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

September, 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	26	23	2.10	1.86	96
Bago	1,282,089	27	48	43	4.99	4.47	96
Chin	187,080	2	3	2	2.14	1.43	100
Kachin	442,109	8	5	5	1.51	1.51	100
Kayah	94,003	2	3	3	4.26	4.26	100
Kayin	521,924	11	13	10	3.32	2.55	100
Magway	985,189	19	18	18	2.44	2.44	94
Mandalay	1,442,973	28	26	25	2.40	2.31	96
Naypyitaw	288,213	5	5	5	2.31	2.31	100
Mon	591,424	11	7	6	1.58	1.35	100
Rakhine	833,457	17	22	21	3.52	3.36	95
Sagaing	1,413,760	33	14	13	1.32	1.23	93
Shan East	227,670	4	3	2	1.76	1.17	67
Shan North	722,544	12	12	12	2.21	2.21	100
Shan South	735,534	12	8	8	1.45	1.45	100
Taninthayi	454,875	11	9	7	2.64	2.05	89
Yangon	1,550,049	29	23	20	1.98	1.72	96
Total	**13,425,911**	**264**	**245**	**223**	**2.43**	**2.21**	**96**

Acute Flaccid Paralysis (AFP)

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

Annualized expected Non Polio AFP Cases (as of week.39) - 198

Reported AFP cases - 245

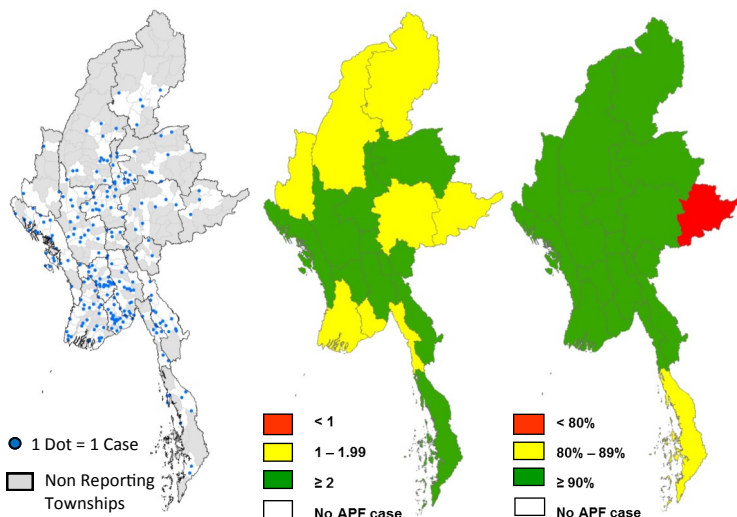Discarded as non-polio AFP cases—223

Annualized AFP rate - 2.43

Annualized Non-polio AFP rate - 2.21
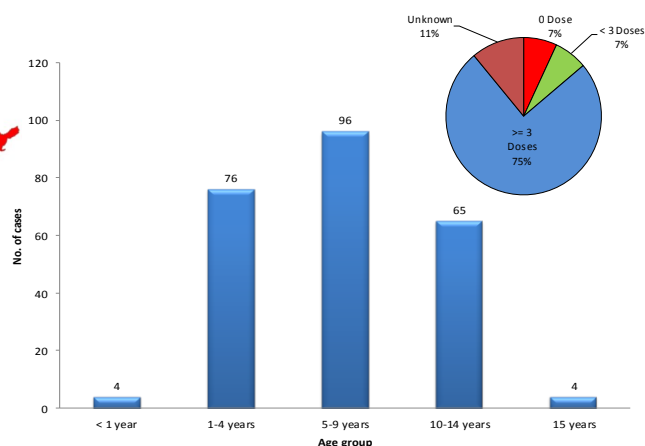
Percentage of adequate stool collection - 96%

Pending for classification - 22

*Data as of 30 September 2018

(week no. 39)

