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

July, 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	17	0	8	1.80	0.85	88
Bago	1,280,053	41	28	0	19	3.67	2.49	96
Chin	190,275	7	6	0	4	5.29	3.53	83
Kachin	455,634	14	4	0	2	1.47	0.74	100
Kayah	95,512	3	1	0	0	1.76	0.00	100
Kayin	542,741	15	16	3	3	4.95	0.93	75
Magway	973,253	28	10	0	8	1.72	1.38	100
Mandalay	1,439,409	44	17	0	13	1.98	1.51	94
Naypyitaw	287,520	9	0	0	0	0.00	0.00	0
Mon	591,334	17	10	0	3	2.84	0.85	90
Rakhine	810,480	22	11	0	5	2.28	1.03	91
Sagaing	1,413,333	40	21	0	12	2.49	1.42	86
Shan East	290,791	6	6	0	5	3.46	2.88	100
Shan North	667,365	21	7	0	5	1.76	1.26	100
Shan South	666,404	19	15	0	11	3.78	2.77	100
Taninthayi	447,855	12	10	0	4	3.75	1.50	90
Yangon	1,595,843	44	10	0	8	1.05	0.84	90
Total	**13,330,701**	**389**	**189**	**3**	**110**	**2.38**	**1.38**	**92**

Acute Flaccid Paralysis (AFP)

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

Annualized expected Non Polio AFP Cases (as of week.31) - 232

Reported AFP cases - 189

cVDPVP1 cases - 3

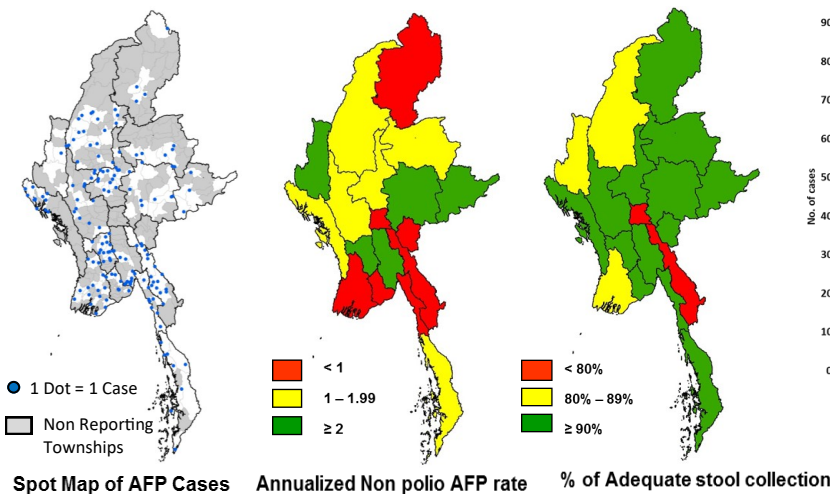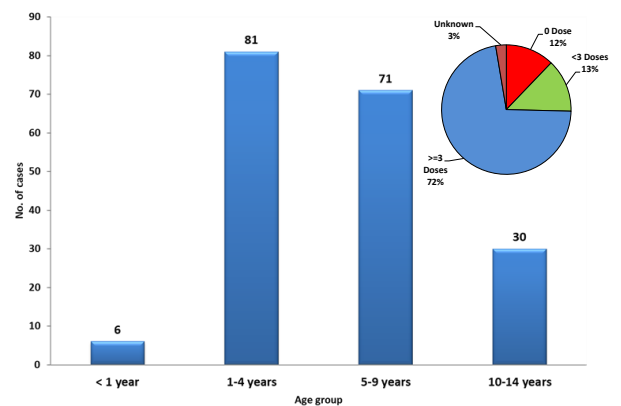Discarded as non-polio AFP cases – 110

Annualized AFP rate - 2.38

Annualized Non-polio AFP rate—1.38

Percentage of adequate stool collection - 92%

Pending for classification - 77

*Data as of 31 July (week no.31)

Age group and vaccination status of AFP cases, 2019* (n=189)

