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	1,653,018	33	1	1	0.79	0.79	100
Bago	1,282,089	27	3	3	3.04	3.04	100
Chin	187,080	2	0	0	0.00	0.00	0
Kachin	442,109	8	0	0	0.00	0.00	0
Kayah	94,003	2	0	0	0.00	0.00	0
Kayin	521,924	11	1	1	2.49	2.49	100
Magway	985,189	19	4	4	5.28	5.28	100
Mandalay	1,442,973	28	3	3	2.70	2.70	100
Naypyitaw	288,213	5	0	0	0.00	0.00	0
Mon	591,424	11	0	0	0.00	0.00	0
Rakhine	833,457	17	0	0	0.00	0.00	0
Sagaing	1,413,760	33	4	4	3.68	3.68	75
Shan East	227,670	4	1	1	5.71	5.71	100
Shan North	722,544	12	0	0	0.00	0.00	0
Shan South	735,534	12	3	2	5.30	3.53	100
Taninthayi	454,875	11	3	3	8.57	8.57	100
Yangon	1,550,049	29	1	1	0.84	0.84	100
Total	**13,425,911**	**264**	**24**	**23**	**2.32**	**2.23**	**96**

Acute Flaccid Paralysis (AFP)

Total no. of expected non-polio AFP cases - 264

Annualized expected Non Polio AFP Cases (as of week.4) - 20

Reported AFP cases - 24

Discarded as non-polio AFP cases– 0

Annualized AFP rate - 2.32

Annualized Non-polio AFP rate - 0.00
Percentage of adequate stool collection - 99%

Pending for classification - 24

*Data as of 31 January 2019

(week no. 4)

1 Dot = 1 Case
Non Reporting Townships

<1
1 – 1.99
≥ 2

< 80%
80% – 89%
≥ 90%

Note—All AFP cases are pending for classification

Spot Map of AFP Cases   **Annualized Non polio AFP rate**   **% of Adequate stool collection**

Age group and vaccination status of AFP cases 2019*

No. of cases / Age group

Unknown 4% | 0 Dose 4% | <3 Doses 12% | >=3 Doses 80%

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	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
2019	Yangon																																																				
	Sitwe																																																				
	Maung Taw																																																				

Percentage of NPEV detected in Sewage samples – 33%

Maungdaw - 100%

Sittwe - 0%

Yangon - 0%

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

* Data as of week no. 4, 31 January 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
				Lab-confirmed	Epi-confirmed	Clinically confirmed					
Ayeyarwady	6437373	129	73	57	0	5	0	6	5	9.63	0.09
Bago	5177071	104	134	90	24	2	0	11	7	22.41	0.21
Chin	532750	11	2	0	0	0	0	2	0	0.00	0.38
Kachin	1625316	33	1	0	0	0	0	1	0	0.00	0.06
Kayah	310330	6	3	3	0	0	0	0	0	9.67	0.00
Kayin	1664092	33	62	27	34	0	0	1	0	36.66	0.06
Magway	4327568	87	23	13	0	1	0	1	8	3.24	0.02
Mandalay	6206034	124	63	35	23	0	0	5	0	9.35	0.08
Mon	2321587	46	23	13	4	0	0	6	0	7.32	0.26
Nay Pyi Taw	1111897	22	12	7	2	1	0	2	0	8.99	0.18
Rakhine	2846882	57	29	19	0	0	1	9	0	6.67	0.32
Sagaing	5646315	113	134	4	0	0	0	67	63	0.71	1.19
Shan East	845364	17	6	3	2	0	0	1	0	5.91	0.12
Shan North	2507456	50	0	0	0	0	0	0	0	0.00	0.00
Shan South	2413792	48	58	11	44	0	0	3	0	22.79	0.12
Tanintharyi	1528308	31	9	5	0	0	0	4	0	3.27	0.26
Yangon	6848946	137	510	429	1	17	1	48	14	65.27	0.70
National	**52351081**	**1047**	**1142**	**716**	**134**	**26**	**2**	**167**	**97**	**16.73**	**0.32**

Total suspected outbreaks– 22   *Confirmed measles outbreaks—20*   *Non Measles/Rubella outbreaks—2*

