WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Healthcare and Nutrition
231, de Saram Place, Colombo 01000, Sri Lanka
Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk
Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk

Vol. 36 No. 07 06th - 12th February 2009

SRI LANKA - 2009

WER

First pig-to-human transmission of Ebola-Reston virus

Philippines health authorities and international agencies including Food and Agriculture Organization (FAO), the World Organization for Animal Health (OIE) and the World Health Organization (WHO) have confirmed that Ebola-Reston virus has likely been transmitted, for the first time, from pigs to human being.

An increase in pig mortality on swine farms in the provinces of Nueva Ecija and Bulacan in 2007 and 2008 prompted the Government of the Philippines to initiate laboratory investigations. Samples taken from ill pigs in May, June and September 2008 were sent to international reference laboratories which confirmed in late October that the pigs were infected with a highly virulent strain of Porcine reproductive and respiratory syndrome (PRRS) as well as the Ebola-Reston virus.

This is not the first time that Ebola-Reston virus has been found in animals as there were outbreaks in the Philippines in monkeys in 1989-1990, 1992, and 1996. However, this is the first time globally that an Ebola-Reston virus has been isolated in swine and possible transmission to human being.

The Ebola virus belongs to the Filoviridae family (filovirus) and is comprised of five distinct species: Zaïre, Sudan, Côte d'Ivoire, Bundibugyo and Reston. Zaïre, Sudan and Bundibugyo species have been associated with large Ebola hemorrhagic fever (EHF) outbreaks in Africa with high case fatality ratio (25-90%) while Côte d'Ivoire and Reston have not. Reston species can infect humans but no serious illness or death in humans have been reported to date. Since being informed of this event in late November, efforts are underway to gain a better understanding of the situation.

The Department of Health of the Philippines has reported that initial laboratory tests on animal handlers and slaughterhouse workers who were thought to have come into contact with infected pigs were negative. But later it was found that at least five people possibly have been acquired the infection from swine. A backyard hog raiser from a northern Manila suburb was the first with confirmed possible pig-to-human Ebola virus infection. Pig farm workers and slaughter house workers were among individuals who were tested positive for antibodies of Ebola-Reston virus out of 77 people in contact with the sick pigs. It is believed that the infection is probably due to direct contact with sick pigs. All of them were males and aged 22 to 52. They were healthy and have not been seriously ill in the past 12 months. None of the five men wore protective clothing and were exposed through direct contact with sick pigs.

The Bureau of Animal Industry (BAI) of the Philippines Department of Agriculture has notified the OIE that all infected animals were destroyed and buried or burned, the infected premises and establishments have been disinfected and the affected areas are under strict quarantine and movement control. Vaccination of swine against PRRS is ongoing in the Province of Bucalan. PRRS is not transmissible to humans.

Activities are going on to address, through field and laboratory investigation, important

Contents **Page**

questions as to the source of the virus, its transmission, its virulence and its natural habitat, in order to provide appropriate guidance for animal and human health protection.

Until these questions can be answered, the FAO and WHO stressed the importance of carrying out basic good hygiene practices and food handling measures.

Ebola viruses are normally transmitted via contact with the blood or other bodily fluids of an infected animal or person. In all situations, even in the absence of identified risks, meat handling and preparation should be done in a clean environment (table top, utensils, knives) and meat handlers should follow good personal hygiene practices (e.g. clean hands, clean protective clothing). In general, hands should be regularly washed while handling raw meat.

Pork from healthy pigs is safe to eat as long as either the fresh meat is cooked properly (i.e. 70°C in all part of the food, so that there is no pink meat and the juices run clear), or, in the case of uncooked processed pork, national safety standards have been met during production, processing and distribution.

Meat from sick pigs or pigs found dead should not be eaten and should not enter the food chain or be given to other animals. Ill animals should be reported to the competent authorities and proper hygiene precautions and protection should be taken when destroying and disposing of sick or dead pigs. The Philippines Department of Agriculture has advised the Philippine public to buy its meat only from National Meat Inspection Services certified sources.

As a general rule, proper hygiene and precautionary measures (wearing gloves, goggles and protective clothing) should also be exercised when slaughtering or butchering pigs. This applies both to industrial and home-slaughtering of pigs. Children and those not involved in the process of slaughtering should be kept away.

