



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

Monthly Epidemiology BULLETIN

November, 2018

AFP surveillance Indicators by State and Region, 2018*

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	39	38	2.56	2.49	97
Bago	1,282,089	27	53	53	4.48	4.48	94
Chin	187,080	2	5	5	2.90	2.90	100
Kachin	442,109	8	8	8	1.96	1.96	100
Kayah	94,003	2	3	3	3.46	3.46	100
Kayin	521,924	11	15	15	3.11	3.11	100
Magway	985,189	19	22	20	2.42	2.20	91
Mandalay	1,442,973	28	34	31	2.55	2.33	97
Naypyitaw	288,213	5	6	6	2.26	2.26	100
Mon	591,424	11	11	10	2.01	1.83	100
Rakhine	833,457	17	32	27	4.16	3.51	84
Sagaing	1,413,760	33	19	17	1.46	1.30	89
Shan East	227,670	4	5	5	2.38	2.38	80
Shan North	722,544	12	13	12	1.95	1.80	92
Shan South	735,534	12	13	13	1.91	1.91	100
Taninthayi	454,875	11	11	10	2.62	2.38	91
Yangon	1,550,049	29	31	30	2.17	2.10	94
Total	13,425,911	264	320	303	2.58	2.44	94

Acute Flaccid Paralysis (AFP)

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

Annualized expected Non Polio AFP Cases (as of week.48) - 244

Reported AFP cases - 320

Discarded as non-polio AFP cases—303

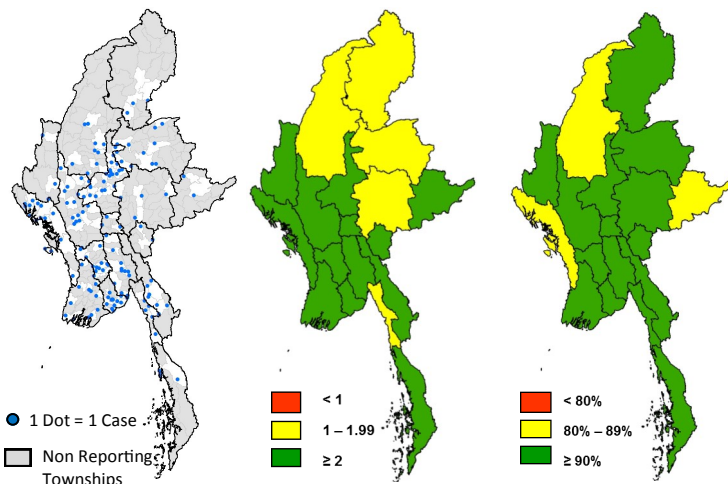
Annualized AFP rate - 2.58

Annualized Non-polio AFP rate - 2.44

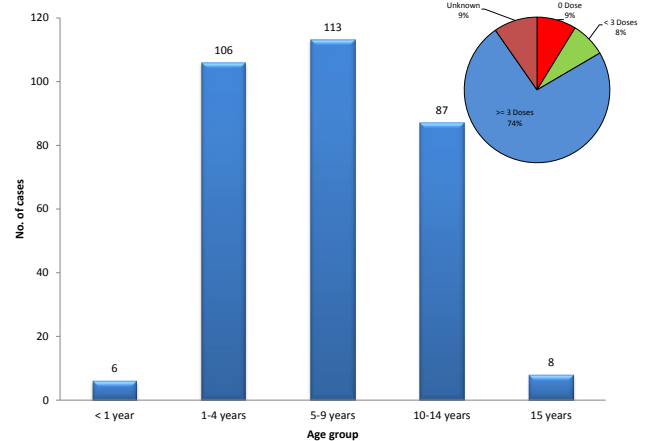
Percentage of adequate stool collection - 94%

Pending for classification - 17

*Data as of 30 November 2018
(week no. 48)



Age group and vaccination status of AFP cases, 2018*



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

Environmental Surveillance in Myanmar

Poliovirus and NPEV detected in Sewage samples in Myanmar, 2018*

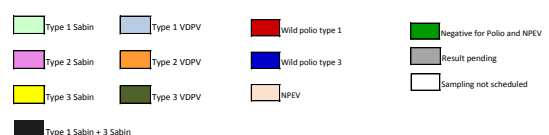
Sampling site	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48								
Yangon																																																								
Sitwe																																																								
Maung Taw																																																								

