



Ministry of Health and Sports Department of Public Health Central Epidemiology Unit Monthly Epidemiology BULLETIN

August, 2019

AFP Surveillance Indicators by State and Region, 2019*

State/Region	<15 Population	Minimum Expected Non Polio AFP Cases (3/100,000 pop)	Total no. of reported AFP Case	Confirmed Polio cVDPV	Non-Polio AFP Case	Annualized AFP Rate	Annualized Non-Polio AFP Rates	% of Adequate Stool
Ayeyarwady	1,582,899	47	23	0	16	2.16	1.50	83
Bago	1,280,053	41	32	0	31	3.71	3.60	97
Chin	190,275	7	7	0	6	5.47	4.68	86
Kachin	455,634	14	7	0	4	2.28	1.30	100
Kayah	95,512	3	1	0	1	1.56	1.56	100
Kayin	542,741	15	24	4	10	6.57	2.74	71
Magway	973,253	28	23	0	14	3.51	2.14	96
Mandalay	1,439,409	44	20	0	20	2.06	2.06	95
Naypyitaw	287,520	9	5	0	1	2.58	0.52	100
Mon	591,334	17	10	0	9	2.51	2.26	90
Rakhine	810,480	22	23	0	14	4.22	2.57	83
Sagaing	1,413,333	40	27	0	22	2.84	2.31	85
Shan East	290,791	6	8	0	7	4.09	3.58	100
Shan North	667,365	21	8	0	7	1.78	1.56	100
Shan South	666,404	19	20	0	17	4.46	3.79	100
Taninthayi	447,855	12	11	0	10	3.65	3.32	91
Yangon	1,595,843	44	13	0	9	1.21	0.84	77
Total	13,330,701	389	262	4	198	2.92	2.21	89

Acute Flaccid Paralysis (AFP)

Total no. of expected non-polio AFP cases - 389

Annualized expected Non Polio AFP Cases (as of week.35) - 262

Reported AFP cases - 262

cVDPV cases - 4

cVDPV cases among healthy contacts - 7

Discarded as non-polio AFP cases - 198

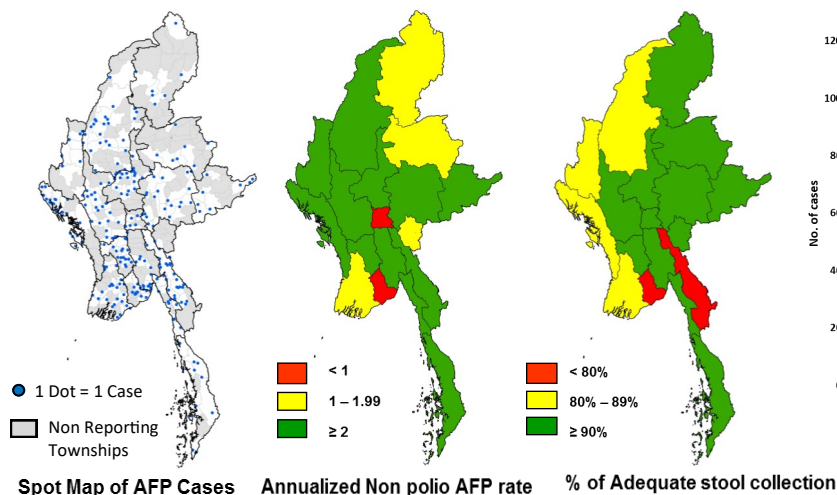
Annualized AFP rate - 2.92

Annualized Non-polio AFP rate - 2.21

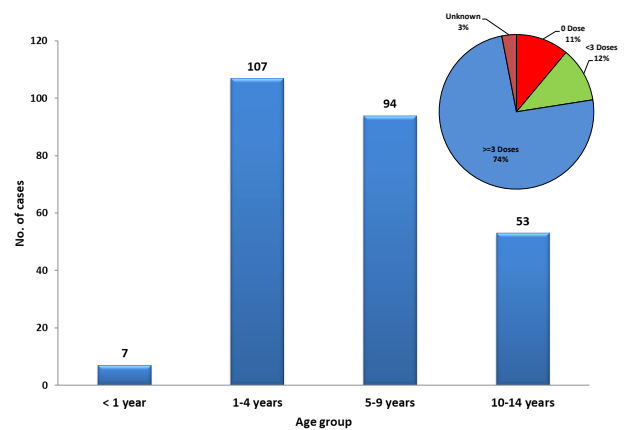
Percentage of adequate stool collection - 89%

Pending for classification - 60

*Data as of (week no-35) (week no. 31)



Age group and vaccination status of AFP cases, 2019* (n=262)



