



WEEKLY EPIDEMIOLOGICAL REPORT

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Ministry of Health, Nutrition & Indigenous Medicine

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Human Rabies

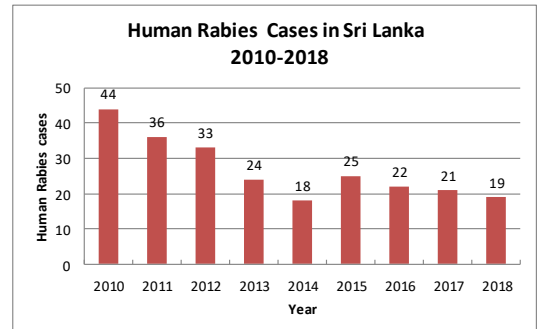
Human Rabies

This is the first of two articles on Human Rabies.

Human rabies is caused by Rabies virus which is transmitted through the saliva of a rabid animal. Rabies virus belongs to the order Mononegavirales. Mononegavirales viruses are with non-segmented, negative-stranded RNA genomes. Within this group, viruses with a distinct “bullet” shape are classified in the Rhabdo viridae family, which includes at least three genera of animal viruses, Lyssavirus, Ephemerovirus, and Vesiculovirus. Rabies virus belongs to Lyssavirus.

Human Rabies results due to a bite by an infected animal which exposes the scratch or wound to virus-laden saliva or by direct contact of virus-laden saliva with the mucosal surfaces (e.g. bite from an infected animal).

According to global estimates, 59 000 deaths are occurring all over the world due to human rabies with over 95% of them occurring in Africa and Asia. In Sri Lanka within 2011, there are 24 deaths reported due to human Rabies.



***Rabies cases reported as confirmed after notification**
Source: Epidemiology Unit

Phases of Virus within the animal

When a dog, cat, or a ferret is bitten by a rabid animal, the rabies virus is introduced into a muscle and virus travels from that to the brain through nerves. The animal is not having symptoms during this period. Within this period animal is not having the virus in saliva and they do not carry the risk of transmitting rabies to others during this period. After entry, the virus binds to cell receptors. Viruses replicate within striated muscle cells or directly infect nerve cells. The virus then travels through retrograde axoplasmic transport mechanisms to the central nervous system. Both motor and sensory nerves may be involved depending on the animal infected. When the virus has

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reached the central nervous system, rapid virus replication takes place, causing pathologic effects on nerve cell physiology. The virus then moves from the central nervous system through anterograde axoplasmic flow within peripheral nerves, leading to infection of some of the adjacent non-nervous tissues such as secretory tissues of salivary glands. The virus is widely disseminated throughout the body at the time of clinical onset of symptoms. With the shedding of infectious virus in the saliva the infection cycle of rabies is completed.

After the virus has reached the brain and it multiplies there to cause an inflammation of the brain. Then it moves from the brain to the salivary glands and saliva. Then the animal shows the first symptoms. However, extensive studies on dogs, cats, and ferrets show that the rabies virus can be excreted in the saliva of infected animals several days before the illness is apparent. The infected animal usually dies within 7 days of becoming sick.

Transmission



Dogs contribute to about 99% of the transmission of Rabies to humans. Other animals causing rabies transmission to humans are bats, carnivores, or other mammals. Human deaths following exposure to foxes, raccoons, skunks, jackals, mongooses and other wild carnivore host species are very rare, and bites from rodents are not known to transmit rabies.

Mode of transmission is usually through saliva or brain/nervous system tissue from an infected animal which comes into direct contact with human mucosa or fresh skin wounds. Though human-to-human transmission through bites is theoretically possible, it has never been confirmed. Rarely rabies transmission occurs through inhalation of virus-containing aerosols or transplantation of infected organs. However, the transmission of rabies through the consumption of raw meat or animal-derived tissue has never been confirmed in humans.

Petting a rabid animal or contact with the blood, urine or faeces of a rabid animal is not considered to be exposures of concern for rabies. Touching a person with rabies or contact with non-infectious fluid or tissue (urine, blood, faeces), is not found to be associated with risk for infection.

Contact with someone who is receiving rabies vaccination after a rabies exposure does not lead to a risk for infection and does not require post-exposure prophylaxis. By exposure to sunlight or drying out, Rabies virus becomes noninfectious.