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*

Percentage of NPEV detected in Sewage samples – 21.28%

Maungdaw - 7.14%

Sittwe - 15.79%

Yangon - 40.91%

* Data as of week no. 39, 30 September 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	75	54	10	0	0	0	64	1	1.93	1.24
Chin	532750	11	5	5	1	0	0	0	4	0	1.88	0.75
Kachin	1625316	33	40	22	2	22	0	2	14	0	14.77	0.86
Kayah	310330	6	2	2	0	0	0	0	2	0	0.00	0.64
Kayin	1664092	33	90	90	52	12	0	0	24	2	38.46	1.44
Magway	4327568	87	25	16	7	12	1	0	5	0	4.62	0.12
Mandalay	6206034	124	11	11	0	0	0	1	9	1	0.00	0.15
Mon	2321587	46	45	29	14	15	1	0	15	0	12.92	0.65
Nay Pyi Taw	1111897	22	9	8	0	0	1	1	7	0	0.90	0.63
Rakhine	2846882	57	38	36	17	0	0	1	17	3	5.97	0.60
Sagaing	5646315	113	16	14	0	0	1	0	14	1	0.18	0.25
Shan East	845364	17	53	15	11	41	0	0	1	0	61.51	0.12
Shan North	2507456	50	58	36	23	29	0	0	6	0	20.74	0.24
Shan South	2413792	48	76	39	14	38	1	0	22	1	21.96	0.91
Tanintharyi	1528308	31	17	17	7	0	0	1	9	0	4.58	0.59
Yangon	6848946	137	266	221	80	45	3	4	131	3	18.69	1.91
National	**52351081**	**1047**	**854**	**643**	**246**	**214**	**8**	**10**	**364**	**12**	**8.94**	**0.70**

Total reported outbreaks–25   *Confirmed measles outbreaks—19*   *Non Measles/Rubella outbreaks— 4*

Age and Vaccination Status of confirmed Measles cases, 2018*

Spot map of measles cases, 2018*

Measles outbreak
No. of outbreak— 19
No. of Cases— 312/1

Epidemic curve for Measles Cases 2012-2018*

Nation wide Measles Rubella Campaign

5 Townships in Yangon Region

CRS Surveillance

Total no. of serum sample received - 8

Total no. of serum sample tested - 8

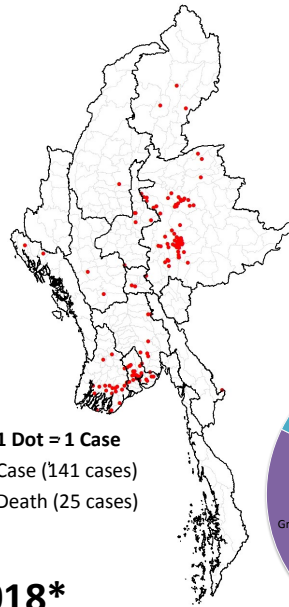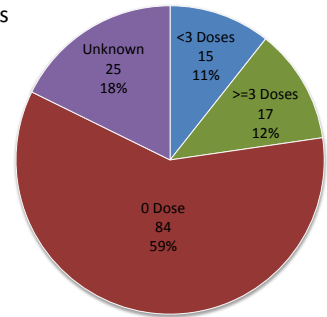**Laboratory Results - Negative**

* Data as of week no. 39, 30 September 2018

Diphtheria, 2018*
Suspected Diphtheria cases and deaths in State and Region

State/Region	Total no. of cases	Total no. of deaths
Ayeyarwady	21	5
Bago (East)	5	3
Kachin	3	1
Kayin	1	0
Magway	2	0
Mandalay	5	4
Naypyitaw	2	0
Rakhine	2	0
Sagaing	1	1
Shan State (North)	25	3
Shan State (South)	44	3
Yangon	30	5
Grand Total	**141**	**25**

● 1 Dot = 1 Case
Case (141 cases)
Death (25 cases)