Environmental Surveillance in Myanmar

Poliovirus and NPEV detected in Sewage samples in Myanmar, 2019*

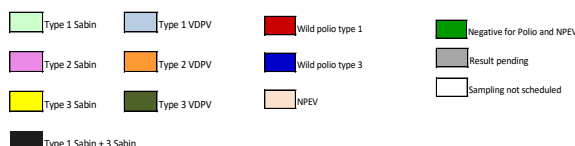
2019	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35				
Yangon																																							
Sittwe																																							
Maung Taw																																							

Percentage of NPEV detected in Sewage samples - 17%

Maungdaw - 25%

Sittwe - 0%

Yangon - 25%



* Data as of week no. 35, 31 Aug 2019

Fever with Rash Surveillance, 2019*

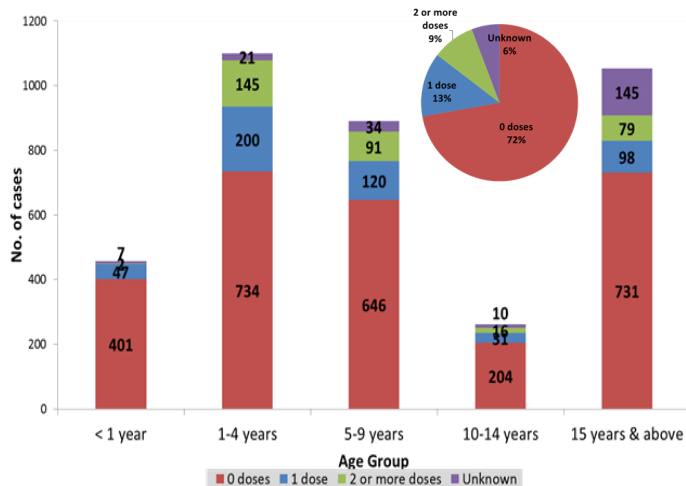
State/Region	Total Population	Expected Non-measles suspected measles Cases	Suspected cases reported	Confirmed Measles			Confirmed Rubella	Non Measles Non Rubella Cases	Pending	Annualized incidence of measles	Annualized incidence of non-measles/non-rubella suspected measles cases
				Lab-confirmed	Epi-confirmed	Clinically confirmed					
Ayeyarwady	6440199	129	372	165	0	11	0	38	158	27.33	0.59
Bago	5238253	105	675	301	79	16	0	74	205	75.60	1.41
Chin	546700	11	28	6	0	4	0	15	3	18.29	2.74
Kachin	1704082	34	72	25	4	1	1	34	7	17.60	2.00
Kayah	317318	6	101	50	2	5	0	11	33	179.63	3.47
Kayin	1721795	34	188	57	44	6	1	11	69	62.14	0.64
Magway	4372399	87	215	73	28	31	0	22	61	30.19	0.50
Mandalay	6284989	126	528	221	98	134	0	44	31	72.08	0.70
Mon	2344889	47	103	40	3	6	1	12	41	20.90	0.51
Nay Pyi Taw	1123806	22	238	65	58	1	1	28	85	110.34	2.49
Rakhine	2883386	58	184	75	0	5	1	23	80	27.75	0.80
Sagaing	5744297	115	293	55	41	0	0	143	54	16.71	2.49
Shan East	807090	16	332	41	266	0	0	3	22	380.38	0.37
Shan North	2507798	50	443	143	124	66	4	18	88	132.79	0.72
Shan South	2451390	49	405	95	250	5	0	33	22	142.78	1.35
Tanintharyi	1553794	31	94	18	0	1	0	21	54	12.23	1.35
Yangon	6996954	140	1658	834	59	150	5	220	390	149.06	3.14
National	53039138	1061	5929	2264	1056	442	14	750	1403	70.93	1.41

Total suspected outbreaks— 94

Confirmed measles outbreaks— 92

Non Measles/Rubella outbreaks— 2

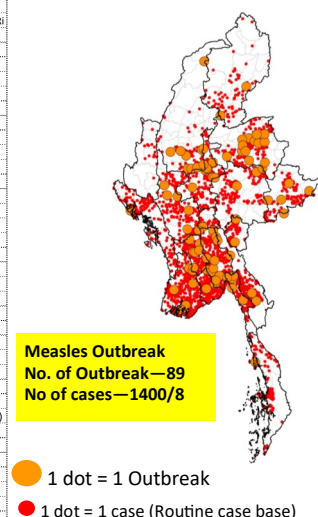
Age and Vaccination Status of Confirmed Measles Cases, 2019*(n=3762)



