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Chikungunya

Chikungunya is a mosquito-borne viral disease, first described during an outbreak in southern Tanzania in 1952. It is an RNA virus that belongs to the alphavirus genus of the family Togaviridae. The disease was first described by Marion Robinson and W H R Lumsden in 1955, after an outbreak on the Makonde Plateau, along the border between Tanganyika and Mozambique. Chikungunya is derived from the Makonde/ Kimakonde language which means "*that which bends up*" or "to become contorted" . Due to the stooped posture and appetence developed as a consequence of the arthritic symptoms of the disease it was called so.

Transmission

Chikungunya is transmitted to humans by the bites of infected female mosquitoes. *Aedes aegypti* and *Aedes albopictus*, the two species of mosquitoes which can also transmit other mosquito-borne viruses, including dengue are the mostly involved in spreading the disease commonly. These mosquitoes can be found biting throughout daylight hours, though there may be peaks of activity in the early morning and late afternoon. Onset of the illness usually occurs between 4 and 8 days after the bite of an infected mosquito which can range from 2 to 12 days.

More about disease vectors

Aedes aegypti and *Aedes albopictus* have been involved in large outbreaks of chikungunya. Even though *Ae. aegypti* is limited to the tropics and sub-tropics *Ae. albopictus* could occur in temperate and even cold temperate regions. *Ae. albopictus* has spread from Asia to become established in areas of Africa, Europe and the Americas in the recent decades. Species *Ae. albopictus* flourishes in a wider range of water-filled breeding sites than *Ae. Aegypti*. Coconut husks, cocoa pods, bamboo stumps, tree holes, rock pools and artificial containers such as vehicle tyres and saucers are the major breading sites for the *Ae. albopictus* species. Due to the diversity of habitats *Ae. albopictus* is abundantly seen in rural as well as peri-urban areas and shady city parks. *Ae. aegypti* is connected with human habitation. It mainly breeds in indoor breeding sites as flower vases, water storage vessels, concrete water tanks in bathrooms, as well as the same artificial outdoor habitats as *Ae. albopictus*.
Several other mosquito vectors including species of the *A. furcifer-taylori* group and *A. luteocephalus* have been implicated in disease transmission in Africa.

Reservoirs

In times of epidemics humans serve as Chikungunya virus reservoirs. During other periods main reservoirs are other vertebrates mainly monkeys, rodents, birds and small mammals. It is reported of outbreaks in monkeys during low heard immunity.

Disease outbreaks

Chikungunya virus can be endemic as well as epidemic. Usually outbreaks begin when the vector density reaches its peak during the rainy season. The disease mainly occurs in Africa, Asia and the Indian subcontinent. Human infections in Africa have been at relatively low levels for a number of years though a large outbreak had occurred in the Democratic Republic of the Congo between 1999–2000 and in Gabon in 2007.

A major outbreak of chikungunya had occurred in the islands of the Indian Ocean from February 2005, due to which cases were imported to many countries including Europe at the peak of the outbreak. A large outbreak of chikungunya in India had occurred in 2006 and 2007. South-East Asian countries such as India, Indonesia, Maldives, Myanmar and Thailand have reported over 1.9 million cases since 2005.Small outbreaks of chikungunya were reported in late 2015 in Dakar, Senegal, and the state of Punjab, India.

Autochthonous transmission of chikungunya was reported in Argentina for the first time following an outbreak of more than 1000 suspected cases

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in 2016. Kenya reported an outbreak of chikungunya resulting in more than 1700 suspected cases while Pakistan continues to respond to an outbreak which started in 2016.

Symptoms

- Characterized by an abrupt onset of fever which can reach up to 39°C often associated with tremors/chills and frequently accompanied by joint pain.
- Petechial or maculopapular rash usually involving the trunk and limbs. Face, palms and sole too can be involved/observed.
- Arthralgia or arthritis affecting multiple joints. Often small joints of the hands, wrists, ankle and feet are affected with pain on movement. Even the large joints can be involved.
- Other common signs and symptoms include muscle pain, headache, nausea and fatigue.
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Majority of the patients recover fully though for some patients joint pain may persist for several months, or even years. Occasional cases of eye, neurological, gastrointestinal and heart complications have been reported. Serious complications are not common. In older people death can occur. In areas where dengue occurs misdiagnosis or infection being unrecognized can happen.

Diagnosis

Several methods can be used for diagnosis. Serological tests, such as enzyme-linked immunosorbent assays (ELISA), may confirm the presence of IgM and IgG anti-chikungunya antibodies. Three to five weeks after the onset of the illness IgM antibody levels are highest which could persist for about 2 months. Serology and Virological methods (RT-PCR) sould be used as testing for samples collected during the first week after the onset of symptoms.

