WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health

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SRI LANKA 2023

WER

Vol. 51 No. 04 — 20th– 26th Jan 2024

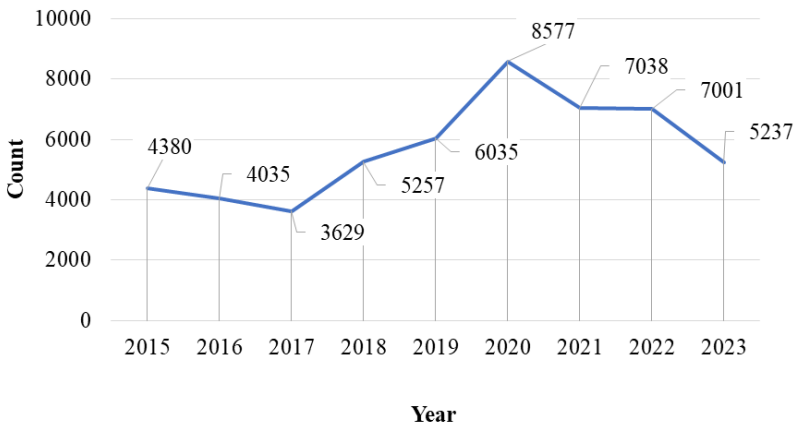
Unraveling Leptospirosis: Decoding Lab Tests for Comprehensive Case Identification

Leptospirosis, a potentially severe zoonotic disease, can become more prevalent after heavy rainfall. The pathogenic strain, *Leptospira interrogans*, has over 200 serovars, affecting both humans and animals. Human transmission of the bacteria is typically associated with contact with infected animal urine or urine-contaminated environments, where the bacteria can enter the body through cuts, abrasions, or mucous membranes in the mouth, nose, and eyes. Human-to-human transmission is extremely rare. Leptospirosis exhibits diverse clinical symptoms, ranging from mild to fatal. Early and accurate diagnosis, both clinically and through laboratory tests, is crucial for preventing severe cases and saving lives, particularly during outbreaks, as its symptoms can resemble those of various diseases like influenza and dengue.

Leptospirosis is a significant global health concern, with a widespread presence in regions characterized by humid subtropical and tropical climates. Annually over 500,000 cases of leptospirosis occur worldwide. This infectious disease has the potential to become epidemic, emphasizing the need for vigilance and preventive measures on a global scale. Regions with the highest estimated morbidity and mortality include parts of sub-Saharan Africa, Latin America, the Caribbean, South and Southeast Asia. Leptospirosis is endemic in Vietnam, Cambodia, and Laos in the Asian region[1]. However, Sri Lanka stands out as a hotspot for the disease, with cases reported consistently throughout the year.

Outbreaks are influenced by the country's high humidity and heavy rainfall. The districts of Rathnapura, Kegalle, Kalutara, Galle, Matara, and Badulla are particularly prone to high endemicity.

Number of notified Leptospirosis cases 2015-2023



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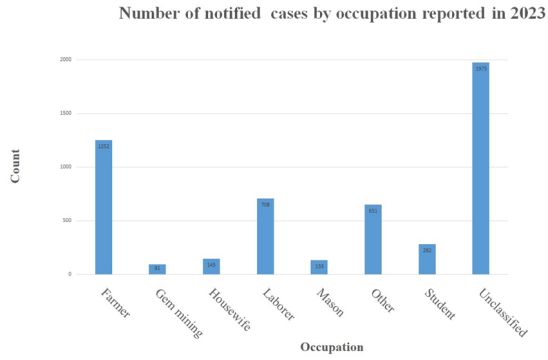
Leptospirosis is a risk for outdoor workers and animal handlers, like farmers, veterinarians, and military personnel. People who swim in contaminated water are also at risk.



The true number of cases remains uncertain due to underdiagnosis, underscoring the necessity for accurate confirmation to inform preventive measures. Diagnosis typically involves serology, considering clinical symptoms and exposure history. The microscopic agglutination test (MAT) and enzyme-linked immunosorbent assay (ELISA) serve as key serologic tests for leptospirosis. To achieve a reliable diagnosis using the gold standard MAT, a minimum of two serum samples is required, taken at intervals of approximately 10 days.