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, 2019*

Percentage of NPEV detected in Sewage samples – 17%

Maungdaw - 25%

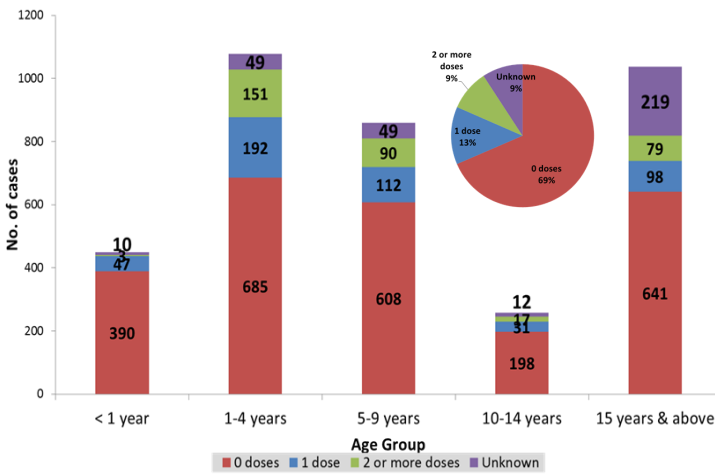**Sittwe - 0%**

Yangon - 25%

* Data as of week no. 31, 31 July 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	364	159	0	11	0	36	158	26.40	0.56
Bago	5238253	105	660	295	78	15	0	63	209	74.07	1.20
Chin	546700	11	27	6	0	4	0	15	2	18.29	2.74
Kachin	1704082	34	67	25	4	1	1	29	7	17.60	1.70
Kayah	317318	6	99	47	2	2	0	9	40	160.72	2.84
Kayin	1721795	34	187	57	44	6	1	11	68	62.14	0.64
Magway	4372399	87	215	73	28	31	0	22	61	30.19	0.50
Mandalay	6284989	126	513	222	98	122	0	44	27	70.33	0.70
Mon	2344889	47	235	65	58	1	1	28	82	52.88	1.19
Nay Pyi Taw	1123806	22	102	40	3	6	0	11	42	43.60	0.98
Rakhine	2883386	58	170	71	0	4	1	21	73	26.01	0.73
Sagaing	5744297	115	292	49	41	0	0	143	59	15.67	2.49
Shan East	807090	16	326	41	261	0	0	3	21	374.18	0.37
Shan North	2507798	50	423	133	123	65	3	13	85	128.00	0.52
Shan South	2451390	49	400	89	250	5	0	33	23	140.33	1.35
Tanintharyi	1553794	31	83	18	0	1	1	19	45	12.23	1.22
Yangon	6996954	140	1606	821	59	147	4	181	394	146.78	2.59
National	**53039138**	**1061**	**5769**	**2211**	**1049**	**421**	**12**	**681**	**1396**	**69.40**	**1.28**

Total suspected outbreaks– 93   *Confirmed measles outbreaks— 89*   *Non Measles/Rubella outbreaks— 2*

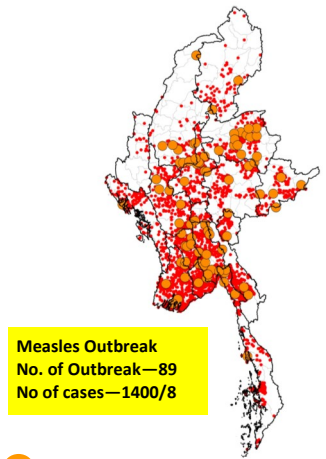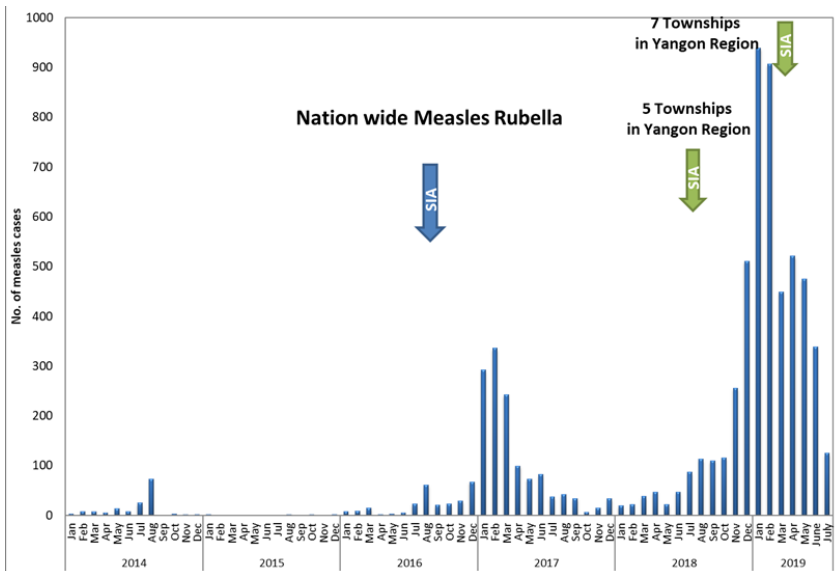### Age and Vaccination Status of Confirmed Measles cases, 2019*(n=3681)