The virus may be isolated from the blood during the first few days of infection. Various reverse transcriptase–polymerase chain reaction (RT–PCR) methods are available with variable sensitivity. Some are suited to clinical diagnosis. For comparison of various samples of different geographical sources RT–PCR products from clinical samples may also be used for genotyping of the virus.

Treatment

There is no specific antiviral drug treatment for chikungunya. It is mainly directed primarily at relieving the symptoms. The use anti-pyretics, optimal analgesics and plenty of fluids is advisable. Adequate rest is essential while movement or mild exercise will improve the joint stiffness. There is no commercial chikungunya vaccine available at the moment.

Prevention and Control

The closeness of mosquito vector breeding sites to human habitation is a significant risk factor for chikungunya. Prevention and control depends on reducing the number of natural and artificial water-filled container habitats which support breeding of the mosquitoes. During outbreaks, insecticides may be sprayed to kill flying mosquitoes as well as to treat water in containers to kill the immature larvae.

Clothing which minimizes skin exposure to the day-biting vectors is advised for protection during outbreaks. Repellents can be applied to exposed skin or to clothing. Repellents should contain DEET (N, N-diethyl-3-methylbenzamide), IR3535 (3-[N -acetyl-N-butyl]-aminopropionic acid ethyl ester) or icaridin (1-piperidinecarboxylic acid, 2-(2-hydroxyethyl)-1-methylpropylester).

For young children, sick persons or older people insecticide-treated mosquito nets afford good protection. Mosquito coils or other insecticide vaporizers may also reduce indoor biting. Use of screen in rooms to prevent mosquitoes from entering is advised.

Table 1 : Water Quality Surveillance
Number of microbiological water samples November 2018

District	MOH areas	No: Expected *	No: Received
Colombo	15	90	**95**
Gampaha	15	90	**NR**
Kalutara	12	72	**NR**
Kalutara NIHS	2	12	**NR**
Kandy	23	138	**NR**
Matale	13	78	**74**
Nuwara Eliya	13	78	**78**
Galle	20	120	**39**
Matara	17	102	**NR**
Hambantota	12	72	**26**
Jaffna	12	72	**123**
Kilinochchi	4	24	**53**
Manner	5	30	**NR**
Vavuniya	4	24	**31**
Mullatvu	5	30	**NR**
Batticaloa	14	84	**0**
Ampara	7	42	**40**
Trincomalee	11	66	**20**
Kurunegala	29	174	**103**
Puttalam	13	78	**NR**
Anuradhapura	19	114	**44**
Polonnaruwa	7	42	**27**
Badulla	16	96	**84**
Moneragala	11	66	**99**
Rathnapura	18	108	**71**
Kegalle	11	66	**44**
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 07th –14th Dece 2018(50th Week)