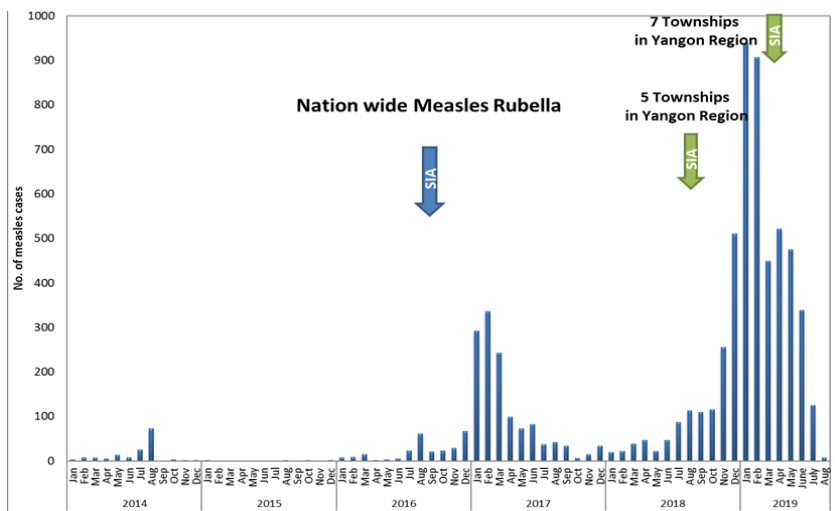
Occurrence of Measles Outbreak

Region	Township	Region	Township
Ayeyarwady	Hinthada		Thaton
	Labutta	Naypyitaw	Det Khi Na Thi Ri
	Mawlamyinegyun		Lewe
	Pathein	Rakhine	Sittwe
Bago (East)	Bago	Sagaing	Chaung-U
	Kyaukkkyi		Fikamti
	Kyauktaga		Khin-U
	Taungoo		Myinmu
	Waw		Tabayin
	Yedashe	Shan (East)	Kengtung
Bago (West)	Letpadan		Monghsat
	Nattalin		Mongping
	Paungde		Mongton
	Pyay		Mongyawang
Kachin	Shwegu		Tachileik
	Waingmaw	Shan (North)	Hseni
Kayah	Hpasawng		Hsipaw
	Loikaw		Kunlong
Kayin	Hlaingbwe		Kutkai
	Kawkareik		Kyaukme
	Kyainseikkyi		Lashio
	Myawaddy		Tangyan
Magway	Aunglan	Shan (South)	Hopong
	Chauk		Loilen
	Myothit		Mawkmal
	Pauk		Monghsu
	Salin		Nansang
Mandalay	Amarapura	Yangon	Dagon (North)
	Chanayethazan		Dagon (Seikkan)
	Chanmyathazi		Dagon (South)
	Kyaukse		Hlaingtharya
	Madaya		Insein
	Mahaungmyay		Mingaladon
	Taungtha		North Okkalapa
	Thabeikkyin		Shwepyithar
Mon	Bilin		Tamwe
	Mawlamyine		

Sport Map of Measles cases 2019*



Epidemic Curve for Measles Cases 2014-2019 *



CRS Surveillance

Total no. of serum sample received - None

Total no. of serum sample tested - None

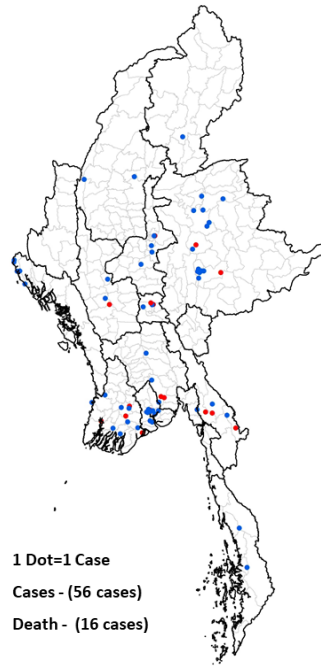
Data source: routine case based surveillance and outbreaks

* Data as of week no.35 , 31 August 2019

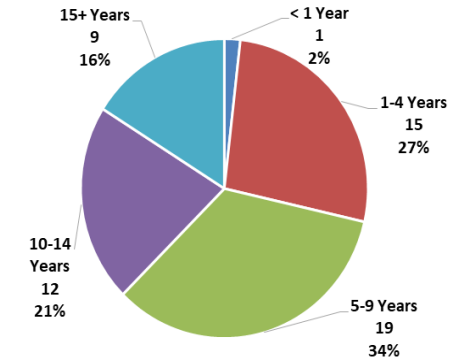
Diphtheria, 2019*

Reported Suspected Diphtheria Cases and Deaths in State and Region

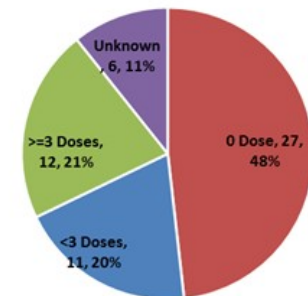
State/Region	Total no. of cases	Total no. of death
Ayeyarwady	8	4
Bago	3	2
Chin	0	0
Kachin	1	0
Kayah	0	0
Kayin	3	3
Magway	2	1
Mandalay	4	1
Mon	0	0
Nay Pyi Taw	2	2
Rakhine	5	0
Sagaing	2	0
Shan East	0	0
Shan North	6	0
Shan South	7	2
Tanintharyi	2	0
Yangon	11	1
Grand Total	56	16



