WEEKLY EPIDEMIOLOGICAL REPORT
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Managing Leptospirosis outbreaks

Routine notification and reports from sentinel surveillance sites have indicated an increasing number of leptospirosis patients in the country. In 2007, a large number of cases have been notified from Colombo, Gampaha , Kalutara, Matara, Galle, Kegalle, Ratnapura and Kandy districts. Twenty two deaths have been reported to the Epidemiology Unit from the medical institutions selected as sentinel surveillance sites in the above districts. Considering this alarming situation, it is advisable to further strengthen the activities at district and divisional levels in order to prevent and control leptospirosis in the respective areas. Further it is stressed that good clinical management practices in hospitals is extremely important to prevent deaths caused by leptospirosis.

Leptospirosis is an infection in rodents and other wild and domesticated species. Rodents are implicated most often in human cases. The infection in man is contracted through skin abrasions and the mucosa of the nose, mouth and eyes. Exposure through water contaminated by urine from infected animals is the most common route of infection.

In humans it causes a wide range of symptoms, and some infected persons may have no symptoms at all. Symptoms of leptospirosis include high fever, severe headache, chills, muscle aches, and vomiting, and may include jaundice (yellow skin and eyes), red eyes, abdominal pain, diarrhea, or rash. If the disease is not treated, the patient could develop kidney damage, meningitis (inflammation of the membrane around the brain and spinal cord), liver failure, and respiratory distress. In rare cases death occurs. Many of these symptoms can be mistaken for other diseases. Leptospirosis is confirmed by laboratory testing of a blood or urine sample.

Outdoor and agricultural workers (rice-paddy field workers for example) are particularly at risk but it is also a recreational hazard to those who swim or wade in contaminated waters. In endemic areas the number of leptospirosis cases may peak during the rainy season.

Leptospirosis is one of the notifiable diseases in Sri Lanka. The earliest available evidence of leptospirosis having been diagnosed in Sri Lanka was in 1953. Over 19 leptospiral serovars belonging to over 7 sero groups have been isolated and incriminated as the causative agent for leptospirosis in man and /or animals in Sri Lanka.

Leptospirosis is an endemic disease in many parts of Sri Lanka, and occur throughout the year. During the last decade, there has been an increase in the reported number of leptospirosis cases in the country. This increase was due to the occurrence of outbreaks of leptospirosis in some districts and also due to improved case detection during the last 5 years. The actual case incidence of leptospirosis is likely to be more than the hospital admission figures, as a large number of patients with mild form of the disease do not seek treatment at all or are being treated at the OPD or by private practitioners, resulting in the cases not being reported to the Epidemiology Unit.

The number of clinically suspected leptospirosis cases notified to the Epidemiology Unit up to the end of November 2007 was 1792. This is an increase of 26%, when compared to the 1413 cases reported in the previous year [2006] for

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for the same period of time. The highest number of cases [269] has been reported from Gampha district. The other districts which reported high numbers were , Matara [258], Kegalle [194], Kalutara [168] , Colombo [134], Gall [103] and Kandy [102].

The analysis of 301 investigated cases of leptospirosis **at sentinel sites** by the end of November 2007 shows that the male to female sex ratio is around 6.6 to 1, which reveals an increasing vulnerability among males. Majority of the cases [43.5%] had been exposed in paddy fields, indicating occupational exposure among farmers, while another 35% had been exposed in muddy or marshy lands indicating the vulnerability among other occupational groups working in outdoor settings. Most of the affected cases were in the age group of 20-44 years.

Patient care management at Medical Institutions

For the effective control 0f leptospirosis following areas of patient care management at medical institutions need to be strengthened.

• **Timely referrals:** Special Investigation reports received from the sentinel site hospitals revealed that late referrals from small institutions led to a few avoidable leptospirosis related deaths. So early detection and timely referrals of needy patients to larger institutions is important.

• **Laboratory confirmation of the Diagnosis:** Currently most of the leptospirosis diagnoses are based on clinical judgement. Other disease entities also can give rise to clinical pictures similar to leptospirosis. So it is very important to carry out laboratory investigations to confirm the diagnosis. Laboratory diagnostic facilities are available at MRI.

• **Post mortem Examination**: It is recommended to conduct pathological investigations [post mortem] on all deaths diagnosed or suspected of leptospirosis, in order to further establish the cause of death.