Immunization Status of Suspected Diphtheria Cases

Unknown 25 18%
<3 Doses 15 11%
>=3 Doses 17 12%
0 Dose 84 59%

Suspected Diphtheria Cases by Age group

Group1 0-11 Months 3 2%
Group2 1-4 Years 22 15%
Group3 5-9 Years 45 32%
Group4 10-14 Years 46 33%
Group5 15+ Years 25 18%
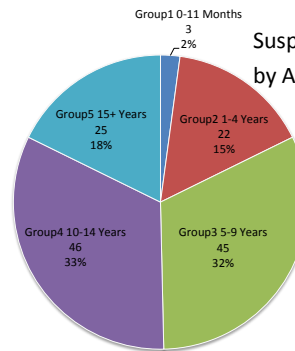
Pertussis (Whooping Cough), 2018*
Cases distribution of whooping cough cases in State and Region
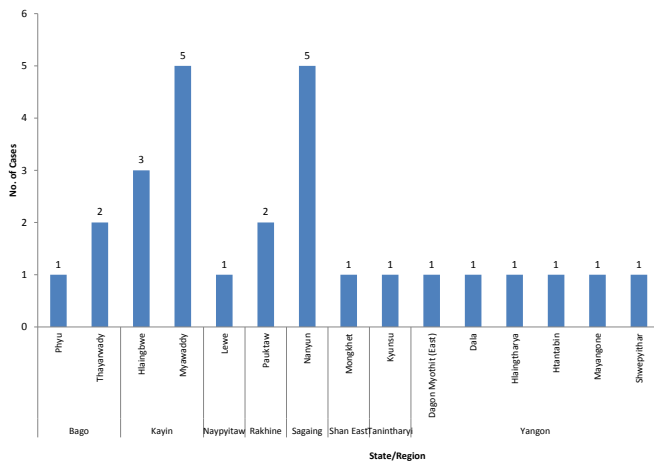
Age group	0 Dose	<3 Doses	>=3 Doses	Total
0-11 Months	6	2	1	9
1-4 Years	2	1		3
5-9 Years	5	1	2	8
10-14 Years	7			7
Grand Total	**20**	**4**	**3**	**27**

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
Rakhine	Sittwe	1	0
Sagaing	Shwebo	1	1
Tanintharyi	Myeik	1	0
Yangon	Dagon Myothit (South)	1	1
	Hlaingtharya	2	1
Total Reported		**12**	**7**

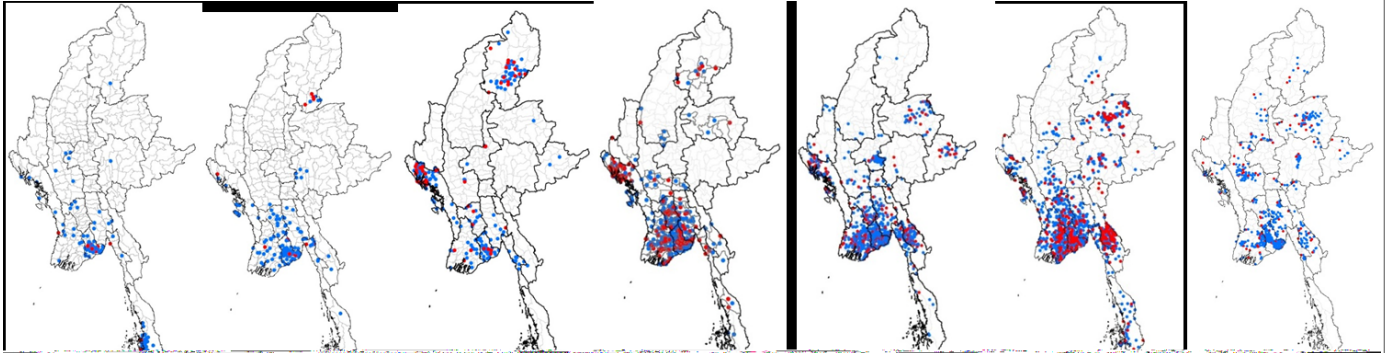| Place of birth among reported NNT cases		Reported NNT cases are delivered by		Vaccination stauts of mother during pregnancy	
Hospital	1	Doctor		0 Dose	8
Health Center		BHS	2		
Private Hospital		Trained TBA		1 Dose	
Home	10	TBA	4		2
Other		Other	4	>=2 Doses	
Unknown	1	Not Attended	2		2
Total	12	Total	12	Total	12

