Ministry of Health and Sports
Department of Public Health
Central Epidemiology Unit
Monthly Epidemiology BULLETIN
May, 2019

AFP Surveillance Indicators by State and Region, 2019*

State/Region	<15 Population	Minimum Expected Non Polio AFP Cases (2/100,000 pop)	Total no. of reported AFP Case	Non-Polio AFP Case	Annualized AFP Rate	Annualized Non-Polio AFP Rates	% of Adequate Stool
Ayeyarwady	1,582,899	33	8	4	1.19	0.60	100
Bago	1,280,053	30	20	13	3.69	2.40	100
Chin	190,275	3	5	3	6.21	3.73	83
Kachin	455,634	11	3	2	1.56	1.04	100
Kayah	95,512	2	0	0	0.00	0.00	100
Kayin	542,741	12	8	3	3.48	1.31	85
Magway	973,253	20	8	7	1.94	1.70	100
Mandalay	1,439,409	28	14	7	2.30	1.15	94
Naypyitaw	287,520	6	0	0	0.00	0.00	0
Mon	591,334	11	3	3	1.20	1.20	89
Rakhine	810,480	16	6	2	1.75	0.58	100
Sagaing	1,413,333	36	13	11	2.17	1.84	83
Shan East	290,791	6	5	4	4.06	3.25	100
Shan North	667,365	13	6	2	2.13	0.71	100
Shan South	666,404	16	11	8	3.90	2.84	100
Taninthayi	447,855	11	6	3	3.17	1.58	88
Yangon	1,542,376	32	8	2	1.23	0.31	100
Total	**13,277,234**	**286**	**124**	**74**	**2.21**	**1.32**	**95**

Acute Flaccid Paralysis (AFP)

Total no. of expected non-polio AFP cases - 286

Annualized expected Non Polio AFP Cases (as of week.22) - 107

Reported AFP cases - 124

Discarded as non-polio AFP cases– 74

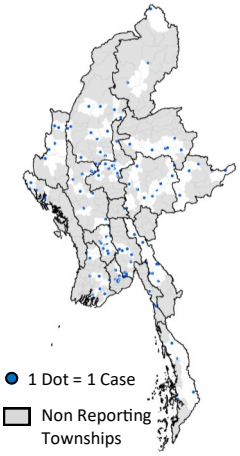
Annualized AFP rate - 2.21

Annualized Non-polio AFP rate—1.32

Percentage of adequate stool collection - 95%

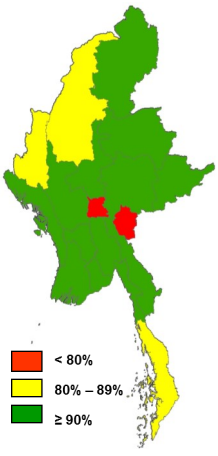
Pending for classification - 50

**Data as of 2019 (week no. 22)*



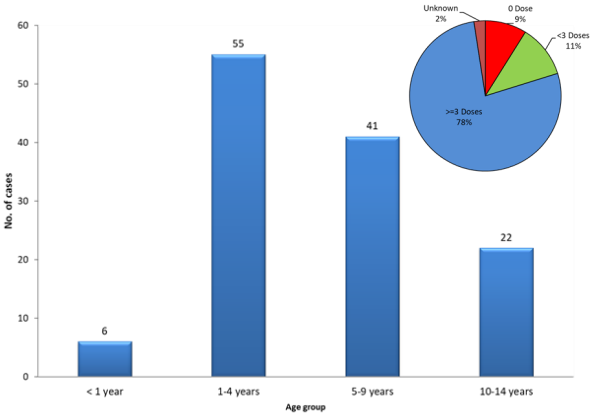
Spot Map of AFP Cases

Annualized Non polio AFP rate



% of Adequate stool collection

Age group and vaccination status of AFP cases, 2019* (n=124)



Environmental Surveillance in Myanmar

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

	Sampling site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2019	Yangon																		
	Sitwe																		
	Maung Taw																		