Percentage of NPEV detected in Sewage samples – 28%

Maungdaw - 13%

Sittwe - 20%

Yangon - 43%



* Data as of week no. 48, 30 November 2018

Fever with Rash Surveillance, 2018*

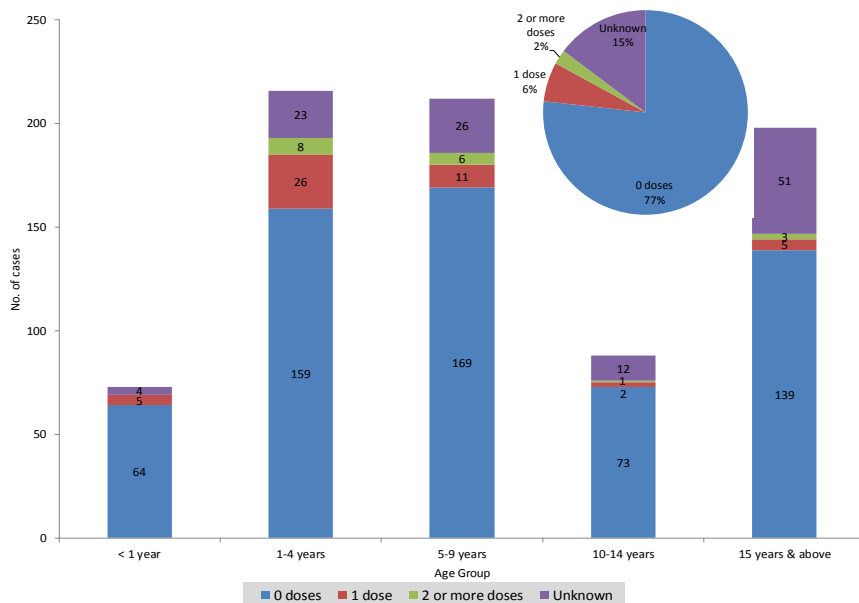
State/Region	Total Population	Expected Non-measles suspected measles Cases	Suspected cases reported	Total Serum Specimen tested in Laboratory	Confirmed Measles			Confirmed Rubella	Non Measles Non Rubella Cases	Pending	Annualized incidence of measles	Annualized incidence of non-measles/non rubella suspected
					Lab-confirmed	Epi-confirmed	Clinically confirmed					
Ayeyarwady	6437373	129	28	28	8	0	0	0	20	0	1.24	0.31
Bago	5177071	104	114	82	35	11	0	0	68	0	8.89	1.31
Chin	532750	11	9	9	1	0	0	0	8	0	1.88	1.50
Kachin	1625316	33	47	29	6	22	1	2	16	0	17.84	0.98
Kayah	310330	6	5	5	1	0	0	0	4	0	3.22	1.29
Kayin	1664092	33	106	106	66	13	0	0	25	2	47.47	1.50
Magway	4327568	87	27	18	8	12	1	0	5	1	4.85	0.12
Mandalay	6206034	124	16	16	3	0	0	1	10	2	0.48	0.16
Mon	2321587	46	62	46	21	15	1	1	20	4	15.94	0.86
Nay Pyi Taw	1111897	22	14	13		0	1	1	12	0	0.90	1.08
Rakhine	2846882	57	45	45	22	0	0	1	19	3	7.73	0.67
Sagaing	5646315	113	19	17		0	1	0	15	3	0.18	0.27
Shan East	845364	17	66	18	12	51	0	0	3	0	74.52	0.35
Shan North	2507456	50	63	41	27	29	0	0	7	0	22.33	0.28
Shan South	2413792	48	93	56	26	39	2	0	26	0	27.76	1.08
Tanintharyi	1528308	31	23	23	9	0	0	1	12	1	5.89	0.79
Yangon	6848946	137	513	470	278	53	12	4	165	1	50.08	2.41
National	52351081	1047	1250	1022	523	245	19	11	435	17	15.03	0.83