Occurrence of Measles Outbreak

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

Sport Map of Measles cases 2019*

Measles Outbreak
No. of Outbreak—89
No of cases—1400/8

● 1 dot = 1 Outbreak
● 1 dot = 1 case (Routine case base)

Epidemic Curve for Measles Cases 2014-2019 *

Nation wide Measles Rubella

5 Townships in Yangon Region

7 Townships in Yangon Region

CRS Surveillance

Total no. of serum sample received - None
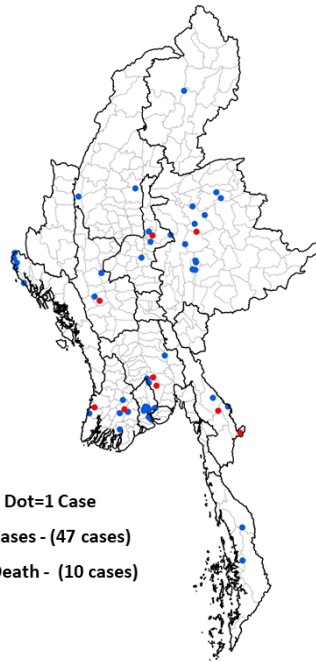
Total no. of serum sample tested - None

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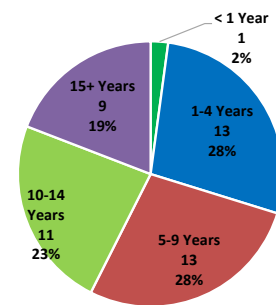
* Data as of week no.31 , 31 July 2019

Diphtheria, 2019*

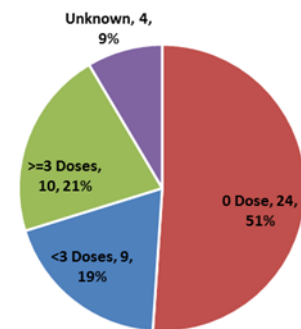**Reported Suspected Diphtheria Cases and Deaths in State and Region**

State/Region	Total no. of cases	Total no. of death
Ayeyarwady	5	2
Bago	3	2
Chin	0	0
Kachin	1	0
Kayah	0	0
Kayin	2	2
Magway	2	1
Mandalay	4	1
Mon	0	0
Nay Pyi Taw	0	0
Rakhine	5	0
Sagaing	2	0
Shan East	0	0
Shan North	5	0
Shan South	5	1
Tanintharyi	2	0
Yangon	11	1
Grand Total	47	10

1 Dot=1 Case

● Cases - (47 cases)
● Death - (10 cases)

Suspected Diphtheria Cases by Age group

< 1 Year 1 2%
1-4 Years 13 28%
5-9 Years 13 28%
10-14 Years 11 23%
15+ Years 9 19%

Immunization Status of Suspected Diphtheria Cases

Unknown, 4, 9%
>=3 Doses, 10, 21%
<3 Doses, 9, 19%
0 Dose, 24, 51%

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 Region	Einme	1	1
Kachin State	Tsawlaw	1	0
	Waingmaw	1	1
Kayin State	Kawkareik	1	1
Rakhine State	Pauktaw	1	1
	Sittwe	1	0
Shan State (North)	Hopang	1	1
	Namhsan	1	1
Shan State (South)	Loilen	1	1
	Nansang	1	1
Yangon Region	Seikgyikanaungto	1	0
Total Reported		**11**	**8**