Test	Specimen	Collection Time	Conditions	Comments
Culture for *Leptospira*	Fresh blood: 2 drops in *media containing a bottle	Within 7 days of onset of illness	At room temperature, in a dark place	Blood for culture should not be done immediately after antibiotics. Important for the identification of the reservoir host for control measures and antibiotic susceptibility testing.
PCR for *Leptospira*	3 mL clotted blood or serum in a plain sterile tube	Within 7 days of onset of illness	+4°C in a cool box	Ideally, perform the test within 24-48 hours. After 7 days, consider antibody tests (serum).
Microscopic Agglutination Test (MAT)	5 mL clotted blood or 3 mL serum collected into a plain sterile tube	1st sample: Within 48 hours 2nd sample: 10-14 days after 1st sample	Room temperature or +4°C if any delay	Serological reference test. Results can be given over the phone within 24 hours. A negative result in early illness does not exclude leptospirosis.
ELISA** - IgM	3-5 mL clotted blood in a sterile plain bottle	Within 3-5 days of onset of illness	Room temperature or +4°C if any delay	For early presumptive diagnosis; should be confirmed by MAT.
Postmortem samples are collected aseptically as soon as possible after death, inoculated into culture media immediately or kept at +4°C for serological tests or PCR				

*Culture bottles should be obtained from the Medical Research Institute

**ELISA: Enzyme-Linked Immunosorbent Assay[2]

To confirm a case of Leptospirosis in Sri Lanka, a patient is considered positive if they show symptoms and have a positive result in MAT, PCR, or culture tests. It's crucial to provide a brief clinical history, including symptoms, duration, complications, prophylactic antibiotic use, and the patient's occupation and risk of exposure. When requesting tests, emphasize the importance of including the duration of the fever at the time of the test request. Since these tests are specialized, a lack of clinical history may lead to delayed results. Choose the appropriate test based on the duration of the patient's illness. To collect Leptospira culture tubes, visit the Department of Bacteriology at the Medical Research Institute (MRI), the national reference laboratory. Ensure the request form is completed and submit it at the specimen receiving counter, which operates 24/7. For urgent results, contact MRI.

Public Awareness and Education:

It is crucial to educate both healthcare professionals and the general public about leptospirosis and its diagnostic methods. Promoting early testing for suspected cases is essential for effective outbreak control. This proactive approach aids in timely intervention and management, thereby minimizing the spread of the disease within communities.

Challenges and Opportunities:

Sri Lanka has witnessed a surge in leptospirosis cases, particularly in regions with high agricultural activities and flooding events. The challenges in diagnosing leptospirosis in the country include the nonspecific clinical manifestations, limited access to healthcare facilities, and the overlap of symptoms with other febrile illnesses. These challenges underscore the critical role of laboratory testing in providing accurate and timely diagnoses.

Encouragement for proactive testing and collaboration between healthcare providers and laboratories plays a crucial role in public health interventions. The accurate diagnosis facilitates the implementation of targeted prevention strategies and timely outbreak response.

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References:

[1] P. R. Torgerson *et al.*, "Global Burden of Leptospirosis: Estimated in Terms of Disability Adjusted Life Years," *PLoS Negl. Trop. Dis.*, vol. 9, no. 10, pp. 1–14, 2015, doi: 10.1371/journal.pntd.0004122.

[2] "Strengthening Human Leptospirosis Laboratory Surveillance," *2018*. [Online]. Available:https://www.epid.gov.lk/storage/post/pdfs/lab_diagnosis_of_leptospirosis.pdf

Table 1: Selected notifiable diseases reported by Medical Officers of Health 13th- 19th Jan 2024 (03rd Week)

