast, Ebola-Bundibugyo* and *Ebola-Reston*. Except *Ebola-Reston,* the other four subtypes have caused disease in humans (*Zaire, Sudan, Ivory Coast* and *Bundibugyo*). *Zaire, Sudan* and *Bundibugyo* subtypes have been associated with large Ebola Haemorrhagic Fever (EHF) outbreaks in Africa with high case fatality rate (up to 90%) while *Ivory Coast* subtype is not associated with large outbreaks. *Reston* subtype can infect humans but no serious illness or death in humans has been reported to date.

Reservoir

Natural reservoir of Ebola virus remains unknown. However, on the basis of available evidence and the nature of similar viruses, researchers believe that the virus is zoonotic (animal borne). Laboratory experiments have shown that bats infected with Ebola do not die and this has raised speculation that these mammals may play a role in maintaining the virus in tropical forests. The virus is not known to be native to other continents except for Asia and Africa.

Transmission

Infections with Ebola virus are acute and there is no carrier state in humans. Because the natural reservoir of the virus is unknown, the manner in which the virus first appears in a human at the start of an outbreak has not been clearly determined yet. However, it is postulated that the infection of human cases with Ebola virus occurs by handling infected chimpanzees, gorillas and forest antelopes, both dead and alive. The transmission of the *Ebola Reston* strain through handling of cynomolgus monkeys has also been reported.

After the index case in an outbreak setting is infected, the virus can be transmitted in several ways. People can be exposed to Ebola virus from direct contact with blood and or secretions of an infected person. Thus, the virus is often spread through families and friends because they come in close contact with such secretions when caring for infected persons. People can also be exposed to Ebola virus through contact with objects, such as needles, that have been contaminated with infected secretions. Burial ceremonies where mourners have direct contact with the body of the deceased person can play a significant role in the transmission of Ebola.

Nosocomial transmission (spread of a disease within a health-care setting) occurs frequently during Ebola HF outbreaks. It includes both types of transmission described above (through

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direct contact with the blood and/or secretions / contact with contaminated objects, such as needles). *Ebola-Reston* appeared in a primate research facility in the United States, where it may have been transmitted from monkey to monkey through the air. While all Ebola virus species have displayed the ability to spread through airborne particles (aerosols) under research conditions, this type of spread has not been documented among humans in a real-world setting, such as a hospital or household.

Incubation Period

The incubation period for Ebola HF ranges from 2 to 21 days

Symptoms

The onset of illness is abrupt and is characterized by fever, headache, joint and muscle aches, sore throat and weakness, followed by vomiting, abdominal pain and diarrhoea. A rash, red eyes, hiccups and internal and external bleeding is seen in some patients. Some may also have impaired kidney and liver functions too.

Clinical Diagnosis

Diagnosing Ebola HF during the first few days is difficult because of nonspecific early symptoms, such as red eyes and skin rash. However, if a person has the constellations of symptoms described above with corroborating epidemiological evidence, suspect Ebola virus infection.

Laboratory Diagnosis

Tests on samples containing Ebola virus present an extreme biohazard and are only conducted under maximum biological containment conditions. Serology [Antigen-capture enzyme-linked immunosorbent assay (ELISA) testing, IgM ELISA], Molecular Biology [polymerase chain reaction (PCR)] and virus isolation can be used to diagnose a case of Ebola HF within a few days of the onset of symptoms. Persons tested later in the course of the disease or after recovery can be tested for IgM and IgG antibodies; the disease can also be diagnosed retrospectively in deceased patients by using immunohistochemistry testing, virus isolation or PCR. A practical diagnostic test that uses tiny samples from patients' skin has been developed to diagnose Ebola HF retrospectively in suspected Ebola HF patients who have died.

New developments in diagnostic techniques include non-invasive methods of diagnosis (testing saliva and urine samples) and testing inactivated samples (to reduce the biohazard) to provide rapid laboratory diagnosis to support case management during outbreak control activities.

Treatment

There is no specific treatment for Ebola HF. Patients receive supportive therapy. This consists of balancing the patient's fluids and electrolytes, blood pressure and treating them symptomatically and treating any complicating infections.