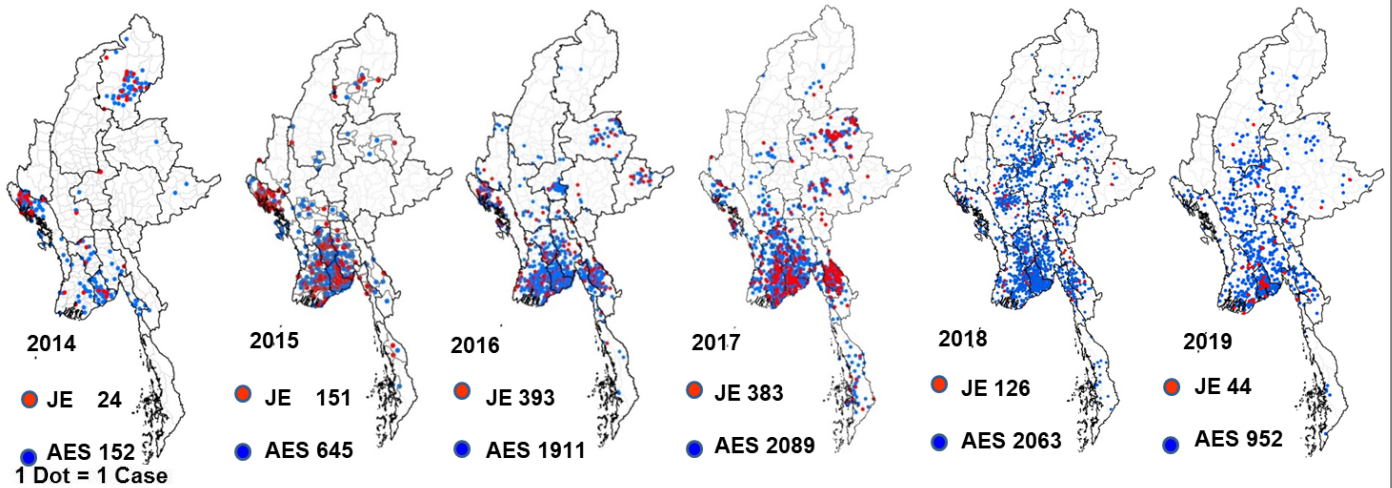| Place of birth among reported NNT cases		Reported NNT cases are delivered by		Vaccination stauts of mother during pregnancy	
Hospital	1	Doctor	1	0 Dose	9
Health Center	0	BHS	0		
Private Hospital	0	Trained TBA	0	1 Dose	1
Home	10	TBA	2		
Other	0	Other	3	>=2 Doses	1
		Not Attended	3		
Unknown	0	Unknown	2		
Total	11	Total	11	Total	11

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

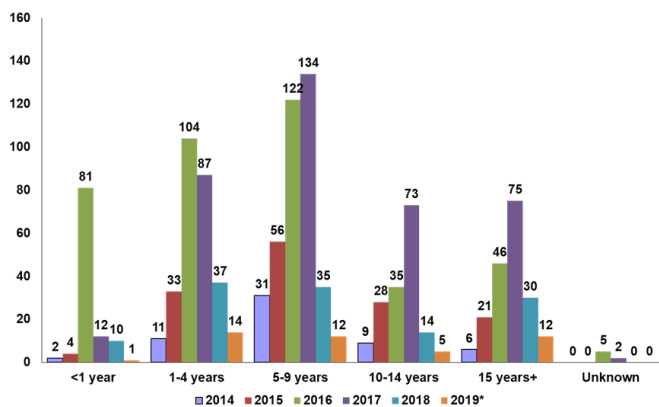* Data as of week no. 31, 31 July 2019

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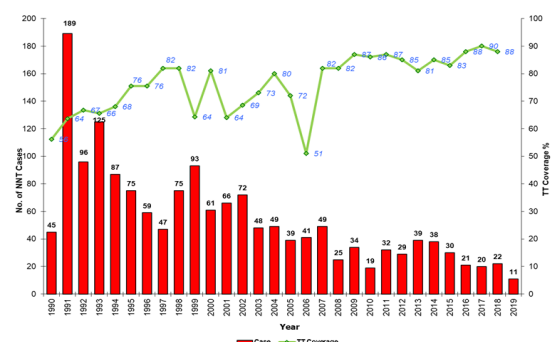
Acute Encephalitis Syndrome