RDHS	Dengue Fever		Dysentery		Encephali		Enteric		Food Poison-		Leptospirosis		Typhus		V. Hep.		H. Rabi.		Chickenpox		Meningitis		Leishmania-		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	477	1325	0	1	0	1	0	1	0	3	8	23	0	0	0	0	0	0	10	24	0	0	0	0	**100**	**100**
Gampaha	147	404	0	1	1	1	0	1	0	0	15	26	0	0	0	1	0	0	3	9	6	12	0	2	**100**	**100**
Kalutara	105	285	1	3	0	0	1	1	0	0	12	37	0	0	0	0	0	0	16	39	1	5	0	0	**100**	**100**
Kandy	165	573	0	2	0	0	0	0	2	2	6	12	1	2	0	0	0	0	3	15	1	1	0	1	**100**	**100**
Matale	47	126	0	0	0	0	0	0	0	2	4	14	0	0	0	0	0	0	2	2	1	1	1	5	**100**	**100**
Nuwara Eliya	22	69	3	6	0	0	0	0	1	2	8	24	3	3	1	1	0	0	2	8	0	1	0	0	**92**	**100**
Galle	132	323	1	4	1	3	0	1	0	7	18	71	5	11	1	2	0	0	11	33	4	7	0	0	**94**	**100**
Hambantota	33	126	0	0	0	0	0	0	0	0	10	66	2	3	0	0	0	0	3	14	2	3	7	28	**100**	**100**
Matara	27	108	0	2	1	2	0	0	0	2	9	30	0	0	0	0	0	0	5	16	3	25	5	6	**100**	**100**
Jaffna	595	2023	2	7	0	0	0	0	0	2	1	5	26	102	0	0	0	0	3	18	0	2	0	0	**100**	**93**
Kilinochchi	20	101	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	1	0	1	0	0	**100**	**100**
Mannar	13	101	0	0	0	0	0	1	0	0	1	7	0	1	0	0	0	0	1	1	0	1	0	1	**100**	**100**
Vavuniya	14	61	0	0	0	0	0	0	0	0	7	22	1	1	0	0	0	0	0	1	0	2	0	0	**100**	**100**
Mullaitivu	31	82	0	2	0	0	0	0	0	1	9	21	1	1	0	0	0	0	0	2	0	0	1	1	**100**	**100**
Batticaloa	122	387	2	13	0	0	1	1	0	0	3	5	0	0	0	0	0	0	4	7	1	4	0	0	**100**	**100**
Ampara	8	29	1	2	0	1	0	0	0	0	10	33	1	1	0	1	0	0	1	11	3	4	2	2	**86**	**100**
Trincomalee	33	125	2	3	0	0	0	0	0	0	12	26	0	1	0	0	0	0	1	2	0	2	0	1	**100**	**100**
Kurunegala	62	164	1	3	0	0	0	0	0	0	12	18	0	1	0	0	0	0	0	5	0	2	0	0	**100**	**100**
Puttalam	127	409	0	1	1	2	0	0	0	1	16	62	2	3	1	1	1	1	6	28	4	19	6	28	**92**	**100**
Anuradhapura	95	277	0	0	0	0	0	0	0	0	9	38	0	1	0	0	0	0	4	11	2	5	0	1	**95**	**100**
Polonnaruwa	42	98	0	0	0	0	0	0	0	0	12	50	1	4	0	1	0	0	5	10	2	5	22	57	**100**	**100**
Badulla	13	46	0	2	0	0	0	0	0	0	7	37	0	0	0	0	0	0	2	13	4	4	8	17	**100**	**100**
Monaragala	87	276	1	2	0	1	0	0	1	2	16	51	0	1	2	3	0	0	7	24	3	3	0	0	**100**	**100**
Ratnapura	43	114	2	2	0	0	0	0	0	0	47	136	1	1	1	2	0	0	1	4	7	13	1	11	**100**	**100**
Kegalle	77	230	4	10	0	0	0	0	0	2	44	139	0	3	2	2	0	0	5	17	1	6	3	4	**100**	**100**
Kalmunai	93	309	1	2	0	1	0	0	0	0	13	49	0	1	0	2	0	0	5	38	1	7	0	5	**100**	**100**
SRILANKA	**2630**	**8171**	**21**	**68**	**4**	**12**	**2**	**6**	**4**	**27**	**310**	**1004**	**44**	**141**	**8**	**16**	**1**	**1**	**100**	**353**	**46**	**135**	**56**	**170**	**98**	**99**

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 19th Jan, 2024 Total number of reporting units 358 Number of reporting units data provided for the current week: 358 **C****-Completeness

A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

13th– 19th Jan 2024 (03rd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2024	Number of cases during same week in 2023	Total number of cases to date in 2024	Total number of cases to date in 2023	Difference between the number of cases to date in 2024 & 2023
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	01	03	06	-40 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	01	02	00	00	01	00	01	01	00	06	02	13	06	116 %
Measles	13	01	14	00	02	01	02	00	01	34	00	72	00	0 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	01	-100 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Enceph-alitis	00	00	00	00	00	00	00	00	00	00	01	00	01	-100 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tuberculosis	61	39	10	06	07	21	08	05	11	168	204	510	367	38.9%

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.

RDHS 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, Neonatal Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps., Rubella, CRS,

Special Surveillance: AFP* (Acute Flaccid Paralysis), Japanese Encephalitis

CRS =**Congenital Rubella Syndrome

NA = Not Available

Number of Malaria Cases Up to End of January 2024,

03

All are Imported!!!

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. Prior approval should be obtained from the Epidemiology Unit before publishing data in this publication**

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