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

* Data as of week no. 39, 30 September 2018

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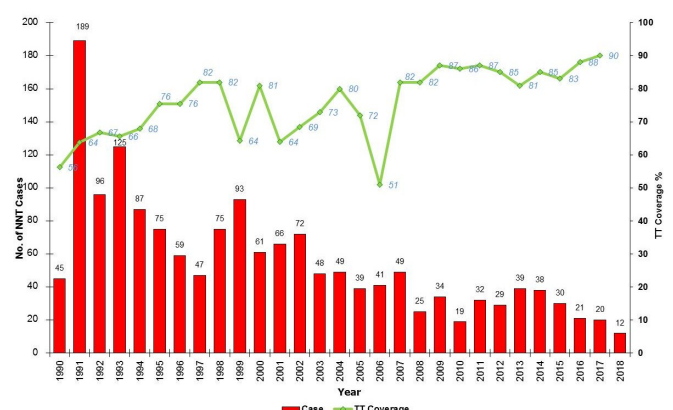
Acute Encephalitis Syndrome

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

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

Region/State	2012 AES	2012 JE Positive	2013 AES	2013 JE Positive	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
Ayeyawady	7	0	21	1	12	4	90	21	231	45	259	51	151	14
Bogo	9	0	23	0	16	7	86	28	213	53	256	49	159	8
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	9	3
Kayah	0	0	0	0	0	0	0	0	1	1	15	6	10	2
Kayin	0	0	2	0	0	0	6	1	136	37	165	65	39	8
Magway	4	0	1	0	1	1	10	4	30	4	58	6	87	14
Mandalay	1	0	0	0	5	3	2	0	122	19	6	1	110	2
Mon	2	1	10	2	5	0	29	5	60	8	61	13	41	2
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	35	4
Sagaing	0	0	0	0	0	0	6	1	52	9	18	2	60	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	65	15
Shan South	0	0	0	0	0	0	0	0	14	2	60	16	66	5
Tanintharyi	61	5	8	0	1	0	6	3	18	4	45	11	13	
Yangon	84	7	145	9	55	6	265	36	771	155	889	92	648	21
Unknown State/Region											55	6	15	0
Total	**176**	**14**	**226**	**17**	**152**	**24**	**645**	**151**	**1911**	**393**	**2089**	**383**	**1531**	**107**

JE incidence: lab confirmed cases by age groups 2012-2018*
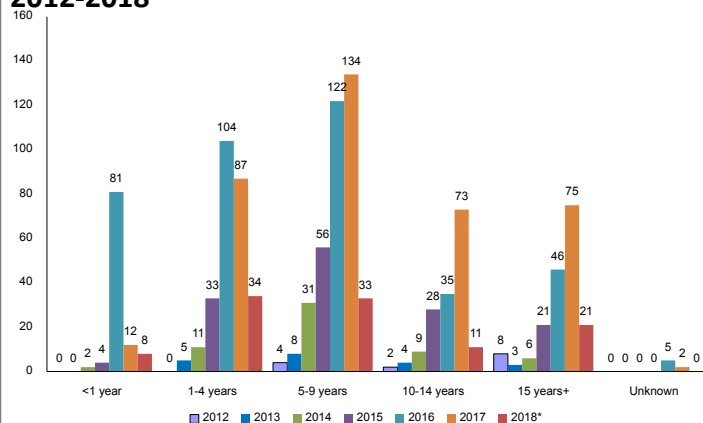
Lab confirmed and reported AES cases by months 2012-2018*
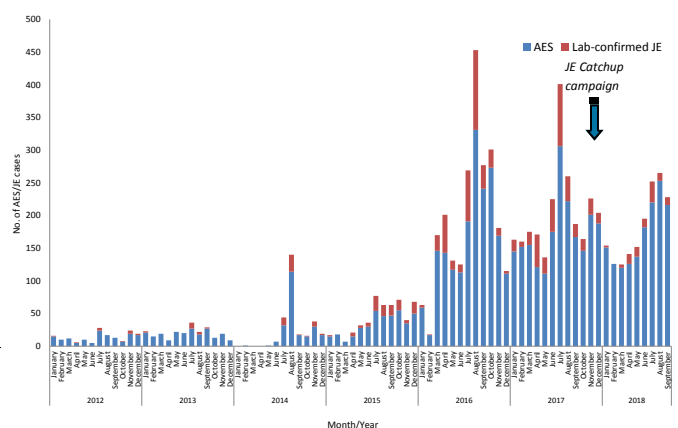
* Data as of week no. 39, 30 September 2018