Total suspected outbreaks— 30

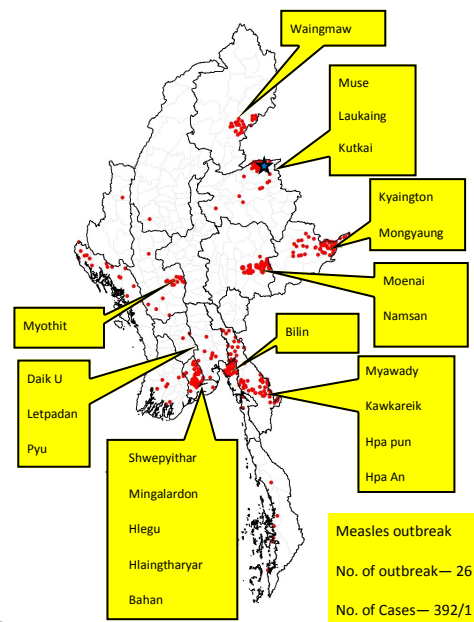
Confirmed measles outbreaks—26

Non Measles/Rubella outbreaks— 4

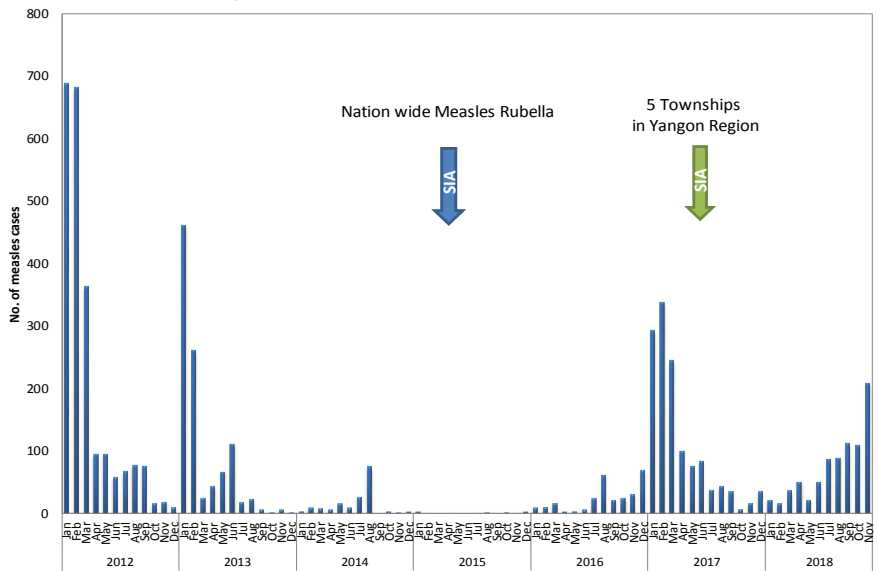
Age and Vaccination Status of confirmed Measles cases, 2018*



Spot map of measles cases, 2018*



Epidemic curve for Measles Cases 2012-2018*



Data source: routine case based surveillance and outbreaks

CRS Surveillance

Total no. of serum sample received - 8

Total no. of serum sample tested - 8

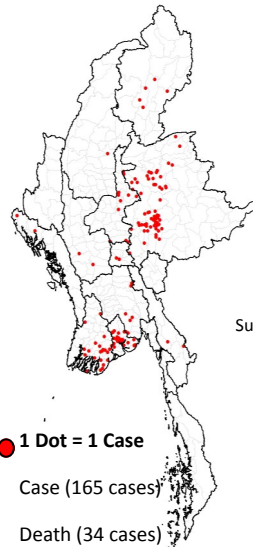
Laboratory Results - Negative

* Data as of week no. 48, 30 November 2018

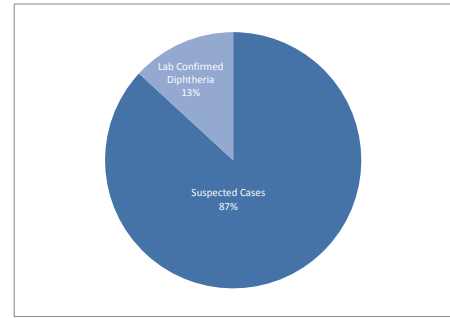
Diphtheria, 2018*

Reported Suspected Diphtheria cases and deaths in State and Region

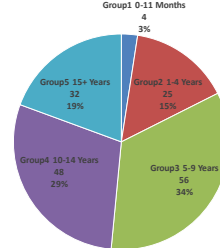
State/Region	Total no. of cases	Total no. of deaths
Ayeyarwady	21	5
Bago	5	3
Kachin	5	1
Kayin	2	0
Magway	3	1
Mandalay	11	6
Naypyitaw	2	0
Rakhine	3	0
Sagaing	1	1
Shan State (East)	1	0
Shan State (North)	28	7
Shan State (South)	46	3
Yangon	37	7
Grand Total	165	34



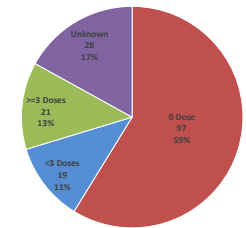
Percentage of Laboratory Confirmed Diphtheria cases