Prevention

Because the identity and location of the natural reservoir of Ebola virus are unknown, there are few established primary preventive measures.

Containment

Suspected cases should be isolated from other patients and relevant health authorities (i.e. Epidemiology Unit, RDHS and MoH) should be notified immediately. All hospital staff should be briefed on the nature of the disease and its mode of transmission. Strict barrier nursing techniques should be implemented. Particular emphasis should be placed on ensuring that invasive procedures such as placing of intravenous lines and handling of blood, secretions, catheters and suction devices are carried out under strict barrier nursing conditions. Hospital staff should have individual gowns, gloves, masks, Closed resistant shoes (e.g. boots) and goggles etc. Non-disposable protective equipment must be reused only after they have been properly disinfected.

Infection may also spread through contact with soiled clothing or bed linen from a patient with Ebola. Protective clothing should be worn when handling soiled linen and soiled linen should be disinfected with an effective disinfectant (e.g. 1% Sodium Hypochlorite Solution) in addition to the normal cleaning procedures. Contaminated surfaces should be disinfected with an effective disinfectant (e.g. 1% Sodium Hypochlorite Solution). [Chapter 18 of the Manual on management of Teaching, Provincial, Base and Special hospitals (Ministry of Health, 1995) would be helpful if more information is required]

Communities affected by Ebola should make efforts to ensure that the population is well informed, both about the nature of the disease itself and about necessary outbreak containment measures, including burial of the deceased.

Contacts

Tracing and follow up of people who may have been exposed to Ebola through close contact with patients are essential. As the primary mode of person-to-person transmission is contact with contaminated blood, secretions or body fluids, people who have had close physical contact with patients should be kept under strict surveillance. Their body temperature should be checked twice a day, with immediate hospitalization and strict isolation in the case of onset of fever.

Hospital staff that came into close contact with patients or contaminated materials without barrier nursing attire must be considered as contacts and followed up accordingly.

Burial of the deceased

- Post-mortem examination of HF patient remains should be limited to essential evaluations only and should be performed by trained personnel wearing protective equipment.
- Remains should be wrapped in sealed, leak-proof material and should be buried promptly. Only trained personnel should handle the human remains. Personnel handling human remains should wear personal protective clothing.

Sri Lankan Situation

- Screening facilities were established at the Bandaranaike International Airport to screen all passengers/Ebola HF patients arriving from Uganda or Ebola HF affected countries.
- Infectious Diseases Hospital-Angoda and Medical Research Institute were alerted and kept ready for an emergency
- Steps were taken to educate Sri Lankans living in Uganda on Ebola HF

More details on preventive methods are available from http://www.who.int/entity/csr/bioriskreduction interim recommendations filovirus.pdf

Compiled by Dr. Madhava Gunasekera of the Epidemiology Unit

Source-Ebola haemorrhagic fever, available from

http://www.who.int/mediacentre/factsheets/fs103/en/index.html

Table 1: Vaccine-preventable Diseases & AFP

28th July – 03rd August 2012 (31thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	01	00	00	00	00	00	00	01	02	03	49	56	- 12.5 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	00	00	00	00	00	00	00	00	00	00	00	31	92	- 66.3 %
Tetanus	00	00	00	00	00	00	00	00	00		00	08	13	- 38.5 %
Whooping Cough	01	00	00	00	00	00	00	00	00	01	00	44	24	+ 83.3 %
Tuberculosis	52	10	03	18	12	23	31	05	23	177	00	5475	5125	+ 06.8 %

Table 2: Newly Introduced Notifiable Disease

28th July – 03rd August 2012 (31thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	00	01	01	02	03	05	03	00	05	20	43	2671	2789	- 04.2 %
Meningitis	00	00	00	00	00	01 KR=1	03 AP=1 PO=2	00	00	04	14	341	547	- 37.7 %
Mumps	02	01	01	01	04	06	10	01	27	53	68	2717	1852	+ 46.7 %
Leishmaniasis	00	00	19 MT=1 HB=18	00	00	00	10 AP=10	00	00	29	11	478	438	+ 09.1 %

Key to Table 1 & 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

DPDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:

Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.

