



## Vaccine Preventable Disease (VPD) Surveillance

The goal of VPD surveillance is to improve the capacity of the health system to prevent and control through timely detection and appropriate response to vaccine preventable diseases with high level of morbidity, disability and mortality. This report provides data from the period of January 1 to December 31, 2018 or Morbidity Weeks 1 - 52 (Table 1).

**Table 1. Summary of Reported Vaccine Preventable Diseases, Philippines, January 1 – December 31, 2018**

Vaccine Preventable Diseases	Total No of Cases	Confirmed Cases		
		Cases	Deaths	CFR %
Measles	21,812	5,120	59	1.15
Rubella		129	0	-
Diphtheria	183	55	13	23.6
Pertussis	339	78	5	6
Neonatal Tetanus	54	54	29	53.7
Polio (AFP Surveillance)	376	-	-	-

### PIDSR Case Definition for Vaccine Preventable Diseases

MEASLES	
Reported Measles Case (Suspect measles case)	Any person with fever and maculopapular (non-vesicular) rash and either cough, coryza (runny nose), or conjunctivitis (red eyes)
Measles compatible case (Clinical Measles)	A suspect case for which - no adequate blood specimen was taken, OR - is not an epidemiological link to a confirmed case of measles or rubella, OR - laboratory confirmation is still pending
Confirmed measles case	A suspect with positive laboratory for measles or epidemiologically linked cases
Epidemiologically Linked (Epi-linked)	A suspect case that has not been confirmed by laboratory but has close contact and temporally related to a laboratory confirmed case or to another epi-linked case during times of epidemic
Laboratory confirmed rubella	A suspect case with a positive laboratory test result for rubella-specific IgM antibodies or other approved laboratory test method
Discarded non-measles/rubella	A suspect case that meets the clinical case definition for measles and tested negative for both measles and rubella testing
NEONATAL TETANUS	
Clinically Confirmed Neonatal Tetanus	<ul style="list-style-type: none"> <li>Any neonate (<math>\leq 28</math> days of life) that sucks and cries normally during the first 2 days of life, and becomes ill between 3 to 28 days of age and develops both an inability to suck and diffuse muscle rigidity (stiffness) and spasms (jerking of the muscles), which may include trismus, clenched fists or feet, continuously pursed lips, and/or curved back (opisthotonus);</li> <li>OR</li> <li>A neonate between 3 to 28 days of life, diagnosed as a case of tetanus by a physician.</li> </ul>
DIPHTHERIA	
Probable case	A person with an illness of the upper respiratory tract characterized by laryngitis or pharyngitis or tonsillitis, and adherent membranes on tonsils, pharynx and/or nose.
Confirmed case	A probable case that is laboratory confirmed or linked epidemiologically to a laboratory-confirmed case.
<i>Note: Persons with positive Corynebacterium diphtheriae cultures who do not meet the clinical description (i.e. asymptomatic carriers) should not be reported as probable or confirmed diphtheria cases.</i>	
PERTUSSIS	
Clinical Case	A person with a cough lasting at least 2 weeks with at least one of the following: - paroxysms (i.e. fits) of coughing - inspiratory "whooping" - post-tussive vomiting (i.e. vomiting immediately after coughing) - without other apparent cause
Clinically-confirmed case	- A case that meets the clinical case definition but is not laboratory confirmed.
Probable case	Meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case
Laboratory-confirmed case	<ul style="list-style-type: none"> <li>- A case of acute cough illness of any duration with a positive culture for B. pertussis; OR</li> <li>- A case that meets the clinical case definition and is confirmed by PCR; OR</li> <li>- A case that meets the clinical definition and is epidemiologically linked directly to a case confirmed by either culture or PCR.</li> </ul>
ACUTE FLACCID PARALYSIS	
Reported AFP Case (suspect AFP case)	Any child less than 15 years of age who developed an acute onset of floppy paralysis OR A person of any age in whom poliomyelitis is suspected by the physician <b>AFP "hotcase"</b> An AFP case with no or less than 3 OPV dose and had FEVER at onset of paralysis

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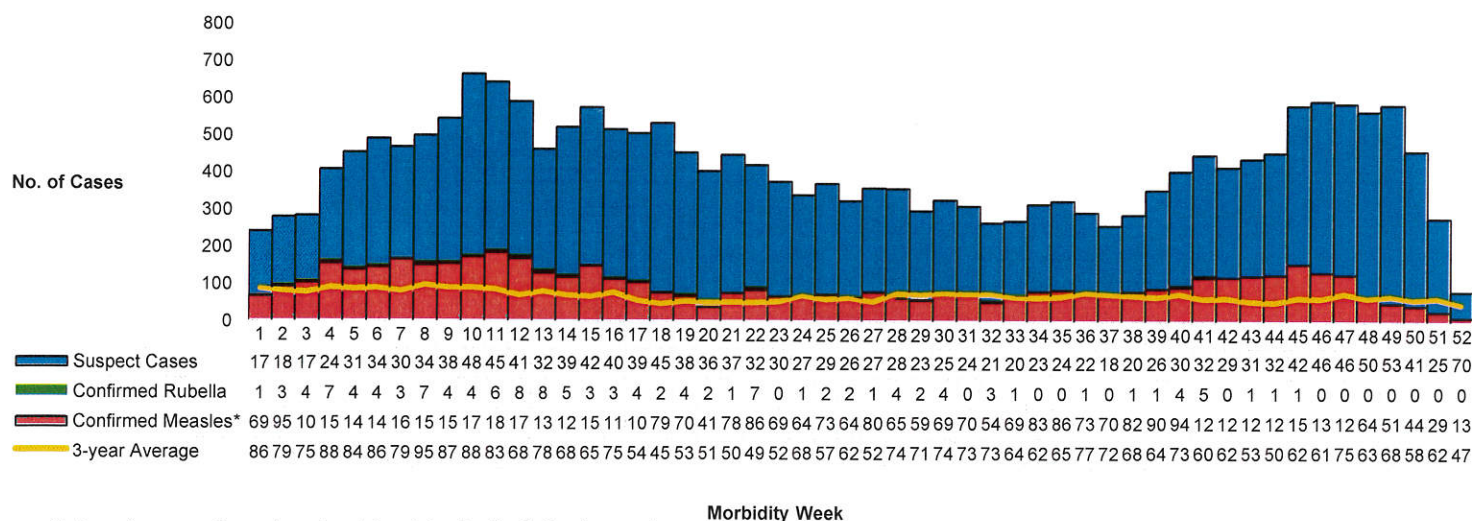
## I. MEASLES-RUBELLA

### Suspect Cases

#### Trend in the Philippines

A total of 21,812 suspect measles-rubella cases were reported from January 1 to December 31, 2018. The distribution of reported cases for 2018 compared to the 3-year average of cases from 2015-2017 is shown below (Figure 1).