Suspected Diphtheria Cases by Age group

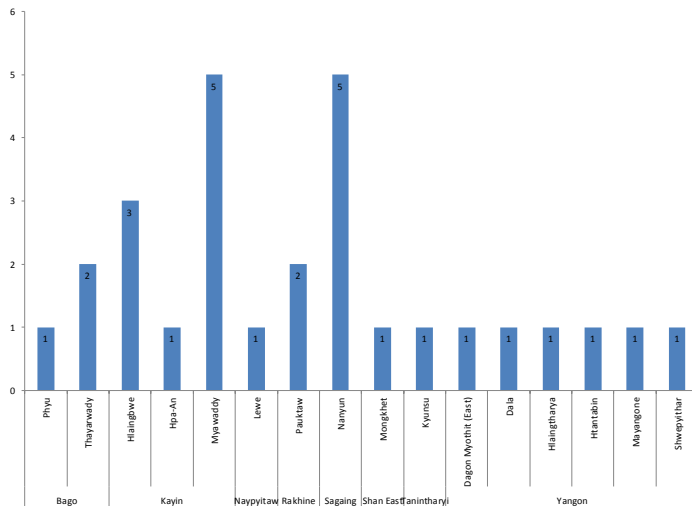


Immunization Status of Suspected Diphtheria Cases



Pertussis (Whooping Cough), 2018*

Cases distribution of whooping cough cases in State and Region



Age group	0 Dose	<3 Doses	>=3 Doses	Total
0-11 Months	6	2	1	9
1-4 Years	2	1		3
5-9 Years	5	1	3	9
10-14 Years	7			7
Grand Total	20	4	4	28

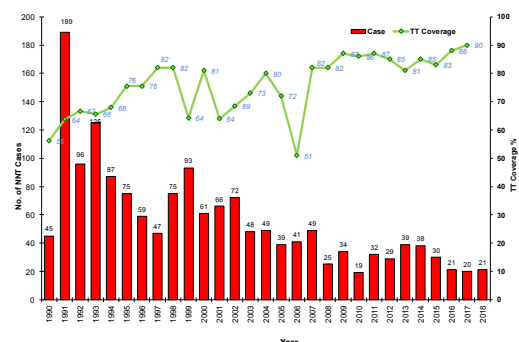
Neonatal Tetanus, 2018*

Reported NNT cases and deaths in State and Region

State/Region	Township	Cases	Deaths
Ayeyarwady	Pyapon	1	1
Bago	Bago	1	1
Kachin	Waingmaw	1	0
Magway	Aunglan	1	1
	Taungdwingyi	1	0
Mandalay	Meiktila	1	1
	Kyaukse	1	1
	Natogyi	1	1
	Singu	1	1
Rakhine	Sittwe	2	1
	Pauktaw	1	1
Sagaing	Shwebo	1	1
Shan State (North)	Tangyan	1	0
	Lashio	1	1
Tanintharyi	Myeik	1	0
Yangon	Dagon Myothit (Seikkan)	1	1
	Dagon Myothit (South)	1	1
	Hlaingtharya	2	1
	Insein	1	0
Total Reported		21	14

Place of birth among reported NNT cases	Reported NNT cases are delivered by		Vaccination status of mother during pregnancy		
	Count	Count	Count	Count	
Hospital	1	Doctor	0	0 Dose	13
Health Center	0	BHS	2	1 Dose	4
Private Hospital	0	Trained TBA	0	>=2 Doses	4
Home	19	TBA	9		
Other	0	Other	4		
Unknown	1	Not Attended	5		
		Unknown	1		
Total	21	Total	21	Total	21

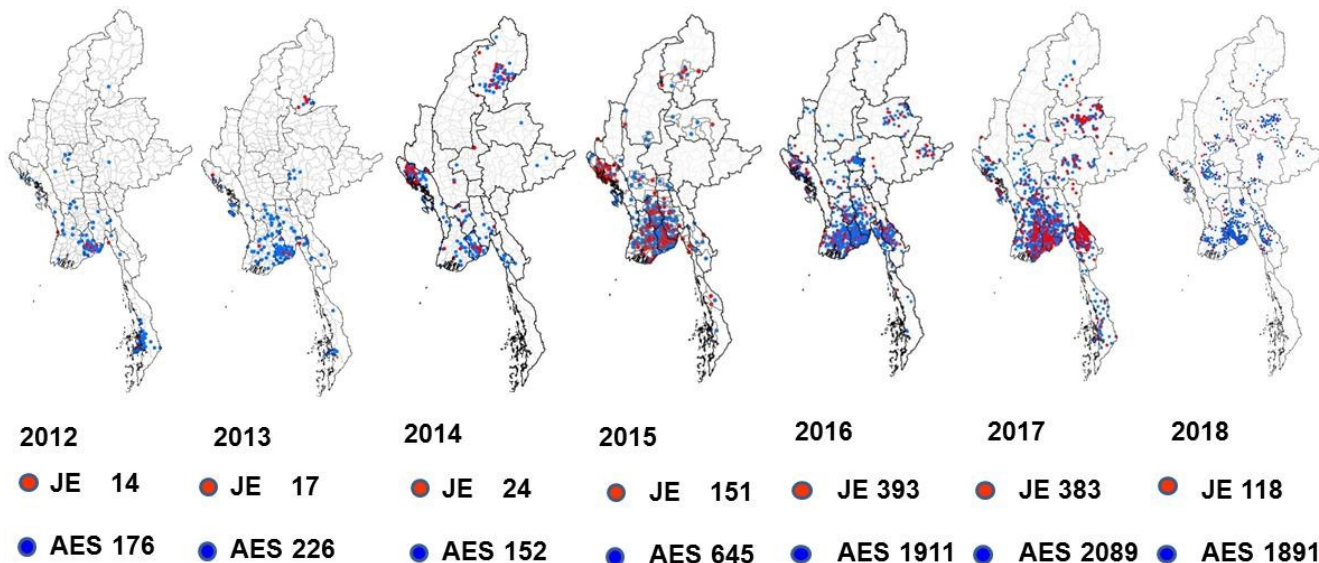
TT2 coverage and Neonatal tetanus cases (1990-2018*)