Suspected Diphtheria Cases by Age group



Immunization Status of Suspected Diphtheria Cases



Pertussis (Whooping Cough), 2019*

Reported Pertussis Cases and Deaths in State and Region

State/Region	Township	Cases	Deaths
Shan East	Mongping	1	0
Magway	Magway	1	0

Age group	0 Dose	<3 Doses	>=3 Doses	Total
0-11 Months	1	0	0	1
5-9 Years	1	0	0	1
Grand Total	2	0	0	2

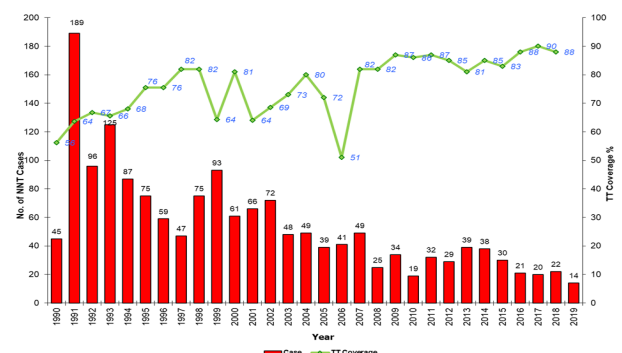
Neonatal Tetanus, 2019*

Reported NNT Cases and Deaths in State and Region

State/Region	Township	Cases	Deaths
Ayeyarwady	Einme	1	1
	Labutta	1	1
Kachin	Tsawlaw	1	0
	Waingmaw	2	1
Kayin	Kawkareik	1	1
Mandalay	Patheingyi	1	0
Rakhine	Pauktaw	1	1
	Sittwe	1	0
Shan (North)	Hopang	1	1
	Namhsan	1	1
Shan (South)	Loilen	1	1
	Nansang	1	1
Yangon	Seikgyikanaungto	1	0
Total Reported		14	9

Place of birth among reported NNT cases		Reported NNT cases are delivered by		Vaccination status of mother during pregnancy	
Hospital	1	Doctor	1	0 Dose	11
Health Center	0	BHS	0		
Private Hospital	0	Trained TBA	0	1 Dose	1
Home	13	TBA	4		
Other	0	Other	4	>=2 Doses	2
		Not Attended	3		
Unknown	0	Unknown	2		
Total	14	Total	14	Total	14

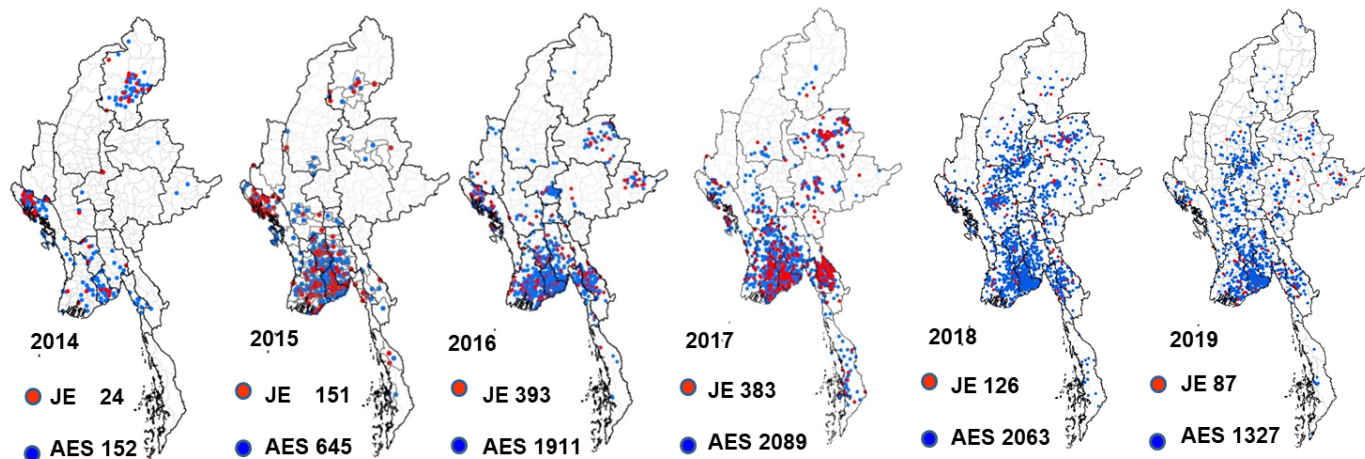
TT2 coverage and Neonatal tetanus cases (1990-2019*)