Age and Vaccination Status of confirmed Measles cases, 2019*

Sport Map of Measles cases 2019*

Epidemic curve for Measles Cases 2014-2019
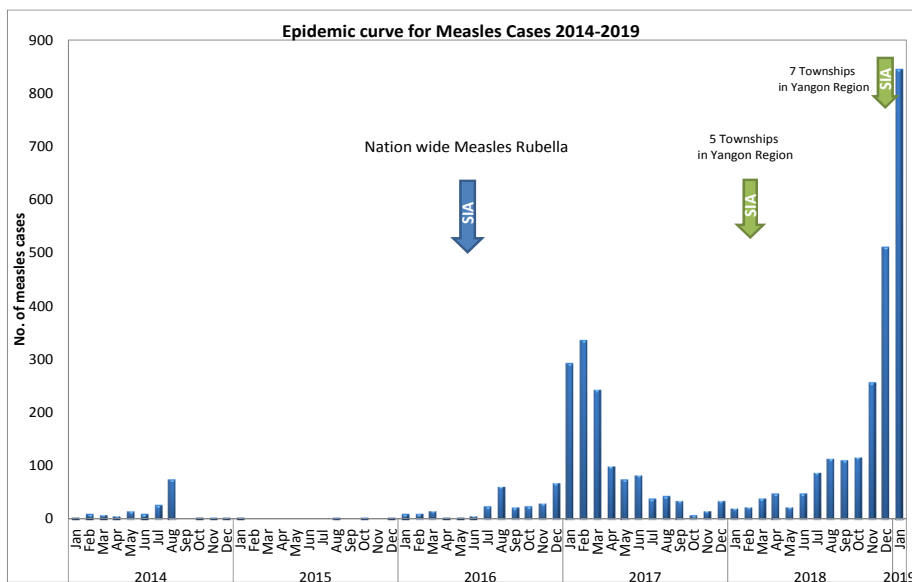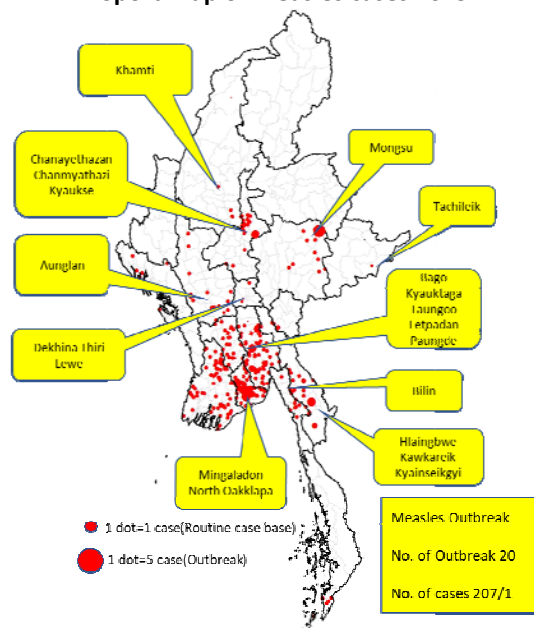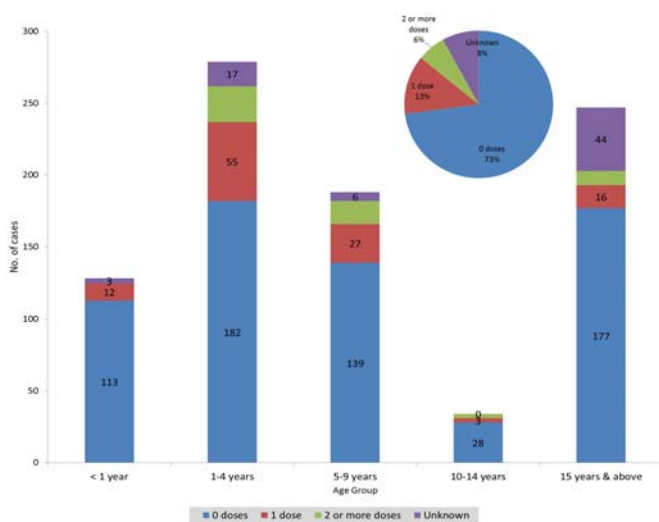
CRS Surveillance

