# WEEKLY EPIDEMIOLOGICAL REPORT

A publication of the Epidemiology Unit
Ministry of Health, Nutrition & Indigenous Medicine


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## Leishmaniasis Part II

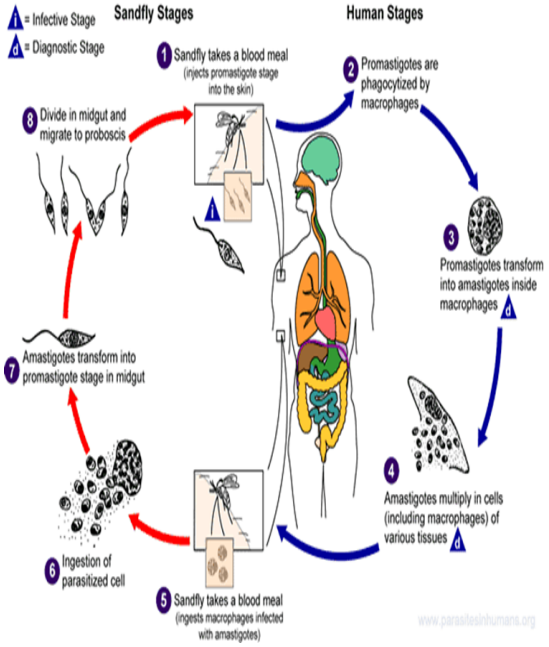
### Parasite

Leishmaniasis is a vector-borne zoonotic parasitic disease caused by several different species of genus *Leishmania*. There are over 20 species of Leishmania that can cause leishmaniasis in humans. These include the *L. donovani* complex with 2 species, *L. mexicana* complex with 3 main species *L. tropica*; *L. major*; *L. aethiopica*; and the subgenus *Viannia* with 4 main species The different species are morphologically indistinguishable, but they can be differentiated using genetical methods.

The causative organism of leishmaniasis prevailing in Sri Lanka is identified as *Leishmania donovani* (zymodeme MON 37) which causes visceral leishmaniasis in India & several other countries in the world. The local parasite was identified to be genetically different from other known L. donovani in Asian, African and in Mediterranean regions.

### Life Cycle

The parasite undergoes two developmental stages (promastigotes, amastigotes) in the body of the mammalian host (dogs, rodents, humans) and in the body of the vector, sand fly.




When an infected female sand fly takes a blood meal, promastigotes are inoculated into the site of the bite. Promastigotes are usually phagocytized by the macrophages at the site of the bite. However, promastigotes are highly motile. Therefore phagocytosis can occur at locations far away from the bite site. Inside the macrophage, promastigotes transform into amastigote which multiplies by simple division and proceeds to infect other mononuclear phagocytic cells. Sand flies become infected by ingesting infected cells during blood meals and in the gut of the sand fly, amastigotes transform into promastigotes.

### Host

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Humans have been identified as the main reservoir for L. donavani. But there is evidence suggestive of possible reservoir status of domestic dogs

**Vector**

It is transmitted through the bite of infected female sand flies of subfamily Phlebotominae. Out of over 800 Phlebotominae *species only 98 species are proven or suspected vectors of Leishmaniasis. Phlebotomus argentipes* is the likely vector of *L. donovani* in Sri Lanka.

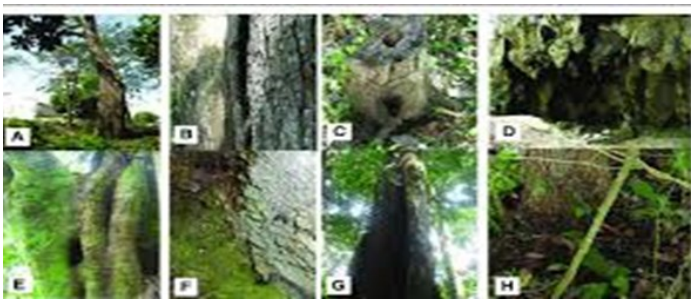
Sand flies are widely prevalent in some parts of the country and locally known as weli massa", "hohaputuwa" in different parts of the country.