• **District level death reviews :** At district level all leptospirosis related deaths with their post mortem findings should be reviewed periodically with the participation of clinicians who have been involved in the management of the deceased subject and preventive health staff of the index area. The main objective of this exercise is to identify any lapses if present in the clinical management of the victim & prevention point of view and take necessary remedial measures to prevent such events in future. Regional Epidemiologist is responsible for facilitating and organizing the district death reviews.

Prevention and control activities

Public health staff led by Regional Epidemiologist & MOOH are responsible for carrying out prevention and control activities at district and divisional levels with the help of other stake holders.

• **Enhance leptospirosis surveillence** : Routine notification should be continued, as being practiced. Early notification and investigation are essential particularly to forecast outbreaks for early interventions and to asses the effectiveness of control measures. In addition, special investigation carried out with the help of ICN at sentinel medical institutions need to be strengthened.

• **Involvement of all stake holders:** When considering the epidemiology of leptospirosis, it is obvious that health sector alone can not control the disease effectively. Active participation of all stakeholders at district & divisional level, especially representing Agriculture, Irrigation, Veterinary, Samurdhi sector are essential. Establishing district and divisional level coordination committees on prevention of leptospirosis may be a good strategy to get maximum contribution from all the stakeholders.

• **Role of the MOH:** It is the responsibility of the MOOH to coordinate and monitor all the preventive and control activities at divisional level. MOH also has to ensure the timely and complete investigation of all notified cases. Further, rational use of collected information from divisional level to identify high risk populations and geographical locations are important to take appropriate measures. All MOOH should maintain a good rapport with health institutions in the division where cases are managed and discuss the issues with the MOOIC.

•**Chemoprophylaxis treatment :**Chemoprophylaxis[doxycyclin 200mg weekly] is one of the prevention & control activities adopted in leptospirosis. But this is recommended only for high risk groups and not advocated as a routine practice.

Public Awareness

According to available information from the MRI and the Faculty of Veterinary Science, Peradeniya the source of infection may not only be the rat but buffalo also could be a potential source of infection. Therefore, awareness programmes should be focused on these latest available information and thereby prevention and control messages should be modified accordingly. Particular emphasis should be made on avoiding contact of rat/buffalo urine contaminated water and early medical care seeking practice if the disease is suspected.

Awareness activities have to be focused for high risk groups and preferably in the form of small group discussions. These awareness activities should not cause any panic among the farmers.

MOOH and PHII should take the responsibility for this activity with the support of district health education and promotion officers. It is the responsibility of the RDHS / Regional Epidemiologist / Health Education Officer to make arrangements to develop necessary IEC materials.

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Table 1: Vaccine-preventable Diseases & AFP

10th – 16th November 2007 (46th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
Acute Flaccid Paralysis	01 GM=1	01 KD=1	00	00	00	00	01 BD=1	02 KG=2	05	01	75	112	-33.0%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	00	00	00	01	00	00	00	01	00	71	38	+86.8%
Tetanus	00	00	00	00	00	00	00	00	00	00	31	42	-26.2%
Whooping Cough	00	00	00	00	01	00	00	00	01	00	43	69	-37.7%
Tuberculosis	60	10	13	09	46	10	00	18	161	402	8699	8854	+1.8%

Table 2: Diseases under Special Surveillance

10th – 16th November 2007 (46th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Number of cases during same week in 2006	Total number of cases to date in 2007	Total number of cases to date in 2006	Difference between the number of cases to date between 2007 & 2006
	W	C	S	NE	NW	NC	U	Sab					
DF/DHF*	101	11	19	05	55	08	03	11	213	283	5756	10001	-42.4%
Encephalitis	02 CB=1 GM=1	00	01 GL=1	00	02 KR=1 PU=1	00	00	01 KG=1	06	00	181	110	+64.5%
Human Rabies	00	00	00	00	01 KR=1	00	00	00	01	00	54	63	-14.3%

Table 3: Newly Introduced Notifiable Diseases

10th – 16th November 2007 (46th Week)

Disease	No. of Cases by Province								Number of cases during current week in 2007	Total number of cases to date in 2007
	W	C	S	NE	NW	NC	U	Sab		
Chickenpox	26	10	06	04	06	02	04	14	72	3033
Meningitis	06 GM=2 CB=2 KL=2	01 KD=1	03 MT=2 HB=1	06 TR=1 AM=2 VA=3	03 KR=1 PU=2	01 AP=1	00	06 KG=5 RP=1	26	647
Mumps	07	02	01	08	14	01	01	05	39	1955

*DF / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.
NA= Not Available.