Total no. of serum sample received - Non

Total no. of serum sample tested - Non

Data source: routine case based surveillance and outbreaks   * Data as of week no. 4, 31 January 2019

Diphtheria, 2019*

Reported Suspected Diphtheria cases and deaths in State and Region

State/Region	Total no. of cases	Total no. of death
Ayeyarwady	2	1
Bago	0	0
Chin	0	0
Kachin	0	0
Kayah	0	0
Kayin	1	1
Magway	0	0
Mandalay	1	0
Mon	0	0
Nay Pyi Taw	0	0
Rakhine	0	0
Sagaing	0	0
Shan East	0	0
Shan North	1	0
Shan South	1	1
Tanintharyi	0	0
Yangon	7	0
Grand Total	13	3

● 1 Dot=1 Case
Cases - (13 cases)

Death - (3 cases)
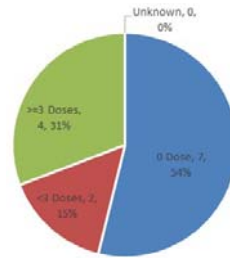
Immunization Status of Suspected Diphtheria Cases

Unknown, 0, 0%
>=3 Doses, 4, 31%
0 Dose, 7, 54%
<2 Doses, 2, 15%

Suspected Diphtheria Cases by Age group

15+ Years, 1, 8%
10-14 Years, 2, 15%
1-4 Years, 6, 46%
5-9 Years, 4, 31%
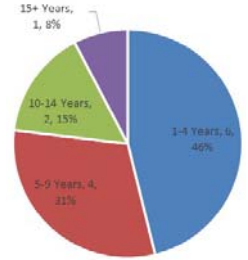
Pertussis (Whooping Cough),2019*

- No reported Whooping Cough cases in January, 2019

Neonatal Tetanus, 2019*

Reported NNT cases and deaths in State and Region

State/Region	Township	Cases	Deaths
Rakhine	Sittwe	1	0
Shan State (South)	Loilen	1	1
Total Reported		**2**	**1**

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

TT2 coverage and Neonatal tetanus cases (1990-2018)

