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231, de Saram Place, Colombo 01000, Sri Lanka
Tele: + 94 11 2695112, Fax: +94 11 2696583, E mail: epidunit@sltnet.lk
Epidemiologist: +94 11 2681548, E mail: chepid@sltnet.lk
Web: http://www.epid.gov.lk

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Filariasis in Sri Lanka (Part I)

This is the first in a series of three articles on filariasis in Sri Lanka.

Introduction

Lymphatic filariasis (LF) is one of the main causes of permanent disability leading to socio-economic problems. Of the estimated 120 million people affected with LF globally in 73 countries, 50% are in the South-East Asia Region (SEAR). Out of the 1.39 billion globally at risk, 63% live in 9 of the 11 Member States of the SEAR, requiring mass drug administration (MDA) with diethyl carbamazine citrate (DEC) and albendazole. LF is endemic in nine countries (Sri Lanka, Maldives, Thailand, Bangladesh, Myanmar, India, Nepal, Indonesia, Timor-Leste) in the SEAR.

The three causative parasites of lymphatic filariasis in the world are: *Wuchereria bancrofti, Brugia malayi, Brugia timori*. They are the most widespread and abundant of all filarial worms .

The adult parasites live in the lymphatic system, which is an essential component of the body's immune defense system. The worms have an estimated active reproductive life span of 4-5 years producing millions of minute, immature larvae- microfilariae (mf) that circulate in blood. The mf are transmitted from person to person by several species of infected mosquitoes. *Wuchereriabancrofti* is mainly transmitted by C*ulex* species (eg: *Culex quinquefasciatus*) and *Brugia malayi / timori* by *Mansonia* species.

History of Filariasis in Sri Lanka

History of LF in Sri Lanka can be traced back to the 3rd century B.C. The first all island survey was done during the period 1936 –1939 by Dassanayake. Then, the microfilaria (mf) rate was around 20 –24%.

After the establishment of Anti Filariasis Campaign (AFC) on 24th of October 1947, with selective chemotherapy and morbidity control through health education and recurrent vector control measures, the mf rate was brought down to 5-6%. Since then, it has remained static at a lower level of transmission.

Two types of filarial parasites have been reported from Sri Lanka. i.e. *Wuchereria bancrofti* and *Brugia malayi.*

Wuchereria bancrofti is the main LF infection being transmitted. The main insect vector responsible for the spread of filariasis in Sri Lanka is the *Culex quinquefasciatus* mosquito, serves as the intermediate host, in which the microfilarial counts coincides with the biting habits of the vector. The mosquito breeds in highly polluted collection of water, such as blocked drains, damaged septic tanks, latrine pits etc, which are abound in urban habitats. *B. malayi* is transmitted by *Mansonia annulifera*, *Mansonia uniformis* and *Mansonia indiana* and these species of mosquitoes were found in association with water plants such as *Pistiastratiotes, Salvinia* etc.

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Current situation of filariasis control in Sri Lanka

Compiled by Dr. S.D.Samarasekara

Consultant Community Physician

{*MBBS (Col), MSC (Community Medicine), MD (Community Medicine)* }

Anti Filariasis Campaign

Ministry of Health Sri Lanka

The vertical organization, AFC of Ministry of Health, is the main body responsible for filariasis control in Sri Lanka. In Sri Lanka LF is endemic in eight districts (Colombo, Kalutara, Gampaha, Galle, Matara, Hambantota, Kurunegala & Puttalam) in three provinces (Western, Southern & North Western Provinces) and about half of the population of Sri Lanka live in filariasis endemic districts.

The AFC is staffed by the Director, Consultant Community Physician, Medical Officers, and Entomologist, Nursing sister, Public Health Inspectors, Entomological Assistants, Public Health Laboratory Technicians, office staff and labourers. The main activities of AFC are parasitological investigations and control, entomological investigations and control, morbidity management and disability prevention of Lymphoedema patients, planning activities, health education, statistical monitoring at national level and provision of technical guidance to peripheral filariasis units which are under the Provincial Director of Health Services (PDHS). There are Regional Anti filariasis Units (RAFUs) in seven endemic districts and these are headed by the Regional Medical Officer – Filariasis (RMO-F). AFC and RAFUs conduct filariasis vector and parasitological surveys mainly in endemic areas and also conduct some surveys in non-endemic areas.