* Data as of week no. 35, 31 Aug 2019

Acute Encephalitis Syndrome

Reported AES cases & Japanese Encephalitis positive cases (2014-2019*), Myanmar

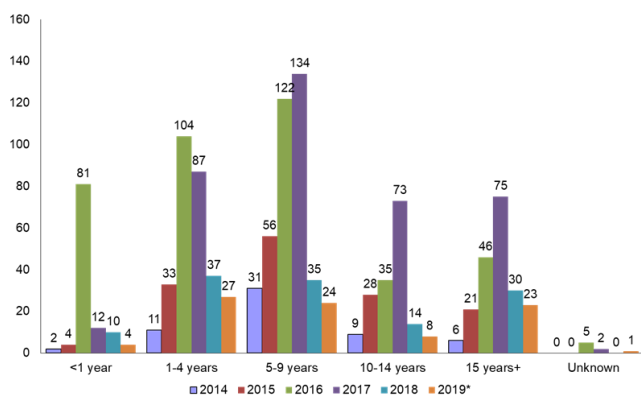


1 Dot = 1 Case

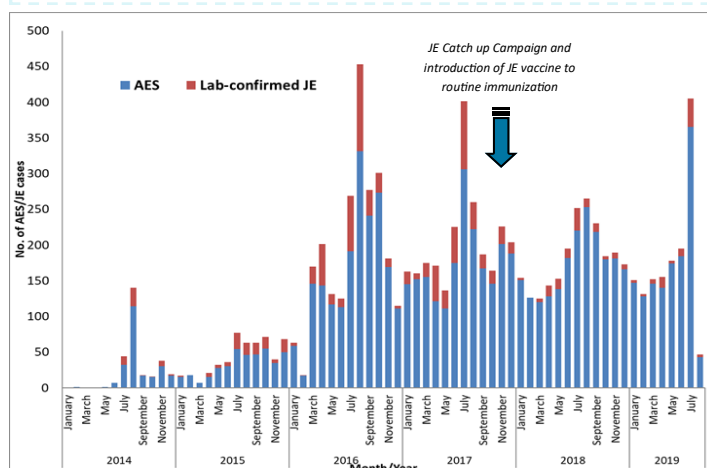
Region/State-wise Occurrences of JE 2014-2019*

Region/State	2014		2015		2016		2017		2018		2019	
	AES	JE Positive	AES	JE Positive	AES	JE Positive	AES	JE Positive	AES	JE Positive	AES	JE Positive
Ayeyawady	12	4	90	21	231	45	259	51	185	15	99	11
Bogo	16	7	86	28	213	53	256	49	200	11	127	8
Chin	0	0	1	1	11	3	2	1	4	1	0	0
Kachin	10	1	12	5	8	1	7	2	14	3	12	0
Kayah	0	0	0	0	1	1	15	6	15	3	13	1
Kayin	0	0	6	1	136	37	165	65	63	10	47	9
Magway	1	1	10	4	30	4	58	6	122	17	64	1
Mandalay	5	3	2	0	122	19	6	1	155	2	78	3
Mon	5	0	29	5	60	8	61	13	50	4	24	3
Naypyitaw	0	0	1	0	5	2	12	1	15	1	6	0
Rakhine	47	2	126	46	120	26	88	17	60	4	41	6
Sagaing	0	0	6	1	52	9	18	2	83	5	44	2
Shan East	0	0	1	0	29	8	5	2	6	2	19	8
Shan North	0	0	4	0	90	16	88	42	83	19	28	4
Shan South	0	0	0	0	14	2	60	16	82	5	40	6
Tanintharyi	1	0	6	3	18	4	45	11	19	0	7	0
Yangon	55	6	265	36	771	155	889	92	881	24	649	24
Hospital							55	6	26	0	29	1
Total	152	24	645	151	1911	393	2089	383	2063	126	1327	87

JE incidence: lab confirmed cases by age groups 2014-2019*



Lab confirmed and reported AES cases by months 2014-2019*



* Data as of week no. 35, 31 August 2019

Vaccine Preventable Diseases (VPD)

	2014	2015	2016	2017	2018	2019*
Diphtheria	29	87	136	68	187	56
Measles	122	6	266	1729	1985	3762
Pertussis	5	5	2	4	28	2
Polio	0	0	0	0	0	11 (cVDPVP1)
Rubella	30	34	10	6	13	14
Neonatal tetanus	32	30	21	20	22	14
Japanese encephalitis	24	151	393	383	126	87

* Data as of week no. 35, 31 August 2019

Vaccine Preventable Diseases (VPD) by State and Region, 2019*

State/Region	Diphtheria	Pertussis	Neonatal tetanus	Japanese encephalitis
Ayeyarwaddy	8	0	2	11
Bago	3	0	0	8
Chin	0	0	0	0
Kachin	1	0	3	0
Kayah	0	0	0	1
Kayin	3	0	1	9
Magway	2	1	0	1
Mandalay	4	0	1	3
Mon	0	0	0	3
Nay Pyi Taw	2	0	0	0
Rakhine	5	0	2	6
Sagaing	2	0	0	2
Shan East	0	1	0	8
Shan North	6	0	2	4
Shan South	7	0	2	6
Tanintharyi	2	0	0	0
Yangon	11	0	1	24
Hospital	0	0	0	1
National	56	2	14	87