* Data as of week no. 48, 30 November 2018

Acute Encephalitis Syndrome

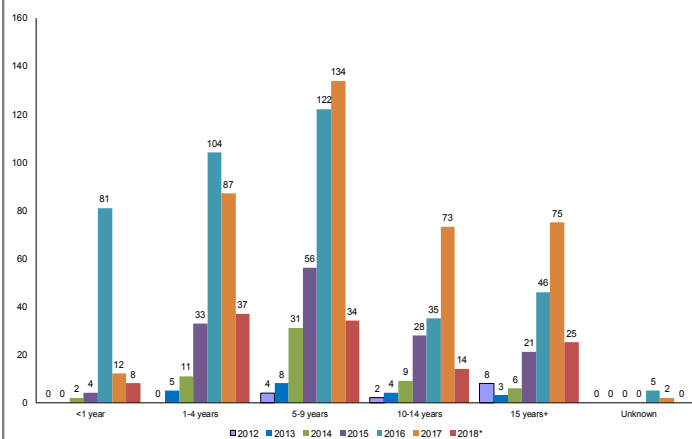
Reported AES cases & JE positive cases (2012-2018*), Myanmar



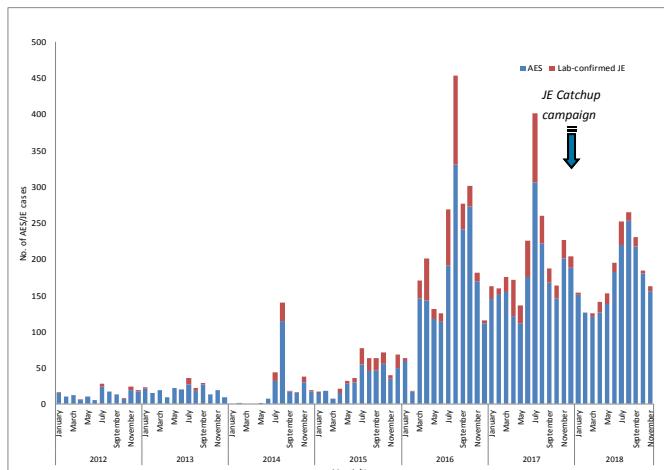
Region/State-wise Occurrences of JE 2012-2018*

Region/State	AES	JE Positive	AES	JE Positive	AES	JE Positive	AES	JE Positive	AES	JE Positive	AES	JE Positive	AES	JE Positive
Ayeyawady	7	0	21	1	12	4	90	21	231	45	259	51	179	15
Bogo	9	0	23	0	16	7	86	28	213	53	256	49	191	9
Chin	0	0	0	0	0	0	1	1	11	3	2	1	3	1
Kachin	1	0	4	4	10	1	12	5	8	1	7	2	13	3
Kayah	0	0	0	0	0	0	0	0	1	1	15	6	14	3
Kayin	0	0	2	0	0	0	6	1	136	37	165	65	52	9
Magway	4	0	1	0	1	1	10	4	30	4	58	6	113	16
Mandalay	1	0	0	0	5	3	2	0	122	19	6	1	134	2
Mon	2	1	10	2	5	0	29	5	60	8	61	13	46	3
Naypyitaw	0	0	0	0	0	0	1	0	5	2	12	1	15	1
Rakhine	6	1	9	1	47	2	126	46	120	26	88	17	50	4
Sagaing	0	0	0	0	0	0	6	1	52	9	18	2	73	5
Shan East	1	0	3	0	0	0	1	0	29	8	5	2	5	2
Shan North	0	0	0	0	0	0	4	0	90	16	88	42	77	18
Shan South	0	0	0	0	0	0	0	0	14	2	60	16	79	5
Tanintharyi	61	5	8	0	1	0	6	3	18	4	45	11	18	0
Yangon	84	7	145	9	55	6	265	36	771	155	889	92	807	22
Unknown State/Region											55	6	22	0
Total	176	14	226	17	152	24	645	151	1911	393	2089	383	1891	118