**Figure 1. Reported Measles-Rubella Cases by Case Classification and Morbidity Week, Philippines, January 1 to December 31, 2018 (N=21,812)**



\*laboratory-confirmed and epidemiologically-linked measles cases

#### Geographic Distribution

From January 1 to December 31, 2018 or morbidity weeks 1 to 52, cases are 376% higher than the number of cases reported during the same time period last year (4,585). Most of the reported cases were from the following regions: ARMM (4,368, 20%), NCR (3,646, 17%), Region IV-A (2,680, 12%), Region XII (1,913, 9%) and Region X (1,655, 8%) (Table 1). All regions showed an increase in the number of reported measles-rubella cases compared with 2017.

**Table 1. Reported Measles-Rubella Cases by Region, Philippines, January 1 to December 31, 2018 (N=21,812) vs. January 1 to December 31, 2017**

Region	2018		2017		% Change
	Cases	Deaths	Cases	Deaths	
<b>PHL</b>	<b>21,812</b>	<b>202</b>	<b>4,585</b>	<b>39</b>	<b>↑ 376</b>
I	671	3	436	1	↑ 54
II	81	0	57	0	↑ 42
III	1,204	26	418	2	↑ 188
IVA	2,680	33	684	3	↑ 292
MIMAROPA	79	0	62	0	↑ 27
V	363	9	69	0	↑ 426
VI	911	3	299	0	↑ 205
VII	462	1	64	0	↑ 622
VIII	206	4	81	0	↑ 154
IX	1,414	7	582	4	↑ 143
X	1,655	3	152	0	↑ 989
XI	1,583	17	263	8	↑ 502
XII	1,913	11	119	1	↑ 1,508
ARMM	4,368	29	703	16	↑ 521
CAR	251	0	196	0	↑ 28
CARAGA	325	2	49	1	↑ 563
NCR	3,646	54	351	3	↑ 939

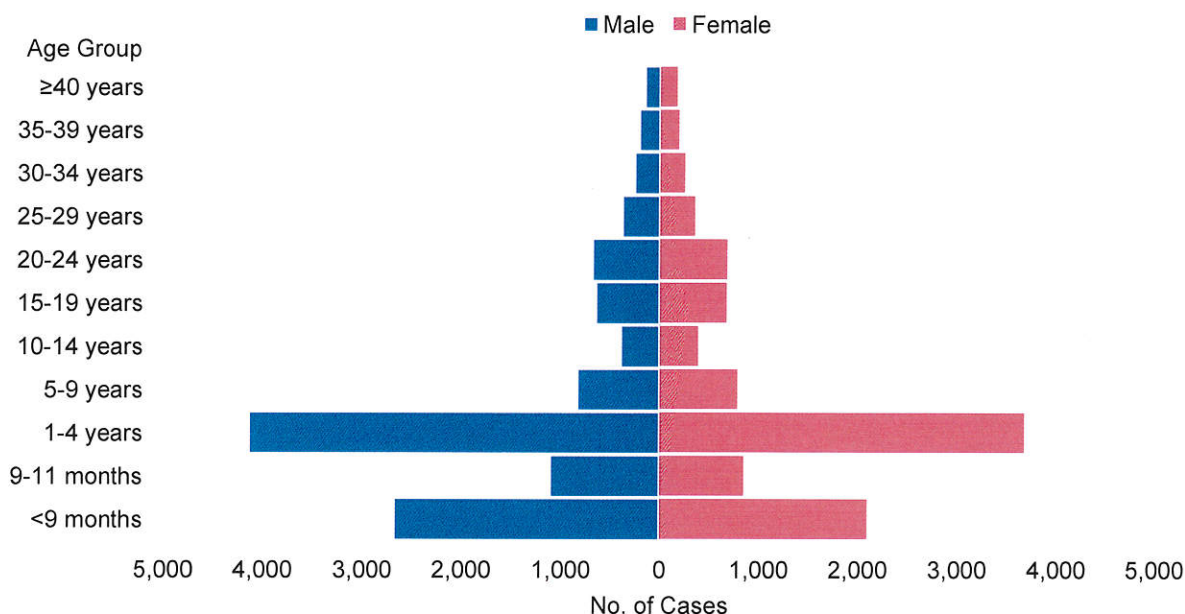




### Profile of Reported Cases

Majority (11,434, 52%) of the reported cases were male. Ages of cases ranged from **less than 1 month to 87 years old** (median age of 2 years). Age groups with the most number of cases were: 1-4 years old (7,812, 36%), less than 9 months old (4,764, 21%) and 9-11 months old (1,944, 9%) (Figure 2).

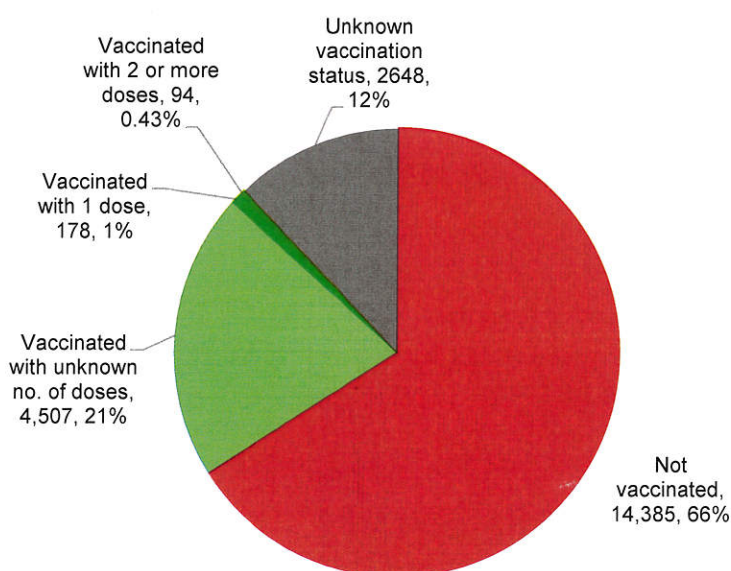
**Figure 2. Reported Measles-Rubella Cases by Age Group and Sex, Philippines, January 1 to December 31, 2018 (N=21,812)\***



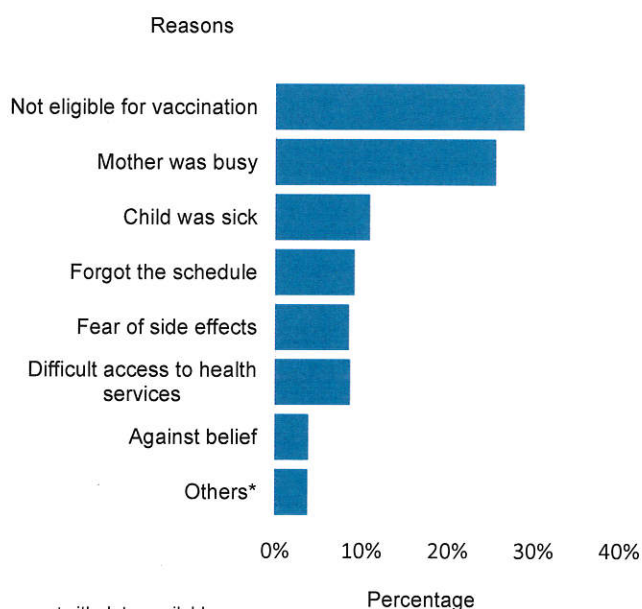
\*343 cases with unspecified age

Majority (14,385, 66%) of the cases were not vaccinated (Figure 3). Top reasons for non-vaccination of measles-containing vaccine were: not eligible for vaccination (29%), mother was busy (26%), and child was sick (11%) (Figure 4).