Incidence of Vaccine Preventable Diseases (VPD)

	2013	2014	2015	2016	2017	2018*
Diphtheria	38	29	87	136	68	138
Measles	1010	122	6	266	1293	468
Pertussis	14	5	5	2	4	27
Polio*	0	0	0	0	0	0
Rubella	23	30	34	10	6	10
Neonatal tetanus	39	32	30	21	20	12
Japanese encephalitis	3	50	113	393	442	107

* Data as of week no. 39, 30 September 2018

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

State/Region	Diphtheria	Pertussis	Neonatal tetanus	Japanese encephalitis
Ayeyarwady	20	0	1	14
Bago	5	3	1	8
Chin	0	0	0	1
Kachin	3	0	1	3
Kayah	0	0	0	2
Kayin	1	8	0	8
Magway	2	0	2	14
Mandalay	5	0	1	2
Mon	0	0	0	2
Nay Pyi Taw	2	1	0	1
Rakhine	2	2	1	4
Sagaing	1	5	1	5
Shan East	0	1	0	2
Shan North	24	0	0	15
Shan South	44	0	0	5
Tanintharyi	0	1	1	0
Yangon	29	6	3	21
National	**138**	**27**	**12**	**107**

* Data as of week no. 39, 30 September 2018

Myanmar influenza surveillance report

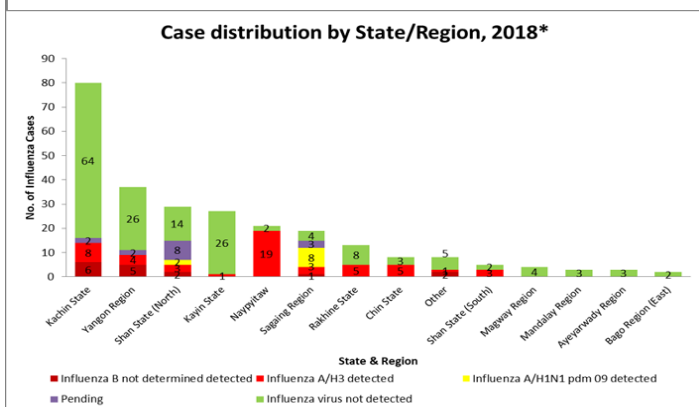**Number of specimens positive for influenza by Southern Hemi-**

Legend: B (Lineage not determined), B (Victoria lineage), B (Yamagata lineage), A (Not subtyped), A(H3), A(H1N1)pdm09, A(H1), A(H5)

2017 — 2018

Weeks

Data source :
FluNet (www.who.int/flunet), GISRS
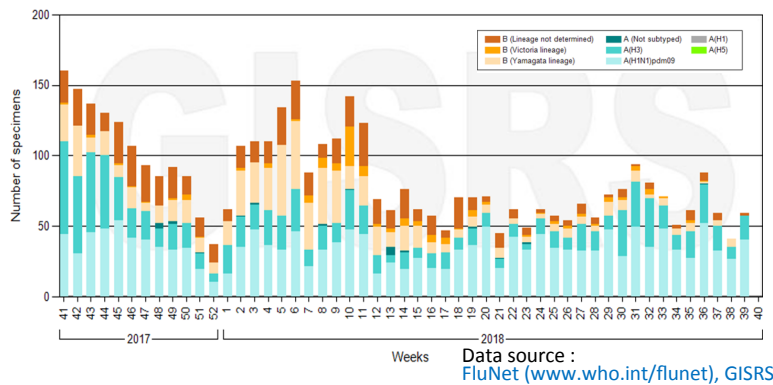
ILI/SARI sentinel surveillance

♦ **Naypyidaw 1000 Bedded Hospital**
♦ **Yangon General Hospital**
♦ **Yangon Thingyangyun Hospital**
♦ **Mandalay General Hospital**
♦ **Myitkyina General Hospital**
♦ **Sittwe General Hospital**
♦ **Myawaddy Township Hospital**
♦ **Muse Township Hospi-**

