



# WEEKLY EPIDEMIOLOGICAL REPORT

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## PREVENTION AND CONTROL OF LEPTOSPIROSIS

We have been observing increasing numbers of leptospirosis cases during the last few months despite implementation of a set of strategies for its control and prevention. In 2007, 2195 cases were reported to the Epidemiology Unit. This year up to May 16, a total of 1700 cases and 51 deaths have been reported. Unusually high case fatality rate and high reporting from districts such as Anuradhapura, Ratnapura, Hambantota, and Moneragala (in addition to the already identified high risk districts: Colombo, Gampha, Kalutara, Matara, Galle and Kandy) are some of the notable features observed this year. This alarming trend emphasizes the need for the revision of current strategies.

There is a direct correlation between the amount of rainfall and the incidence of leptospirosis. The unsettled weather conditions prevailing in the country with heavy rains is a concern and the situation may worsen once the southwest monsoonal rains set in. In this regard, recently two workshops were conducted with the participation of Consultant Physicians, Microbiologists, Regional Epidemiologists and MOOH of high risk areas. The necessity of strengthening prevention activities at all levels i.e. primary, secondary and tertiary was stressed at these workshops.

### Primary Prevention

The risk of acquiring leptospirosis can be greatly reduced by avoiding exposure to contaminated water and soil. However, it might not be possible for people whose livelihoods depending on occupations such as agriculture, gem mining, sewage work etc. They should be ad-

vised about the benefits of wearing footwear preferably knee-high boots and protective clothing while at work. Wounds/ abrasions in skin should be covered with waterproof dressing. Further, awareness about the disease should be raised among risk groups, health care providers and general population, so that the disease can be recognized early and treated as soon as possible.

### Chemoprophylaxis:

It is not advocated as a routine and leading preventive strategy and is recommended only for well recognized high risk groups. Identification of high risk localities at the divisional level (e.g. clustering of cases in a particular area) will help to identify high risk groups. Further, there should be a felt need by farmers/ agricultural workers of such areas for prophylaxis i.e. a request for prophylaxis from farmers' organizations and/ or agrarian services.

If prophylaxis is given, it should be closely monitored by the MOH and the field public health staff. A register should be maintained at the MOH level containing all the names, addresses and occupations of recipients and arrangements should be made to regularly distribute drugs to them for the required period. The recommended dose is Doxycycline 200 mg weekly during the period of possible exposure. Doxycycline is a tetracycline antibiotic. It should not be given to children younger than 12 years old, pregnant and lactating mothers. Some may develop allergy and it should not be prescribed for them. Generally, it is not prescribed to patients with liver or kidney disease.

### Contents

### Page

1. Leading Article - Prevention and controlled of leptospirosis	1
2. Surveillance of vaccine preventable diseases & AFP (19 <sup>th</sup> - 25 <sup>th</sup> April 2008)	3
3. Summary of newly introduced notifiable diseases (19 <sup>th</sup> - 25 <sup>th</sup> April 2008)	3
4. Laboratory surveillance of dengue fever (19 <sup>th</sup> - 25 <sup>th</sup> April 2008)	4

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This drug can be taken with or without food, preferably with a full glass of water.

### **Secondary Prevention**

**Admission:** Leptospirosis causes a wide range of symptoms and is often wrongly/ lately diagnosed resulting in high rates of complications and fatality. It is recommended that fever patients with a history of exposure to contaminated environment (e.g. local agricultural practices, gem mining, sewage work and swimming/ wading in contaminated/ flood water etc.) and symptoms/ signs such as conjunctival suffusion and muscular pain/ tenderness (notable in calf and lumbar areas) should be admitted for inward management. Even without a proper history of exposure, if the patients present with symptoms/ signs strongly suggestive of leptospirosis, admission for inward management should be considered.

**Management:** Once admitted as suspected cases of leptospirosis, treatment with appropriate dose of IV penicillin should be initiated without delay. Fluid balance chart should be maintained and IV fluids can be given, if indicated. If the results of basic investigations such as FBC, Urine FR, and Blood Urea & Electrolytes (e.g. polymorpholeucocytosis & albuminuria) are not in favour of a diagnosis of leptospirosis, treatment with IV penicillin could be stopped.