**Figure 3. Vaccination Status of Reported Measles-Rubella Cases, Philippines, January 1 to December 31, 2018 (N=21,812)**



**Figure 4. Reasons for Non-vaccination of Measles Vaccine\*, Philippines, January 1 to December 31, 2018**



\*with data available

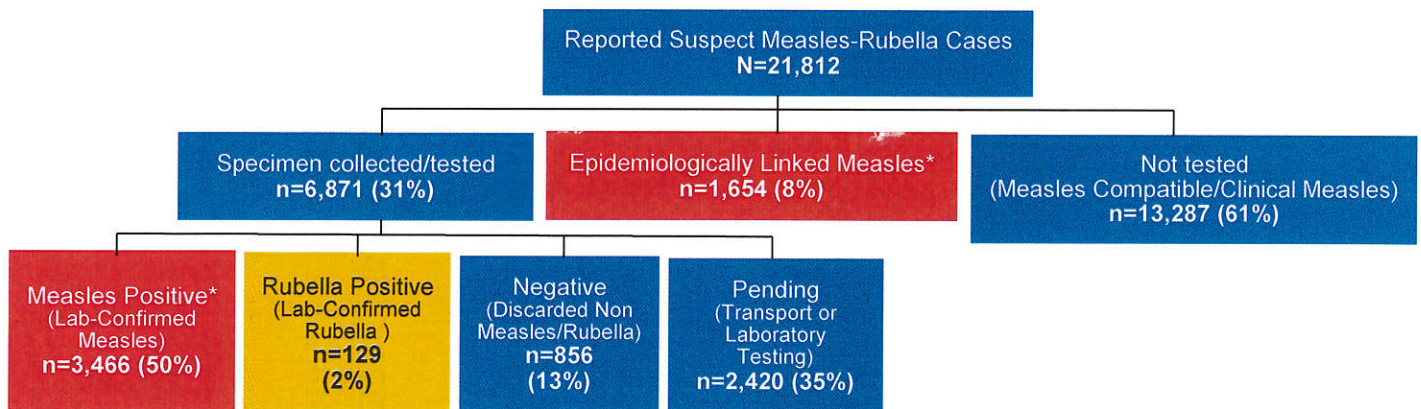
\*other reasons: moves residence, lack of knowledge, history of travel, medical contraindication, parents refused, child was abandoned, war conflict, unavailable during vaccination, lost vaccination card and laziness



### Case Classification

Among the 21,812 reported cases, a total of 6,871 (32%) cases had specimens collected/tested for measles/rubella IgM and/or PCR. Among the tested cases, 3,466 (50%) were positive for measles and 129 (2%) were positive for rubella. 1,654 (8%) cases were epidemiologically-linked to laboratory confirmed cases, hence also classified as confirmed measles cases (Figure 5).

**Figure 5. Reported Measles-Rubella Cases by Case Classification, Philippines, January 1 to December 31, 2018 (N=21,812)**



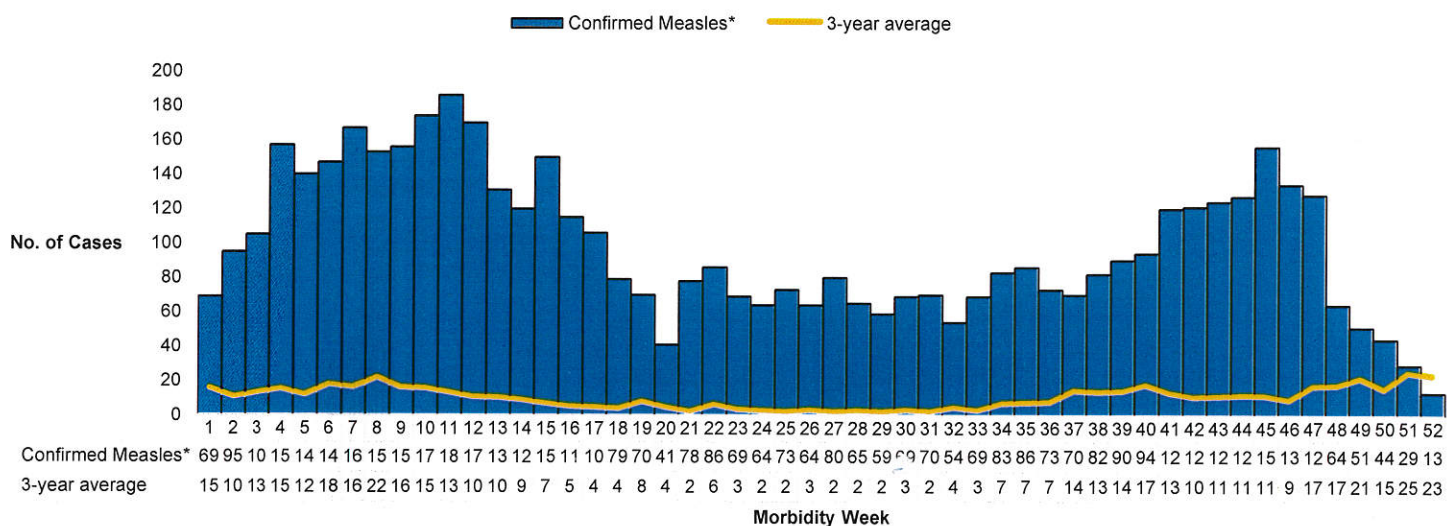
\*Confirmed measles cases = laboratory-confirmed and epidemiologically-linked measles cases (n= 5,120)

### Confirmed Measles Cases

#### Trend in the Philippines

There were 5,120 confirmed measles cases with 59 deaths (CFR=1.15%). The distribution of confirmed measles cases for 2018 compared to the 3-year average of cases from 2015-2017 is shown in Figure 6.

**Figure 6. Confirmed Measles Cases by Morbidity Week, Philippines, January 1 to December 31, 2018 (N=5,120)**







### Geographic Distribution

Most of the confirmed measles cases were from the following regions: NCR (1,094, 21%), ARMM (645, 13%), Region IV-A (621, 12%), Region XII (476, 9%) and Region XI (458, 9%). Confirmed measles cases in 2018 increased by 547% compared to the same period in 2017 (Table 2). Likewise, all regions showed an increase in the number of confirmed measles cases.

Top 5 provinces with confirmed cases include: Rizal (416, 8%), Davao del Sur (341, 7%), Lanao del Sur (323, 6%), Maguindanao (283, 6%), and Zamboanga del Sur (202, 4%).

Top 5 municipalities with confirmed cases include: Davao City (326, 6%), Manila (229, 4%), Cotabato City (168, 3%), Zamboanga City (167, 3%), and Antipolo City (159, 3%).