Sand flies *predominantly habitat in warm, humid and tropical climates.* They have a four stage life cycle (egg, larva, pupa and adult). *They require microclimate with high humidity to develop their eggs and moist soil with decaying organic matter for the development of larvae.* The common breeding places include bark and buttress roots in old trees, animal shelters, cracks and holes in floors and walls, household garbage dumps which are rich in moisture and humus. It will take 20- 30 days to become an adult sand fly. Adverse environmental conditions such as heat, cold, droughts may prolong the developmental stages in months. The common resting sites of adult sand flies are cracks and holes in rocks, caves, and rodent burrows, and cool, dark and humid corners of animal shelters or human dwelling in peri-domestic settings.

Sand flies are very small in size (1.5 to 3.5 mm) with a hairy appearance, large black eyes and long, stilt-like legs. At rest, they keep their wings in a characteristic "V" shape. Sand flies are weak flyers and have characteristic hopping movements. They do not make a sound when they move. They tend to remain closer to the breeding sites, moving around a hundred meters. Most species of sandflies fly horizontally, not too high from the ground level. Sand flies are most active from dusk to dawn and less active during the hottest times of the day. Both female and male sand flies feed on plant juices and sugary secretions. But female sand fly needs a blood meal to mature eggs. Their feeding activity is influenced by temperature, humidity and air flow. The people may expose to sand fly bites during dusk to dawn in indoors. However, day time biting can occur in darkened rooms, among shaded vegetation especially when disturbed by the human activities. Therefore, those who are working outdoors such as agricultural workers are at higher risk.

*Breeding Places of Sandfly*

Adultsandfly




some breeding sites

**Compiled by**

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**Consultant Epidemiologist**



to be continued ...