Type 1 Sabin; Type 1 VDPV; Wild polio type 1; Negative for Polio and NPEV
Type 2 Sabin; Type 2 VDPV; Wild polio type 3; Result pending
Type 3 Sabin; Type 3 VDPV; NPEV; Sampling not scheduled
Type 1 Sabin + 3 Sabin

Percentage of NPEV detected in Sewage samples – 17%

Maungdaw - 25%

Sittwe - 0%

Yangon - 25%

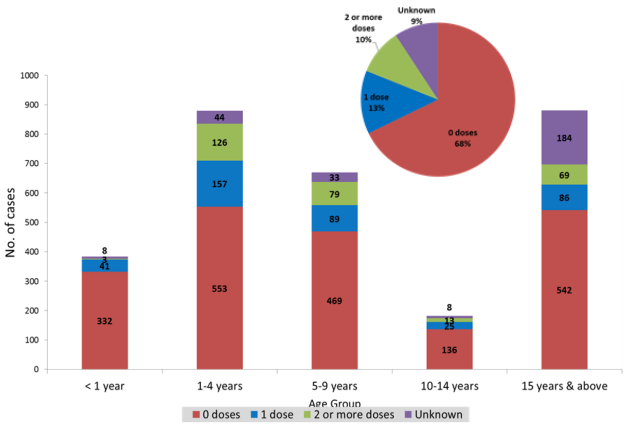
* Data as of week no. 22, 31 May 2019

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	298	114	0	9	0	17	158	19.10	0.26
Bago	5238253	105	621	280	88	13	0	43	197	72.73	0.82
Chin	546700	11	21	5	0	4	0	9	3	16.46	1.65
Kachin	1704082	34	39	18	0	0	0	10	11	10.56	0.59
Kayah	317318	6	57	23	1	1	1	4	28	78.79	1.26
Kayin	1721795	34	179	52	44	5	0	5	73	58.66	0.29
Magway	4372399	87	204	68	32	31	0	22	51	29.96	0.50
Mandalay	6284989	126	421	188	82	106	0	36	9	59.83	0.57
Mon	2344889	47	226	51	55	5	1	13	101	47.34	0.55
Nay Pyi Taw	1123682	22	89	31	3	6	0	8	41	35.60	0.71
Rakhine	2883386	58	140	66	0	1	1	16	56	23.24	0.55
Sagaing	5744297	115	276	40	39	1	0	140	56	13.93	2.44
Shan East	1054446	21	248	37	189	0	0	3	19	214.33	0.28
Shan North	2507798	50	275	76	76	32	1	7	82	73.37	0.28
Shan South	2451390	49	247	59	133	4	0	20	31	79.95	0.82
Tanintharyi	1553794	31	68	12	0	1	0	13	42	8.37	0.84
Yangon	6996954	140	1441	800	44	72	3	114	408	130.91	1.63
National	**53286370**	**1066**	**4850**	**1920**	**786**	**291**	**7**	**480**	**1366**	**56.24**	**0.90**

Total suspected outbreaks– 81 ***Confirmed measles outbreaks— 79*** ***Non Measles/Rubella outbreaks— 2***

Age and Vaccination Status of Confirmed Measles cases, 2019* (n=2997)

