



WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
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Vol. 46 No. 47

16th– 22nd November 2019

Soil-transmitted Helminthic infections

This is the first of two articles on Soil transmitted Helminthic infections



Soil-transmitted Helminthic infections

Soil-transmitted helminth infections are considered as **Neglected Tropical Diseases (NTDs)** because they inflict tremendous disability and suffering yet can be controlled or eliminated. The disease is found mainly in areas with warm and moist climates where sanitation and hygiene are poor, including temperate zones during warmer months.

Global Burden

Globally nearly 1.5 billion people are infected with soil-transmitted helminths. Tropical and subtropical areas are mainly affected, with high prevalence in sub-Saharan Africa, the Americas, China and East Asia. Over 267 million preschool-age children and over 568 million school-age children live in areas where these parasitic infections are prevalent and need preventive and treatment options.

Transmission

There are several causative parasitic worms for soil-transmitted helminthic infections.

Infections are transmitted by eggs present in human faeces which in turn contaminate soil in areas where sanitation is poor. The main species identified as causative agents infecting humans are the roundworm (*Ascaris lumbricoides*), the whipworm (*Trichuris trichiura*) and hookworms (*Necator americanus* and *Ancylostoma duodenale*). Globally approximately 807-1121 million are infected with *Ascaris* and nearly 604-795 million with whipworm. Further, around 576-740 million are infected with hookworm.

The disease is transmitted through eggs present in human faeces in areas where sanitation is poor. From infected persons, parasitic eggs pass in the faeces and with

WEBER SRI LANKA 2019

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poor sanitation, these eggs contaminate the soil. This contamination commonly occurs when an infected person defecates outside (near bushes, in a garden, or field) or if the faeces of an infected person are used as fertilizer. Where there is poor sanitation, these eggs enter the human body with food. This occurs when hands are contaminated with dirt and are put in the mouth or by consuming vegetables and fruits that have not been carefully cooked, washed or peeled. Adult worms live in the human intestine and they produce thousands of eggs within the intestine. In areas that lack adequate sanitation, these eggs contaminate the soil.

However, Hookworm eggs are not infective. Hookworm eggs hatch in soil, releasing larvae that mature into a form that can penetrate the skin of humans. Hookworm infection is acquired mainly by walking barefoot on contaminated soil. However, one kind of hookworm can also transmit the infection through the ingestion of larvae.

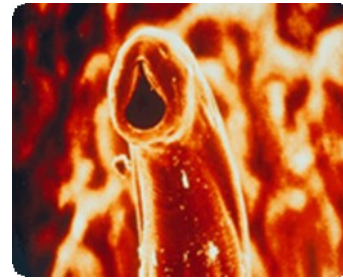
Ways of parasitic eggs getting enter into humans:

- By eating vegetables with attached parasitic eggs that are not properly cooked, washed or peeled
- By contaminated water sources with eggs
- When children play in the contaminated soil and then put their hands in their mouths without washing them

Other modes of humans getting infection:

Hookworm eggs hatch in the soil and release larvae that mature into a form that actively penetrate the skin. So people get hookworm infection primarily by walking barefoot on contaminated soil.

Eggs passed in faeces have to stay in the soil to become mature to become infective. Therefore, direct transmission from human faeces to other human is not possible. These mature worms do not multiply in the human host. Therefore, re-infection occurs only as a result of contact with infective stages in the environment.



Hookworm (Source <https://www.cdc.gov/parasites/sth/index.html>)

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**Table 1 : Water Quality Surveillance
 Number of microbiological water samples October 2019**

District	MOH areas	No: Expected *	No: Received
Colombo	15	90	21
Gampaha	15	90	NR
Kalutara	12	72	NR
Kalutara NIHS	2	12	NR
Kandy	23	138	NR
Matale	13	78	NR
Nuwara Eliya	13	78	63
Galle	20	120	NR
Matara	17	102	22
Hambantota	12	72	NR
Jaffna	12	72	94
Kilinochchi	4	24	37
Manner	5	30	28
Vavuniya	4	24	NR
Mullatvu	5	30	NR
Batticaloa	14	84	NR
Ampara	7	42	NR
Trincomalee	11	66	NR
Kurunegala	29	174	108
Puttalam	13	78	NR
Anuradhapura	19	114	25
Polonnaruwa	7	42	26
Badulla	16	96	79
Moneragala	11	66	NR
Rathnapura	18	108	NR
Kegalle	11	66	20
Kalmunai	13	78	NR

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

Table 1: Selected notifiable diseases reported by Medical Officers of Health 09th - 15th Nov 2019 (46th Week)