**Laboratory investigations:** Whenever possible clinical suspicion of leptospirosis should be confirmed by necessary laboratory tests. Investigations such as microscopic agglutination test (MAT) for a high titre or a rising antibody titre, ELISA test, and antigen detection by PCR are some of the confirmatory tests. Confirmatory diagnosis could be done at the Medical Research Institute (MRI), Colombo. However, serological tests do not become positive with the onset of illness. Thus, the blood samples should be sent after 5 days of onset of illness and a 2<sup>nd</sup> sample should be sent 4 - 5 days later if the clinical suspicion is high but the MAT result for the 1<sup>st</sup> sample was equivocal or negative (i.e. to demonstrate rising titre).

Investigations such as serovar and sero-group specific MAT test, and culture are useful for epidemiological and public health reasons, as they would be helping in investigating the source of infection, potential reservoir, and planning and evaluating interventions.

The treating physicians should notify the details of suspected cases of leptospirosis to the respective MOOH without delay.

Early notification and investigation are essential particularly to forecast outbreaks and take early interventions. Sentinel site based detailed surveillance is carried out only in selected hospitals in the high risk areas in addition to the routine notification. At present, 16 hospitals are functioning as sentinel sites. The Infection Control Nurses (ICN) attached to these institutions will carry out investigation while the patients are in the wards. If there are designated Medical Officers to coordinate public health activities at hospital level, head of the institution will have the responsibility to discuss with both MO— public health & ICN and to delegate the responsibilities in order to effectively carry out the special surveillance activities

### **Tertiary Prevention**

If the duration of fever is more than 3 - 4 days be vigilant of signs and symptoms suggestive of possible complications such as renal failure, myocarditis, heart failure, meningitis, and widespread haemorrhage due to disseminated intravascular coagulation resulting from vasculitis. Case fatality rate is reported to range from less than 5% to 30% and is mainly due to above complications. Transferring patients to higher level institutions should be considered if there is a concern about urine output despite adequate hydration. Symptoms suggestive of cardiac involvement such as hypotension and tachycardia are some of the other indications for transferring patients.

**Mortality review:** To further strengthen the surveillance activities, it is recommended that the director of the sentinel hospitals are requested to conduct mortality reviews for leptospirosis deaths with the participation of the relevant ward doctors and MOOH. For the transferred cases, it would be beneficial to invite the medical officers of the relevant hospitals also for the reviews. The main objective of the leptospirosis mortality review is to identify the factors contributing to the deaths and to take remedial action at both field and institutional levels. This is to identify the shortcomings in the system and certainly not to find fault with any individuals. A final report to the Epidemiology Unit with copies of the reporting forms filled by the clinicians would be the outcome envisaged.

**This article was compiled by Dr N. Janakan - Consultant Epidemiologist.**

19<sup>th</sup> - 25<sup>th</sup> April 2008 (17<sup>th</sup> Week)

Table 1: Vaccine-preventable Diseases &amp; AFP

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	02 CO=2	00	01 GL=1	00	01 AM=1	00	00	00	00	04	02	29	31	-6.5%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	00	01	00	00	00	00	00	00	00	01	03	41	24	+70.8%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	12	11	+9.1%
Whooping Cough	00	00	00	00	00	00	00	01 BD=1	00	01	00	13	14	-7.1%
Tuberculosis	10	02	03	23	17	00	00	00	34	89	103	2852	3265	-12.6%

Table 2: Newly Introduced Notifiable Diseases

19<sup>th</sup> - 25<sup>th</sup> April 2008 (17<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Chicken-pox	35	04	15	03	06	15	17	11	22	128	50	2038	1119	+82.1%
Meningitis	08 KL=3 GM=4 CO=1	01 ML=1	06 GL=3 MT=3	00	03 AM=3	06 KR=6	03 PO=3	00	08 KG=6 RP=2	35	00	580	49	+1083.7%
Mumps	07	06	07	00	07	09	03	07	08	54	15	821	380	+116.1%

Key to Table 1 &amp; 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=Mataara, 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 3: Laboratory Surveillance of Dengue Fever 19<sup>th</sup> - 25<sup>th</sup> April 2008 (17<sup>th</sup> Week)

Samples	Number tested		Number positive *		Serotypes									
					D <sub>1</sub>		D <sub>2</sub>		D <sub>3</sub>		D <sub>4</sub>		Negative	
	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH
Number for current week	06	04	02	01	00	00	02	01	00	00	00	00	00	00
Total number to date in 2008	71	44	07	14	00	00	04	06	01	04	00	00	02	00

Sources: Genetech Molecular Diagnostics &amp; School of Gene Technology, Colombo [GT] and Genetic Laboratory Asiri Surgical Hospital [AH]

\* Not all positives are subjected to serotyping.