* Data as of week no. 35, 31 August 2019

DISEASE OUTBREAK 2019*

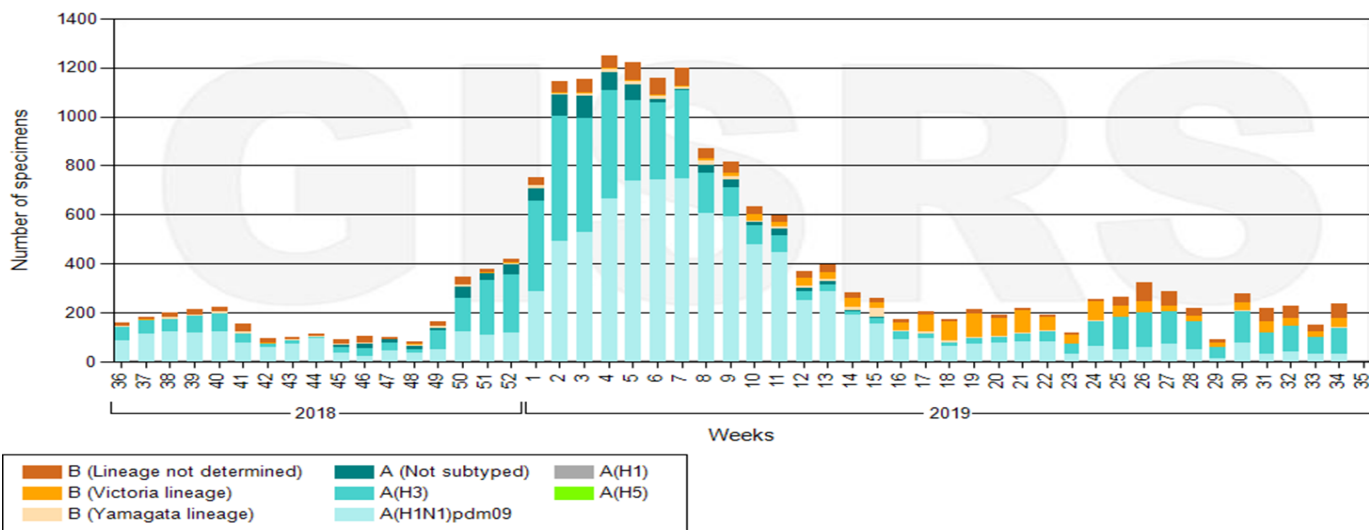
No.	Disease	Jan-July			August		
		Events	Cases	Deaths	Events	Cases	Deaths
1.	Anthrax	4	15	0	0	0	0
2.	Chicken pox	11	311	1	0	0	0
3.	Diarrhoea	10	223	5	0	0	0
4.	Diphtheria	42	47	10	9	9	6
5.	Food Poisoning	40	1146	8	6	166	0
6.	Measles	89	1400	8	0	0	0
7.	Meningitis	9	9	2	1	1	1
8.	Mumps	0	0	0	0	0	0

* Data as of week no. 35, 31 August 2019

Myanmar Influenza Surveillance Report

Number of specimens positive for influenza by Southern Hemisphere subtype

Number of specimens positive for influenza by subtype



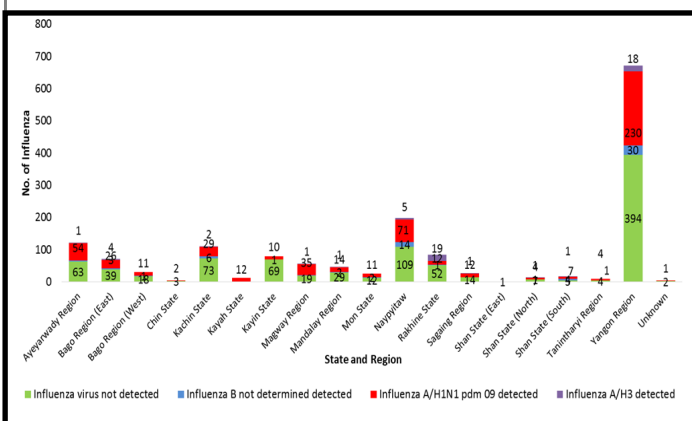
Myanmar Influenza Surveillance in July-2019* (Hospital Distribution)

Name of Hospital	A/H1N1 pdm 09 detected	B not determined detected	Influenza A/H3 detected	virus not detected	Total
Sentinal Hospital					
1000 Bedded General Hospital, Nay Pyi Taw	63	9	10	130	212
Thingangyun Sanpya General Hospital (T.G.H)	8	2	1	18	29
Mandalay General Hospital	1	1	0	3	5
Muse Township Hospital	8	0	0	61	69
Myawaddy District Hospital	29	6	1	73	109
Myit Kyi Na General Hospital	5	0	18	45	68
Sittwe General Hospital	44	6	0	83	133
Yangon General Hospital (Y.G.H)	83	5	6	141	235
Other Hospital/Source	304	41	18	359	722
Total	545	70	54	913	1582