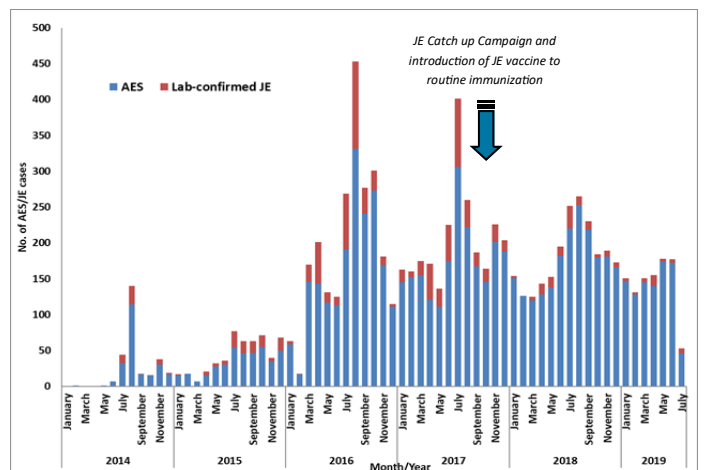## Reported AES cases & Japanese Encephalitis Positive Cases (2014-2019*), Myanmar

2014
- JE 24
- AES 152
- 1 Dot = 1 Case

2015
- JE 151
- AES 645

2016
- JE 393
- AES 1911

2017
- JE 383
- AES 2089

2018
- JE 126
- AES 2063

2019
- JE 44
- AES 952

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

Region/State	2014 AES	2014 JE Positive	2015 AES	2015 JE Positive	2016 AES	2016 JE Positive	2017 AES	2017 JE Positive	2018 AES	2018 JE Positive	2019 AES	2019 JE Positive
Ayeyawady	12	4	90	21	231	45	259	51	185	15	74	8
Bogo	16	7	86	28	213	53	256	49	200	11	95	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	8	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	34	1
Magway	1	1	10	4	30	4	58	6	122	17	52	1
Mandalay	5	3	2	0	122	19	6	1	155	2	66	2
Mon	5	0	29	5	60	8	61	13	50	4	17	2
Naypyitaw	0	0	1	0	5	2	12	1	15	1	6	0
Rakhine	47	2	126	46	120	26	88	17	60	4	23	1
Sagaing	0	0	6	1	52	9	18	2	83	5	34	2
Shan East	0	0	1	0	29	8	5	2	6	2	6	2
Shan North	0	0	4	0	90	16	88	42	83	19	18	0
Shan South	0	0	0	0	14	2	60	16	82	5	26	2
Tanintharyi	1	0	6	3	18	4	45	11	19	0	6	0
Yangon	55	6	265	36	771	155	889	92	881	24	452	17
Hospital							55	6	26	0	22	0
Total	**152**	**24**	**645**	**151**	**1911**	**393**	**2089**	**383**	**2063**	**126**	**952**	**44**

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

Legend: 2014, 2015, 2016, 2017, 2018, 2019*

(values by age group)
- <1 year: 2, 4, 81, 12, 10, 1
- 1-4 years: 11, 33, 104, 87, 37, 14
- 5-9 years: 31, 56, 122, 134, 35, 12
- 10-14 years: 9, 28, 35, 73, 14, 5
- 15 years+: 6, 21, 46, 75, 30, 12
- Unknown: 0, 0, 5, 2, 0, 0

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

JE Catch up Campaign and introduction of JE vaccine to routine immunization

Legend: AES, Lab-confirmed JE

* Data as of week no. 31, 31 July 2019

4

Vaccine Preventable Diseases (VPD)

	2014	2015	2016	2017	2018	2019*
Diphtheria	29	87	136	68	187	47
Measles	122	6	266	1729	1985	3681
Pertussis	5	5	2	4	28	2
Polio	0	0	0	0	0	3 (cVDPVP1)
Rubella	30	34	10	6	13	12
Neonatal tetanus	32	30	21	20	22	11
Japanese encephalitis	24	151	393	383	126	44

* Data as of week no. 31, 31 July 2019

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

State/Region	Diphtheria	Pertussis	Neonatal tetanus	Japanese encephalitis
Ayeyarwaddy	5	0	1	8
Bago	3	0	0	5
Chin	0	0	0	0
Kachin	1	0	2	0
Kayah	0	0	0	1
Kayin	2	0	1	1
Magway	2	1	0	1
Mandalay	4	0	0	2
Mon	0	0	0	2
Nay Pyi Taw	0	0	0	0
Rakhine	5	0	2	1
Sagaing	2	0	0	2
Shan East	0	1	0	2
Shan North	5	0	2	0
Shan South	5	0	2	2
Tanintharyi	2	0	0	0
Yangon	11	0	1	17
National	**47**	**2**	**11**	**44**