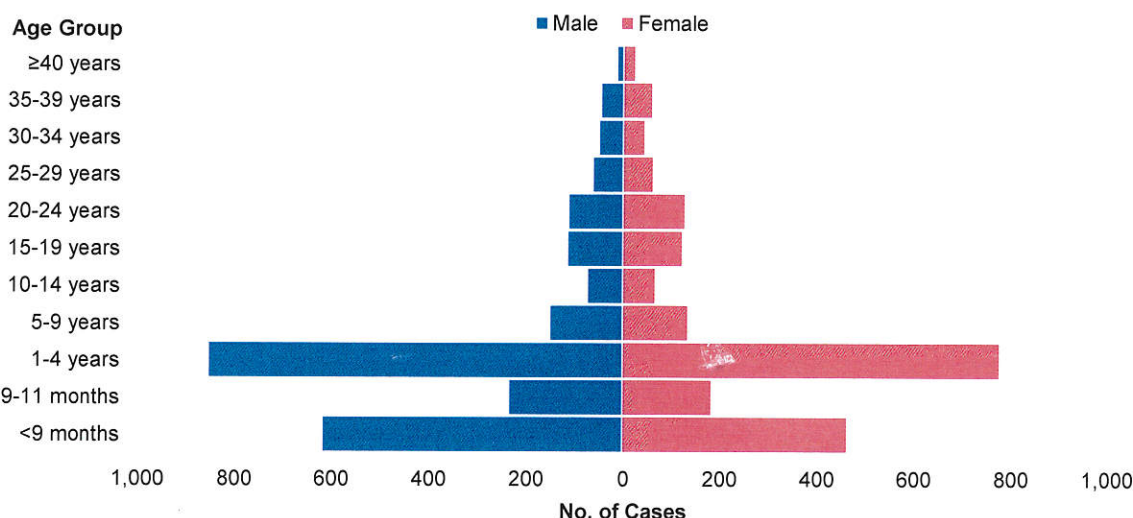
**Table 2. Confirmed Measles Cases by Region,**  
Philippines, January 1 to December 31, 2018 (n=5,120) vs. January 1 to December 31, 2017

Region	2018		2017		% Change
	Cases	Deaths	Cases	Deaths	
<b>PHL</b>	<b>5,120</b>	<b>59</b>	<b>791</b>	<b>17</b>	<b>↑ 547</b>
<b>I</b>	<b>79</b>	<b>2</b>	<b>3</b>	<b>0</b>	<b>↑ 2,533</b>
<b>II</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>↑</b>
<b>III</b>	<b>282</b>	<b>5</b>	<b>49</b>	<b>2</b>	<b>↑ 476</b>
<b>IVA</b>	<b>621</b>	<b>6</b>	<b>13</b>	<b>0</b>	<b>↑ 4,677</b>
<b>MIMAROPA</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>↑</b>
<b>V</b>	<b>170</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>↑</b>
<b>VI</b>	<b>264</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>↑ 26,300</b>
<b>VII</b>	<b>176</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>↑ 4,300</b>
<b>VIII</b>	<b>23</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>↑</b>
<b>IX</b>	<b>331</b>	<b>1</b>	<b>360</b>	<b>4</b>	<b>↓ 8</b>
<b>X</b>	<b>297</b>	<b>1</b>	<b>6</b>	<b>0</b>	<b>↑ 4,850</b>
<b>XI</b>	<b>458</b>	<b>11</b>	<b>171</b>	<b>5</b>	<b>↑ 168</b>
<b>XII</b>	<b>476</b>	<b>4</b>	<b>21</b>	<b>1</b>	<b>↑ 3,338</b>
<b>ARMM</b>	<b>645</b>	<b>4</b>	<b>150</b>	<b>4</b>	<b>↑ 367</b>
<b>CAR</b>	<b>103</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>↑</b>
<b>CARAGA</b>	<b>84</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>↑ 2,500</b>
<b>NCR</b>	<b>1,094</b>	<b>19</b>	<b>9</b>	<b>1</b>	<b>↑ 12,263</b>

### Profile of Confirmed Measles Cases

Majority (2,741, 54%) of the confirmed measles cases were male. Ages of cases ranged from **less than 1 month to 65 years** old (median age of 2 years). Age groups with the most number of cases were: 1-4 years old (1,835, 36%), less than 9 months old (1,272, 25%) and 9-11 months old (483, 9%) (Figure 7).

**Figure 7. Confirmed Measles Cases by Age Group and Sex,**  
Philippines, January 1 to December 31, 2018 (n=5,120)\*



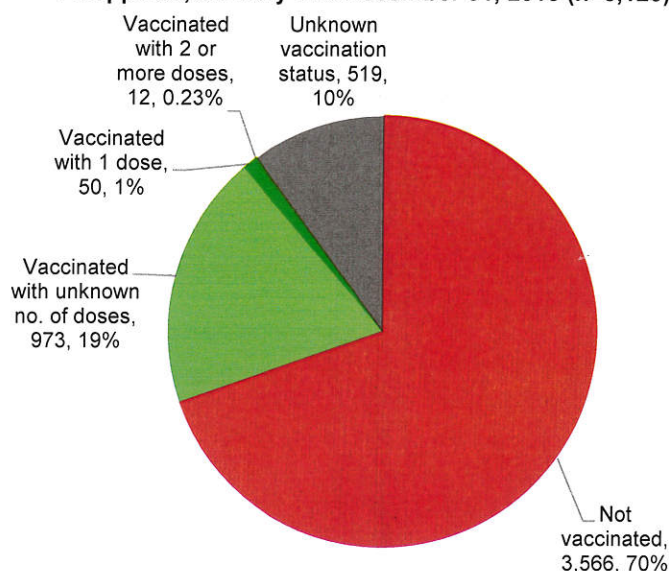
\*43 cases with unspecified age



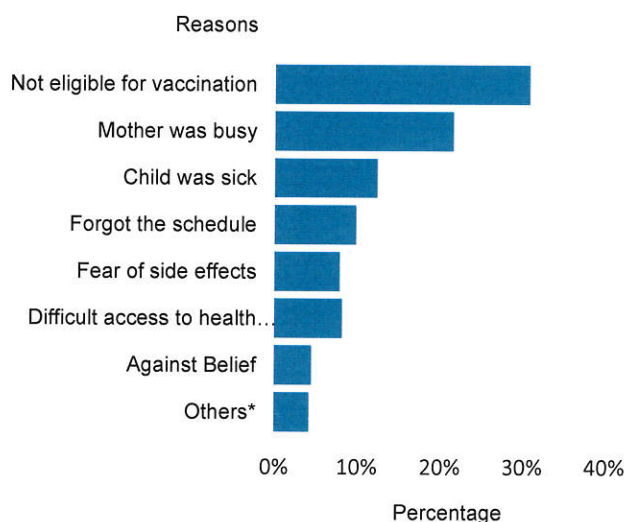


Majority (3,566, 70%) of the confirmed measles cases were not vaccinated (Figure 8). Top reasons for non-vaccination of measles-containing vaccine among confirmed cases were: not eligible for vaccination (31%), mother was busy (22%) and child was sick (13%) (Figure 9).