JE incidence: lab confirmed cases by age groups 2012-2018*



Lab confirmed and reported AES cases by months 2012-2018*



* Data as of week no. 48, 30 November 2018

Incidence of Vaccine preventable diseases (VPD)

	2013	2014	2015	2016	2017	2018*
Diphtheria	38	29	87	136	68	165
Measles	1010	122	6	266	1293	787
Pertussis	14	5	5	2	4	28
Polio	0	0	0	0	0	0
Rubella	23	30	34	10	6	11
Neonatal tetanus	39	32	30	21	20	21
Japanese encephalitis	3	50	113	393	442	118

* Data as of week no. 48, 30 November 2018

Incidence of Vaccine Preventable Diseases (VPD) by State and Region, 2018*

State/Region	Diphtheria	Pertussis	Neonatal tetanus	Japanese encephalitis
Ayeyarwady	21	0	1	15
Bago	5	3	1	9
Chin	0	0	0	1
Kachin	5	0	1	3
Kayah	0	0	0	3
Kayin	2	9	0	9
Magway	3	0	2	16
Mandalay	11	0	4	2
Mon	0	0	0	3
Nay Pyi Taw	2	1	0	1
Rakhine	3	2	3	4
Sagaing	1	5	1	5
Shan East	1	1	0	2
Shan North	28	0	2	18
Shan South	46	0	0	5
Tanintharyi	0	1	1	0
Yangon	37	6	5	22
National	165	28	21	118

* Data as of week no. 48, 30 November 2018

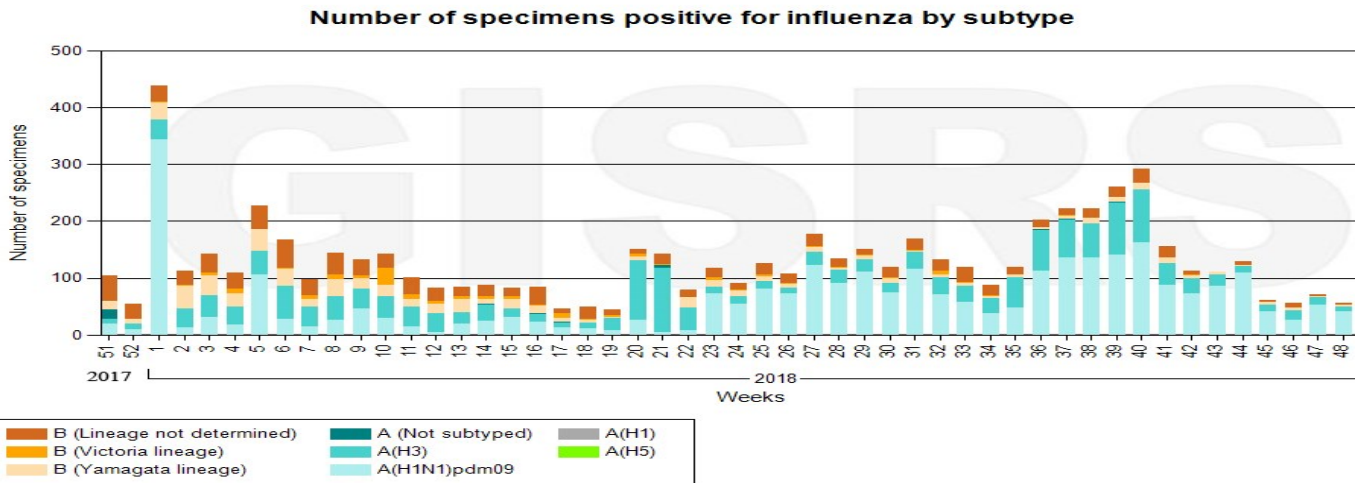
DISEASE OUTBREAK 2018*

No.	Disease	Events	Cases	Deaths
1.	Measles	26	392	1
2.	Diphtheria	103	165	33
3.	Food Poisoning	48	1662	1
4.	Diarrhoea	15	616	11
5.	Meningitis	16	16	11
6.	Chicken pox	5	48	0
7.	Anthrax	4	20	0
8.	Mumps	4	349	1