References

WHO (2008). Ebola haemorrhagic fever. Fact sheet N° 103. World Health Organization.

OIE (2008). First detection of Ebola-Reston virus in pigs. World Organization for animal health. http://www.oie.int/eng/press/en_081218.htm

Ebola Haemorrhagic Fever

Transmission

- The Ebola virus is transmitted by direct contact with blood, secretions, organs or other body fluids of infected persons.
- Burial ceremonies where mourners have direct contact with the body of the deceased person can play a significant role in the transmission of Ebola.
- The infection of human cases with Ebola virus through the handling of infected chimpanzees, gorillas, and forest antelopes –both dead and alive– has been documented. The transmission of Ebola Reston strain through the handling of cynomolgus monkeys has also been reported.
- Healthcare workers have frequently been infected while treating Ebola patients, through close contact without correct infection control precautions and adequate barrier nursing procedures.

Incubation period

- Two to 21 days

Symptoms

- Ebola is characterized by the sudden onset of fever, intense weakness, muscle pain, headache and sore throat.
- This is often followed by vomiting, diarrhoea, rash, impaired kidney and liver function and in some cases, both internal and external bleeding.
- Laboratory findings show low counts of white blood cells and platelets as well as elevated liver enzymes.

Therapy and vaccine

- Severe cases require intensive supportive care, as patients are frequently dehydrated and in need of intravenous fluids or oral rehydration therapy.
- No specific treatment or vaccine is yet available for Ebola haemorrhagic fever. Several potential vaccines are being tested but it could be several years before any is available. A new drug therapy has shown some promise in laboratory studies and is currently being evaluated. But this too will take several years.
- Experimental studies using hyper-immune sera on animals have shown no protection against the disease.

Containment

- As the primary mode of person-to-person transmission is contact with contaminated blood, secretions of body fluids, people who have had close physical contact with patients should be kept under strict isolation in case of the onset of fever.
- Hospital staff who come into close contact with patients or contaminated materials without barrier nursing attire must be considered as contacts and followed up accordingly.

Natural Reservoir

- The natural reservoir of the Ebola virus is unknown despite extensive studies, but it seems to reside in the rain forests on the African continent and in the Western Pacific.
- Although non-human primates have been a source of infection for humans, they are not thought to be the reservoir. They, like humans, are believed to be infected directly from the natural reservoir or through a chain of transmission from the natural reservoir.
- On the African continent, Ebola infections of human cases have been linked to direct contact with gorillas, chimpanzees, monkeys, forest antelope and porcupines found dead in the rainforest. So far, the Ebola virus has been detected in the wild in carcasses of chimpanzees (in Côte d'Ivoire and the Republic of the Congo), gorillas (Gabon and the Republic of the Congo) and duikers (the Republic of Congo).
- Different hypotheses have been developed to explain the origin of Ebola outbreaks. Laboratory observation has shown that bats experimentally infected with Ebola do not die, and this has raised speculation that these mammals may play a role in maintaining the virus in the tropical forest.
- Extensive ecological studies are under way in the Republic of the Congo and Gabon to identify the Ebola's natural reservoir.

Table 1: Vaccine-preventable Diseases & AFP

31st January - 06th February 2009 (06th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2009	Number of cases during same week in 2008	Total number of cases to date in 2009	Total number of cases to date in 2008	Difference between the number of cases to date in 2009 & 2008
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	01 KM=1	00	00	00	00	01	01	08	08	00.0%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	-
Measles	00	00	00	00	00	00	00	00	00	00	05	15	11	+36.4%
Tetanus	00	00	00	00	00	00	00	00	00	00	01	04	05	-20.0%
Whooping Cough	01 CB=1	00	00	00	00	00	00	00	00	01	02	11	04	+175.0%
Tuberculosis	66	05	38	01	19	19	12	21	06	187	160	664	1197	-44.5%

Table 2: Newly Introduced Notifiable Disease

31st January - 06th February 2009 (06th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2009	Number of cases during same week in 2008	Total number of cases to date in 2009	Total number of cases to date in 2008	Difference between the number of cases to date in 2009 & 2008
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	37	19	10	04	01	20	17	15	16	139	83	872	554	+57.4%
Meningitis	01 GM=1	01 KD=1	03 GL=1 HB=1 MT=1	01 MN=1	00	01 PU=1	00	00	02 RP=2	09	35	121	227	-46.7%
Mumps	03	03	06	00	02	03	01	00	04	22	32	215	276	-22.1%
Leishmaniasis	00	00	06 MT=6	00	00	01 PU=1	05 AP=3 PO=2	00	00	12	Not available*	45	Not available*	-

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.