**Figure 8. Vaccination Status of Confirmed Measles Cases, Philippines, January 1 to December 31, 2018 (n=5,120)**



**Figure 9. Reasons for Non-vaccination of Measles Vaccine among Confirmed Measles Cases\*, Philippines, January 1 to December 31, 2018**



\*with available data

\*other reasons: moves residence, parents refused, lack of knowledge, medical contraindication, history of travel, war conflict, child was abandoned, unavailable during vaccination

#### Profile of Confirmed Measles Deaths

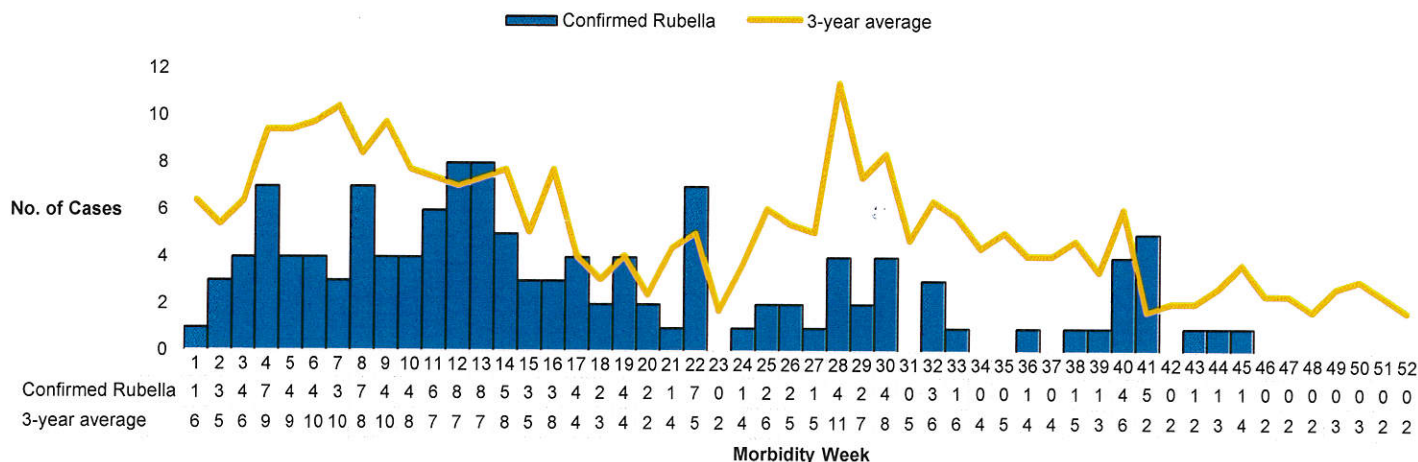
There were 59 deaths (CFR=1.15%) out of the 5,120 confirmed measles cases. Ages of deaths ranged from **2 months to 24 years** old (median age of 9 months). Age groups of these deaths were: less than 9 months old (21, 36%), 1-4 years old (19, 32%), 9-11 months old (15, 25%), 5-9 years old (2, 3%), 15-19 years old (1, 2%) and 20-24 years old (1, 2%). Majority (40, 68%) of the deaths had pneumonia complications. All died in the hospital with 0 to 28 days (median hospital days of 2 days) interval from date of admission to date of death.

#### Confirmed Rubella Cases

##### Trend in the Philippines

There were 129 confirmed rubella cases from January 1 to December 31, 2018. The distribution of confirmed rubella cases for 2018 compared to the 3-year average of cases from 2015-2017 is shown in Figure 10.

**Figure 10. Confirmed Rubella Cases by Morbidity Week, Philippines, January 1 to December 31, 2018 (n=129)**







### Geographic Distribution

Most of the confirmed rubella cases were from the following regions: Region XI (23, 18%), Region IVA (17, 13%), Region XII (13, 10%), Region VI (12, 9%) and Region I (12, 9%). Confirmed rubella cases in 2018 is 73% lower compared to the same time period in 2017 (474). No deaths were reported (Table 3). However, Regions VII, XI, XII, ARMM, and CARAGA had an increase in the number of confirmed rubella cases

**Table 3. Confirmed Rubella Cases by Region, Philippines, January 1 to December 31, 2018 (n=129) vs. January 1 to December 31, 2017**

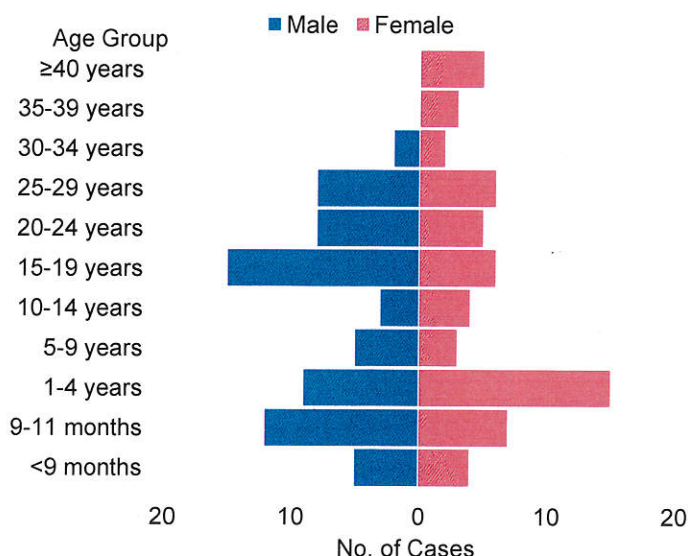
Region	2018		2017		% Change
	Cases	Deaths	Cases	Deaths	
<b>PHL</b>	<b>129</b>	<b>0</b>	<b>474</b>	<b>0</b>	<b>↓ 73</b>
I	12	0	35	0	↓ 66
II	2	0	6	0	↓ 67
III	7	0	48	0	↓ 85
IVA	17	0	110	0	↓ 85
MIMAROPA	2	0	3	0	↓ 33
V	2	0	4	0	↓ 50
VI	12	0	104	0	↓ 88
VII	7	0	5	0	↑ 40
VIII	1	0	40	0	↓ 98
IX	4	0	6	0	↓ 33
X	6	0	6	0	→ 0
XI	23	0	5	0	↑ 360
XII	13	0	6	0	↑ 117
ARMM	3	0	1	0	↑ 200
CAR	2	0	59	0	↓ 97
CARAGA	6	0	1	0	↑ 500
NCR	10	0	35	0	↓ 71

### Profile of Confirmed Rubella Cases

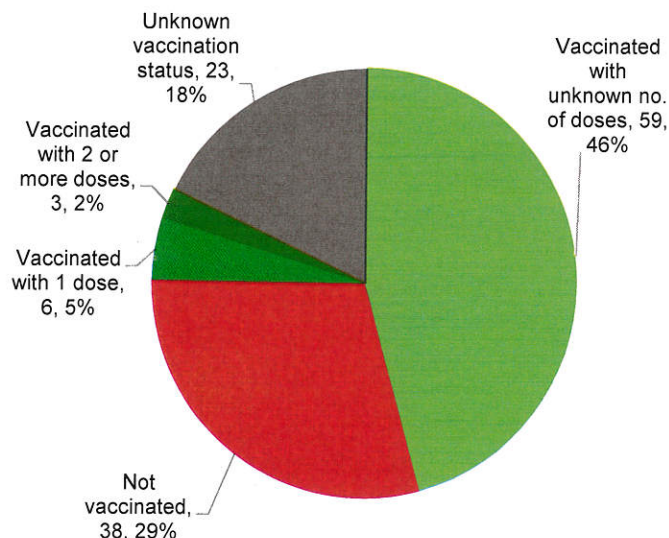
Majority (67, 52%) of the confirmed rubella cases were male. Ages of cases ranged from **less than 1 month to 63 years** old (median age of 10 years). Age groups with the most number of cases were: 1-4 years old (24, 19%) and 15-19 years old (21, 16%) (Figure 11). There was one (1) reported pregnancy among the confirmed rubella cases, aged 26 years old from Region XI. The case is well monitored by a pediatrician and the Disease Reporting Unit. No abnormalities reported.

