WEEKLY EPIDEMIOLOGICAL REPORT

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Ministry of Health

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Nipah Virus Infection

Nipah Virus Infection (NiV) is an emerging infectious disease of public health importance in the South-East Asia Region. It is closely related to Hendra virus. Both are members of the genus Henipavirus, a new class of virus in the Paramyxoviridae family. Although Nipah virus has caused only a few outbreaks, it infects a wide range of animals and causes severe disease and death in people, making it a public health concern.

NiV was first identified during an outbreak of disease that took place in Kampung Sungai Nipah, Malaysia. On this occasion, pigs were the intermediate hosts. However, in subsequent NiV outbreaks, there were no intermediate hosts. In Bangladesh in 2004, humans became infected with NiV as a result of consuming date palm sap that had been contaminated by infected fruit bats. Human-to-human transmission has also been documented, including in a hospital setting in India.

The natural host of the virus are fruit bats of the Pteropodidae Family, Pteropus genus, which are incidentally found in Sri Lanka also. It is assumed that the geographic distribution of Henipaviruses overlaps with that of Pteropus category. This hypothesis was reinforced with the evidence of Henipavirus infection in Pteropus bats from Australia, Bangladesh, Cambodia, China, India, Indonesia, Madagascar, Malaysia, Papua New Guinea, Thailand and Timor-Leste. The bats are migratory and there is no apparent disease in fruit bats.

Recently, African fruit bats of the genus Eidolon, family Pteropodidae, were found positive for antibodies against Nipah and Hendra viruses, indicating that these viruses might be present within the geographic distribution of Pteropodidae bats in Africa.

NiV infection in humans has a range of clinical presentations, from asymptomatic infection to acute respiratory syndrome and fatal encephalitis. NiV is also capable of causing disease in pigs and other domestic animals. There is no vaccine for either humans or animals. The primary treatment for human cases is intensive supportive care

Although Nipah virus has caused only a few outbreaks, it infects a wide range of animals and causes severe disease and death in people, making it a public health concern.

Outbreaks

Nipah virus was first recognized in 1999 during an outbreak among pig farmers in Malaysia. Since then, there have been another 12 outbreaks, all in South Asia.

Transmission

During the initial outbreaks in Malaysia and Singapore, most human infections resulted from direct contact with sick pigs or their contaminated tissues. Transmission is thought to have occurred via respiratory droplets, contact with throat or nasal secretions from the pigs, or contact with the tissue of a sick animal.

In the Bangladesh and Indian outbreaks, consumption of fruits or fruit products (e.g. raw date palm juice) contaminated with urine or saliva from infected fruit bats was the most likely source of infection.

During the later outbreaks in Bangladesh and India, Nipah virus spread directly from human-to-human through close contact with people's secretions and excretions. In Siliguri, India, transmission of the virus was also reported within a health-care setting, where 75% of cases occurred among hospital staff or visitors. From 2001 to 2008, around half of reported cases in Bangladesh were due to human-to-human transmission.

Signs and symptoms

The incubation period varies from four to 45 days. Human infections range from asymptomatic infection to fatal encephalitis. Infected people initially develop influenza-like symptoms of fever, headaches, myalgia (muscle pain), vomiting and sore throat. This can be followed by dizziness, drowsiness, altered consciousness, and neurological signs that indicate acute encephalitis. Some people can also experience atypical pneumonia and severe respiratory problems, including acute respiratory distress. Encephalitis and seizures occur in severe cases, progressing to coma within 24 to 48 hours.

Most people who survive acute encephalitis make a full recovery, but around 20% are left with residual neurological consequences such as persistent convul-

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sions and personality changes. A small number of people who recover subsequently relapse or develop delayed onset encephalitis. In the long term, persistent neurological dysfunctions are observed in more than 15% of people.

The case fatality rate is estimated at 40% to 75%; however, this rate can vary by outbreak depending on local capabilities for surveillance investigations.

Diagnosis

Nipah virus infection can be diagnosed by a number of different tests. They are:

- Serum neutralization
- Enzyme-linked immunosorbent assay (ELISA)
- Polymerase chain reaction (PCR) assay
- Immunofluorescence assay
- Virus isolation by cell culture.

