WEEKLY EPIDEMIOLOGICAL REPORT

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HANTAVIRUS INFECTION - I
An Emerging Zoonotic Threat in Epidemiology and Public Health Implications for Sri Lanka

This is the first article of two in a series on "Hanta Virus Infection: An Emerging Zoonotic Threat in Epidemiology and Public Health Implications for Sri Lanka"

1. INTRODUCTION

Hantaviruses are rodent-borne zoonotic pathogens that have attracted increasing global attention as emerging infectious disease threats. Belonging to the order *Bunyavirales*, these negative-sense, single-stranded, tri-segmented RNA viruses are maintained in nature through persistent, asymptomatic infection of specific rodent reservoir hosts, with each hantavirus species generally associated with a single rodent species (Kruger et al., 2015). Human infection occurs primarily through inhalation of aerosolised rodent urine, faeces, or saliva, though direct contact with infected animals or bites can also transmit disease (WHO, 2022).

The *Hantaan virus* (HTNV), first isolated in South Korea in 1976, was the prototype strain responsible for Korean haemorrhagic fever among United Nations troops during the Korean War. Since then, more than 40 hantavirus species have been identified globally, with new species continuing to emerge (Jonsson et al., 2010). In Asia, HFRS caused by HTNV, Seoul virus (SEOV), and Puumala virus (PUUV) represents a significant public health burden. In the Americas, HPS caused by Sin Nombre virus (SNV) and Andes virus (ANDV) carries mortality rates exceeding 35% (CDC, 2023).

In Sri Lanka, although no confirmed indigenous hantavirus cases have been officially documented to date, serological surveys in rodent populations and occupationally exposed humans suggest the presence of hantavirus antibodies, indicating potential silent transmission (Sumathipala et al., 2018). Given the country's tropical climate, high rodent density in agricultural zones, and the frequent flooding events that displace rodent colonies into human habitation, the risk of human exposure warrants heightened epidemiological surveillance and public health awareness.

2. EPIDEMIOLOGY

Globally, HFRS accounts for approximately 150,000–200,000 hospitalisations annually, with the highest burden in China, which reports over 90% of global HFRS cases predominantly due to HTNV and SEOV (Vaheri et al., 2013). European HFRS, primarily caused by Puumala virus carried by bank voles, exhibits cyclical epidemic patterns correlated with rodent population dynamics. In South and Southeast Asia, serological evidence of hantavirus infection has been reported in Bangladesh, India, Thailand, and Malaysia, often in agricultural communities (Avsic-Zupanc et al., 2019).

Figure 1. Hantavirus Transmission Cycle from Rodent Reservoir to Human Disease
Source; Kruger et al., 2015; WHO, 2022

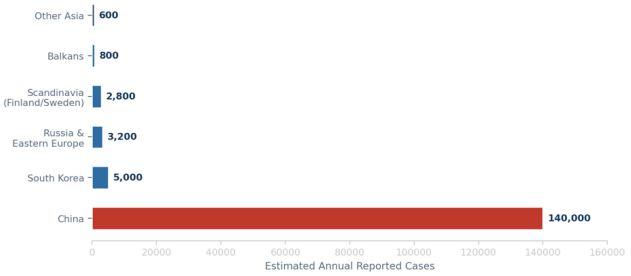

Figure 2. Global Distribution of Estimated Annual HFRS Cases by Region Source; Vaheri et al., 2013; WHO, 2022

Climate-driven flooding events increasingly frequent in Sri Lanka are well-documented drivers of hantavirus emergence by disrupting rodent habitats and concentrating rodent populations near human dwellings (Hjelle & Torres-Pérez, 2010). The 2016–2017 flooding in the Northern and Eastern Provinces created ecological conditions analogous to those preceding hantavirus outbreaks in neighbouring countries, reinforcing calls for proactive surveillance (Sumathipala et al., 2018).

3. AETIOLOGY AND RESERVOIR HOSTS

Hantaviruses are classified within the family *Hantaviridae*, genus *Orthohantavirus*. They possess a tripartite genome comprising large (L), medium (M), and small (S) segments encoding the RNA-dependent RNA polymerase, the glycoprotein precursor (Gn and Gc), and the nucleocapsid protein (N), respectively (Elliott, 1997). The glycoproteins mediate cell entry through integrin receptors, particularly β3 integrins expressed on platelets, endothelial cells, and macrophages, which underpins the haemorrhagic and renal pathology observed clinically (Mackow & Gavrilovskaya, 2009).