Most (59, 46%) of the confirmed rubella cases were vaccinated but with unknown number of doses. Only three (3) cases (2%) were reported to have two (2) or more doses of measles-containing vaccine which may be MMR (measles-mumps-rubella), the vaccine with rubella component (Figure 12).

**Figure 11. Confirmed Rubella Cases by Age Group and Sex, Philippines, January 1 to December 31, 2018 (n=129)**



**Figure 12. Vaccination Status of Confirmed Rubella Cases, Philippines, January 1 to December 31, 2018 (n=129)**





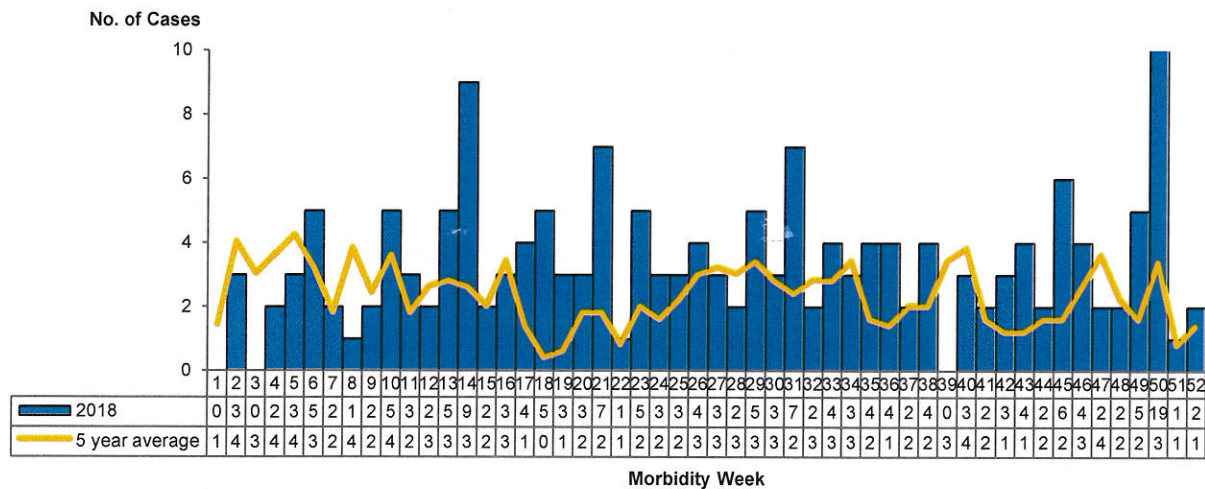


## II. DIPHTHERIA

### Trend in the Philippines

A total of **183** diphtheria cases were reported nationwide from January 1 to December 31, 2018. The distribution of diphtheria cases for 2018 compared to the 5-year average of cases from 2013 to 2017 is shown below (Figure 13).

**Figure 13. Reported Diphtheria Cases by Morbidity Week, Philippines, January 1 to December 31, 2018 (N=183)**



### Geographic Distribution

There has been a **2%** decrease of diphtheria cases from 186 cases in 2017 to 183 cases in 2018, same time period. Most of the reported diphtheria cases came from NCR (63, 34%) followed by Region 4A (41, 22%) and ARMM (13,7%) (Table 5). Fifty five (30%) cases were confirmed out of the reported cases. There was an increase in the number of cases in Region V (167%), ARMM (117%), while both Region VII and XII have (100%) increase. There were eight diphtheria clusters identified as of December 2018. A cluster is defined as two or more diphtheria cases from the same barangay reported within four consecutive weeks (Annex A).

**Table 5. Reported Diphtheria Cases by Region, Philippines, January 1 to December 31, 2018 (N=183) vs. January 1 to December 31, 2017**

REGION	2018		2017		PERCENT CHANGE
	CASES	DEATHS	CASES	DEATHS	
<b>PHILIPPINES</b>	<b>183</b>	<b>38</b>	<b>186</b>	<b>44</b>	<b>↓2</b>
I	3	1	4	0	↓25
II	0	0	2	1	↓100
III	19	6	19	5	0
<b>IVA</b>	<b>41</b>	<b>5</b>	<b>35</b>	<b>6</b>	<b>↑17</b>
MIMAROPA	0	0	2	1	↓100
<b>V</b>	<b>8</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>↑167</b>
VI	4	1	11	3	↓64
<b>VII</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>↑100</b>
<b>VIII</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>↑</b>
IX	6	1	22	9	↓73
X	1	0	2	1	↓50
<b>XI</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>↑50</b>
<b>XII</b>	<b>4</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>↑100</b>
<b>ARMM</b>	<b>13</b>	<b>4</b>	<b>6</b>	<b>2</b>	<b>↑117</b>
CAR	3	0	4	0	↓25
<b>CARAGA</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>↑</b>
NCR	63	12	69	13	↓9



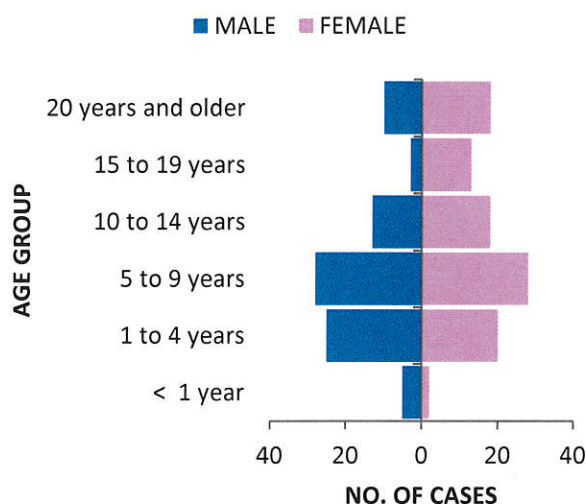


## Profile of Cases

### A. Cases

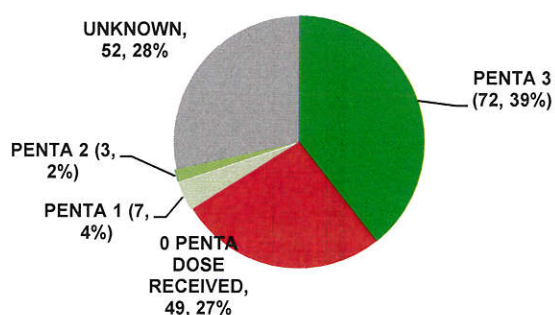
There were **84 males (46%)** and **99 females (54%)** among 183 the reported diphtheria cases. Age of cases ranged from **3 months to 80 years old** (median age of 8 years). Age groups with the most number of cases were **5 - 9 years old (56, 31%)**, followed by **1 - 4 years old (45, 25%)**, and more than 20 years old (28, 15%) (Figure 14).