* Data as of week no. 48, 30 November 2018

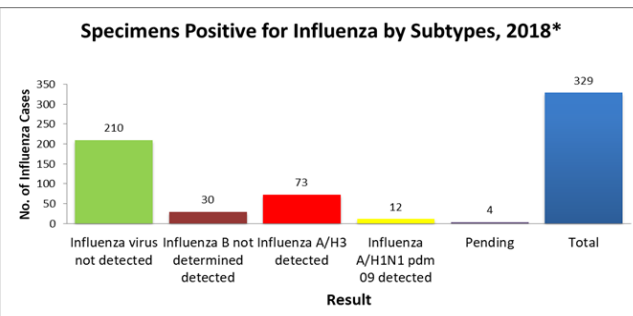
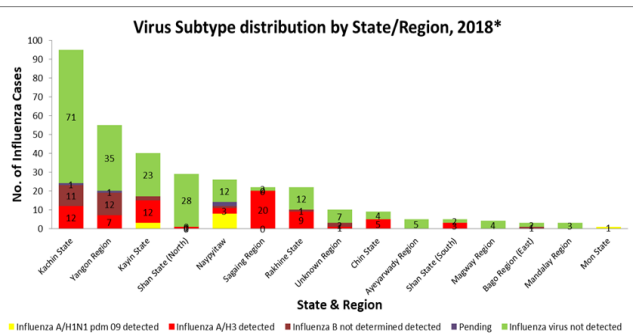
Myanmar influenza surveillance report

Number of specimens positive for influenza by Southern Hemisphere subtype



Influenza Data 2018*(Hospital Distribution)

Name of Hospital	No. of Samples receipt	No. of Samples Positive	Pending	Type of Influenza
Sentinal Hospital				
Yangon General Hospital (Y.G.H)	24	3	1	Influenza B not determined detected, Influenza A/H3 detected
1000 Bedded General Hospital, Nay Pyi Taw	4	2		Influenza A/H3 detected
Thingangyun Sanpya General Hospital (T.G.H)	25	7		Influenza B not determined detected, Influenza A/H3 detected
Myit Kyi Na General Hospital	95	23	1	Influenza B not determined detected, Influenza A/H3 detected
Sittwe General Hospital	19	9		Influenza A/H3 detected
Muse Township Hospital	40	18	2	Influenza B not determined detected, Influenza A/H3 detected, Influenza A/H1N1 pdm 09 detected
Myawaddy District Hospital	22			
Mandalay General Hospital	2			
Other				
Taunggyi	5	3		
North Oakkalapa Hospital	1			
Other	92	53		Influenza B not determined detected, Influenza A/H3 detected, Influenza A/H1N1 pdm 09 detected
Total	329	115	4	



ILI/SARI sentinel surveillance sites

- ◆ Naypyidaw 1000 bedded hospital
- ◆ Yangon general hospital
- ◆ Yangon Thingangyun hospital
- ◆ Mandalay general hospital
- ◆ Myitkyina general hospital
- ◆ Sittwe general hospital
- ◆ Myawaddy township hospital
- ◆ Muse township hospital



* Data as of week no. 48, 30 September 2018

Fever with Rash Surveillance

To achieve measles elimination (2020), one of the case base fever with rash surveillance performance indicators was expected as non-measles/ non-rubella rate of ≥ 2 per 100,000 population. As of November 2018, although incidence of measles/ 1,000,000 population was 15.03, incidence of non-measles/ non-rubella rate /100,000 population was 0.83 which was remained far from target of 2. Thirty fever with rash outbreaks were affected in all states and regions while 26 out of these were confirmed measles outbreaks. Highest frequency of measles outbreaks were found in Yangon Region, Bago Region and Kayin State. Among 787 confirmed measles cases, the most common age group was found among 1-4 year and 5-9 year age group and 77% (<5year—223, 37%, >5year—381, 63%)of reported measles cases were unimmunized.

Diphtheria case base surveillance

According to the data as of 30 November 2018, 165 cases were reported as suspected diphtheria and Ayeyawaddy Region, Shan State (North), Shan State (South) and Yangon Region reported the highest number of cases. There were 34 deaths (20.6%) among reported cases. Among 165 reported cases, 34 were laboratory confirmed *Corynebacterium* species including *Corynebacterium diphtheriae*, *Corynebacterium minutissimum*, *Corynebacterium amycolatum*, *Corynebacterium pseudodiphtheriticum*, *Corynebacterium ulcerans*. Common Age groups among reported Diphtheria cases were 5-9 years and 10-14 years. More than half of the reported cases were unimmunized 59% (<5 year - 17, 18 %, >5 year—80, 82%)

17th Diseases Under National Surveillance (DUNS) (as of November,2018) (data source - DHIS2, MOHS)