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Table 1: Selected notifiable diseases reported by Medical Officers of Health 26th - 01st Nov 2019 (44th Week)

RDHS Division	Dengue Fever		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		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	815	14033	1	52	0	11	1	21	1	62	9	214	1	11	0	9	0	0	0	3	404	1	44	0	4	49	100
Gampaha	532	11348	0	41	0	8	0	4	0	25	2	109	0	4	0	7	0	2	4	4	379	0	25	0	154	49	98
Kalutara	304	6436	2	71	1	7	1	20	1	61	12	538	0	7	0	4	0	2	14	615	2	101	0	3	63	200	
Kandy	479	5482	4	97	0	13	0	4	0	31	3	83	1	88	0	6	0	3	7	254	1	61	1	45	64	100	
Matale	99	748	0	26	0	4	0	1	0	6	0	43	0	6	1	9	0	2	1	84	0	5	9	246	59	99	
NuwaraEliya	15	266	1	98	0	2	0	9	0	11	2	51	1	76	0	9	0	0	3	131	5	53	0	0	26	100	
Galle	138	5598	1	47	0	7	0	3	2	7	9	405	3	50	1	44	0	2	9	401	1	48	0	5	62	98	
Hambantota	47	1638	2	34	0	4	0	3	0	8	10	137	5	124	0	4	0	1	1	273	0	42	3	672	72	100	
Matara	114	3270	3	35	0	4	0	7	0	20	16	424	2	41	4	21	0	1	11	297	0	16	13	520	59	100	
Jaffna	299	3156	17	326	0	13	0	32	0	106	0	33	31	356	0	5	1	1	4	271	0	21	0	0	20	93	
Kilinochchi	13	169	10	57	1	2	0	15	2	9	0	19	1	26	0	1	0	0	1	9	0	8	0	14	49	100	
Mannar	9	110	0	4	0	2	0	9	0	1	0	1	0	8	0	0	0	0	0	0	0	0	5	0	1	53	100
Vavuniya	9	313	1	29	0	11	0	29	0	17	0	55	0	5	0	0	0	0	0	83	0	12	0	4	59	99	
Mullaitivu	5	140	1	14	0	1	0	13	0	5	0	26	0	8	0	0	0	0	0	16	0	7	0	4	29	97	
Batticaloa	67	1384	9	191	0	2	0	13	0	43	0	46	0	1	0	0	0	1	7	243	0	28	0	0	50	100	
Ampara	13	260	3	79	0	2	0	0	0	17	0	42	0	2	0	11	0	0	4	292	2	16	0	4	58	100	
Trincomalee	49	1115	1	40	0	0	0	0	6	63	0	18	1	19	0	5	0	1	0	230	0	9	0	5	33	99	
Kurunegala	123	2074	4	71	0	19	0	6	0	30	9	175	0	26	0	22	0	3	10	549	0	91	15	730	61	100	
Puttalam	144	1290	1	30	1	4	0	1	0	19	0	33	0	16	0	3	0	0	2	130	2	49	0	9	61	100	
Anuradhapura	33	673	4	52	0	11	0	5	0	13	2	122	0	34	0	24	0	2	6	456	1	88	11	500	43	99	
Polonnaruwa	19	365	0	28	0	3	1	2	0	4	4	71	0	4	0	16	0	2	4	287	0	20	2	264	60	100	
Badulla	77	1084	3	88	0	9	0	10	6	89	13	205	1	122	3	21	0	0	2	314	2	161	0	15	63	100	
Monaragala	0	333	0	36	0	4	0	0	0	79	0	189	0	82	0	41	0	0	0	212	0	112	0	22	60	70	
Ratnapura	124	3063	4	103	2	35	0	10	0	21	31	909	1	42	3	33	0	4	10	388	1	152	3	157	47	100	
Kegalle	72	1926	0	38	0	18	0	2	0	28	16	227	0	55	0	93	0	0	11	446	0	52	0	54	68	100	
Kalmune	27	680	2	93	0	1	0	1	0	64	0	30	0	3	0	4	0	0	7	226	5	26	0	0	63	99	
SRI LANKA	3626	66954	74	1780	5	197	3	220	18	839	13	4205	48	1216	12	392	1	27	121	6990	23	1252	57	3432	54	98	

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 01st November, 2019 Total number of reporting units 353 Number of reporting units data provided for the current week: 319 C**=Completeness
A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

26th – 01st Nov 2019 (44th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2019	Number of cases during same week in 2018	Total number of cases to date in 2019	Total number of cases to date in 2018	Difference between the number of cases to date in 2019 & 2018
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	01	65	55	18.1 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	00	00	01	00	00	00	01	00	02	08	286	297	- 3.7 %
Measles	01	01	00	00	00	00	01	00	00	03	01	262	106	147.1 %
Rubella	00	00	00	00	00	00	00	00	00	00	02	00	07	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	01	18	18	0 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	00	00	00	00	00	00	00	00	00	00	00	09	25	- 64 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	02	36	46	- 21.7 %
Tuberculosis	45	11	25	07	11	11	05	01	08	124	150	7188	7191	- 0.04 %

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

Dengue Prevention and Control Health Messages

Look for plants such as bamboo, bohemia, rampe and banana in your surroundings and maintain them free of water collection.

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

ON STATE SERVICE

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