* Data as of week no. 4, 31 January 2019

3
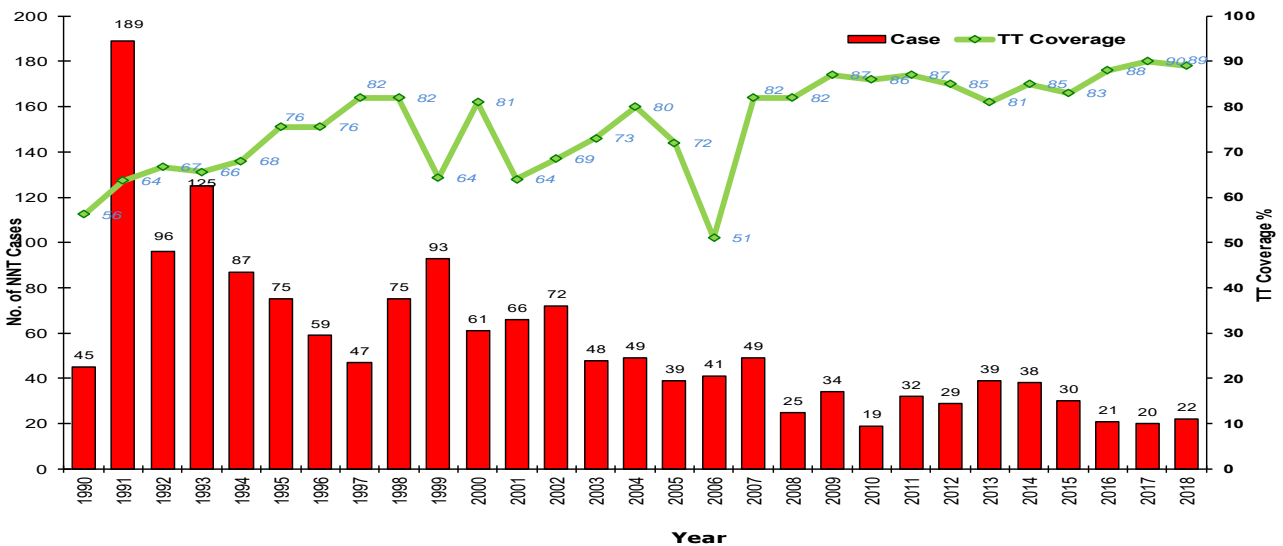
Acute Encephalitis Syndrome

## Reported AES cases & JE positive cases (2013-2019*), Myanmar

2014
- JE 24
- AES 152

2015
- JE 151
- AES 645

2016
- JE 393
- AES 1911

2017
- JE 383
- AES 2089

2018
- JE 126
- AES 2063
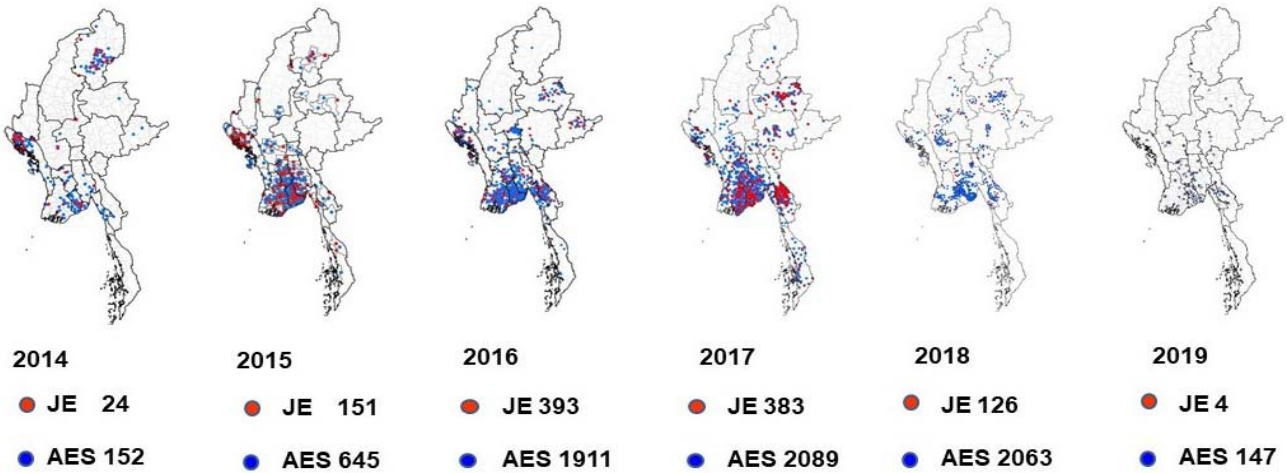
2019
- JE 4
- AES 147

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	7	0
Bago	16	7	86	28	213	53	256	49	200	11	12	0
Chin	0	0	1	1	11	3	2	1	4	1	0	0
Kachin	10	1	12	5	8	1	7	2	14	3	2	0
Kayah	0	0	0	0	1	1	15	6	15	3	2	0
Kayin	0	0	6	1	136	37	165	65	63	10	6	0
Magway	1	1	10	4	30	4	58	6	122	17	12	0
Mandalay	5	3	2	0	122	19	6	1	155	2	5	0
Mon	5	0	29	5	60	8	61	13	50	4	6	1
Naypyitaw	0	0	1	0	5	2	12	1	15	1	1	0
Rakhine	47	2	126	46	120	26	88	17	60	4	4	0
Sagaing	0	0	6	1	52	9	18	2	83	5	9	0
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	4	0
Shan South	0	0	0	0	14	2	60	16	82	5	2	0
Tanintharyi	1	0	6	3	18	4	45	11	19	0	2	0
Yangon	55	6	265	36	771	155	889	92	881	24	72	3
Unknown State/Region							55	6	26	0	0	0
Total	**152**	**24**	**645**	**151**	**1911**	**393**	**2089**	**383**	**2063**	**126**	**147**	**4**