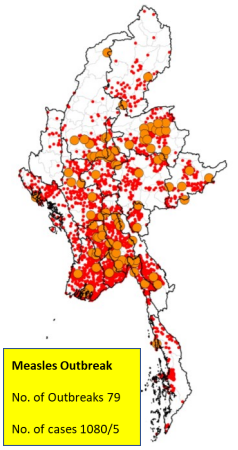


Occurrence of measles outbreaks

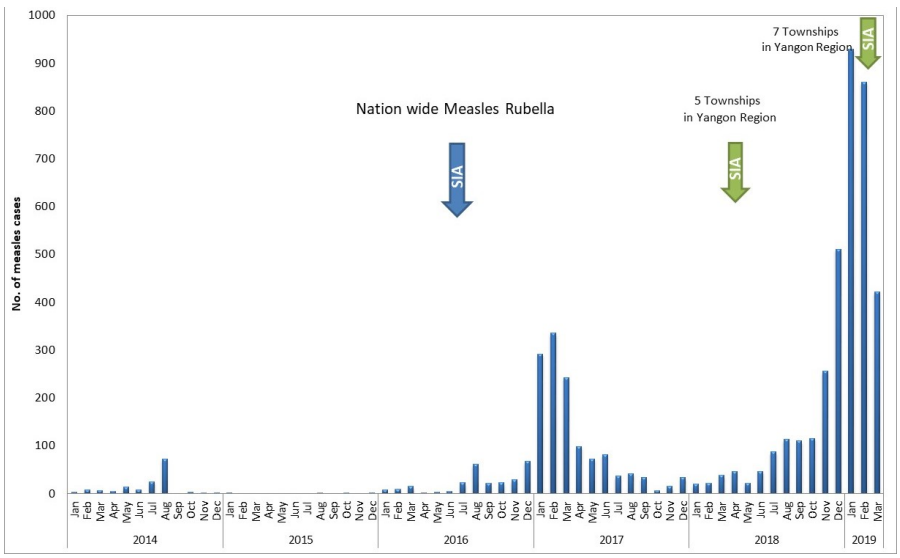
State/ Region	Township
Ayeyarwady Region	Hinthada
	Mawlamyinegyun
	Pantanaw
	Pathein
Bago Region	Bago
	Kyaukkyi
	Kyauktaga
	Letpadan
	Nattalin
	Paungde
	Pyay
	Taungoo
	Waw
	Yedashe
Kachin State	Shwegu
Kayah State	Hpasawng
Kayin State	Hlaingbwe
	Kawkareik
	Kyainseikgyi
	Myawaddy
Magway Region	Aunglan
	Chauk
	Myothit
	Pauk
	Salin
Mandalay Region	Amarapura
	Chanayethazan
	Chanmyathazi
	Kyaukse
	Madaya
	Mahaaungmyay
	Thabeikkyin
Mon State	Bilin
	Kyaikto
	Mawlamyine
	Thaton

State/Region	Township
Naypyitaw	Det Khi Na Thi Ri
	Lewe
Sagaing Region	Budalin
	Chaung-U
	Hkamti
	Kani
	Khin-U
	Myinmu
	Sagaing
	Tabayin
Shan State (East)	Kengtung
	Monghsat
	Mongping
	Mongton
	Tachileik
Shan State (North)	Hsipaw
	Kunlong
	Kutkai
	Kyaukme
	Lashio
	Pangsang
	Tangyan
Shan State (South)	Hopong
	Mawkmai
	Monghsu
	Nansang
Tanintharyi Region	Launglon
Yangon Region	Dagon Myothit (North)
	Dagon Myothit (Seikkan)
	Dagon Myothit (South)
	Hlaingtharya
	Insein
	Mingaladon
	North Okkalapa
	Tamwe

Spot 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

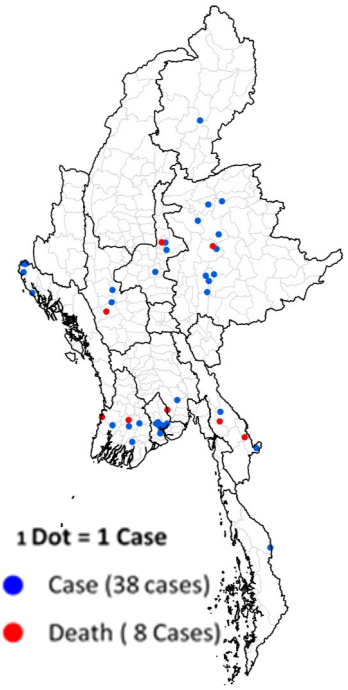
Data source: routine case based surveillance and outbreaks