**Figure 14. Reported Diphtheria Cases by Age Group and Sex, Philippines, January 1 to December 31, 2018 (N=183)**



Vaccination status showed that **(72, 39%)** of the reported cases received **complete 3 primary doses** of the DPT/Pentavalent vaccine. Forty nine (26%) did not receive a dose of the DPT/Pentavalent vaccine, 52 (28%) had unknown vaccination status, 7 (4%) received 1 dose while 3 (2%) received only 2 doses of the vaccine (Figure 15).

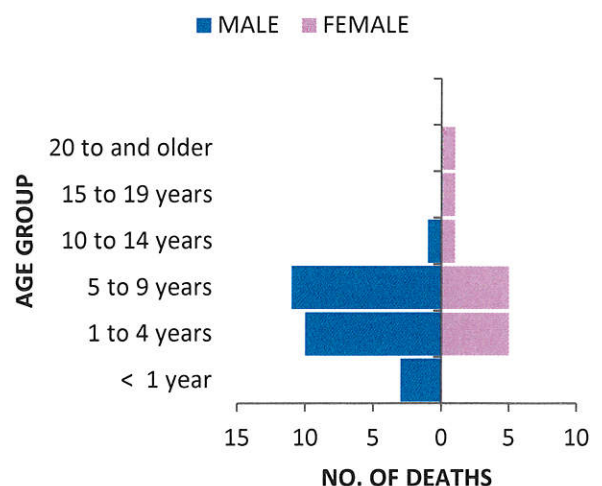
**Figure 15. Reported Diphtheria Cases by DPT Dose Received, Philippines, January 1 to December 31, 2018 (N=183)**



### B. Deaths

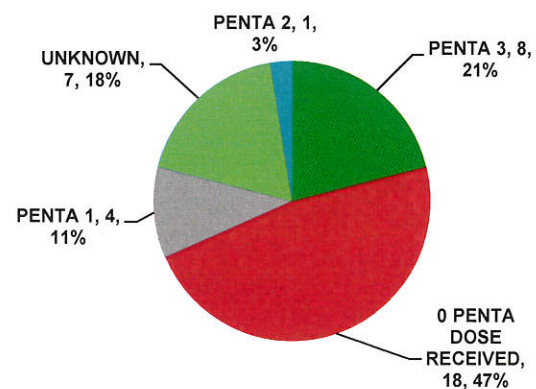
There were **thirty eight (38)** deaths (CFR=21%) among the 183 reported diphtheria cases. Ages of deaths ranged from **3 months to 44 years old** (median age of 5 years). Deaths came from the following age groups : **5 - 9 years old (16, 42%)** and **1 - 4 years (15, 39%)**. (Figure. 16)

**Figure 16. Reported Death by Age Group and Sex, Philippines, January 1 to December 31, 2018 (n=38)**



Vaccination status showed that Majority (18, 47%) did not receive a dose of the DPT/ Pentavalent vaccine while 8 (21%) received complete 3 primary doses of the vaccine. (Figure. 17).

**Figure 15. Reported Diphtheria Deaths by DPT Dose Received, Philippines, January 1 to December 31, 2018 (n=38)**





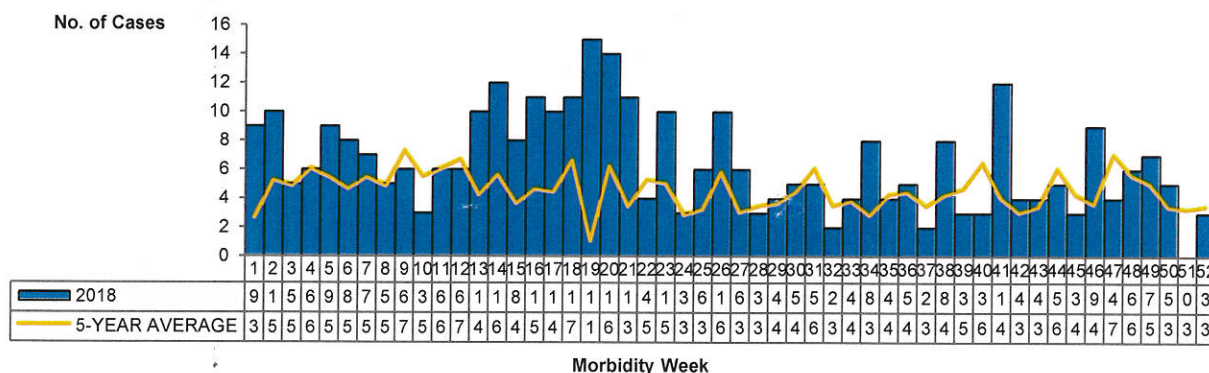


### III. PERTUSSIS

#### Trend in the Philippines

A total of 339 pertussis cases were reported nationwide from January 1 to December 31, 2018. The distribution of pertussis cases for 2018 compared to the 5-year average of cases from 2013 to 2017 is shown below (Figure 18).

Figure 18. Reported Pertussis Cases by Morbidity Week, Philippines, January 1 to December 31, 2018 (N=339)



#### Geographic Distribution

There has been an 1% decrease among the reported pertussis cases with 344 cases in 2017 and 339 cases in 2018, same time period. Majority of the reported pertussis cases came from NCR (90, 27%) followed by Region XI (44, 13%) and Region IVA (42, 12%) (Table 6). Increase of cases were seen in CAR (825%) and ARMM (233%). Seventy eight (23%) cases were confirmed out of 339 cases. Eighteen pertussis clusters were identified as of December 2018. A cluster is defined as two (2) or more pertussis cases from the same barangay reported within four (4) consecutive weeks (Annex B).

Table 6. Reported Pertussis Cases by Region, Philippines, January 1 to December 31, 2018 (N=301) vs. January 1 to December 31, 2017

REGION	2018		2017		PERCENT CHANGE
	CASES	DEATHS	CASES	DEATHS	
<b>PHILIPPINES</b>	<b>339</b>	<b>10</b>	<b>344</b>	<b>19</b>	<b>↓1</b>
I	6	1	6	1	-
II	7	2	16	2	↓56
<b>III</b>	<b>40</b>	<b>1</b>	<b>39</b>	<b>4</b>	<b>↑3</b>
IVA	42	2	83	7	↓49
MIMAROPA	1	0	1	0	-
V.	3	0	3	0	-
VI	8	0	7	0	14
<b>VII</b>	<b>26</b>	<b>1</b>	<b>20</b>	<b>0</b>	<b>↑30</b>
VIII	3	0	3	1	-
IX	1	0	2	0	↓50
<b>X</b>	<b>9</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>↑13</b>
<b>XI</b>	<b>44</b>	<b>2</b>	<b>39</b>	<b>1</b>	<b>↑13</b>
XII	3	0	6	0	↓50
<b>ARMM</b>	<b>10</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>↑233</b>
<b>CAR</b>	<b>37</b>	<b>1</b>	<b>4</b>	<b>0</b>	<b>↑825</b>
<b>CARAGA</b>	<b>9</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>↑13</b>
NCR	90	0	96	3	↓6