Each hantavirus species is closely associated with a specific rodent family. Old World hantaviruses (causing HFRS) are predominantly carried by Murinae and Arvicolinae rodents, while New World hantaviruses (causing HPS) are carried by Sigmodontinae. Notably, Seoul virus (SEOV) — unique in its global distribution — is harboured by the cosmopolitan Norway rat (Rattus norvegicus) and the roof rat (Rattus rattus), both of which are abundant in Sri Lanka (Plyusnin et al., 2001). The co-circulation of SEOV with local rodent populations constitutes the most plausible hantavirus threat in the Sri Lankan context.

4. CLINICAL PRESENTATION AND PATHOGENESIS

4.1 Hemorrhagic Fever with Renal Syndrome (HFRS)

HFRS typically progresses through five clinical phases: febrile, hypotensive, oliguric, diuretic, and convalescent. The febrile phase (days 1–7) presents with sudden onset of high fever, severe headache, myalgia, and back pain, often accompanied by conjunctival injection and petechiae. The hypotensive phase involves capillary leakage, thrombocytopaenia, and haemoconcentration, with risk of shock. The oliguric phase is characterised by acute kidney injury, haematuria, and proteinuria, and carries the highest fatality risk (Vaheri et al., 2013).

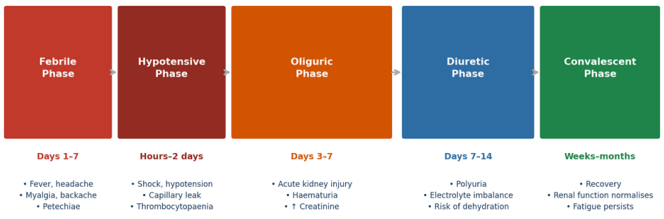

Figure 3. Clinical Phases of Haemorrhagic Fever with Renal Syndrome (HFRS) Source; Vaheri et al., 2013; WHO, 2022

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To be Continued….

Table 1: Distribution of Notified Diseases reported by Medical Officers of Health 23rd – 01st Mar 2026 (09th Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		En. Fever		F. Poison-		Leptospirosis		Typhus		Viral Hep.		H. Rabies		Chickenpox		Meningitis		Leishman.		Tuberculosis		Leprosy		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	A	B	T*	C**
Colombo	301	3946	0	2	0	1	0	4	1	8	4	103	0	0	1	1	0	0	16	126	2	10	0	1	41	324	2	43	**5**	**96**
Gampaha	177	2229	0	12	2	8	0	0	0	8	7	139	0	2	0	2	0	0	7	160	2	57	0	4	26	193	0	18	**93**	**93**
Kalutara	68	818	1	9	1	2	0	2	1	3	11	87	0	0	0	0	0	0	17	163	4	13	0	0	0	96	2	24	**84**	**100**
Kandy	56	619	2	12	0	0	2	3	3	7	1	50	2	14	0	6	0	0	24	127	3	10	4	14	5	106	0	2	**98**	**100**
Matale	16	261	0	3	0	1	0	0	0	0	1	59	0	2	0	4	0	0	3	52	0	5	5	112	8	26	1	4	**70**	**93**
Nuwara Eliya	6	87	2	18	0	0	0	1	2	5	3	62	1	13	0	5	0	0	7	101	3	26	0	0	9	43	0	2	**85**	**100**
Galle	98	1050	1	3	0	2	2	3	1	24	15	132	1	10	0	4	0	0	26	191	1	31	0	1	7	69	0	8	**76**	**100**
Hambantota	38	495	0	19	0	0	0	0	0	1	2	45	1	7	0	3	0	0	6	69	0	10	3	48	1	27	0	5	**11**	**100**
Matara	83	1110	0	2	0	1	0	0	0	9	9	59	0	4	1	6	0	0	14	142	1	8	7	37	5	32	1	4	**4**	**98**
Jaffna	36	374	0	12	0	2	2	9	0	4	1	30	10	113	0	0	0	0	13	117	1	7	0	0	3	38	0	3	**96**	**99**
Kilinochchi	1	27	0	1	0	0	0	2	0	0	1	13	0	5	0	2	0	0	2	50	0	1	0	0	0	4	0	1	**100**	**100**
Mannar	2	21	0	0	0	1	0	0	0	0	1	17	1	1	0	0	0	0	0	25	0	2	0	2	0	8	0	1	**100**	**100**
Vavuniya	5	39	0	5	0	0	0	1	0	0	3	20	0	3	0	0	0	0	3	30	0	5	0	5	2	16	0	1	**100**	**100**
Mullaitivu	2	27	0	2	0	0	0	0	0	1	2	13	0	0	0	1	0	0	0	1	1	2	0	3	0	7	0	3	**95**	**100**
Batticaloa	49	379	2	19	0	2	0	0	3	15	4	48	0	0	1	4	0	0	12	77	0	5	0	0	3	35	2	28	**50**	**100**
Ampara	12	133	1	15	0	1	0	0	0	4	4	37	0	1	2	3	0	0	13	70	0	9	0	2	1	12	3	10	**47**	**100**
Trincomalee	13	162	0	8	0	2	0	2	0	2	0	22	0	7	0	1	0	0	0	28	2	10	1	5	4	29	0	2	**100**	**100**
Kurunegala	30	360	0	3	0	5	1	2	0	55	6	94	2	17	0	4	0	0	9	174	4	35	7	103	5	60	1	14	**50**	**100**
Puttalam	30	246	2	9	0	4	0	0	0	1	5	83	0	9	1	1	0	1	5	41	4	23	0	4	5	29	0	8	**56**	**73**
Anuradhapura	27	192	1	6	0	2	0	0	1	4	5	85	3	10	0	2	0	0	15	91	6	16	24	177	7	41	2	10	**77**	**88**
Polonnaruwa	4	109	0	4	0	1	0	0	1	16	9	68	0	0	1	6	0	0	20	105	1	7	18	109	2	17	0	11	**98**	**100**
Badulla	20	232	0	10	2	3	0	1	0	2	4	57	2	8	0	35	0	0	8	84	5	17	2	23	6	44	0	2	**70**	**100**
Monaragala	16	188	0	6	0	3	0	0	0	0	4	68	0	11	1	11	0	0	4	65	3	12	3	45	2	14	0	9	**73**	**100**
Ratnapura	93	828	1	10	1	3	0	2	1	6	27	177	1	13	1	4	0	0	15	97	1	10	12	42	9	77	1	9	**100**	**100**
Kegalle	35	393	1	10	0	2	0	1	0	13	6	72	0	5	1	3	0	0	20	132	0	17	1	4	8	60	0	2	**90**	**100**
Kalmunai	25	230	1	12	0	0	0	0	2	5	3	21	0	1	1	1	0	0	25	97	0	12	0	0	3	23	3	8	**100**	**100**
SRILANKA	1243	14555	15	212	6	46	7	33	16	193	138	1661	24	256	11	109	0	1	284	2415	44	360	87	741	**162**	**1393**	18	232	**74**	**98**