* Data as of week no. 31, 31 July 2019

DISEASE OUTBREAK 2019*

No.	Disease	Jan-June			July		
		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	35	40	9	7	7	1
5.	Food Poisoning	35	1077	7	5	69	1
6.	Measles	87	1364	7	2	36	1
7.	Meningitis	7	7	2	2	2	0
8.	Mumps	0	0	0	0	0	0

* Data as of week no. 31, 31 July 2019

Myanmar Influenza Surveillance report

Number of specimens positive for influenza by Southern Hemisphere subtype

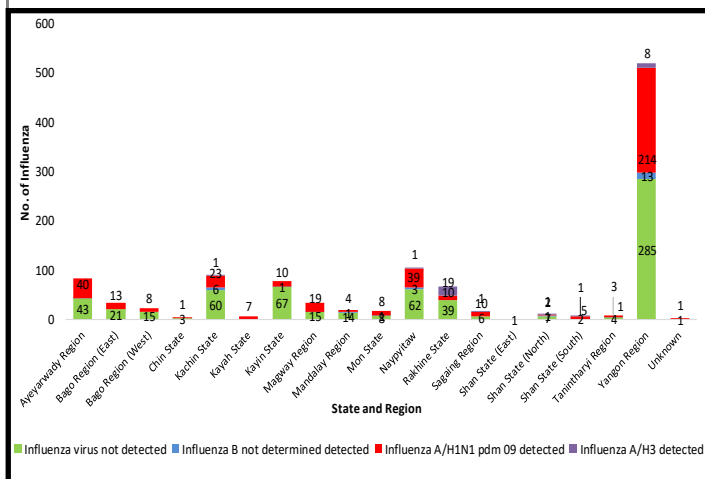Number of specimens positive for influenza by subtype
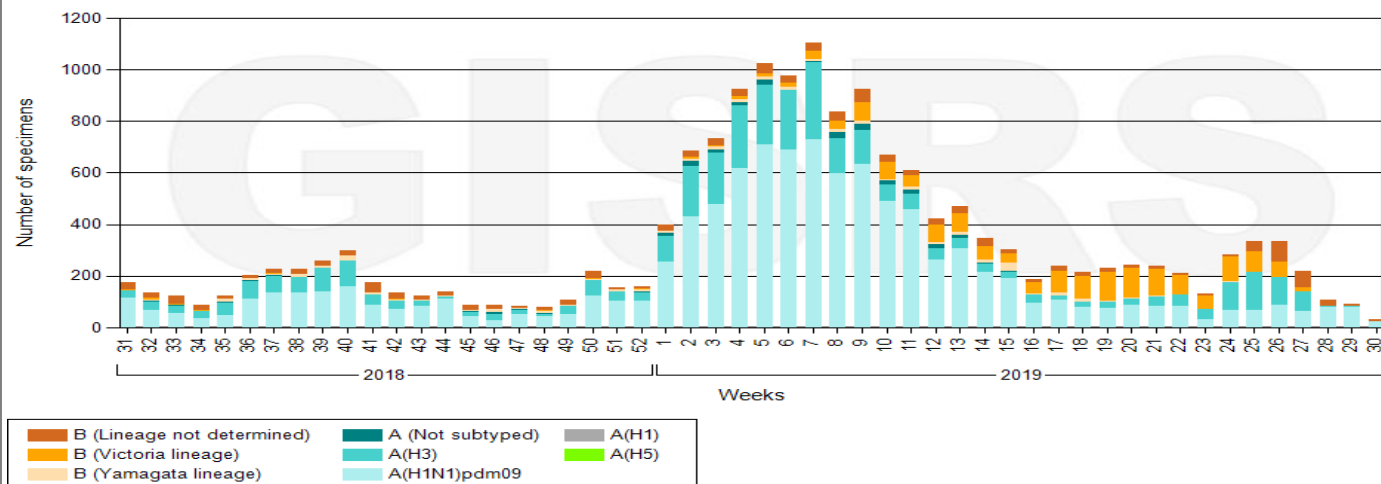
Myanmar Influenza Surveillance in July-2019* (Hospital Distribution)