* Data as of week no.22 , 31 May 2019

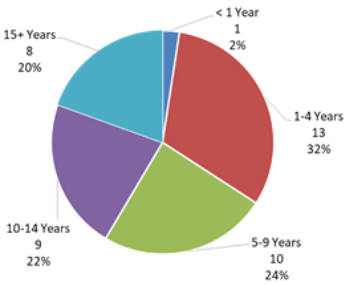
Diphtheria, 2019*

Reported Suspected Diphtheria Cases and Deaths in State and Region

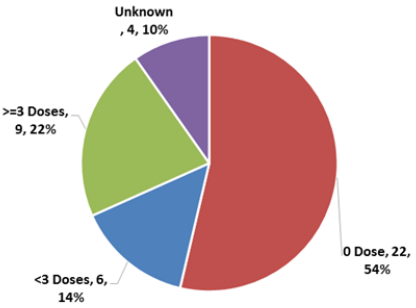
State/Region	Total no. of cases	Total no. of death
Ayeyarwady	4	2
Bago	1	1
Chin	0	0
Kachin	1	0
Kayah	0	0
Kayin	2	2
Magway	2	1
Mandalay	3	1
Mon	0	0
Nay Pyi Taw	0	0
Rakhine	5	0
Sagaing	0	0
Shan East	0	0
Shan North	4	0
Shan South	5	1
Tanintharyi	1	0
Yangon	10	0
Grand Total	38	8



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

Age group	0 Dose	<3 Dos-es	>=3 Doses	Total
5-9 Years	1	0	0	1
Grand Total	**1**	**0**	**0**	**1**

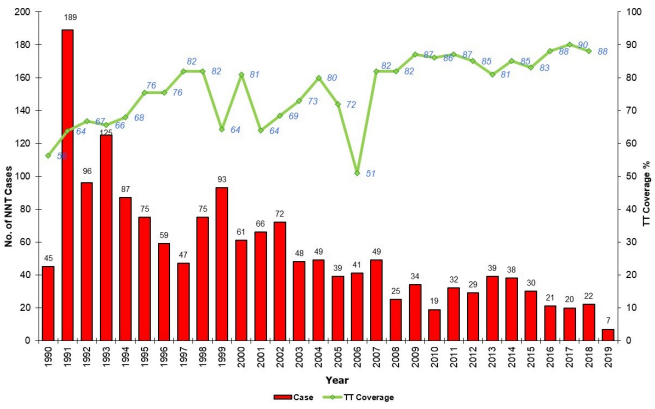
Neonatal Tetanus, 2019*

Reported NNT Cases and Deaths in State and Region

State/Region	Township	Cases	Deaths
Kachin	Tsawlaw	1	0
	Waingmaw	1	1
Kayin	Kawkareik	1	1
Rakhine	Sittwe	1	0
Shan (North)	Hopang	1	1
Shan (South)	Loilen	1	1
	Nansang	1	1
Total Reported		**7**	**5**

Place of birth among reported NNT cases		Reported NNT cases are delivered by		Vaccination stauts of mother during pregnancy	
Hospital		Doctor		0 Dose	6
Health Center		BHS			
Private Hospital		Trained TBA		1 Dose	1
Home	7	TBA	2		
Other		Other	2	>=2 Doses	
		Not Attended	2		
Unknown		Unknown	1		
Total	**7**	**Total**	**7**	**Total**	**7**