Special Surveillance: Acute Flaccid Paralysis.

Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008.

Dengue Prevention and Control Health Messages

Reduce, Reuse or Recycle the plastic and polythene collected in your home and help to minimize dengue mosquito breeding.

Table 4: Selected notifiable diseases reported by Medical Officers of Health

28th July – 03rd August 2012 (31thWeek)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	128	5409	3	79	0	7	1	112	0	30	4	102	0	3	0	56	0	3	**46**
Gampaha	36	3282	0	39	0	8	0	38	0	14	3	113	0	10	3	154	0	0	**20**
Kalutara	10	1130	0	44	0	2	0	17	0	21	2	119	0	2	0	16	0	1	**31**
Kandy	52	1008	1	56	0	1	0	15	4	47	0	33	0	73	1	26	0	0	**35**
Matale	3	267	1	52	0	4	0	7	0	4	0	22	0	2	0	19	0	0	**42**
Nuwara	1	174	2	86	0	2	0	17	0	1	0	21	0	45	0	12	0	1	**31**
Galle	39	707	1	52	0	4	0	7	0	10	3	66	1	31	0	2	0	0	**37**
Hambantota	12	318	0	21	0	1	0	3	0	21	0	51	1	27	0	6	0	0	**42**
Matara	29	897	1	34	0	8	1	13	0	18	2	89	1	40	2	77	0	0	**71**
Jaffna	3	265	1	107	1	11	8	236	3	61	0	2	1	246	0	9	0	0	**67**
Kilinochchi	0	39	0	6	0	1	0	22	0	39	0	4	0	28	0	4	0	1	**25**
Mannar	0	96	0	49	0	3	0	18	0	14	0	16	0	39	0	2	0	0	**0**
Vavuniya	2	37	2	16	0	21	0	6	0	13	0	17	0	0	0	1	0	0	**75**
Mullaitivu	0	10	0	10	0	1	0	4	0	2	0	2	0	5	0	0	0	0	**25**
Batticaloa	1	577	5	115	0	2	0	14	0	82	0	7	0	0	0	6	0	3	**71**
Ampara	0	71	0	47	0	0	0	3	0	6	0	18	0	0	0	2	0	0	**14**
Trincomalee	0	104	4	97	0	1	0	15	0	2	0	35	0	11	0	4	0	0	**25**
Kurunegala	37	1329	2	99	0	13	1	65	0	29	0	106	0	19	4	96	1	3	**69**
Puttalam	0	537	0	24	0	4	0	7	0	1	0	21	0	11	0	2	0	0	**17**
Anuradhapu	4	193	0	33	0	3	0	9	2	8	1	55	0	19	0	40	0	1	**47**
Polonnaruw	2	162	0	28	0	0	0	1	0	1	1	38	0	2	0	33	0	1	**14**
Badulla	2	173	2	67	0	3	1	38	0	2	0	24	0	59	0	32	0	0	**53**
Monaragala	3	129	0	38	0	4	0	12	0	4	0	50	1	52	0	116	0	1	**27**
Ratnapura	15	1686	1	119	0	24	0	36	0	11	2	168	0	31	0	63	0	1	**44**
Kegalle	80	1872	1	45	0	9	2	19	0	10	4	120	2	40	2	363	0	0	**82**
Kalmune	1	154	2	139	0	1	0	5	3	70	0	2	0	0	0	7	0	1	**46**
SRI LANKA	**460**	**20626**	**29**	**1502**	**01**	**138**	**14**	**739**	**12**	**571**	**22**	**1301**	**07**	**795**	**12**	**1154**	**01**	**17**	**44**

Source: Weekly Returns of Communicable Diseases WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 28thAugust, 2012 Total number of reporting units 329. Number of reporting units data provided for the current week: 146
A = Cases reported during the current week. **B** = Cumulative cases for the year.

PRINTING OF THIS PUBLICATION IS FUNDED BY THE WORLD HEALTH ORGANIZATION (WHO).

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk.**

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