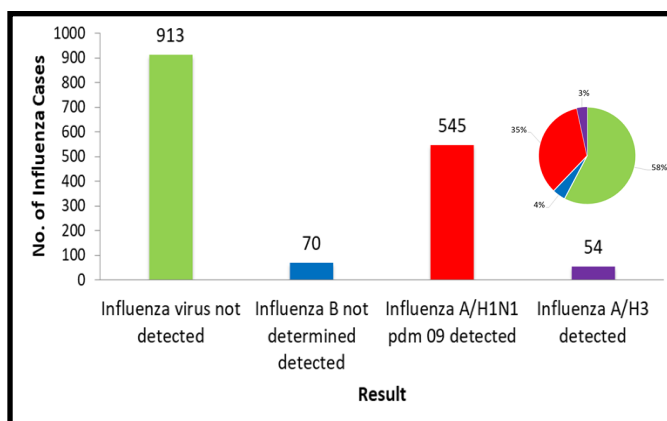
ILI/SARI sentinel surveillance sites



Case distribution by State/Region, 2019*



Specimens Positives for Influenza by Subtypes 2019* (n=1582)



* Data as of week no. 35, 31 August 2019

Response to circulating Vaccine-derived poliovirus type 1 in Hpa-pun township, Kayin State 2019

Detection of Vaccine-derived Poliovirus type 1 (VDPVP1)

On 23rd June 2019 vaccine-derived Poliovirus type 1 (VDPVP1) was detected in the stool specimens of AFP case Mg Saw Ta Da Dar, 2 years old boys in Sin Swel village from Hpa-pun Township, Kayin State, where 3 new cases were detected. Non-polio AFP rate in Hpa-pun township was achieved at 2.33, 2.15 and 6.35 in 2016, 2017 and 2018 respectively.

Response to detection of VDPVP1

On 22nd June 2019, before the confirmation from the regional reference laboratory in Mumbai, Central Level Outbreak Response Committee chaired by Union Minister on Health and Sports called for a meeting for guidance on response to the event by national, state/ regional level and township level and for coordination with the Kayin State government, local organizations and international partners.

As part of the immediate response, in June 24, an epidemiological investigation was conducted by Joint Risk Assessment Team following the detection of the first case and stool samples were collected from healthy children in the community.

On 25th June 2019, the Ministry of Health and Sports, Myanmar **notified WHO** of one laboratory confirmed case of Vaccine-derived Poliovirus Type 1 (VDPV1) in Hpa-Pun township, Kayin State, Myanmar.

Emergency meeting chaired by the **Union Minister** was called for on **24 July 2019** to response to the confirmed VDPV urgently and effectively. The Department of Public Health coordinated with **state / region health departments** to strengthen AFP surveillance and routine immunization

Confirmation of circulating Vaccine-derived Poliovirus type 1 (cVDPVP1)

Another AFP case from Hpa-pun Township was reported and became confirmed as Vaccine Derived Poliovirus type 1 (VDPV1) on 11 July 2019. Again, 2 healthy contacts of the case 1 were VPPV1 confirmed. The evidence of circulating poliovirus was confirmed and categorized as a polio outbreak.

Therefore, on 12 July 2019, according to International Health Regulations MOHS notified WHO of isolation of genetically-linked VDPV1 (circulating Vaccine-derived Poliovirus) from the stool specimens collected from another child with acute flaccid paralysis and from two healthy children.

In response to the current cVDPV1 outbreak, the Ministry of Health and Sports activated the response plan with some modification to be in line with updated recommendations of the 7th Emergency Committee under IHR and updated SOP on responding to polio outbreak/ polio event developed by GPEI.

Response activities on current cVDPV type 1

The Ministry of Health and Sports has **declared** the cVDPV type 1 outbreak as a National Public Health Emergency on **12th July 2019** and has instructed all the State and Regional Health Directors to prepare and respond to the cVDPV1 outbreak as per the national guidelines shared with them.

Then, **Emergency Operation Centers (EOC)** in central and S/R have been activated to effective incident management for response activities. Health promotion and awareness raising through the tailor risk communication messages to community and international travelers has been carrying out.

The sensitivity of Acute Flaccid Paralysis surveillance in the whole country has been enhanced by increasing the Non-polio AFP target from **2/100,000 to >3/100,000 under 15 population**.

Routine immunization activities are strengthened to cover all geographical areas. A **Nation-wide polio Sub NID** is planned to conduct in 96 townships targeted under 5 years old children in August and October 2019.