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)	23	3		Influenza B not determined detected, Influenza A/H3 detected
1000 Bedded General Hospital, Nay Pyi Taw	2	1		Influenza B not determined detected
Thingangyun Sanpya General Hospital (T.G.H)	25	6		Influenza B not determined detected, Influenza A/H3 detected
Myit Kyi Na General Hospital	82	15		Influenza B not determined detected, Influenza A/H3 detected
Sittwe General Hospital	11	5		Influenza A/H3 detected
Muse Township Hospital	28	7	2	Influenza B not determined detected, Influenza A/H3 detected, Influenza A/H1N1 pdm 09 detected
Myawaddy District Hospital	20	0		
Mandalay General Hospital	2	0		
Other Hospital				
North Okkalapa General Hospiital(N.O.G.H)	2			
Taunggyi	5	3		Influenza A/H3 detected
Other	59	53		Influenza B not determined detected, Influenza A/H3 detected, Influenza A/H1N1 pdm 09 detected
Total	**259**	**93**	**2**	

Virus Subtype distribution by State/Region, 2018*

Case distribution by State/Region, 2018*

Specimens Positive for Influenza by Subtypes, 2018*

Influenza Data 2018*
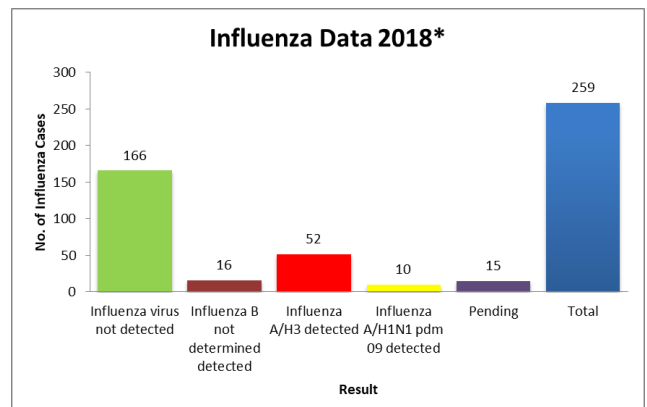
DISEASE OUTBREAK 2018*

No.	Disease	Events	Cases	Deaths
1.	Measles	19	313	1
2.	Diphtheria	82	138	24
3.	Food Poisoning	47	1603	1
4.	Diarrhoea	15	616	11
5.	Meningitis	16	16	11
6.	Chicken pox	5	48	0
7.	Anthrax	3	19	0
8.	Mumps	4	349	1

* Data as of week no. 39, 30 September 2018

Evaluation of Acute Flaccid Paralysis (AFP), other Vaccine Preventable Diseases (VPDs) & Influenza Like Illness (ILI) surveillance

ILI/SARI surveillance was established since 2009 with the aim of early detection on circulating newly virus strain which would help Pandemic Influenza Preparedness and Response. In collaboration with WHO and NHL, virus sharing through Global Influenza Surveillance and Response System (GISRS) for pandemic preparedness was conducted weekly to facilitate pandemic risk assessment, development of candidate vaccine viruses, updating diagnostic test kit and reagent, and surveillance for resistance to antiviral drugs.

According to week 39, 259 specimens were tested and out of which (4%),(20%) and (6%) 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. ILI/SARI surveillance has been strengthened by sending out the instructions to all states and regions and also by enhancing clinical advocacy at the sentinel sites. The clinical advocacy has been focused on importance of influenza virus sharing conducted by WHO Global Influenza Surveillance and Response System (GISRS) which is vital to global pandemic preparedness.

Reported ILI/ SARI Cases by Months 2018 (as of Week 39)

Reported ILI/ SARI Cases by State and Region 2018 (as of Week 39)

Flow Chart of Integrated Surveillance Weekly Reporting

ILI and SARI Surveillance Overview

Case definition of ILI
Any acute respiratory infection with measured fever of 38˚C or above and cough with onset of fever within 10 days.

Case definition of SARI

Any acute respiratory infection with measured fever of 38˚C or above and cough with onset of fever within 10 days and requires hospitalization.

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

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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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