WEEKLY EPIDEMIOLOGICAL REPORT

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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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The journey towards the elimination of Measles -why should you be concerned after elimination?

Measles and Rubella, two viral infections with more or less a similar clinical presentation were once considered to be extremely debilitative or sometimes deadly- if not prevented, identified early and treated properly. Effective preventable vaccine, created and initiated against these deadly diseases became the reason for the significant reduction in the reported cases, globally.

World Health Organization has declared Sri Lanka as eliminated measles in 2019 which is a year ahead of the National measles elimination targeted year, of 2020.

Sri Lanka was introduced to this vaccine in the year 1984 for Measles and 1996 for Rubella and since then, it has created a satisfactory awareness among the community, where every child at the age of 9 months and 3 years should encounter a dose of MMR for adequate protection to prevent Measles and Rubella. These strategies of the introduction of Measles-Rubella preventive vaccines lead the path to achieve measles elimination by 2020 (as declared certified measles eliminated in 2019) in par with Regional and Global targets.

Measles is one of the most contagious viral diseases and remains as an important cause of childhood deaths globally, despite the availability of safe and effective vaccine. Measles is caused by *Morbillivirus,* which was earlier called Rubeola virus. This virus transmits primarily from person-to-person by airborne respiratory droplets that can spread within minutes and can also transmit through direct contact with secretions of infected persons.

Measles mainly affects the respiratory tract and virus can live in mucosal linings of the throat, nose and lungs, mainly in secretions of the infected persons. Being, extremely aggressive, the infection can easily spread from one infected person to another unimmune person by droplets through coughing, sneezing or contact with secretions of an infected person. The aggressiveness or the high contagiousness will explain as it can easily spread to 16-18 unimmune (susceptible) persons from 1 infected person. Measles can spread even before an infected person shows any signs and symptoms of the disease. It starts spreading 4 days before initial signs of the disease (fever and rash) to 4 days after developing the disease.

After the initial exposure, a person might take 10-14 days to develop the first most signs of infection including a fever which usually begins slowly but increases gradually to high fever spikes followed by cough, runny nose (coryza), conjunctivitis and unfitness to the body (malaise). A characteristic reddish skin rash appears 2–4 days after onset of fever and other symptoms or after the "prodromal period". The rash which is called “maculopapular rash” starts at the patient's face, neck and then spreads to the rest of the body, finally reaching hands and feet as well. There is an exact diagnostic spots appear in the mouth which is called “ Koplik spots” described as tiny blue-white spots, appearing about 2 days before or after the skin rash. Other associated symptoms of the condition would be loss of appetite, enlargement of lymph nodes and diarrhoea (commoner when young children are affected especially below 1 year).

Measles can often lead to severe and fatal complications such as middle ear infection (otitis media), croup (laryngotracheobronchitis), diarrhoea and pneumonia. As a measles complication, encephalitis can occur, which could lead to serious consequences. But, the most dangerous complications that can develop after

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measles disease is post-infectious measles encephalitis conditions which are inflammation of the brain tissue that can occur in about 1–4 per 1000–2000 cases. The hidden complication of encephalitis situation can emerge even after several years which is called "sub-acute sclerosing panencephalitis (SSPE)" (occurs about 1 per 10 000–100 000 cases) resulting disabled children and high mortality due to SSPE.

The risk of developing severe or fatal measles disease is increased for children aged <5 years, and persons living in overcrowded conditions, those who are malnourished especially with vitamin A deficiency, and those with immunological disorders, such as AIDS. Since Vitamin A deficiency has identified to be a risk factor for complications of Measles, vitamin A supplementation is recommended to children above 6 months of age up to 5 years. This is a requirement especially for children who are having measles, malnourished, suspected to have a weak immune system or who are diagnosed with vitamin A deficiency. However, in the Child health programme in Sri Lanka expect to get the maximum benefit from Vitamin A supplementation programme for child health, provide vitamin A from 6 months through 5 years. Furthermore, antibiotics can be used to treat secondary bacterial respiratory tract infections and complications such as pneumonia which can occur during an episode of measles.

