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Application of the One Health Approach for Leptospirosis Control and Prevention: Strengthening What Already Exists in Sri Lanka - Part I

This is the first article of two in a series on "Application of the One Health Approach for Leptospirosis Control and Prevention: Strengthening What Already Exists in Sri Lanka"

Leptospirosis continues to be a major public health concern in Sri Lanka, with thousands of suspected cases and nearly two hundred deaths reported annually. This disease poses complex challenges due to its zoonotic and environmentally mediated modes of transmission, affecting both urban and rural populations, particularly during monsoon seasons. Although Sri Lanka has instituted a range of control measures—including national and subnational multisectoral coordinating platforms, chemoprophylaxis programs, and ongoing development of clinical management guidelines—these efforts alone have not been sufficient to curb the disease's impact. Public awareness activities, largely delivered through mass media campaigns, have improved general understanding, but significant implementation gaps persist.

Given these complexities, the **One Health approach**—while not novel to Sri Lanka—offers a powerful, structured, and collaborative way forward. It enables the reinforcement of existing systems and promotes multisectoral coordination, allowing for a more comprehensive and sustainable response to leptospirosis and other similar health threats.

Understanding the One Health Approach

The **One Health approach** acknowledges the intrinsic interconnectedness between human health, animal health, and environmental health. It calls for active collaboration among a wide range of disciplines—public health, veterinary science, environmental science, agriculture, wildlife management, and even social sciences—to collectively address complex health challenges. This approach is especially valuable for zoonotic diseases, where transmission cycles span across species and ecosystems.

Leptospirosis is an ideal candidate for One Health implementation due to the following factors:

- **Zoonotic Reservoirs:** The causative bacteria, *Leptospira spp.*, are maintained in the renal systems of a wide range of animals, including rodents, cattle, pigs, and dogs. These animals shed bacteria through urine, contaminating the environment.
- **Environmental Pathways:** Human infections commonly occur via exposure to contaminated water, mud, or soil, particularly in paddy fields, during floods, or through recreational activities. The risk increases during heavy rainfall and poor sanitation conditions.
- **Cross-sector Relevance:** Effective prevention requires input from veterinary services (animal reservoir control), environmental management (sanitation and drainage), and human health systems (early diagnosis, treatment, and awareness campaigns).

A siloed approach cannot fully address the problem. Integrating surveillance, interventions, and policy actions across sectors is essential for long-term disease control and prevention.

Global Experience in One Health Application for Leptospirosis

Several countries have set commendable examples by adopting the One Health approach to control leptospirosis, achieving measurable improvements in disease prevention and outbreak response.

- **Indonesia** piloted integrated rodent and environmental surveillance in 10 sentinel districts, enhancing the ability to map high-risk areas and enabling more focused rodent control programs. This multi-sectoral collaboration provided timely and location-specific interventions that curbed the spread of infection.

- **Fiji** adopted a community-centred One Health strategy, bringing together local knowledge, veterinary services, and environmental health officials. Community leaders were actively involved in identifying risk practices, and interventions were tailored to local needs, enhancing both community buy-in and impact.

- **Thailand and Malaysia** have institutionalised cross-sectoral coordination in outbreak-prone provinces. Ministries of Health, Agriculture, and Environment engage in joint planning, preparedness, and response activities, with harmonised surveillance systems that allow rapid outbreak detection and targeted action.

These experiences highlight the importance of formalised, institutionalised One Health structures and offer valuable lessons for Sri Lanka.

One Health in Sri Lanka: Already in the System

Over the past decade, the country has taken important steps toward institutionalising the One Health concept.

- In **2024**, Sri Lanka completed the **Zoonotic Disease Prioritisation Exercise** using the One Health framework. Leptospirosis was identified as a high-priority disease requiring intersectoral action, reflecting its substantial morbidity, mortality, and socio-economic burden.

- Under the "**One Vision, One Shield**" national initiative, supported by the **Pandemic Fund** and **WHO**, the country is building One Health capacity in surveillance, risk communication, and emergency preparedness. This initiative includes training programs, stakeholder mapping, and simulation exercises designed to improve coordination and readiness across ministries.

- Past outbreak investigations for **rabies**, **avian influenza**, and **anthrax** have used joint teams involving the Ministry of Health, Department of Animal Production and Health, and environmental authorities. These instances demonstrated that multisectoral collaboration is both feasible and beneficial when operationalised.

These efforts collectively establish a strong foundation. However, the challenge remains in ensuring that these initiatives are not limited to pilot projects or crisis responses but are systematically embedded into the national and subnational health infrastructure.

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Table 1 : Water Quality Surveillance
Number of microbiological water samples March 2025

District	MOH areas	No: Expected *	No: Received
Colombo	18	108	**0**
Gampaha	15	90	**14**
Kalutara	13	78	**53**
Kalutara NIHS	2	12	**13**
Kandy	23	138	**19**
Matale	13	78	**NR**
Nuwara Eliya	13	78	**0**
Galle	20	120	**132**
Matara	17	102	**118**
Hambantota	12	72	**0**
Jaffna	14	84	**151**
Kilinochchi	4	24	**28**
Mannar	5	30	**0**
Vavuniya	4	24	**2**
Mullatvu	6	36	**36**
Batticaloa	14	84	**24**
Ampara	7	42	**0**
Trincomalee	12	72	**10**
Kurunegala	29	174	**0**
Puttalam	13	78	**NR**
Anuradhapura	23	138	**NR**
Polonnaruwa	9	54	**4**
Badulla	16	96	**140**
Moneragala	11	66	**72**
Rathnapura	20	120	**90**
Kegalle	11	66	**0**
Kalmunai	13	78	**10**