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	27	0	2	78	107
Thingangyun Sanpya General Hospital (T.G.H)	43	5	0	70	118
Mandalay General Hospital	2	1	1	9	13
Muse Township Hospital	1	1	0	3	5
Myawaddy District Hospital	8	0	0	60	68
Myit Kyi Na General Hospital	23	6	0	60	89
Sittwe General Hospital	4	0	18	35	57
Yangon General Hospital (Y.G.H)	78	3	3	107	191
Other Hospital/Source	231	13	8	231	483
Total	**417**	**29**	**32**	**653**	**1131**

ILI/SARI sentinel surveillance sites

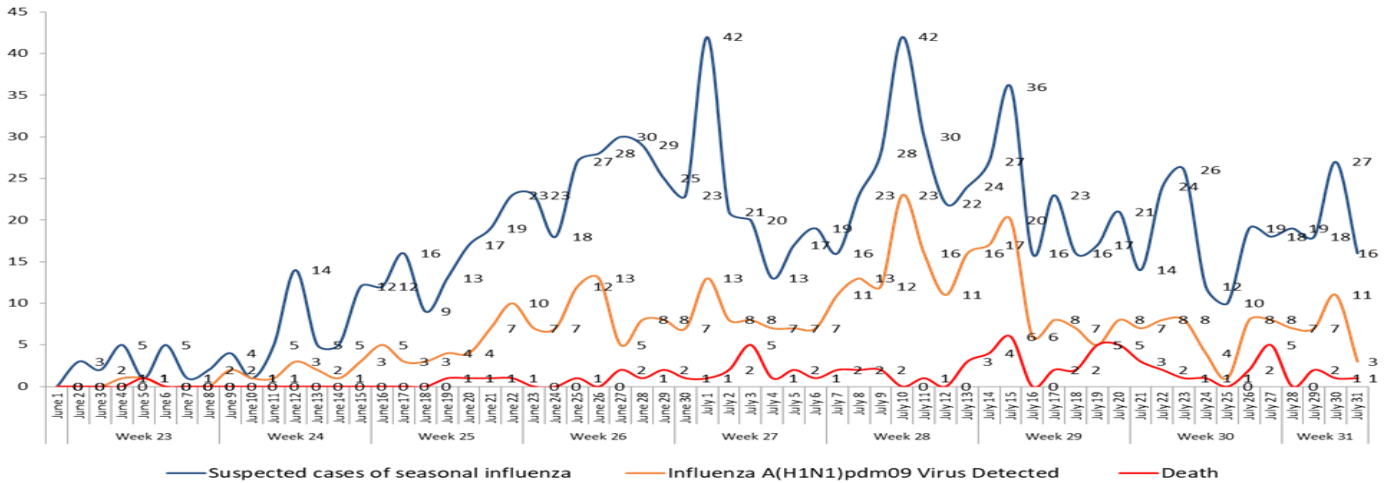**Case Distribution by State/ Region, 2019***

Specimens Positives for Influenza by Subtypes 2019* (n=1131)
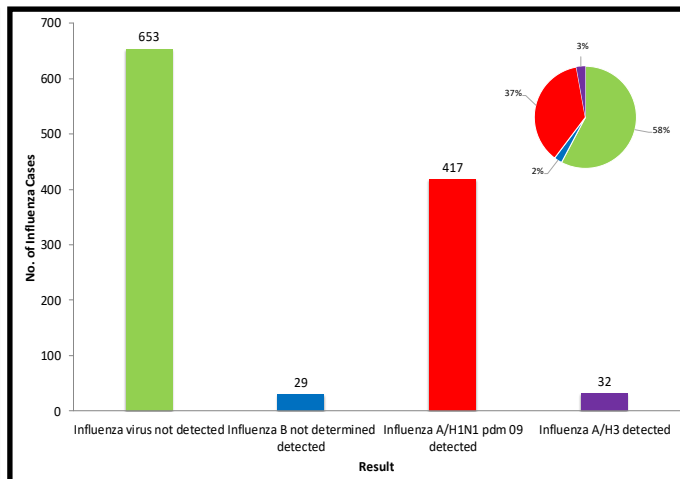
* Data as of week no. 30, 31 July 2019

Seasonal Influenza

laboratory confirmed seasonal Influenza A(H1N1)pdm09 cases and death among suspected cases n= 1053,(1.6.2019-31.7.2019)

Legend: — Suspected cases of seasonal influenza — Influenza A(H1N1)pdm09 Virus Detected — Death

Seasonal Influenza Event in 2019

In 2019, influenza cases dramatically increased since June. Based on the past experience in Myanmar, the seasonal influenza outbreak has occurred in June, July, August and September and after that period the cases steadily fall.