Treatment

There are currently no drugs or vaccines available to treat Nipah virus infection. Intensive supportive care with treatment of symptoms is the main approach to managing the infection in people.

Prevention

Controlling Nipah virus in domestic animals

There is no vaccine against Nipah virus. Routine cleaning and disinfection of pig farms (with sodium hypochorite or other detergents) is expected to be effective in preventing infection. If an outbreak is suspected, the animal premises should be quarantined immediately. Culling of infected animals – with close supervision of burial or incineration of carcasses – may be necessary to reduce the risk of transmission to people. Restricting or banning the movement of animals from infected farms to other areas can reduce the spread of the disease.

As Nipah virus outbreaks in domestic animals have preceded human cases, establishing an animal health surveillance system to detect new cases is essential in providing early warning for veterinary and human public health authorities.

Reducing the risk of infection in people

In the absence of a vaccine, the only way to reduce infection in people is by raising awareness of the risk factors and educating people about the measures they can take to reduce exposure to the virus. Public health educational messages should focus on the following.

Reducing the risk of bat-to-human transmission-Efforts to prevent transmission should first focus on decreasing bat access to date palm sap. Freshly collected date palm juice should also be boiled and fruits should be thoroughly washed and peeled before consumption.

Reducing the risk of human-to-human transmission-Close physical contact with Nipah virus-infected people should be avoided. Gloves and protective equipment should be worn when taking care of ill people. Regular hand washing should be carried out after caring for or visiting sick people.

Reducing the risk of animal-to-human transmission-Gloves and other protective clothing should be worn while handling sick animals or their tissues and during slaughtering and culling procedures.

Controlling infection in health-care settings

Health-care workers caring for patients with suspected or confirmed Nipah virus infection, or handling specimens from them, should implement standard infection control precautions. Samples taken from people and animals with suspected Nipah virus infection should be handled by trained staff working in suitably equipped laboratories.

Nipah virus in domestic animals

Nipah outbreaks in pigs and other domestic animals (horses, goats, sheep, cats and dogs) were first reported during the initial Malaysian outbreak in 1999. Many pigs had no symptoms, but others developed acute feverish illness, laboured breathing, and neurological symptoms such as trembling, twitching and muscle spasms. Generally, mortality was low except in young piglets. These symptoms are not dramatically different from other respiratory and neurological illnesses of pigs. Nipah should be suspected if pigs also have an unusual barking cough or if human cases of encephalitis are present. Nipah virus is highly contagious in pigs. Pigs are infectious during the incubation period, which lasts from 4 to 14 days.

Source

Nipah virus, available from

http://www.who.int/mediacentre/factsheets/fs262/en/

Compiled by Dr. Madhava Gunasekera of the Epidemiology Unit

Table 3 : Water Quality Surveillance
Number of microbiological water samples - January 2012

District	MOH areas	No: Expected *	No: Received
Colombo	12	72	NR
Gampaha	15	90	NR
Kalutara	12	72	2
NHIS	2	12	NR
Kandy	23	138	NR
Matale	12	72	NR
Nuwara Eliya	13	78	NR
Galle	19	114	0
Matara	17	102	NR
Hambantota	12	72	10
Jaffna	11	66	NR
Kilinochchi	4	24	NR
Manner	5	30	NR
Vavuniya	4	24	NR
Mullatvu	4	24	5
Batticaloa	14	84	NR
Ampara	7	42	NR
Trincomalee	11	66	5
Kurunegala	23	138	NR
Puttalam	9	84	NR
Anuradhapura	19	114	14
Polonnaruwa	7	42	NR
Badulla	15	90	NR
Moneragala	11	66	NR
Rathnapura	18	108	NR
Kegalle	11	66	4
Kalmunai	13	78	NR

* No of samples expected (6 / MOH area / Month)
NR = Return not received

Table 1: Vaccine-preventable Diseases & AFP

11th – 17th February 2012 (07th Week)

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	00	01	00	01	00	00	00	00	02	03	11	15	- 26.7 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	00	00	00	00	00	00	00	00	00	00	01	06	09	- 33.3 %
Tetanus	01	00	00	00	00	00	00	00	00	01	00	02	03	- 33.3 %
Whooping Cough	01	00	00	00	00	00	01	00	00	02	00	12	05	+140.0 %
Tuberculosis	17	13	05	00	31	27	24	00	13	130	148	1295	1205	+ 07.5 %

