WEEKLY EPIDEMIOLOGICAL REPORT

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Ministry of Health, Nutrition & Indigenous Medicine

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Towards elimination of measles in WHO South-East Asia Region- Achievements and way forward, 2003-2020

Introduction

Measles is a highly contagious, acute respiratory disease. It is caused by a virus belonging to the paramyxovirus family. The virus is transmitted through direct contact and the air. The disease is characterized by a prodrome of high fever, malaise, cough, coryza and conjunctivitis, a pathognomic koplik spots followed by a maculopapular rash. A **rash** occurs 14 days following exposure to the virus, usually on the face and upper neck and spreads, eventually reaching the hands and feet. (Centers for Disease Control and Prevention, 2020).
The complications of measles include blindness, ear infections, severe diarrhoea and associated dehydration, encephalitis, and severe respiratory infections (E.g.: pneumonia). Complications of measles account for many of the deaths due to measles. These complications are common among children under the age of 5 years and adults over the age of 30 years. A major epidemic of measles had occurred every 2-3 years resulting in approximately 2.6 million deaths each year, before the introduction of the measles vaccine in 1963 and the establishment of widespread vaccination. Even though a safe and effective vaccine was available for measles, in 2018, more than 140,000 persons (mainly children below the age of 5 years) died from measles. Therefore, accelerated immunization activities have had a major impact on lowering the number of deaths due to measles (World Health Organization, 2022).

Elimination of Measles in the Southeast Asia Region

Measles elimination is defined as the absence of endemic measles cases for ≥12 months in the presence of adequate surveillance.
In 2013, the Member States in the World Health Organization South-East Asia Region (SEAR) started to follow the goal of measles elimination and control of rubella / congenital rubella syndrome by 2020. To achieve this goal, the Regional Director announced the elimination of measles and control of rubella, as one of the regional flagship priorities in 2014. A revised goal of eliminating both measles and rubella by 2023 was declared by the SEAR Member States in 2019. The strategies included were:
1) achieving ≥95% coverage with 2 doses of measles and rubella-containing vaccine in every district via routine or supplementary immunization activities (SIAs) and maintaining it.
2) Developing and maintaining sensitive, timely case-based surveillance systems that reach the expected performance indicators.
3) Developing and maintaining an accredited network of laboratories.
4) Achieving timely identification, investigation, and response to measles outbreaks.
5) Working together with other public health sectors to achieve the above 4 strategies.

Immunization

The first dose of the measles-containing vaccine (MCV1) was introduced in all 11 countries (Bangladesh, Bhutan, India, Indonesia, Democratic Republic of Korea, Maldives, Myanmar, Nepal, Sri Lanka, Thailand, Timor-Leste) in the South-East Region before 2003.
A routine second MCV dose (MCV2) was introduced in 3 countries (Indonesia, Sri Lanka, and Thailand) before 2003. The remaining 8 countries introduced MCV2 during 2003–2020.
The estimated MCV1 coverage in the region increased from 65% (2003) to 88% (2020) (figure 1). Five countries (Bangladesh, Democratic Republic of Korea, Maldives, Sri Lanka, and Thailand) reported ≥95% MCV1 coverage in 2020. The highest MCV1 coverage (94%) in the region was reached in 2019, just before the onset of the COVID-19 pandemic. Estimated MCV2 coverage in the region increased from 6% in (2003) to 80% (in 2020), with the highest (83%) in 2019. The estimated MCV2 coverage in three countries (Democratic Republic of Korea, Maldives, and Sri Lanka) was ≥95% in 2020.