JE incidence: lab confirmed cases by age groups 2014-2019*
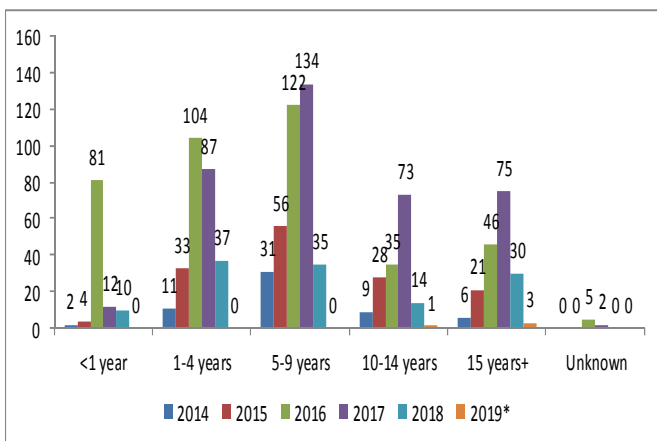
Lab confirmed and reported AES cases by months 2014-2019*
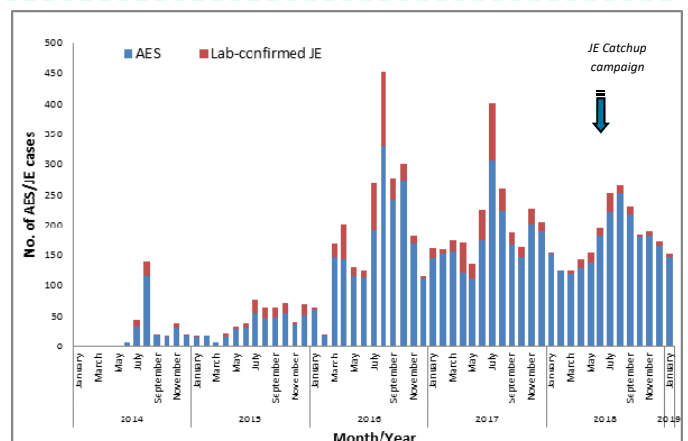
* Data as of week no. 4, 31 January 2019

Incidence of Vaccine preventable diseases (VPD)

	2014	2015	2016	2017	2018	2019*
Diphtheria	29	87	136	68	178	13
Measles	122	6	266	1729	1389	876
Pertussis	5	5	2	4	28	0
Polio	0	0	0	0	0	0
Rubella	30	34	10	6	13	2
Neonatal tetanus	32	30	21	20	22	2
Japanese encephalitis	24	151	393	383	126	4

* Data as of week no. 4, 31 January2019

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

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

* Data as of week no. 4, 31 January 2019

DISEASE OUTBREAK 2019*

No.	Disease	Events	Cases	Deaths
1.	Anthrax	1	2	0
2.	Chicken pox	5	201	0
3.	Diarrhoea	1	34	0
4.	Diphtheria	13	13	3
5.	Food Poisoning	4	77	0
6.	Measles	20	207	1
7.	Meningitis	3	3	0
8.	Mumps	0	0	0