**Table 1: Selected notifiable diseases reported by Medical Officers of Health 16th – 22nd Feb 2019 (8th Week)**

| RDHS Division | Dengue Fever | | Dysentery | | Encephalitis | | Enteric Fever | | Food Poisoning | | Leptospirosis | | Typhus Fever | | Viral Hepatitis | | Human Rabies | | Chickenpox | | Meningitis | | Leishmania-sis | | 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 | 144 | 2017 | 3 | 10 | 0 | 1 | 1 | 3 | 5 | 7 | 2 | 25 | 0 | 6 | 0 | 3 | 0 | 0 | 4 | 76 | 2 | 11 | 0 | 2 | **47** | **100** |
| Gampaha | 69 | 1166 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 11 | 1 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 13 | 74 | 0 | 4 | 1 | 22 | **54** | **96** |
| Kalutara | 40 | 517 | 4 | 15 | 0 | 3 | 0 | 1 | 0 | 25 | 4 | 86 | 0 | 1 | 0 | 1 | 0 | 0 | 17 | 167 | 0 | 21 | 0 | 3 | **61** | **65** |
| Kandy | 47 | 517 | 1 | 10 | 0 | 2 | 0 | 0 | 0 | 4 | 1 | 20 | 5 | 18 | 0 | 1 | 0 | 1 | 5 | 43 | 1 | 8 | 0 | 6 | **55** | **100** |
| Matale | 16 | 116 | 2 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 18 | 0 | 3 | 5 | 67 | **54** | **100** |
| NuwaraEliya | 4 | 43 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 11 | 0 | 3 | 0 | 0 | 0 | 9 | 2 | 10 | 0 | 0 | **17** | **100** |
| Galle | 19 | 255 | 0 | 11 | 1 | 3 | 0 | 1 | 0 | 0 | 6 | 51 | 2 | 15 | 0 | 1 | 0 | 0 | 7 | 71 | 2 | 17 | 0 | 1 | **61** | **100** |
| Hambantota | 12 | 231 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 10 | 3 | 36 | 0 | 1 | 0 | 0 | 13 | 88 | 1 | 8 | 28 | 147 | **72** | **100** |
| Matara | 21 | 352 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 1 | 6 | 29 | 0 | 14 | 1 | 5 | 0 | 0 | 12 | 65 | 0 | 2 | 8 | 93 | **64** | **100** |
| Jaffna | 86 | 1354 | 4 | 30 | 0 | 2 | 1 | 3 | 0 | 1 | 2 | 17 | 20 | 194 | 0 | 0 | 0 | 0 | 9 | 48 | 0 | 5 | 0 | 0 | **21** | **93** |
| Kilinochchi | 6 | 57 | 0 | 4 | 0 | 1 | 0 | 4 | 0 | 0 | 2 | 12 | 1 | 9 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 4 | **47** | **100** |
| Mannar | 1 | 41 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **49** | **88** |
| Vavuniya | 4 | 85 | 0 | 1 | 0 | 1 | 5 | 13 | 0 | 2 | 1 | 17 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 17 | 1 | 3 | 0 | 1 | **41** | **100** |
| Mullaitivu | 3 | 51 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 7 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | **38** | **83** |
| Batticaloa | 70 | 386 | 0 | 22 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 29 | 0 | 2 | 0 | 0 | **53** | **100** |
| Ampara | 4 | 43 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 35 | 0 | 1 | 0 | 2 | **48** | **100** |
| Trincomalee | 19 | 252 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 16 | 31 | 0 | 1 | 0 | 0 | **29** | **82** |
| Kurunegala | 33 | 352 | 3 | 14 | 0 | 5 | 1 | 3 | 0 | 2 | 5 | 43 | 1 | 8 | 0 | 9 | 0 | 0 | 16 | 127 | 2 | 11 | 24 | 163 | **56** | **98** |
| Puttalam | 15 | 140 | 0 | 7 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 7 | 1 | 5 | 0 | 0 | 0 | 0 | 3 | 34 | 1 | 3 | 2 | 3 | **57** | **100** |
| Anuradhapura | 12 | 117 | 0 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 51 | 1 | 12 | 0 | 5 | 0 | 0 | 11 | 113 | 4 | 21 | 12 | 92 | **38** | **100** |
| Polonnaruwa | 6 | 58 | 1 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 24 | 0 | 1 | 0 | 2 | 0 | 0 | 4 | 57 | 1 | 7 | 4 | 39 | **56** | **100** |
| Badulla | 17 | 147 | 0 | 10 | 0 | 1 | 0 | 3 | 0 | 54 | 4 | 45 | 2 | 19 | 0 | 4 | 0 | 0 | 7 | 48 | 4 | 35 | 1 | 3 | **65** | **99** |
| Monaragala | 8 | 98 | 0 | 11 | 0 | 1 | 0 | 0 | 72 | 72 | 6 | 55 | 9 | 29 | 4 | 12 | 0 | 0 | 4 | 39 | 5 | 28 | 2 | 7 | **66** | **100** |
| Ratnapura | 38 | 342 | 2 | 19 | 0 | 10 | 0 | 2 | 4 | 6 | 9 | 106 | 0 | 6 | 0 | 3 | 0 | 1 | 8 | 80 | 6 | 36 | 0 | 13 | **43** | **100** |
| Kegalle | 29 | 248 | 1 | 7 | 1 | 6 | 0 | 0 | 1 | 16 | 2 | 27 | 1 | 6 | 0 | 1 | 0 | 0 | 16 | 91 | 3 | 6 | 1 | 5 | **53** | **100** |
| Kalmune | 19 | 201 | 0 | 14 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 36 | 0 | 1 | 0 | 0 | **59** | **100** |
| **SRILANKA** | **742** | **9186** | **23** | **226** | **2** | **48** | **10** | **50** | **82** | **202** | **59** | **695** | **47** | **402** | **5** | **58** | **0** | **4** | **182** | **1398** | **35** | **246** | **88** | **674** | **52** | **98** |

**Source: Weekly Returns of Communicable Diseases (WRCD).**

*T=Timeliness refers to returns received on or before 22nd February , 2019 Total number of reporting units 353 Number of reporting units data provided for the current week: 341 C**-Completeness

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

## Table 2: Vaccine-Preventable Diseases & AFP

16th – 22nd Feb 2019 (8th 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 | 02 | 16 | 09 | 77.7 % |
| Diphtheria | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 0 % |
| Mumps | 01 | 01 | 00 | 00 | 02 | 02 | 02 | 02 | 01 | 11 | 08 | 60 | 43 | 39.5 % |
| Measles | 00 | 00 | 01 | 00 | 00 | 00 | 02 | 00 | 00 | 03 | 04 | 33 | 17 | 94.1 % |
| Rubella | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 01 | 00 | 04 | -75 % |
| 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 | 03 | 05 | - 40 % |
| 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 | 02 | 10 | - 80 % |
| Whooping Cough | 00 | 00 | 00 | 00 | 01 | 01 | 00 | 00 | 00 | 02 | 00 | 13 | 07 | 85.7 % |
| Tuberculosis | 19 | 07 | 05 | 13 | 16 | 07 | 00 | 13 | 00 | 80 | 177 | 1322 | 1213 | 8.9 % |

### 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

**Number of Malaria Cases Up to End of February 2019,**

# 03

**All are Imported!!!**

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

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