No	State/Region		Kachin	Kayah	Kayin	Chin	Sagaing	Tanintharyi	Bago	Magway	Mandalay	Mon	Rakhine	Yangon	Shan East	Shan North	Shan South	Ayeyawadi	NayPyiTaw	National	
1	Diarrhoea	No/Some dehydration	Case	28569	7698	22672	13620	55705	15379	41367	37542	38968	23244	56287	23006	26350	26793	11843	43469	7486	479998
		Death	1	1	0	0	11	0	0	0	5	4	0	2	0	4	7	2	3	0	40
	Severe dehydration	Case	256	169	330	255	867	166	232	369	429	92	1077	339	430	349	136	1252	34	6782	
		Death	6	5	3	11	5	6	4	5	8	5	10	5	13	13	0	8	0	107	
2	Dysentery		Case	3926	1484	2813	1637	9961	3521	9529	11370	9997	3110	15990	5806	4881	3749	1342	14748	1707	105571
	Death	0	0	0	2	1	0	0	0	0	0	0	5	0	0	0	15	1	0	24	
3	Food poison		Case	483	87	277	84	820	652	521	154	654	204	610	284	387	343	91	466	135	6252
	Death	4	1	1	0	4	1	0	5	1	2	4	0	10	10	2	1	0	46		
4	Typhoid/Paratyphoid		Case	355	26	13	93	491	89	572	195	215	15	528	289	214	41	14	1752	3	4905
	Death	0	0	0	0	1	1	2	0	0	1	0	0	0	0	0	0	0	0	5	
5	Measles		Case	0	0	28	2	3	19	31	11	9	32	12	87	31	61	57	29	8	420
	Death	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	3	
6	Diph-theria		Case	2	0	0	0	1	0	0	1	8	0	0	16	48	12	10	12	2	112
	Death	1	0	0	0	1	0	0	1	3	0	0	0	5	3	3	6	6	0	29	
7	Whooping cough		Case	0	0	1	0	2	0	6	0	0	0	5	1	0	4	0	3	1	23
	Death	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
8	Neonatal Tetanus		Case	0	0	0	1	0	1	0	1	2	0	2	2	1	1	0	1	0	12
	Death	0	0	0	0	0	0	0	0	1	2	0	1	2	1	0	0	1	0	8	
9	Tetanus		Case	0	0	0	0	10	0	13	4	17	2	19	3	5	2	2	22	1	100
	Death	0	0	0	0	0	0	3	3	4	0	4	1	2	0	0	3	0	20		
10	Meningitis/Encephalitis		Case	73	2	27	41	104	15	85	48	86	8	72	6	56	17	9	221	29	899
	Death	9	0	1	5	8	2	6	2	2	2	6	1	6	1	1	4	1	57		
11	ARI		Case	9330	2737	6053	5150	19271	4075	12573	10279	13512	2175	22677	14821	10315	9842	3163	20057	1129	167159
	Death	30	7	12	57	47	8	24	19	46	8	37	4	24	20	2	22	4	371		
12	Viral Hepatitis		Case	313	125	330	137	657	117	562	146	631	136	329	114	339	191	200	851	32	5210
	Death	4	0	0	1	0	0	6	1	1	1	1	3	0	3	0	0	1	1	22	
13	Rabies		Case	1	0	1	0	7	0	9	8	13	4	2	5	3	6	1	11	1	72
	Death	1	0	1	0	2	0	9	8	13	4	2	5	3	6	1	11	1	67		
14	Malaria		Case	1487	368	1288	2204	3862	1077	183	85	520	215	1796	20	473	666	263	406	100	15013
	Death	0	0	0	6	3	0	0	1	0	1	4	0	2	1	0	2	0	2	20	
15	Snake bite (Poisonous)		Case	76	12	141	45	1348	46	885	2216	1748	255	79	438	146	43	26	891	206	8601
	Death	0	0	8	0	36	1	42	90	64	22	4	31	3	2	2	136	4	445		
16	TB	Sputum Positive TB (new)	Case	682	125	1181	113	2089	842	3164	1327	2653	1700	1304	8343	800	686	423	2643	743	28818
			Death	7	1	9	1	12	0	13	9	24	35	7	25	13	6	3	21	17	203
		Retreated	Case	195	29	173	38	533	188	920	315	595	344	315	2221	134	162	120	566	174	7022
			Death	7	1	4	0	6	0	12	6	3	7	0	10	1	1	0	13	11	82
	Sputum Negative TB (new)	Case	1337	198	1887	600	4668	1160	6306	1917	2468	2248	2292	7754	1512	961	604	3586	1089	40587	
		Death	17	3	12	1	29	5	35	18	17	47	4	39	13	9	7	20	17	293	
	Extrapulmonary (new)	Case	334	16	116	88	685	252	530	488	1082	314	254	1716	279	224	32	548	275	7233	
		Death	2	2	0	0	5	0	4	4	6	5	0	3	1	1	0	3	6	42	
17	Anthrax		Case	0	0	0	0	8	0	0	1	0	0	0	0	0	1	0	0	10	
	Death	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

* Data as of week no. 48, 30 November 2018

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)

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