Being a clinical diagnosis supported by laboratory confirmation, Measles should be promptly treated before allowing it to worsen and give rise to the aforementioned complications. Supportive therapy, adequate bed rest and hydration play the hallmark of Measles treatment while safe and effective vaccine provides assuring protection.
After the development and popularization of Measles vaccine, the incidence of the infection has drastically reduced and as a result, global strategies are developed to eliminate measles by 2020, aiming to reduce under 5-year morbidity and mortality.

The WHO recommended definition of suspected measles that is a case with fever and maculopapular (non-vesicular) rash, or a case where a health-care worker suspects measles is considered as a notifiable disease in Sri Lanka to identify the disease burden in the country and to take preventive measures. Essential Laboratory testing is considered for definitive diagnosis in formulating and way forward for sustaining post-elimination as other conditions such as infections with rubella virus, parvovirus B19 (erythema infectiosum or Fifth disease), human herpes viruses 6 and 7 (roseola infantum), dengue virus, and Streptococcus pyogenes (scarlet fever) may mimic measles. Laboratory confirmation by detecting anti-measles virus IgM antibodies in blood samples collected between 3rd to 30th days of the onset of rash and detection of measles virus in the throat and nasal swabs are necessary for sustaining the achieved measles elimination status.

These essential suspected case notification based on more sensitive case definition of "fever and maculopapular rash" and essential laboratory testing will help the country to detect if any imported cases early and prevention of outbreaks in the country. High population-level immunity in preventing the community transmission will be achieved through essential childhood vaccination for measles at 9 months and 3 years based on the National Immunization schedule in the country.

Year	Vaccine	Target age group
1984	Measles	9 months
2001	MR	All children aged 3 years as a 2nd Measles dose
2003 Catch-up campaign	M	10-15 years (to make the population immune to measles)
2004 Catch-up campaign	MR	16-20 years (to make the population immune to measles)
2011	MMR (replacing Measles at 9 months and MR at 3 years and the first dose advanced to 1 year of age)	
2015	MMR-1 advanced to 1 year age in 2011 and re-scheduled to 9 months in 2015; MMR-2 at 3 years of age	

In the current National Immunization schedule, the MMR vaccine is given to all children at the age of 9 months as the first dose of the vaccine and the second dose is given at the age of 3 years. It is really necessary to get 2 doses of MMR as to provide protection for Measles. Since the first dose of the MMR vaccine is given below 1 year of age, expecting to protect them before 1 year as they are vulnerable to Measles and Rubella before 1 year, follow up with 2nd dose of MMR is necessary as the dose given before 1 year may not provide adequate protection for the child. By receiving 2 doses it would provide lifelong immunity and protection from Measles for the rest of the life.

Further, it is very important to inform the possible Measles or Rubella cases (Fever and rash cases-suspected of measles or rubella) to Public Health Inspector, Public Health Midwife or the Medical Officer of Health in the area without delay for further prevention of the spread in sustaining the achieved measles elimination status in the country.