RDHS Division	Dengue Fever A	Dengue Fever B	Dysentery A	Dysentery B	Encephalitis A	Encephalitis B	Enteric Fever A	Enteric Fever B	Food Poisoning A	Food Poisoning B	Leptospirosis A	Leptospirosis B	Typhus Fever A	Typhus Fever B	Viral Hepatitis A	Viral Hepatitis B	Human Rabies A	Human Rabies B	Chickenpox A	Chickenpox B	Meningitis A	Meningitis B	Leishmaniasis A	Leishmaniasis B	WRCD T*	WRCD C**
Colombo	292	9548	3	96	0	9	3	46	0	43	2	231	0	14	0	10	0	1	9	709	0	68	0	5	61	100
paha	213	5534	4	77	1	10	0	23	11	179	4	226	0	10	1	15	0	0	12	724	1	48	2	62	63	100
Kalutara	83	2977	1	90	0	5	1	17	2	64	21	684	0	7	1	16	0	0	16	708	2	105	0	9	55	100
Kandy	75	3688	0	118	0	7	0	6	2	30	0	115	1	109	0	23	0	1	4	325	0	42	1	40	59	100
Matale	12	878	0	23	0	1	1	7	0	42	6	110	0	5	0	10	0	0	2	60	0	17	9	183	60	100
NuwaraEliya	8	202	1	60	0	5	0	14	0	159	2	50	7	142	0	28	0	0	0	205	1	48	0	0	24	100
Galle	26	938	0	64	1	14	0	6	0	25	6	420	1	66	0	4	0	1	3	367	1	59	0	5	31	100
Hambantota	33	928	0	28	0	4	0	3	1	8	4	83	4	92	0	3	0	1	4	279	0	15	12	741	72	100
Matara	25	1072	0	41	0	6	0	9	0	23	11	283	2	65	3	24	0	0	6	295	1	15	13	493	56	100
Jaffna	270	3603	5	214	0	6	1	54	0	224	0	17	30	358	0	1	0	2	1	274	0	13	0	3	36	93
Kilinochchi	2	321	1	40	1	1	0	20	0	5	1	8	1	17	0	0	0	1	0	32	0	4	1	7	52	100
Mannar	14	216	0	26	0	0	0	3	0	2	0	1	0	12	1	1	0	0	0	28	0	4	0	4	36	100
Vavuniya	9	575	0	18	0	4	1	53	0	16	0	49	0	7	0	0	0	1	1	51	0	9	0	13	56	100
Mullaitivu	5	114	0	8	0	0	0	12	0	26	0	12	1	8	0	0	0	1	0	12	0	2	0	2	26	99
Batticaloa	72	4746	16	214	0	5	0	11	0	33	6	59	0	3	0	7	0	3	2	189	0	21	0	0	63	100
Ampara	5	241	3	82	0	6	0	3	0	11	10	63	0	0	0	7	0	1	2	289	3	34	0	3	63	100
Trincomalee	53	1129	1	42	0	2	2	10	0	15	1	61	0	24	0	4	0	0	5	202	0	10	0	21	31	100
Kurunegala	62	2368	2	148	1	19	0	16	0	13	12	363	2	29	2	25	0	2	4	598	1	88	25	484	61	100
Puttalam	59	1955	4	92	0	7	1	7	0	10	1	56	1	12	0	3	0	0	5	150	2	89	0	4	63	100
Anuradhapura	13	854	0	92	1	8	0	9	0	45	11	234	0	23	2	18	0	2	4	417	1	53	14	503	44	95
Polonnaruwa	6	308	0	49	0	5	0	0	0	20	13	168	0	1	0	4	0	1	7	316	0	22	1	247	56	88
Badulla	11	575	0	144	0	10	0	14	0	18	3	179	1	93	2	68	0	0	4	493	4	142	0	12	48	100
Monaragala	20	833	3	88	0	2	0	1	0	4	14	390	2	143	0	51	0	0	3	188	7	182	2	51	67	100
Ratnapura	52	2184	7	203	0	43	0	29	0	5	24	738	0	29	2	30	0	2	1	317	4	132	4	218	46	100
Kegalle	24	1462	2	64	0	13	0	11	0	97	10	359	2	79	0	19	0	0	13	426	0	48	3	17	64	100
Kalmune	30	1712	3	64	0	4	1	4	0	35	2	11	0	1	0	1	0	0	6	213	0	19	0	1	50	100
SRILANKA	**1474**	**48961**	**56**	**2185**	**4**	**196**	**11**	**388**	**16**	**1152**	**16**	**4970**	**55**	**1349**	**13**	**372**	**0**	**20**	**114**	**7867**	**28**	**1289**	**87**	**3128**	**53**	**99**

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

•**T**=Timeliness refers to returns received on or before 14 th December , 2018 Total number of reporting units 353 Number of reporting units data provided for the current week: 348 **C****-Completeness

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

Table 2: Vaccine-Preventable Diseases & AFP   07th -14th Dece 2018(50th Week)

Disease	No. of Cases by Province									Number of cases during current week in 2018	Number of cases during same week in 2017	Total number of cases to date in 2018	Total number of cases to date in 2017	Difference between the number of cases to date in 2018 & 2017
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	00	00	00	00	00	00	02	63	68	- 7.3 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0%
Mumps	01	01	00	00	01	01	00	01	00	05	04	351	289	10.8 %
Measles	02	01	00	01	00	01	00	01	00	06	08	124	198	- 37.3 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	08	10	- 20 %
CRS**	00	00	00	00	00	00	00	00	00	00	00	00	01	0%
Tetanus	00	00	00	00	01	00	00	00	00	01	00	20	16	25 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese En-cephalitis	00	00	00	00	00	00	00	00	00	00	00	26	28	- 7.1 %
Whooping Cough	01	00	02	00	01	00	00	00	00	04	00	52	22	136.3 %
Tuberculosis	53	09	05	20	06	12	15	07	01	128	223	8465	8064	4.9 %

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
December	104	61	28	33	1036	454	0

Source: Medical Research Institute & Veterinary Research Institute

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**

ON STATE SERVICE

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