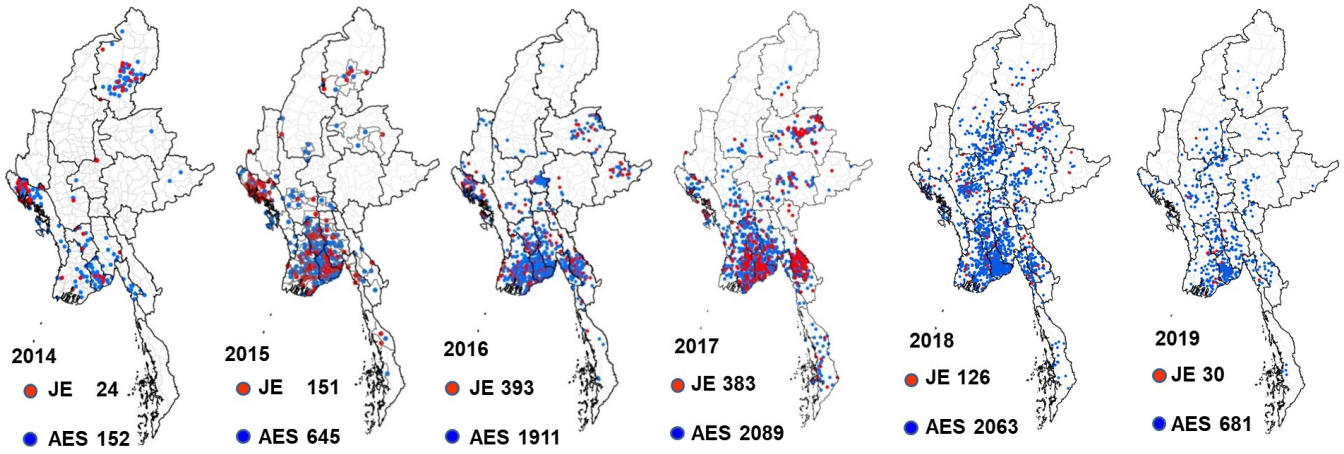
TT2 Coverage and Neonatal Tetanus Cases (1990-2019*)



* Data as of week no.22 , 31 May 2019

Acute Encephalitis Syndrome

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

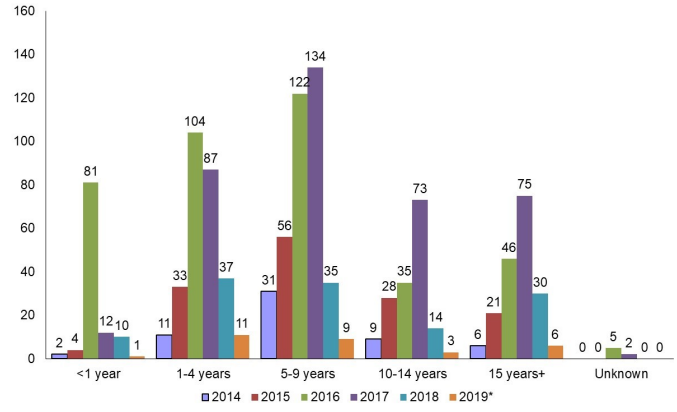


1 Dot = 1 Case

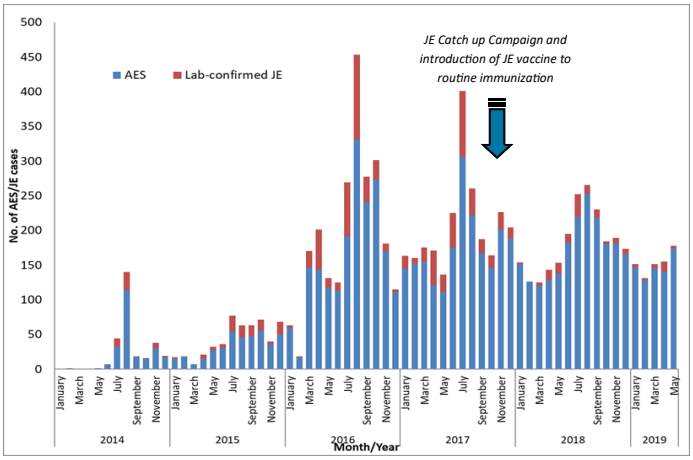
Region/State-wise Occurrences of JE 2014-2019*