* Data as of week no. 4, 31 January 2019

Myanmar influenza surveillance report

**Number of specimens positive for influenza by Southern Hemisphere subtype**

Number of specimens positive for influenza by subtype
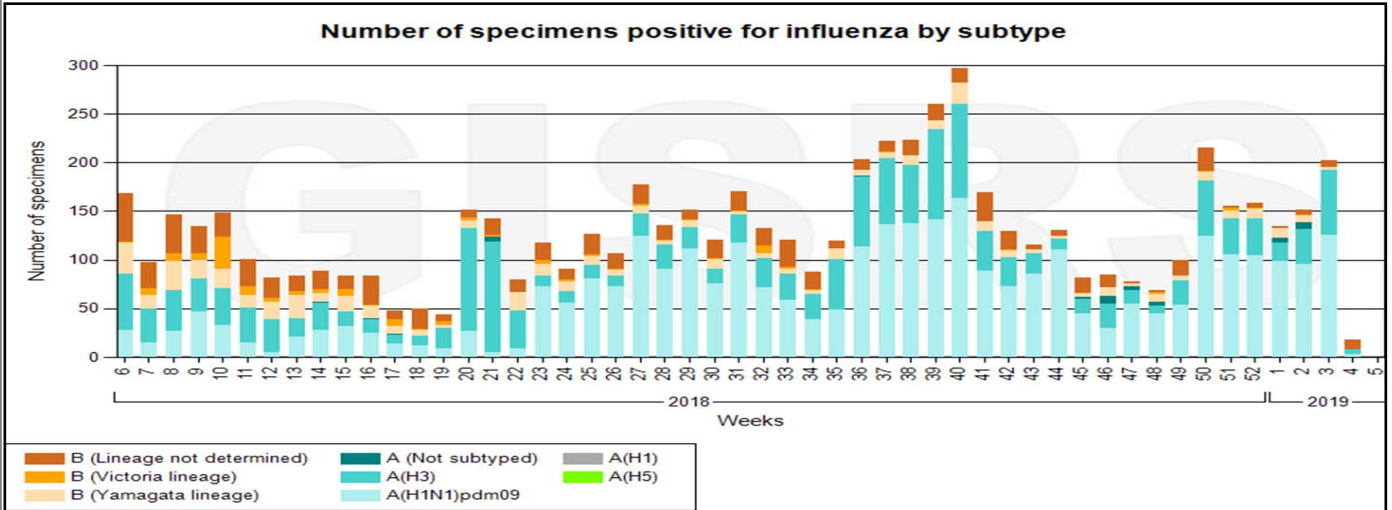
Myanmar Influenza Surveillance report, 2019* (Hospital Distribution)

Name of Hospital	A/H1N1 pdm 09 detected	B not determined detected	virus not detected	Total
Sentinal Hospital				
1000 Bedded General Hospital, Nay Pyi Taw	0	0	0	0
Thingangyun Sanpya General Hospital (T.G.H)	0	0	0	0
Mandalay General Hospital	0	0	0	0
Muse Township Hospital	0	1	1	2
Myawaddy District Hospital	0	0	1	1
Myit Kyi Na General Hospital	0	2	5	7
Sittwe General Hospital	0	0	12	12
Yangon General Hospital (Y.G.H)	0	0	2	2
Other Hospital/Source				
Other	1	0	4	5
Total	1	3	25	29

ILI/SARI sentinel surveillance sites

Case distribution by State/Region, 2019*
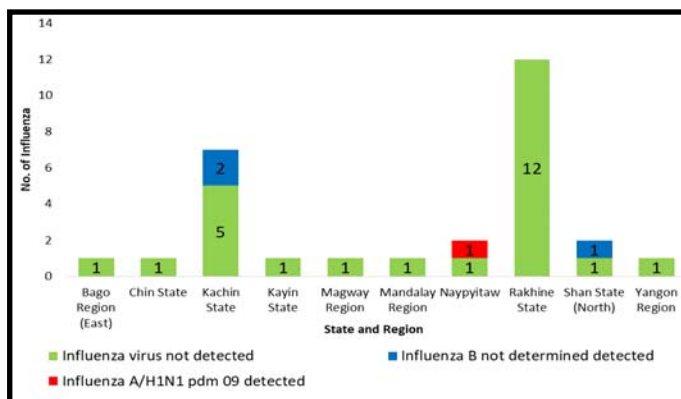
Specimens Positives for Influenza by Subtypes 2018* (n=29)
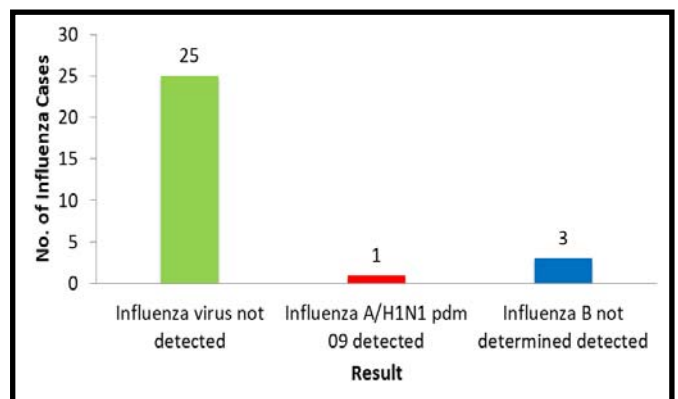
* Data as of week no. 4, 31 January 2019