Following the Global Programme to Eliminate Lymphatic Filariasis (GPELF), the Ministry of Health initiated the national Programme to Eliminate Lymphatic Filariasis. The goal of the programme is achieving elimination by 2020. Elimination was defined as a mf rate of < 1% or antigen rate of < 2%. Two principal strategies of the GPELF were

(i) interruption of transmission

(ii) disability prevention and control.

AFC of Ministry of Health Sri Lanka collaborates with other partners such as the World Health Organization (WHO), Gates Foundation, Liverpool School of Tropical Medicine-UK, University of St. Louise-USA and National Institute of Health, USA.

Objectives of AFC are to eliminate Lymphatic Filariasis by interruption of transmission by 2020 and to alleviate suffering and disabilities of affected individuals.

Table 1 : Water Quality Surveillance
Number of microbiological water samples December/2015

District	MOH areas	No: Expected *	No: Received
Colombo	12	72	87
Gampaha	15	90	92
Kalutara	12	72	68
Kalutara NIHS	2	12	16
Kandy	23	138	1
Matale	12	72	0
Nuwara Eliya	13	78	14
Galle	19	114	85
Matara	17	102	18
Hambantota	12	72	NR
Jaffna	11	66	12
Kilinochchi	4	24	18
Manner	5	30	34
Vavuniya	4	24	20
Mullatvu	4	24	18
Batticaloa	14	84	19
Ampara	7	42	NR
Trincomalee	11	66	6
Kurunegala	23	138	115
Puttalam	9	54	41
Anuradhapura	19	114	0
Polonnaruwa	7	42	49
Badulla	15	90	80
Moneragala	11	66	30
Rathnapura	18	108	60
Kegalle	11	66	54
Kalmunai	13	78	NR

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

to be continued ....