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

Table 1: Selected notifiable diseases reported by Medical Officers of Health 05th–11th Apr 2025 (15th Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		En. Fever		F. Poisoning		Leptospirosis		Typhus F.		Viral Hep.		H. Rabiies		Chickenpox		Meningitis		Leishmania-		Tuberculosis		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	A	B	T*	C**
Colombo	277	3569	1	15	0	3	1	4	0	5	11	153	0	4	1	6	0	0	18	186	0	22	0	1	39	613	83	100
Gampaha	137	2227	1	20	1	18	0	1	0	45	10	223	0	7	0	5	0	0	29	298	3	45	2	16	16	347	47	100
Kalutara	36	562	1	12	0	3	1	5	0	13	19	215	0	0	0	3	0	0	21	250	3	16	0	1	4	172	48	75
Kandy	50	946	3	25	0	2	0	4	0	8	5	101	3	23	0	5	0	0	12	145	0	11	3	27	12	249	100	100
Matale	30	510	0	8	0	1	0	0	3	26	2	68	0	3	0	5	0	0	3	44	0	2	6	83	1	50	77	100
Nuwara Eliya	1	64	1	28	0	3	0	4	0	44	2	45	1	24	0	0	0	0	4	88	2	8	0	0	9	91	77	100
Galle	29	623	0	19	1	3	0	0	1	28	16	275	2	30	0	4	0	0	12	265	7	61	0	1	6	149	45	100
Hambantota	10	283	2	9	1	3	0	0	0	3	12	142	0	14	0	2	0	0	10	149	0	6	8	92	3	53	100	100
Matara	32	546	0	5	0	2	0	1	0	3	11	168	0	8	0	2	0	0	9	134	0	17	1	35	6	58	41	100
Jaffna	11	492	4	35	0	1	0	3	0	17	4	114	14	278	1	2	0	1	18	154	1	11	0	0	4	60	79	93
Kilinochchi	1	42	0	5	0	0	0	4	2	4	0	48	0	11	0	1	0	0	0	1	0	0	0	0	0	17	100	100
Mannar	1	84	2	2	0	0	0	0	0	1	0	14	1	6	0	0	0	0	0	13	1	10	0	0	0	13	40	100
Vavuniya	0	28	0	5	0	0	0	1	0	20	4	42	0	3	0	0	0	0	4	17	4	10	0	7	1	16	100	100
Mullaitivu	2	28	0	1	0	0	0	1	0	2	1	39	0	5	0	0	0	0	0	11	0	4	0	0	0	10	67	100
Batticaloa	70	836	5	70	1	9	0	0	0	70	1	30	0	1	1	10	0	0	5	81	0	19	0	2	3	46	79	100
Ampara	7	62	0	6	3	5	0	0	0	3	8	68	0	1	0	2	0	0	3	56	2	11	0	9	0	19	43	100
Trincomalee	33	419	0	24	0	2	0	0	5	21	9	69	0	7	1	4	0	0	4	43	1	8	0	3	0	34	100	100
Kurunegala	17	360	3	11	0	8	0	1	0	19	28	277	0	18	0	1	0	1	8	267	7	52	17	185	12	122	55	100
Puttalam	8	292	0	9	1	1	0	0	0	4	5	122	1	24	0	1	0	0	2	55	1	34	1	12	0	48	62	100
Anuradhapura	3	267	0	19	0	5	1	3	0	8	6	170	0	12	0	6	0	0	16	124	2	35	16	255	3	84	13	100
Polonnaruwa	6	83	1	8	0	3	0	1	0	2	9	82	0	0	0	12	0	0	4	66	0	7	7	138	1	23	63	91
Badulla	18	257	1	13	1	4	0	3	0	0	11	127	1	10	3	16	0	0	4	147	3	28	0	12	5	72	63	100
Monaragala	29	302	1	8	0	3	0	0	1	4	31	252	0	20	1	6	0	0	8	58	0	19	9	55	4	33	45	100
Ratnapura	146	869	9	45	0	4	0	3	1	16	29	543	1	14	0	3	0	1	5	166	4	52	6	50	8	140	55	100
Kegalle	29	421	0	28	1	4	0	1	4	20	14	212	0	7	0	6	0	0	11	292	6	38	0	12	6	87	45	100
Kalmunai	15	179	2	11	0	0	0	0	0	7	2	46	0	1	0	1	0	0	4	61	1	9	0	0	5	44	54	100
SRILANKA	**998**	**14351**	**37**	**441**	**10**	**87**	**3**	**40**	**17**	**393**	**250**	**3645**	**24**	**531**	**8**	**103**	**0**	**3**	**214**	**3171**	**48**	**535**	**76**	**996**	**148**	**2650**	**65**	**99**

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 11th Apr, 2025 Total number of reporting units 361 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 05th Mar - 11th Apr 2025 (15th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2025	Number of cases during same week in 2024	Total number of cases to date in 2025	Total number of cases to date in 2024	Difference between the number of cases to date in 2025 & 2024
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	00	00	01	02	00	00	00	04	02	19	28	-32.1%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	02	00	00	00	00	02	01	00	01	06	02	71	80	-11.3 %
Measles	00	00	00	00	00	00	00	00	00	00	03	01	184	-99.4%
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	01	-100%
CRS**	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tetanus	00	00	00	00	00	00	00	00	00	00	01	02	02	0 %
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	00	04	01	300 %
Whooping Cough	00	02	01	00	00	00	00	00	00	03	00	11	02	450 %

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

Take prophylaxis medications for leptospirosis during the paddy cultivation and harvesting seasons.

It is provided free by the MOH office / Public Health Inspectors.

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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