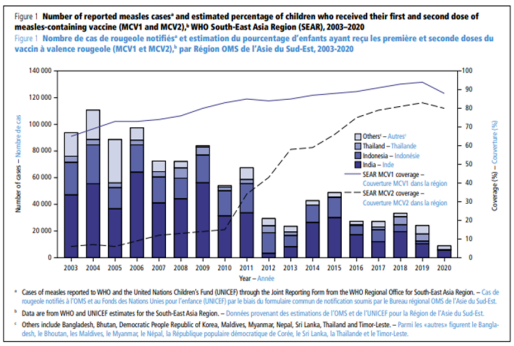

Figure 1 **Number of reported measles cases[a] and estimated percentage of children who received their first and second dose of measles-containing vaccine (MCV1 and MCV2),[b] WHO South-East Asia Region (SEAR), 2003–2020**
Figure 1 **Nombre de cas de rougeole notifiés[a] et estimation du pourcentage d'enfants ayant reçu les première et seconde doses du vaccin à valence rougeole (MCV1 et MCV2),[b] par Région OMS de l'Asie du Sud-Est, 2003-2020**

[a] Cases of measles reported to WHO and the United Nations Children's Fund (UNICEF) through the Joint Reporting Form from the WHO Regional Office for South-East Asia Region. – Cas de rougeole notifiés à l'OMS et au Fonds des Nations Unies pour l'enfance (UNICEF) par le biais du formulaire commun de notification soumis par le Bureau régional OMS de l'Asie du Sud-Est.
[b] Data are from WHO and UNICEF estimates for the South-East Asia Region. – Données provenant des estimations de l'OMS et de l'UNICEF pour la Région de l'Asie du Sud-Est.
[c] Others include Bangladesh, Bhutan, Democratic People Republic of Korea, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste. – Parmi les «autres» figurent le Bangladesh, le Bhoutan, les Maldives, le Myanmar, le Népal, la République populaire démocratique de Corée, le Sri Lanka, la Thaïlande et le Timor-Leste.

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During 2003–2020, measles supplementary immunization activities (SIA) were conducted in all countries

Surveillance

A laboratory network for measles and rubella was established in the SEAR in 2003, in line with the WHO Global Measles and Rubella Laboratory Network. By 2020, in the SEAR region, there were 49 proficient laboratories and one regional reference laboratory which was in Thailand. All countries had at least one proficient labo-ratory. Thus, by 2020, case-based measles surveillance with labora-tory confirmation of suspected cases was being established in all countries in the Region.

Incidence of measles

Between 2003–2020, the number of reported measles cases decreased by 90% (from 94 598 in 2003 to 9,389 in 2020) *(Figure 1)*. The annual incidence of measles decreased by 92% (from 57.0 to 4.8 cases per million population)

Genotypes

Data on genotype was available for <1% of all confirmed measles cases in the SEAR. Among them, genotype D8 was found in patients in 9 countries where measles was endemic. Genotype B3 was found in Bangladesh, India, Myanmar, Sri Lanka and Thai-land. Genotype D4 was found mainly in India and genotype H1 was found in India, Myanmar, Sri Lanka, and Thailand.

Estimated measles cases and mortality

An updated model was used to estimate the numbers of measles cases and deaths for the countries in the Region. Accordingly, the estimated number of measles cases reduced by 84% (from 16,225,870 in 2003 to 2,552,584 in 2020). The estimated annual number of measles deaths was reduced by 97% (from 163,044 to 5,649). Compared with no vaccination, measles vaccination prevented an estimated 9.3 million deaths in the Region, during 2003–2020.

Regional verification of measles elimination

The World Health Organization South-East Asia Regional Verification Commission for measles and rubella elimination was estab-lished in 2016. They have developed a framework for verifying measles and rubella elimination in the Region. Following that national verification, committees have been established in all 11 countries and have assessed the progress towards measles elimination by the annual reports. As of 2020, the Regional Commission had verified measles elimination in Bhutan (2017), Maldives (2017), Democratic People's Republic of Korea (2018), Timor-Leste (2018) and Sri Lanka (2019). Therefore, **5 of the 11 countries had been verified as having eliminated endemic measles transmission.**

Challenges to achieving Measles elimination in SEAR

An extensive review of progress achieved by the countries in the SEAR in measles and rubella elimination and an assessment of feasibility (in terms of biological, programmatic, and financial) was carried out in September 2019. There the Member States in the Region updated their goal to achieve measles and rubella elimination by 2023.
The challenges they faced in achieving measles elimination in SEAR are as follows.