Sources:

Weekly Return of Communicable Diseases:
Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

Special Surveillance:
Acute Flaccid Paralysis.

National Control Program for Tuberculosis and Chest Diseases:
Tuberculosis.

Details by districts are given in Table 5.

Provinces: W=Western, C=Central, S=Southern, NE=North & 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.

Table 4: Laboratory Surveillance of Dengue Fever

10th – 16th November 2007 (46th Week)

Samples	Number tested	Number positive *	Serotypes				
			D_1	D_2	D_3	D_4	Negative
Number for current week	05	00	00	00	00	00	00
Total number to date in 2007	455	51	01	24	16	00	09

Source: Genetech Molecular Diagnostics & School of Gene Technology, Colombo. * Not all positives are subjected to serotyping.

Table 5: Selected notifiable diseases reported by Medical Officers of Health

10th - 16th November 2007 (46th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Returns Received Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	54	1514	04	332	01	11	06	85	01	70	04	129	00	04	11	141	**100**
Gampaha	38	730	05	303	01	25	00	71	04	55	13	242	00	17	01	189	**79**
Kalutara	09	349	12	441	00	05	01	45	00	43	10	152	01	02	01	60	**100**
Kandy	08	370	08	279	00	03	02	60	00	14	03	83	02	74	10	1940	**73**
Matale	03	95	11	223	00	06	01	28	00	13	01	62	00	05	02	133	**67**
Nuwara Eliya	00	37	05	227	00	02	00	112	00	368	00	12	00	33	04	535	**86**
Galle	04	87	02	158	01	12	02	24	00	42	08	96	00	27	02	23	**81**
Hambantota	02	83	04	181	00	06	00	21	00	20	02	45	03	55	01	24	**73**
Matara	13	192	03	277	00	08	00	40	00	24	13	248	02	197	01	33	**75**
Jaffna	04	153	01	162	00	02	01	399	00	13	00	00	00	96	00	23	**50**
Kilinochchi	00	01	00	01	00	00	00	06	00	00	00	00	00	02	00	04	**25**
Mannar	00	07	01	27	00	00	01	89	00	00	00	02	00	00	00	24	**75**
Vavuniya	00	29	02	66	00	04	00	21	02	58	00	03	00	00	00	10	**100**
Mullaitivu	00-	00	00	33	00	08	00	20	00	01	00	00	00	00	00	16	**60**
Batticaloa	00	76	00	459	00	10	00	21	00	10	00	00	00	22	03	1118	**73**
Ampara	00	04	12	142	00	00	00	04	00	02	00	03	00	01	02	32	**86**
Trincomalee	00	56	11	261	00	04	00	29	00	23	00	10	00	17	00	110	**89**
Kurunegala	32	668	10	457	01	08	01	62	00	33	06	66	00	37	03	94	**94**
Puttalam	23	181	17	170	01	15	03	83	03	08	02	27	00	07	00	79	**100**
Anuradhapura	07	208	10	144	00	10	00	22	00	17	00	23	00	18	00	41	**79**
Polonnaruwa	01	61	07	122	00	03	00	13	00	64	00	21	00	00	01	48	**100**
Badulla	02	66	16	554	00	05	01	86	00	11	00	46	03	160	03	325	**73**
Monaragala	01	45	04	309	00	02	02	53	02	34	00	43	01	81	01	45	**90**
Ratnapura	05	371	00	554	00	20	02	69	00	24	03	73	00	24	00	101	**63**
Kegalle	06	366	12	273	01	09	01	62	00	08	13	187	00	38	07	238	**82**
Kalmunai	01	07	01	210	00	03	00	08	00	10	01	02	00	02	01	126	**69**
SRI LANKA	**213**	**5756**	**158**	**6365**	**06**	**181**	**24**	**1533**	**12**	**965**	**79**	**1575**	**12**	**919**	**54**	**5512**	**79**

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 24 November. 2007. Total number of reporting units =290. Number of reporting units data provided for the current week: 233

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