Source: WRCD module of the EPINET.
A = Cases reported during the current week;
B = Cumulative cases for the year.
T*=Timeliness refers to returns received on or before 08st Feb, 2026.
Total number of reporting units 360.
C**-Completeness;

Table 2: Selected Vaccine Preventable Diseases & AFP 23rd – 01st Mar 2026 (09th Week)

Disease	No. of Cases by Pro'vince									Number of cases during current week in 2026	Number of cases during same week in 2025	Total number of cases to date in 2026	Total number of cases to date in 2025	Difference between the number of cases to date in 2026 & 2025
	W	C	S	N	E	NW	NC	U	Sab					
AFP[1]	00	00	01	00	00	01	00	01	00	03	01	19	12	71.4%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps[2]	00	00	00	00	03	00	00	00	01	04	06	28	28	0 %
Measles[3]	00	00	00	00	00	00	00	00	00	00	00	00	01	-100 %
Rubella[3]	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
CRS[2]	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus[2]	00	00	00	00	00	00	00	00	00	00	00	00	01	-100 %
Neonatal Tetanus[2]	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis[3]	00	00	00	00	00	00	00	00	00	00	00	00	04	-100 %
Whooping Cough[2]	00	00	00	00	00	00	00	00	00	00	01	03	07	-50 %

Key to Table 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

Data Sources:
Weekly Return of Communicable Diseases: Diphtheria, Mumps, Tetanus, Neonatal Tetanus, Whooping Cough.
Special Surveillance: AFP, Measles, Rubella, CRS.

AFP[1] = No Polio cases
Mumps[2], CRS[2], Tetanus[2], Neonatal Tetanus[2], Whooping Cough[2]—Clinically and/ or laboratory confirmed cases
Measles[3], Rubella[3], Japanese Encephalitis[3]— Laboratory Confirmed cases

AFP—Acute Flaccid Paralysis
CRS = Congenital Rubella Syndrome
NA = Not Available

AFP and all Vaccine Preventable Diseases except Mumps should be investigated by the MOH Personally.

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, Epidemiology Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk.** The Epidemiology Unit should be formally acknowledged in all resulting publications as the primary data source.

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