Table 2: Newly Introduced Notifiable Disease

11th – 17th February 2012 (07th Week)

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	17	04	24	10	13	12	07	25	20	131	75	674	645	+ 04.5 %
Meningitis	02 GM=1 KL=1	01 ML=1	02 GL=1 MT=1	00	01 TR=1	01 KN=1	00	01 BD=1	03 RP=3	11	07	114	135	+ 15.5 %
Mumps	08	02	07	02	15	07	01	07	21	70	18	559	281	+ 98.9 %
Leishmaniasis	00	02 ML=2	01 MT=1	00	00	06 KN=6	05 PL=5	00	01 RP=1	15	09	129	74	+ 74.3 %

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

Make sure that your environment is free from water collections where the dengue mosquito could breed.

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

11th – 17th February 2012 (07th Week)

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	1612	2	19	0	4	3	37	0	4	3	14	0	0	2	13	0	1	**77**
Gampaha	83	1252	1	15	0	0	1	14	0	0	3	26	1	3	6	49	0	1	**60**
Kalutara	29	343	0	18	0	1	0	9	0	3	1	26	0	1	0	4	0	0	**62**
Kandy	37	413	0	14	0	0	0	5	0	4	2	17	11	31	0	2	0	0	**83**
Matale	15	79	5	22	0	2	1	6	2	3	0	8	0	1	3	5	0	0	**92**
Nuwara	8	41	1	13	0	1	1	6	0	0	0	4	3	14	1	6	0	0	**69**
Galle	20	189	3	21	0	1	0	5	3	4	2	16	2	8	0	11	0	0	**84**
Hambantota	14	97	1	9	0	0	0	1	0	4	0	14	0	14	0	3	0	0	**83**
Matara	40	299	0	11	1	3	0	7	0	4	0	17	3	18	6	35	0	0	**100**
Jaffna	6	123	7	35	0	3	9	106	0	8	0	2	11	192	0	2	0	0	**83**
Kilinochchi	0	9	0	5	0	0	1	8	0	39	0	2	2	15	1	1	0	1	**25**
Mannar	2	51	1	5	0	1	2	6	0	8	0	6	3	18	0	1	0	0	**100**
Vavuniya	2	18	1	2	0	11	0	2	1	3	4	13	0	0	0	1	0	0	**75**
Mullaitivu	0	3	0	3	0	1	0	2	0	1	0	2	0	3	0	0	0	0	**25**
Batticaloa	20	353	1	24	0	0	0	5	0	5	0	2	0	0	0	3	0	0	**71**
Ampara	2	23	4	21	0	0	2	2	0	0	0	8	0	0	0	0	0	0	**57**
Trincomalee	6	38	4	28	0	1	1	7	0	1	2	9	0	0	0	1	0	0	**92**
Kurunegala	47	276	4	23	0	4	7	25	0	6	7	32	0	12	1	12	0	1	**87**
Puttalam	7	186	4	18	0	2	0	2	1	1	0	9	1	6	0	0	0	0	**50**
Anuradhapu	5	66	1	16	0	0	0	1	0	1	2	28	1	7	1	12	0	0	**53**
Polonnaruw	10	49	0	10	0	0	0	0	0	0	1	8	0	1	0	4	0	1	**100**
Badulla	3	56	0	15	0	2	0	6	0	0	2	7	1	5	0	8	0	0	**71**
Monaragala	3	34	0	10	0	1	0	6	0	0	0	19	2	15	3	11	0	0	**82**
Ratnapura	38	224	8	48	5	14	1	10	0	2	8	72	2	6	8	27	0	0	**83**
Kegalle	18	263	3	16	0	1	0	8	0	5	0	17	2	9	7	99	0	0	**82**
Kalmune	3	72	7	40	0	0	0	4	2	4	0	1	0	0	0	0	0	1	**54**
SRI LANKA	**546**	**6169**	**58**	**461**	**06**	**53**	**29**	**290**	**09**	**110**	**37**	**379**	**45**	**379**	**39**	**300**	**00**	**06**	**75**

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 17th February, 2012 Total number of reporting units 329. Number of reporting units data provided for the current week: 249
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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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

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