NA= Not Available.

Data 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.

**Table 4: Selected notifiable diseases reported by Medical Officers of Health**  
19<sup>th</sup> - 25<sup>th</sup> April 2008 (17<sup>th</sup> 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	56	658	05	60	00	05	01	48	00	57	13	162	00	01	00	50	00	01	85
Gampaha	23	409	08	62	00	05	01	24	00	66	15	136	01	04	06	53	00	01	86
Kalutara	18	206	05	125	01	07	00	35	00	16	15	149	00	02	02	18	00	00	83
Kandy	07	88	08	84	00	03	02	20	00	30	22	98	01	38	03	70	00	00	76
Matale	04	50	03	97	01	01	03	22	00	02	42	254	00	01	00	16	00	00	75
Nuwara Eliya	01	08	15	84	00	01	08	93	00	107	02	15	00	30	03	60	00	01	77
Galle	05	45	03	47	00	08	00	10	00	42	16	149	00	08	00	04	00	03	94
Hambantota	02	46	02	34	00	03	00	05	00	06	02	46	03	48	00	04	00	00	100
Matara	08	97	02	68	01	04	00	20	00	02	12	144	02	83	01	05	00	01	82
Jaffna	01	40	06	52	00	01	01	161	00	05	00	00	05	121	00	17	00	00	00
Kilinochchi	00	00	01	03	00	00	00	00	00	00	01	02	00	00	00	01	00	00	00
Mannar	02	24	00	07	00	06	01	92	00	00	00	00	00	00	00	11	00	00	25
Vavuniya	00	10	02	15	00	01	00	01	03	09	01	03	00	00	00	02	00	00	75
Mullaitivu	00	00	00	01	00	00	00	05	00	12	00	00	00	00	00	04	00	00	40
Batticaloa	07	73	02	26	00	02	01	09	01	18	00	01	00	01	08	66	00	04	64
Ampara	00	07	03	80	00	00	00	02	00	00	00	07	00	00	03	04	00	00	43
Trincomalee	05	150	02	33	00	00	00	06	00	03	00	07	00	10	00	08	00	00	60
Kurunegala	06	183	04	125	00	09	00	22	00	10	20	57	00	14	00	20	01	04	94
Puttalam	05	200	00	35	00	02	08	71	01	18	02	05	02	23	01	19	00	02	67
Anuradhapur	05	99	07	37	00	04	00	08	00	04	22	79	00	09	02	09	00	00	74
Polonnaruwa	04	37	04	42	00	01	02	18	01	06	02	25	00	00	00	15	00	00	100
Badulla	08	37	21	155	00	03	06	51	00	01	04	14	04	55	03	54	00	01	67
Monaragala	02	27	08	85	00	01	01	22	01	19	08	46	02	52	00	11	00	00	100
Ratnapura	03	110	08	94	00	19	00	36	00	42	04	76	00	65	00	35	00	00	44
Kegalle	16	141	04	169	02	17	06	26	00	00	10	73	00	31	22	236	00	00	73
Kalmunai	01	19	09	82	00	02	01	07	00	10	00	00	00	01	02	14	00	00	77
<b>SRI LANKA</b>	<b>189</b>	<b>2764</b>	<b>132</b>	<b>1702</b>	<b>05</b>	<b>105</b>	<b>42</b>	<b>814</b>	<b>07</b>	<b>485</b>	<b>213</b>	<b>1548</b>	<b>20</b>	<b>597</b>	<b>56</b>	<b>806</b>	<b>01</b>	<b>18</b>	<b>73</b>

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 3 May, 2008 Total number of reporting units =238. Number of reporting units data provided for the current week:

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**ON STATE SERVICE**

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