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	61	7
Bogo	16	7	86	28	213	53	256	49	200	11	76	5
Chin	0	0	1	1	11	3	2	1	4	1	0	0
Kachin	10	1	12	5	8	1	7	2	14	3	6	0
Kayah	0	0	0	0	1	1	15	6	15	3	10	0
Kayin	0	0	6	1	136	37	165	65	63	10	22	0
Magway	1	1	10	4	30	4	58	6	122	17	45	1
Mandalay	5	3	2	0	122	19	6	1	155	2	53	1
Mon	5	0	29	5	60	8	61	13	50	4	14	2
Naypyitaw	0	0	1	0	5	2	12	1	15	1	3	0
Rakhine	47	2	126	46	120	26	88	17	60	4	18	0
Sagaing	0	0	6	1	52	9	18	2	83	5	27	1
Shan East	0	0	1	0	29	8	5	2	6	2	1	0
Shan North	0	0	4	0	90	16	88	42	83	19	13	0
Shan South	0	0	0	0	14	2	60	16	82	5	19	0
Tanintharyi	1	0	6	3	18	4	45	11	19	0	4	0
Yangon	55	6	265	36	771	155	889	92	881	24	292	13
Hospital data							55	6	26	0	17	0
Total	**152**	**24**	**645**	**151**	**1911**	**393**	**2089**	**383**	**2063**	**126**	**681**	**30**

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. 22, 31 May 2019

Vaccine Preventable Diseases (VPD)

	2014	2015	2016	2017	2018	2019*
Diphtheria	**29**	**87**	**136**	**68**	**187**	**38**
Measles	**122**	**6**	**266**	**1729**	**1985**	**2997**
Pertussis	**5**	**5**	**2**	**4**	**28**	**1**
Polio	**0**	**0**	**0**	**0**	**0**	**0**
Rubella	**30**	**34**	**10**	**6**	**13**	**7**
Neonatal tetanus	**32**	**30**	**21**	**20**	**22**	**7**
Japanese encephalitis	**24**	**151**	**393**	**383**	**126**	**30**

* Data as of week no. 21, 10 June 2019

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

State/Region	Diphtheria	Pertussis	Neonatal tetanus	Japanese encephalitis
Ayeyarwady	4	0	0	7
Bago	1	0	0	5
Chin	0	0	0	0
Kachin	1	0	2	0
Kayah	0	0	0	0
Kayin	2	0	1	0
Magway	2	0	0	1
Mandalay	3	0	0	1
Mon	0	0	0	2
Nay Pyi Taw	0	0	0	0
Rakhine	5	0	1	0
Sagaing	0	0	0	1
Shan East	0	1	0	0
Shan North	4	0	1	0
Shan South	5	0	2	0
Tanintharyi	1	0	0	0
Yangon	10	0	0	13
National	**38**	**1**	**7**	**30**