Dr Deepa Gamage
Consultant Epidemiologist

Table 1: Selected notifiable diseases reported by Medical Officers of Health 14th – 20th Dec 2019 (51st 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	661	19567	0	60	1	14	1	25	0	72	14	294	1	14	0	11	0	0	13	461	1	54	0	6	**50**	**100**
Gampaha	371	15400	1	49	1	10	0	5	0	32	3	153	0	5	1	11	0	2	5	452	0	29	0	168	**48**	**98**
Kalutara	166	7925	0	74	0	7	0	23	0	69	5	644	0	8	0	6	0	2	13	693	0	108	0	3	**63**	**98**
Kandy	288	8468	3	103	0	13	1	10	1	32	4	108	2	96	0	6	0	3	10	296	0	68	1	57	**65**	**100**
Matale	159	2216	0	31	0	4	0	1	0	6	1	55	0	7	0	9	0	2	1	92	0	6	1	279	**59**	**100**
NuwaraEliya	13	400	0	103	0	2	0	10	0	11	1	66	2	83	0	9	0	0	7	160	0	63	0	1	**26**	**100**
Galle	160	7003	1	60	0	8	0	3	0	7	17	530	3	66	0	51	1	3	14	475	1	56	0	5	**61**	**99**
Hambantota	29	1962	1	40	0	5	0	4	0	12	13	252	0	134	0	5	0	1	2	318	0	46	7	801	**73**	**100**
Matara	88	3956	1	42	0	4	0	8	0	20	12	532	0	44	0	24	0	1	2	330	0	17	11	615	**59**	**100**
Jaffna	543	7458	4	404	1	16	0	42	0	117	2	42	24	542	0	6	0	1	2	277	3	26	0	0	**21**	**93**
Kilinochchi	27	344	0	115	0	4	0	16	0	13	0	22	0	36	0	1	0	0	0	19	0	8	0	15	**53**	**100**
Mannar	28	229	0	6	0	2	1	15	0	1	1	2	0	11	0	0	0	0	0	2	2	10	0	1	**56**	**100**
Vavuniya	57	780	1	39	0	13	0	30	0	23	0	58	0	5	0	0	0	0	0	86	0	12	0	4	**61**	**100**
Mullaitivu	11	243	0	23	0	1	0	16	0	5	0	28	1	9	0	0	0	0	0	17	0	7	0	7	**30**	**100**
Batticaloa	196	2341	10	260	1	3	0	14	0	43	0	54	0	1	1	10	0	1	4	278	0	32	0	0	**51**	**100**
Ampara	18	355	2	84	0	4	0	0	0	19	4	62	0	2	0	12	0	0	5	322	0	25	1	5	**59**	**100**
Trincomalee	286	2381	0	52	0	1	0	0	0	63	1	27	1	21	0	5	0	1	4	250	0	13	0	5	**34**	**98**
Kurunegala	118	2962	0	78	0	23	0	6	0	31	6	327	0	30	0	24	0	4	9	628	0	105	12	828	**61**	**96**
Puttalam	98	2082	0	36	0	5	0	1	0	19	2	58	2	19	0	3	0	0	2	136	0	52	1	11	**62**	**100**
Anuradhapura	39	1069	3	72	0	13	1	7	0	13	13	209	1	47	0	25	0	2	12	523	1	99	6	548	**44**	**91**
Polonnaruwa	19	518	0	32	0	3	0	3	0	6	7	104	0	4	0	17	0	2	11	320	1	27	2	315	**60**	**100**
Badulla	107	1784	2	95	0	12	0	10	0	89	8	243	1	132	0	25	0	0	5	348	0	170	1	19	**62**	**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**	**61**
Ratnapura	111	3926	1	124	2	42	0	10	0	33	36	1180	0	48	12	51	0	4	9	436	2	167	4	181	**49**	**100**
Kegalle	65	2593	0	39	0	19	0	2	0	28	15	329	1	63	1	99	0	0	12	503	1	59	3	68	**70**	**100**
Kalmune	132	1302	2	117	0	2	0	1	0	64	1	35	0	3	0	4	0	0	11	271	1	29	0	0	**63**	**100**
SRILANKA	**3790**	**97597**	**32**	**2174**	**6**	**234**	**4**	**262**	**1**	**907**	**16**	**5603**	**39**	**1512**	**15**	**455**	**1**	**29**	**153**	**7905**	**13**	**1400**	**50**	**3964**	**55**	**97**

Source: Weekly Returns of Communicable Diseases (WRCD).

*T=Timeliness refers to returns received on or before 20 th December , 2019 Total number of reporting units 353 Number of reporting units data provided for the current week: 325 C**-Completeness

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

Table 2: Vaccine-Preventable Diseases & AFP

14th – 20th Dec 2019 (51st 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*	01	00	00	00	00	00	00	00	00	01	00	79	63	25.3 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	02	01	00	00	00	00	01	03	06	09	320	360	- 11.1 %
Measles	04	02	00	00	00	00	01	00	00	07	04	290	128	126.5 %
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	20	20	0 %
Neonatal Tetanus	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis	01	01	00	00	00	00	00	00	00	02	01	19	26	- 26.9 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	02	39	54	- 27.7 %
Tuberculosis	20	26	10	00	02	16	14	01	01	90	225	8189	8690	5.7 %

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

Number of Malaria Cases Up to End of December 2019,

09

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**

ON STATE SERVICE

Dr. SUDATH SAMARAWEERA
CHIEF EPIDEMIOLOGIST
EPIDEMIOLOGY UNIT
231, DE SARAM PLACE
COLOMBO 10