**Review on Acute Flaccid Paralysis (AFP), other Vaccine Preventable Diseases (VPDs) &
Influenza Like Illness (ILI) surveillance in 2018**

Acute Flaccid Paralysis (AFP) Surveillance
Achieving the non-polio AFP rate of 2.49 and the adequate stool collection rate of 94% at national level in 2018, ensures that the quality AFP surveillance system is sensitive to rapidly and reliably detect the imported wild poliovirus and vaccine-derived poliovirus (VDPV). Non-Polio Enterovirus (NPEV) detected rate at sentinel sites for environmental surveillance is more than 28% in 2018. Those surveillance indicators justify that any polio outbreak in Myanmar, wild or vaccine-derived can be detected immediately. However, Kachin, Sagaing, Shan (North) did not achieve the target for annualized non-polio AFP rate in 2018. Therefore, AFP surveillance will be strengthened at all levels.

Fever with Rash Surveillance
To achieve measles elimination (2020), one of the case based fever with rash surveillance performance indicators was expected as non-measles/ non-rubella rate of ≥ 2 per 100,000 population. On reviewing the case-based measles surveillance indicators in 2018, annualized incidence of measles per 1,000,000 population was 25.62, incidence of non-measles/ non-rubella rate per 100,000 population was 1.11 which did not touch the target. Reviewing on age group and immunization status of measles cases, the most common age group was found among 1-4 year (29%) and 70% of reported measles cases were unimmunized. Therefore, in order to achieve the measles elimination in 2020, Strengthening fever with rash surveillance system as well as routine immunization should be emphasized .

Diphtheria case-based surveillance
According to diphtheria case-based surveillance data, there has been a re-emergence of diphtheria in 2018, largely attributed to low immunization coverage. Thirteen state and region reported 178 of suspected cases and out of 178 reported cases, 35 cases were reported as death cases. Reported diphtheria cases were most common in 5-9 years age group (60, 34%) and more than half of the diphtheria cases (101, 57%)were unimmunized children.

Pertussis
In 2018, 28 cases of whooping cough were reported from 8 States/Regions and (20, 72%) of the cases were unimmunized and common age group were 0-11 months and 5-9 years.

Neonatal Tetanus
Regarding the neonatal tetanus surveillance, reporting of 22 neonatal tetanus cases in 2018 was still maintaining the elimination status of 1 per 1000 population. More than 91% of the neonatal tetanus babies were born by home delivery and 64% of their mothers were unimmunized during the pregnancy. Continuing NNT surveillance is necessary to sustain Maternal and Neonatal Tetanus Elimination.

Acute Encephalitis Syndrome (AES) /Japanese Encephalitis (JE) Surveillance
On evaluation of JE surveillance data, 383 (18%) out of 2089 reported cases of AES were JE antibody positive in 2017 and 126 out of 2063 reported were JE positive in 2018. On comparing the AES surveillance data between 2017 and 2018, although reported AES cases were not much different, JE positive cases were dramatically reduced after Mass Vaccination Campaign of Japanese Encephalitis at the end of 2017. AES surveillance will be strengthen to be more sensitive.

Congenital Rubella Syndrome (CRS) Surveillance
Only 10 cases were reported for Congenital Rubella Syndrome Surveillance in 2018. Therefore, CRS surveillance at the five sentinel hospital will be strengthened with greater efforts in 2019.

Influenza Like Illness (ILI) surveillance
In 2018, 366 specimens were tested for influenza and out of which 4%, 20% and 8% of the specimens were tested as influenza A/H1N1 pdm09,A/H3 and influenza B respectively which shows that the majority of circulating virus is A/H3 but more specimens are required from sentinel hospitals for early case detection. Therefore, ILI/SARI surveillance will be enhanced at 8 sentinel hospitals by conducting clinical advocacy meeting to raise the awareness among clinicians especially Mandalay General Hospital and 1000 Bedded General Hospital, Nay Pyi Taw.

 * Data as of week no. 4, 31 January 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)

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