* Data as of week no. 21, 10 June 2019

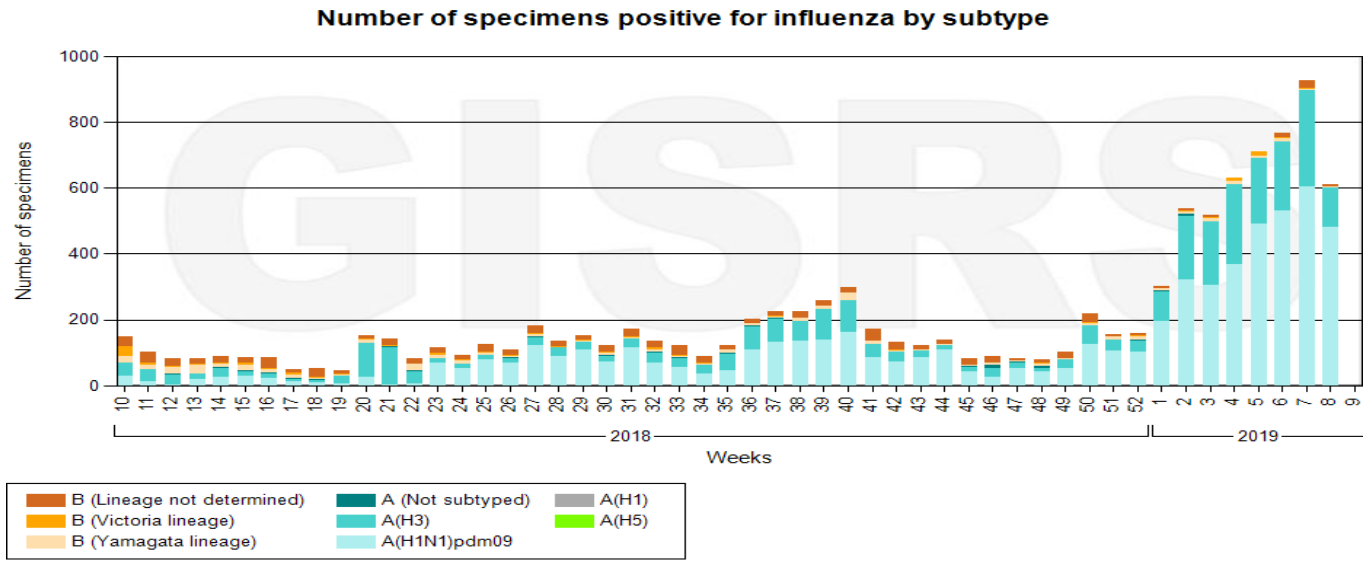
DISEASE OUTBREAK 2019*

No.	Disease	Jan-April			May		
		Events	Cases	Deaths	Events	Cases	Deaths
1.	Anthrax	1	2	0	2	9	0
2.	Chicken pox	11	311	1	0	0	0
3.	Diarrhoea	5	96	3	4	85	2
4.	Diphtheria	29	34	7	4	4	1
5.	Food Poisoning	16	778	0	9	182	0
6.	Measles	52	819	3	27	261	2
7.	Meningitis	6	6	2	0	0	0
8.	Mumps	0	0	0	0	0	0

* Data as of week no. 22, 31 May 2019

Myanmar Influenza Surveillance Report

Number of specimens positive for influenza by Southern Hemisphere subtype

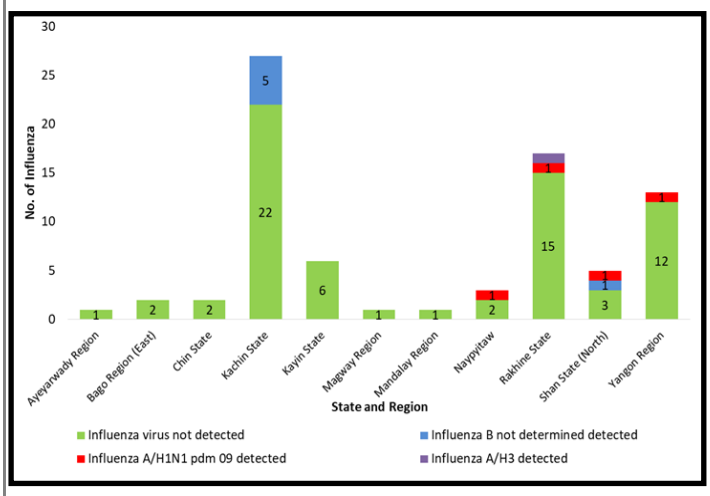


Myanmar Influenza Surveillance in July-2019* (Hospital Distribution)

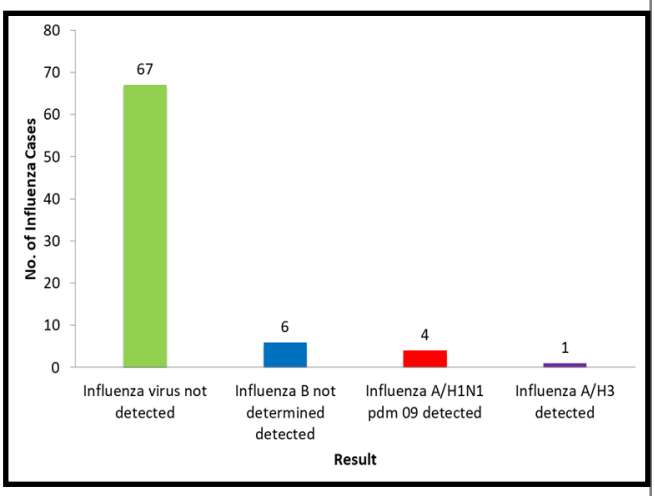
Name of Hospital	A/H1N1 pdm 09 detected	B not determined detected	Influenza A/H3 detected	virus not detected	Total
Sentinal Hospital					
1000 Bedded General Hospital, Nay Pyi Taw	0	0	0	0	0
Thingangyun Sanpya General Hospital (T.G.H)	1	0	0	5	6
Mandalay General Hospital	0	0	0	0	0
Muse Township Hospital	1	1	0	3	5
Myawaddy District Hospital	0	0	0	5	5
Myit Kyi Na General Hospital	0	5	0	22	27
Sittwe General Hospital	0	0	1	15	16
Yangon General Hospital (Y.G.H)	0	0	0	5	5
Other Hospital/Source	**2**	**0**	**0**	**12**	14
Total	**2**	**6**	**1**	**55**	**78**