Table 3: Laboratory Surveillance of Dengue Fever

31st January - 06th February 2009 (06th Week)

Samples	Number tested	Number positive	Serotypes *				
			D1	D2	D3	D4	Negative
Number for current week	01	00	00	00	00	00	00
Total number to date in 2009	09	02	00	00	02	00	00

Sources: Genetic Laboratory, Asiri Surgical Hospital

* Not all positives are subjected to serotyping.

NA= Not Available.

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

31st January - 06th February 2009 (06th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	45	308	3	24	1	3	11	42	0	7	7	41	1	1	4	9	0	1	**92**
Gampaha	20	145	3	15	0	3	2	6	0	5	2	24	0	2	3	16	0	0	**71**
Kalutara	6	73	2	58	0	2	1	11	0	0	4	21	0	0	0	2	0	0	**83**
Kandy	38	270	6	55	0	0	1	2	0	0	2	39	2	17	1	9	0	0	**68**
Matale	13	86	3	15	0	0	1	7	0	2	5	80	0	1	0	1	0	0	**92**
Nuwara Eliya	5	13	3	38	0	0	5	35	0	20	2	10	2	5	1	5	0	0	**92**
Galle	0	8	4	28	0	2	0	0	0	0	3	25	0	1	1	3	0	0	**79**
Hambantota	0	22	2	17	2	5	0	0	0	3	0	9	0	10	0	3	0	0	**64**
Matara	11	117	8	47	1	2	0	4	3	3	5	27	5	33	0	0	0	0	**94**
Jaffna	0	3	0	16	0	3	0	24	0	18	0	0	0	43	0	0	0	1	**00**
Kilinochchi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**00**
Mannar	0	2	0	7	0	0	8	40	0	0	0	0	0	0	0	3	0	0	**50**
Vavuniya	0	4	1	4	0	0	0	2	0	1	0	2	0	0	0	0	0	0	**50**
Mullaitivu	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**00**
Batticaloa	17	29	1	27	1	6	1	4	0	5	1	1	0	0	0	1	0	0	**91**
Ampara	4	7	0	4	0	0	1	3	0	0	0	2	0	0	0	3	0	0	**29**
Trincomalee	1	9	1	8	0	1	0	0	0	0	0	0	0	2	0	2	0	0	**60**
Kurunegala	19	115	2	26	0	3	2	7	0	1	0	19	2	30	1	9	0	2	**68**
Puttalam	2	16	3	25	1	5	1	16	0	0	1	9	1	11	0	1	0	1	**78**
Anuradhapura	1	8	3	13	0	1	0	1	0	2	4	40	0	5	0	3	0	0	**47**
Polonnaruwa	1	11	1	9	0	1	0	4	1	1	1	27	0	0	0	1	0	0	**86**
Badulla	2	13	5	52	2	2	2	10	0	13	0	19	1	13	3	42	0	0	**93**
Monaragala	0	5	2	10	0	0	0	5	1	1	0	4	4	15	0	8	0	0	**91**
Ratnapura	2	35	13	66	0	5	1	12	0	0	1	7	1	3	2	3	0	1	**72**
Kegalle	8	104	2	15	0	1	0	5	0	1	1	16	0	4	1	18	0	0	**73**
Kalmunai	5	44	0	35	0	1	0	5	0	0	0	2	0	1	0	1	0	0	**77**
SRI LANKA	**200**	**1447**	**68**	**616**	**8**	**46**	**37**	**246**	**5**	**83**	**39**	**424**	**19**	**197**	**17**	**143**	**0**	**6**	**71**

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 13 February, 2009 Total number of reporting units =311. Number of reporting units data provided for the current week: 222
A = Cases reported during the current week. B = Cumulative cases for the year.

PRINTING OF THIS PUBLICATION IS FUNDED BY THE UNITED NATIONS CHILDREN'S FUND (UNICEF).

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.

ON STATE SERVICE

Dr. P. PALIHAWADANA
EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10