RDHS Division	Dengue Fever		Typhus Fever		Viral Hepatitis		Human Rabies		Chickenpox		Meningitis		Leishmaniasis		WRCD											
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**										
Colombo	891	15810	0	55	13	1	23	1	64	8	240	0	12	1	11	0	0	10	421	2	48	0	4	49	100	
Gampaha	328	12202	0	42	0	8	0	4	0	25	5	119	0	4	0	9	0	2	4	391	0	26	2	166	49	97
Kalutara	264	6973	0	72	0	7	0	21	7	68	11	562	0	7	0	5	0	2	10	635	2	103	0	3	63	100
Kandy	448	6471	0	97	0	13	0	4	0	31	1	88	1	89	0	6	0	3	5	264	2	64	2	47	64	100
Matale	153	1175	1	28	0	4	0	1	0	6	0	45	0	6	0	9	0	2	1	86	0	5	4	259	59	100
NuwaraEliya	11	298	0	99	0	2	0	10	0	11	1	52	1	77	0	9	0	0	1	137	3	59	1	1	28	100
Galle	182	6054	2	50	0	7	0	3	0	7	7	431	1	51	2	48	0	2	9	427	3	51	0	5	62	98
Hambantota	42	1725	1	37	0	4	1	4	0	12	14	159	3	129	0	4	0	1	4	282	0	42	2	725	72	100
Matara	93	3487	1	37	0	4	0	7	0	20	4	448	1	43	0	21	0	1	7	306	0	16	8	546	60	100
Jaffna	449	3986	10	361	0	13	3	36	0	110	2	36	23	410	0	6	0	1	0	273	1	22	0	0	21	93
Kilinochchi	19	191	14	92	0	2	0	15	2	12	0	19	2	29	0	1	0	0	0	9	0	8	0	14	51	100
Mannar	13	124	0	5	0	2	0	9	0	1	0	1	0	8	0	0	0	0	0	1	0	5	0	1	55	100
Vavuniya	9	340	2	34	0	11	0	29	0	17	0	55	0	5	0	0	0	0	0	83	0	12	0	4	60	98
Mullaitivu	11	167	5	20	0	1	0	13	0	5	0	27	0	8	0	0	0	0	0	16	0	7	2	6	28	100
Batticaloa	97	1573	12	210	0	2	0	13	0	43	1	49	0	1	0	0	0	1	4	257	1	29	0	0	51	100
Ampara	11	285	0	79	1	3	0	0	0	17	5	51	0	2	0	11	0	0	6	303	5	22	0	4	57	100
Trincmalee	75	1252	1	43	0	0	0	0	0	63	1	20	1	20	0	5	0	1	3	233	0	10	0	5	34	98
Kurunegala	100	2285	1	74	1	23	0	6	0	30	49	241	2	29	1	23	1	4	5	565	1	94	11	748	61	100
Puttalam	118	1522	2	33	0	4	0	1	0	19	1	39	0	16	0	3	0	0	0	130	1	50	0	9	62	100
Anuradhapura	46	764	2	55	0	11	0	5	0	13	6	134	0	34	1	25	0	2	3	477	1	90	7	518	43	99
Polonnaruwa	17	395	1	30	0	3	1	3	0	5	2	76	0	4	1	17	0	2	3	295	2	24	5	282	60	100
Badulla	82	1256	0	89	1	10	0	10	0	89	3	216	1	125	1	23	0	0	6	323	2	165	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	67
Ratnapura	112	3339	2	108	1	37	0	10	1	22	37	981	0	43	0	33	0	4	8	399	1	156	5	165	48	100
Kegalle	85	2131	0	39	0	18	0	2	0	28	16	259	0	55	0	94	0	0	4	459	0	52	1	56	69	100
Kalmune	36	751	7	100	0	1	0	1	0	64	2	33	0	3	0	4	0	0	4	236	1	27	0	0	63	99
SRI LANKA	3692	74889	64	1925	4	207	6	230	11	861	17	4570	36	1292	7	408	1	28	97	7220	28	1299	50	3605	55	98

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 15th November, 2019 Total number of reporting units 353 Number of reporting units data provided for the current week: 322 C**=Completeness
A = Cases reported during the current week. B = Cumulative cases for the year.

Table 2: Vaccine-Preventable Diseases & AFP

09th - 15th Nov 2019 (46th 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	01	00	00	00	00	00	00	00	01	04	74	60	23.3 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	01	00	01	00	00	01	00	00	00	03	17	294	323	- 8.9 %
Measles	01	00	00	00	00	00	00	02	00	03	00	271	110	146.3 %
Rubella	00	00	00	00	00	00	00	00	00	00	03	00	08	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	19	-5.2 %
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	01	00	00	00	00	00	00	00	00	01	02	37	46	- 19.5 %
Tuberculosis	01	12	07	02	19	00	00	04	13	58	249	7498	7727	- 2.9 %

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

Influenza Surveillance in Sentinel Hospitals - ILI & SARI							
Month	Human				Animal		
	No Total	No Positive	Infl A	Infl B	Pooled samples	Serum Samples	Positives
November							

Source: Medical Research Institute & Veterinary Research Institute

PRINTING OF THIS PUBLICATION IS FUNDED BY THE WORLD HEALTH ORGANIZATION (WHO).

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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