Based on initial risk assessment, Polio Outbreak Response Immunization (**Round 0** and Round 1) has been conducted in (12) townships (**Kayin- 7 townships, Mon- 3 townships (Bilin, Thahton, Kyaikhto), Bago-2 townships (Shwe Kyin, Kyaukgyi)**). The target children are from 0-5 years age group in (11) townships (254,640) and 0-15 years age group with house-to-house mop up strategy in Hpa-Pun township (45,023 Hpa Pun) on 07 – 09 July and 21-23 July 2019. supplementary Immunization Activities (SIA – Round 1) was conducted in (98) townships with the target of (1.2) million under 5 years old children in August 2019.

In summary, as of 31st August 2019, **total 11 confirmed VDPV-1 cases (4 AFP and 7 contacts) were detected in Hpa-pun township.**

AFP Case Definition:

Any case of AFP in a child aged <15 years, or any case of paralytic illness in a person of any age when polio is suspected.

Acute: rapid progression of paralysis from onset to maximum paralysis

Flaccid: loss of muscle tone, “floppy” – as opposed to spastic or rigid

Paralysis: weakness, loss of voluntary movement

Any case meeting this definition undergoes a thorough investigation to determine if the paralysis is caused by polio.

Measles Case Definition: Suspected case of measles

A patient in whom a health-care worker suspects measles infection, **OR** a patient with fever and maculo-papular (non-vesicular) rash.

Laboratory confirmed measles: A suspected case of measles, that has been confirmed by a proficient laboratory

Epidemiologically linked confirmed case of measles: A suspected case of measles, that has not been confirmed by a laboratory but was geographically and temporally related, with dates of rash onset occurring 7 - 21 days apart to a laboratory confirmed case, or, in the event of a chain of transmission to another epidemiologically confirmed measles case.

Clinically compatible measles case: A case with fever and maculo-papular (non-vesicular) rash and one of cough, coryza or conjunctivitis for which no adequate clinical specimen was taken and which has not been linked epidemiologically to a laboratory confirmed case of measles or another laboratory-confirmed communicable diseases.

Congenital Rubella Syndrome CRS Surveillance

Standard Case Definitions

Classification of cases for CRS surveillance purposes is based on clinical, epidemiological and laboratory data. The case definitions for CRS surveillance include the following categories: suspected, laboratory confirmed, clinically compatible, epidemiologically linked and discarded.

Case definition for Diphtheria surveillance

Clinical description

An upper respiratory tract illness characterized by sore throat, low-grade fever, and an adherent membrane of the tonsil(s), pharynx, and/or nose.

Laboratory criteria: Isolation of *C. diphtheriae* from a clinical specimen, OR Histopathologic diagnosis of diphtheria.

Whooping Cough Case Definitions

Clinical case definition

In the absence of a more likely diagnosis a cough illness lasting ≥2 weeks with one of the following symptoms: Paroxysms of coughing, OR Inspiratory “whoop,” OR Post tussive vomiting, OR Apnea (with or without cyanosis) (FOR INFANTS AGED <1 YEAR ONLY)

Confirmed Case definition of Neonatal Tetanus:

Any neonate with normal ability to suck and cry during first two days and who during 3 to 28 days cannot suck or cry and has convulsion or spasms, by triggered by minimal stimuli such as light, noise or touch or who has signs of stiffness and rigidity, which include any of the following: trismus, clenched fists or fits, continuously pursed lips, curved back (opisthotonus).

Surveillance of AES

All cases of acute encephalitis syndrome should be reported

Clinical case definition: A person of any age, in any geographical region, at any time of year with acute onset of fever and a change in mental status (including symptoms such as confusion, disorientation, coma, or inability to talk) AND/OR new onset of seizures (excluding simple febrile seizures).

AFP Surveillance Indicators (core indicators)

Indicator	Target	Calculation
1. Non-polio AFP rate	= 2/100,000	$\frac{\text{No. of discarded non-polio AFP cases among 15 years of age group}}{\text{Total number of children < 15 years of age}} \times 100000$
2. Reported AFP cases with 2 specimens collected = 14 days since onset.	= 80%	$\frac{\text{No of AFP cases with 2 specimens collected within 14 days of paralysis onset}}{\text{Total number of children < 15 years of age}} \times 100$

Measles Surveillance Indicators (core indicators)

Indicator	Target	Definition
Disease incidence Annual incidence of confirmed measles cases Annual incidence of confirmed rubella cases	Absence of indigenous measles transmission	The numerator is the confirmed number of measles or rubella cases of the year denominator is the population in which the cases occurred multiplied by 1,000,000. When numerator is zero, the target incidence would be zero.
Proportion of sub-national administrative units reporting at least 2 discarded non measles, non rubella cases per 100,000 population	>80%	The numerator is the number of sub-national units reporting at least 2 discarded non-measles non rubella cases per 100,000 and the denominator is the total number of sub-national units multiplied by 100

Data source:

- Central Epidemiology Unit
- National Health Laboratory
- National Surveillance Coordinator Office (WHO)

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