The routine MCV1 coverage in the region decreased from a peak of 94% in 2019 to 88% in 2020 during the COVID-19 pandemic. The MCV2 coverage decreased from a peak of 83% (2019) to 80% (2020). In 2020, around 18% of the estimated 22.3 million infants who did not receive MCV1 worldwide were in the SEAR (3 million in India and 0.6 million in Indone-sia).
Furthermore, the sensitivity of measles surveillance decreased in all countries in the Region. It may be due to the reduced transmission of measles and other respiratory viruses due to COVID-19 prevention measures like social distancing and wearing a mask. Also due to the travel restrictions imposed nationally, reporting of patients with febrile rash illness to the clinics must have been reduced. Furthermore, reassignment of surveillance staff to respond to the COVID-19 pandemic might have resulted in reduced sensitivity of measles surveillance
A recent independent review of progress towards measles elimination in SEAR found that several challenges have threatened the achievement of the 2023 target. They include immunity gaps, sub-opti-mally sensitive surveillance, inadequate outbreak response and preparedness, funding gaps and the nega -tive effects of the COVID-19 pandemic on immunization programmes.
Therefore, achieving the elimination of measles in the SEAR by 2023 will need urgent, intensified work by the countries to implement strategies at their best and rapidly, especially to reduce the harmful effects on immunization services created by the COVID-19 pandemic. Thus, to achieve the target in 2023, Member States must re-ener-gize their work and maintain momentum in the Region to,
1) Acquire the maximum level of political commitment from Member Countries and support from partners.
2) Strengthen routine immunization to achieve ≥95% coverage with MCV1 and MCV2.
3) Conduct high-quality SIAs.
4) Increase the sensitivity of surveillance and increase the number of specimens collected for the detection and genotyping of measles virus.
5) Leverage measles elimination activities to reinstate immunization services and minimise gaps in immunity to all vaccine-preventable diseases during recovery from the COVID-19 pandemic.
By 2020, all 11 countries in the Region had national plans for elimination based on the strategies mentioned in the Global Measles and Rubella Strategic Plan and the Regional Committee resolution. Regional measles elimination has a significant opportunity to decrease deaths and illnesses due to measles worldwide by 2023.

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Centers for Disease Control and Prevention. (2020). Measles. Retrieved on 30th August 2022 from https://www.cdc.gov/measles/hcp/index.html#:~:text=Measles%20is%20an%20acute%20viral,after%20a%20person%20is%20exposed.

Table 1: Selected notifiable diseases reported by Medical Officers of Health 06th– 12th Aug 2022 (32nd Week)