Influenza Like Illness (ILI)/ Severe Acute Respiratory Infection (SARI) surveillance is conducted in (8) sentinel hospitals from different states and regions in routine while during the influenza season period, many samples are sent not only from sentinel hospitals but also from other hospitals in all states and regions because of the increasing awareness among clinicians and public health professionals.

As of 31 July 2019 total suspected influenza cases (1034) were reported and out of those and 386 out of those were confirmed by laboratory test (RT-PCR) Seasonal Influenza A(H1N1)pdm09. There were total 83 deaths among Seasonal Influenza A(H1N1)pdm09 positive cases. Majority of deaths (79.52 %) were related to co-morbid conditions like underlying heart diseases, diabetes mellitus, chronic respiratory diseases. Most of the influenza cases (210) and deaths (62) were from Yangon Region.

The public health teams from central, all states and regions have been conducting prevention and control activities such as awareness raising campaign, distribution of posters and pamphlets at public area, health talks to community and advocacy meeting with local authorities. Outbreak investigation for ILI cluster in community and institutions were also conducted by RRT (Central, State and Region, Township) form different level.

ILI/SARI surveillance has been intensified in all states and regions and rapid response measures are taken immediately after detecting the ILI cases/ clusters.
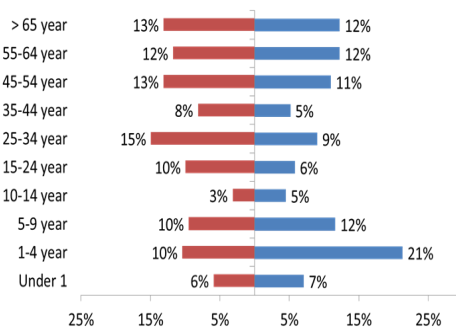
Coordination Meeting chaired by Union Minister for Ministry of Health and Sports on Seasonal Influenza Surveillance and Control Activities
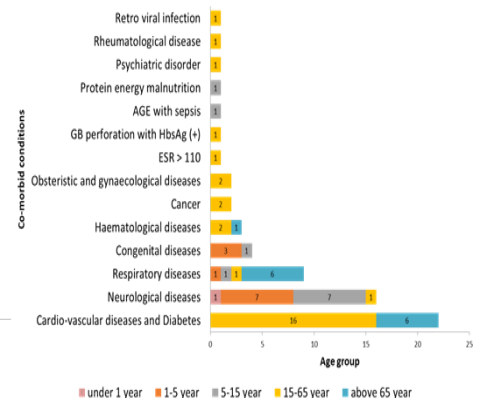

Seasonal Influenza cases (Lab confirmed A(H1N1)pdm09) (n=387) (1-1-2019 to 31-7-2019)
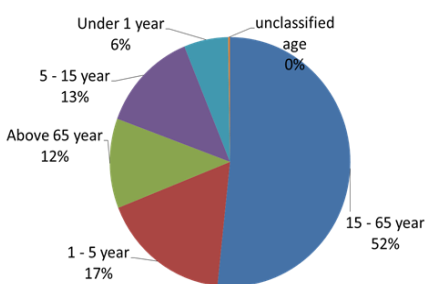
Age and sex distribution of Seasonal Influenza A(H1N1) pdm09 cases (n=387)(1-1-2019 to 31-7-2019)

Seasonal influenza A(H1N1)pdm09 death with co-morbid conditions by age (n= 65) (1.1.2019) to (31.7.2019)

* 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	$\dfrac{\text{No. of discarded non-polio AFP cases among 15 years of age group}}{\text{Total number of children < 15 years of age}}$	x	100000
2. Reported AFP cases with 2 specimens collected = 14 days since onset.	= 80%)	$\dfrac{\text{No of AFP cases with 2 specimens collected within 14 days of paralysis onset}}{\text{Total number of children < 15 years of age}}$	x	100

Data source:

- Central Epidemiology Unit

- National Health Laboratory

- National Surveillance Coordinator

  Office (WHO)

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

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