ILI/SARI sentinel surveillance sites

Case Distribution by State/ Region, 2019*



Specimens Positives for Influenza by Subtypes 2019* (n=78)



* Data as of week no. 22, 31 May 2019

Review on Disease Surveillance

Acute Flaccid Paralysis (AFP) Surveillance

Achieving the non-polio AFP rate of 2.21 and the adequate stool collection rate of 96% at national level in 2019, ensures that the quality AFP surveillance system is sensitive to rapidly and reliably detect the imported wild poliovirus and vaccine-derived poliovirus (VDPV).

Fever with Rash Surveillance

On reviewing the case-based measles surveillance indicators in 2019, annualized incidence of measles/ 1,000,000 populations was 56.24, incidence of non-measles/ non-rubella rate /100,000 population was 0.91 which did not touch the target. Review on age group and immunization status of measles cases, common age groups were found among 1-4 years (29%) and above 15 years age group (30%). Most of confirmed measles cases (68%) were found to be unimmunized. Up to May 2019, 79 measles outbreaks have been reported from 15 State/Region except Chin and Rakhine. Therefore, in order to achieve the measles elimination in 2023, Myanmar has to strengthen surveillance system as well as routine immunization.

Diphtheria case-based surveillance

According to diphtheria case-based surveillance data, 11 states and regions reported 38 suspected diphtheria cases and out of those 8 cases were reported as deaths. Reported diphtheria cases were mostly 1-4 years age group (13, 32%) and more than half (22, 54%) of the diphtheria cases were unimmunized children.

Acute Encephalitis Syndrome (AES) /Japanese Encephalitis (JE) Surveillance

Evaluation of AES surveillance data, 30 out of 681 reported cases of AES were JE antibody positive till May 2019.

Influenza Like Illness (ILI) surveillance

As of week 21, 71 specimens were tested for influenza and out of which 6% and 8% of the specimens were tested as influenza A/H1N1 pdm09 and influenza B not determined respectively and the rest 86% were not detected influenza virus.

Rabies Prevention and Control towards Rabies Elimination (2030)

Meeting on Management of Post Exposure Prophylaxis on Human Rabies in Yangon (21-5-2019) to (22-5-2019)

Capacity Building Training for Health Care Providers for Human Rabies Prophylaxis in Yangon (13-5-2019) to (14-5-2019)

Preparation to Establish the Dog Bite Treatment Centers YGH, TGH, NOGH and IGH (27-5-2019)

* Data as of week no. 22, 31 May 2019

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	No. of discarded non-polio AFP cases among 15 years of age group / Total number of children < 15 years of age x 100000
2. Reported AFP cases with 2 specimens collected = 14 days since onset.	= 80%)	No of AFP cases with 2 specimens collected within 14 days of paralysis onset / Total number of children < 15 years of age x 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)

CEU produced this bulletin with the support of EPI Unit, WHO Country Office Myanmar

Address: Central Epidemiology Unit, Department of Public Health, Ministry of Health and Sports
Phone: +95 67 3431432 Fax : +95 67 3431434 Email address: dophceu@gmail.com