RDHS	Dengue Fever		Dysentery		Encephaliti		Enteric Fever		Food Poi-		Leptospirosis		Typhus		Viral Hep-		Human		Chickenpox		Meningitis		Leishmania-		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	98	8609	0	4	0	3	0	1	0	5	3	117	0	0	0	3	0	0	4	24	0	7	0	2	**15**	**95**
Gampaha	49	4969	0	5	0	1	0	1	0	12	0	99	0	0	0	8	0	3	1	31	0	27	0	28	**6**	**73**
Kalutara	66	2719	0	15	0	1	0	1	0	6	3	246	0	3	0	2	0	2	2	48	0	18	0	2	**3**	**99**
Kandy	19	3346	2	17	0	0	0	2	0	5	1	108	2	27	0	8	0	0	1	46	0	6	0	18	**12**	**99**
Matale	15	722	0	5	0	0	0	0	0	0	0	73	0	3	0	4	0	0	5	23	0	1	17	221	**18**	**99**
NuwaraEliya	4	163	1	18	0	0	1	3	0	1	0	51	0	12	2	6	0	0	1	30	0	3	0	0	**25**	**96**
Galle	52	2738	1	9	1	1	0	0	0	0	6	285	2	15	0	2	0	0	1	49	0	13	0	0	**12**	**100**
Hambantota	34	1122	3	27	0	0	0	0	0	2	1	159	0	31	0	5	0	0	1	20	0	7	3	320	**15**	**96**
Matara	60	1184	0	12	0	2	0	0	0	0	4	173	0	8	0	1	0	0	1	29	0	6	4	194	**30**	**100**
Jaffna	34	2387	1	43	0	2	0	58	0	28	0	19	2	410	0	6	0	4	3	78	0	10	0	0	**64**	**88**
Kilinochchi	0	94	0	6	0	0	0	1	0	23	0	11	0	9	0	0	0	0	0	4	0	2	0	2	**28**	**99**
Mannar	3	177	0	2	0	0	0	0	0	0	0	19	0	3	0	2	0	0	0	6	0	15	0	0	**18**	**80**
Vavuniya	0	67	0	3	0	1	0	2	0	0	0	15	0	1	0	0	0	0	5	22	0	0	0	4	**2**	**96**
Mullaitivu	0	47	0	4	0	0	0	2	0	3	0	24	0	5	0	0	0	0	0	6	0	1	0	1	**20**	**92**
Batticaloa	11	986	0	44	0	7	0	0	0	20	1	31	0	0	0	1	0	1	2	22	0	25	0	1	**37**	**100**
Ampara	4	130	0	10	0	1	0	0	0	17	1	83	0	1	0	1	0	0	0	38	0	18	0	12	**10**	**96**
Trincomalee	4	981	1	23	0	0	0	1	0	2	0	20	0	3	0	4	0	0	0	32	0	6	0	1	**18**	**83**
Kurunegala	30	1989	0	15	1	2	0	0	0	4	3	105	2	23	1	1	0	1	3	48	0	27	1	322	**9**	**97**
Puttalam	15	1406	0	3	0	0	0	0	0	0	0	19	0	7	0	0	0	0	1	9	0	21	0	4	**15**	**89**
Anuradhapur	7	311	0	8	0	2	0	1	0	5	0	125	0	19	0	2	0	1	0	37	0	31	4	269	**10**	**87**
Polonnaruwa	4	108	0	5	0	0	0	0	0	1	0	90	0	0	0	3	0	0	0	11	0	3	24	306	**15**	**94**
Badulla	15	774	1	16	0	1	0	1	3	13	5	153	0	36	3	100	0	0	2	40	0	11	0	17	**15**	**100**
Monaragala	3	326	0	6	0	1	0	4	0	2	2	222	0	20	0	37	0	0	0	40	0	35	3	98	**11**	**99**
Ratnapura	39	2085	0	30	0	6	0	3	0	27	6	658	0	19	0	20	0	0	0	55	0	45	2	142	**12**	**93**
Kegalle	89	1902	0	12	0	5	0	1	0	5	2	350	1	17	0	5	0	0	4	67	1	37	1	16	**9**	**98**
Kalmune	18	755	0	24	1	1	0	1	0	6	1	18	0	1	0	1	0	0	0	38	1	29	0	0	**30**	**100**
SRILANKA	**84**	**40097**	**10**	**366**	**3**	**37**	**1**	**83**	**3**	**187**	**39**	**3273**	**9**	**673**	**6**	**22**	**0**	**12**	**37**	**853**	**2**	**404**	**59**	**1980**	**17**	**93**

Source: Weekly Returns of Communicable Diseases (esurvillance.epid.gov.lk). T=Timeliness refers to returns received on or before 12th Aug , 2022 Total number of reporting units 361 Number of reporting units data provided for the current week: 261 C**-Completeness

Table 2: Vaccine-Preventable Diseases & AFP

06th– 12th Aug 2022 (32nd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2022	Number of cases during same week in 2021	Total number of cases to date in 2022	Total number of cases to date in 2021	Difference between the number of cases to date in 2022 & 2021
	W	C	S	N	E	NW	NC	U	Sab					
AFP*	00	00	00	00	03	00	00	00	00	03	03	50	35	42.8 %
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps	00	00	00	00	01	00	01	00	00	02	01	50	54	- 7.4 %
Measles	00	00	00	00	00	00	00	00	00	00	00	16	11	45.4 %
Rubella	00	00	00	00	00	00	00	00	00	00	00	00	00	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	00	05	02	150 %
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	01	03	- 66.6 %
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	01	00	0 %
Tuberculosis	00	08	02	06	09	00	06	20	11	62	69	3582	3301	8.5 %

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

Covid-19 Prevention & Control

For everyone's health & safety, maintain physical distance, often wash hands, wear a face mask and stay home.

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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