Table 2: Selected notifiable diseases reported by Medical Officers of Health 09th – 15th Jan 2014 (03rd 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	328	1014	5	12	0	0	1	6	0	0	1	4	0	0	1	1	0	0	5	17	0	0	0	0	**81**	**94**
Gampaha	61	230	0	1	0	3	0	1	0	0	0	2	0	1	1	3	0	0	4	20	0	1	0	0	**47**	**100**
Kalutara	55	137	2	6	0	0	0	1	0	0	7	31	0	3	0	0	0	0	4	10	2	2	0	0	**71**	**100**
Kandy	50	161	5	9	0	2	3	3	0	3	10	28	2	6	1	8	0	0	2	6	1	3	0	2	**96**	**100**
Matale	8	20	1	2	0	0	0	1	0	0	4	14	0	2	0	0	0	0	0	2	2	9	2	4	**69**	**100**
NuwaraEliya	18	28	2	3	0	0	3	4	0	0	1	7	0	3	0	0	0	0	1	4	0	1	0	0	**100**	**100**
Galle	17	130	1	6	0	1	0	0	0	2	10	33	3	13	0	2	0	0	2	16	0	10	0	0	**80**	**100**
Hambantota	15	42	1	7	0	0	0	0	0	0	2	15	5	11	1	3	0	0	4	17	1	1	9	16	**83**	**100**
0Matara	22	76	0	4	1	1	0	0	0	26	3	13	2	8	0	1	0	0	6	16	0	0	4	20	**100**	**100**
Jaffna	135	447	7	26	1	1	1	6	1	5	1	3	45	180	0	0	0	0	1	6	0	2	0	0	**92**	**100**
Kilinochchi	0	6	0	5	0	0	1	2	0	0	0	3	1	6	0	0	0	0	0	0	0	3	0	0	**50**	**100**
Mannar	6	23	1	1	0	3	0	1	0	0	2	5	1	11	0	0	0	0	0	0	0	0	0	0	**80**	**100**
Vavuniya	2	36	0	1	0	0	0	0	0	1	0	3	0	1	0	0	0	0	2	2	0	0	0	1	**25**	**100**
Mullaitivu	2	12	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	1	**40**	**100**
Batticaloa	20	68	9	23	0	0	1	2	0	0	0	3	0	0	0	1	0	0	1	2	0	1	0	0	**64**	**100**
Ampara	2	6	0	1	0	0	0	0	0	0	0	3	0	0	1	1	0	0	1	2	0	0	0	0	**57**	**86**
Trincomalee	19	56	3	6	0	0	1	1	0	0	0	0	0	1	1	10	0	0	4	10	1	1	0	0	**83**	**92**
Kurunegala	36	106	4	13	0	1	0	0	0	5	1	15	2	3	1	1	0	0	4	16	1	4	5	8	**85**	**100**
Puttalam	21	71	0	3	0	0	0	0	0	0	0	7	2	15	0	0	0	0	3	7	1	4	0	0	**62**	**85**
Anuradhapura	8	43	4	9	0	0	0	0	1	2	12	55	0	3	0	1	0	0	4	7	0	1	2	10	**53**	**100**
Polonnaruwa	13	31	3	5	0	0	0	0	0	0	11	25	0	0	0	0	0	0	2	6	0	0	5	10	**71**	**100**
Badulla	18	59	2	8	0	0	0	1	0	0	3	10	3	10	3	4	0	0	5	8	4	13	0	0	**76**	**94**
Monaragala	11	40	0	3	0	1	0	1	0	0	12	42	2	6	1	8	0	0	0	5	2	5	0	2	**100**	**100**
Ratnapura	26	95	4	8	2	3	0	4	0	0	3	19	0	1	3	13	0	0	1	6	3	7	0	0	**61**	**100**
Kegalle	27	119	0	2	1	3	0	10	0	3	4	30	0	2	1	1	0	0	4	28	0	1	0	0	**55**	**100**
Kalmune	12	62	0	6	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	2	0	2	0	0	**46**	**100**
SRILANKA	**932**	**3118**	**54**	**170**	**5**	**19**	**11**	**46**	**2**	**47**	**87**	**373**	**68**	**287**	**15**	**58**	**0**	**0**	**60**	**215**	**18**	**71**	**27**	**74**	**74**	**98**

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 15th Januaryl , 2016 Total number of reporting units 339 Number of reporting units data provided for the current week: 336 **C****-Completeness

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

Table 3: Vaccine-Preventable Diseases & AFP

09th – 15th Jan 2014 (03rd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2016	Number of cases during same week in 2015	Total number of cases to date in 2016	Total number of cases to date in 2015	Difference between the number of cases to date in 2016 & 2015
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	01	00	00	00	00	00	00	00	01	02	03	06	-50%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	01	00	00	01	00	00	00	01	00	03	06	17	15	+13.3%
Measles	02	01	00	00	03	03	00	00	00	09	28	37	68	+46.1%
Rubella	01	00	00	00	00	00	00	00	00	01	00	01	02	-50%
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	00	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	01	00	02	-100%
Whooping Cough	01	00	01	00	00	00	02	00	00	04	01	05	05	0%
Tuberculosis	30	11	15	10	09	07	00	06	23	111	101	504	366	+38.1%

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

AFP and all clinically confirmed Vaccine Preventable Diseases except Tuberculosis and Mumps should be investigated by the MOH

Influenza Surveillance in Sentinel Hospitals - ILI & SARI								
Month	Human					Animal		
	No Received	ILI	SARI	Infl A	Infl B	Pooled samples	Serum Samples	Positives
December	2041	56	11	24	01	1546	421	0

Source: Medical Research Institute & Veterinary Research Institute

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ON STATE SERVICE

Dr. P. PALIHAWADANA
CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10