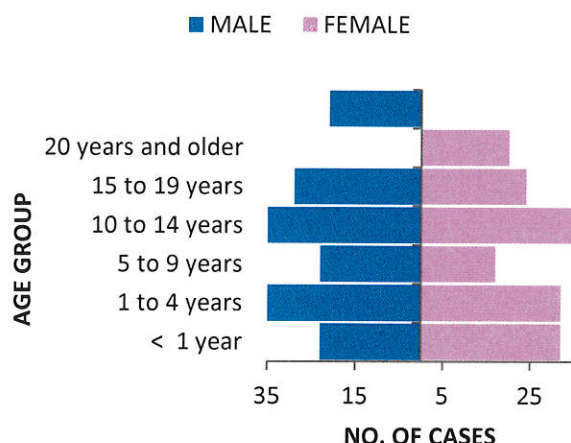


## Profile of Cases

### A. Cases

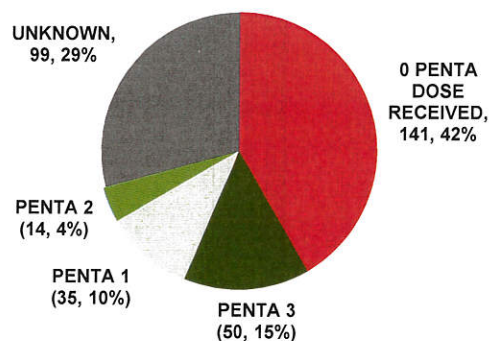
There were **178 (53%) males** and **161 (47%) females** among reported pertussis cases. Age of cases ranged from **9 days to 80 years old** (median age of 4 months). Age groups with most number of cases were **10 – 14 years old** (82, 24%), followed by those from the 1 to 4 years (68, 20%), and less than one year old (55, 16%) group (Figure 19).

**Figure 19. Pertussis Cases by Age Group and Sex, Philippines, January 1 to December 31, 2018 (N=339)**



Majority of the reported cases (**141, 42%**) were **not vaccinated** with the DPT/pentavalent vaccine. Ninety nine cases (29%) had unknown vaccination status, 50 (15%) received complete 3 primary doses, 35 (10%) received only 1 dose while the remaining 14 cases (4%) received only 2 doses of the vaccine (Figure 20).

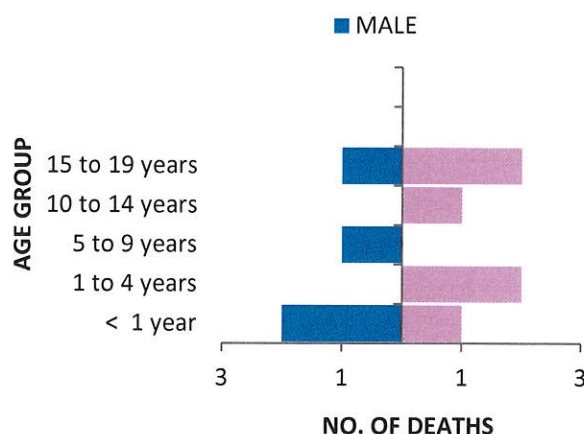
**Figure 20. Reported Pertussis Cases by DPT Dose Received, Philippines, January 1 to December 31, 2018 (N=339)**



### B. Deaths

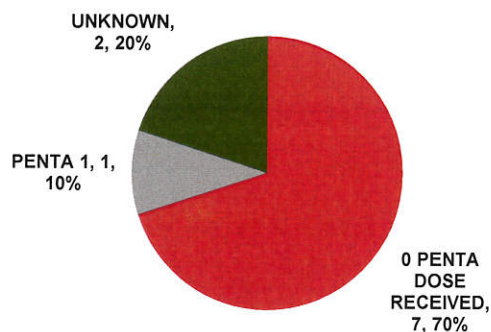
There were 10 deaths (CFR=2%) among the 339 reported pertussis cases. Ages of deaths ranged from **1 month to 4 years old** (median age of 2 months). Deaths came from the following age groups : less than 1 year and 15 – 19 years old have both (3, 30%) deaths. (Figure 21).

**Figure 21. Pertussis Deaths by Age Group and Sex, Philippines, January 1 to December 31, 2018 (n=10)**



Seven (70%) of the pertussis deaths did not receive any dose of the DPT/pentavalent vaccine, 2 (20%) had unknown vaccination status and 1(10%) received only 1 dose of the vaccine (Figure 22).

**Figure 22. Reported Pertussis Deaths by DPT Dose Received, Philippines, January 1 to December 31, 2018 (n=10)**





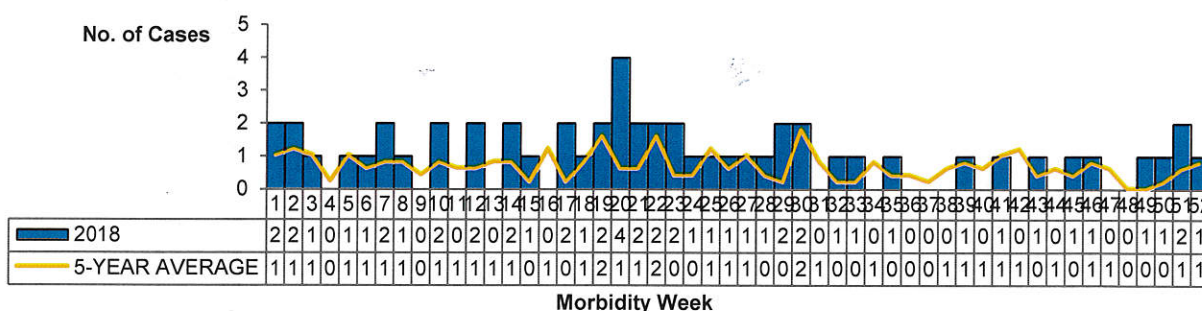


#### IV. NEONATAL TETANUS

##### Trend in the Philippines

A total of **Fifty four (54)** clinically confirmed neonatal tetanus (NT) cases were reported nationwide from January – December 2018. The distribution of neonatal tetanus cases for 2018 compared to the 5-year average of cases from 2013 to 2017 is shown below (Figure 23).

**Figure 23. Neonatal Tetanus Cases by Morbidity Week, Philippines, January 1 to December 31, 2018 (N=54)**



##### Geographic Distribution

There has been a **36%** decrease of reported neonatal tetanus cases from 85 cases in 2017 to 54 cases in 2018, same time period. **ARMM** reported the most number of cases (**17, 31%**), followed by Region XII with 8 cases (15%) (Table 7). All regions have maintained the <1/1000 livebirths NT rate under Maternal and Neonatal Tetanus Elimination standards.

**Table 7. Neonatal Tetanus Cases by Region, Philippines, January 1 to December 31, 2018 (N=54) vs. January 1 to December 31, 2017**

REGION	2018			2017		
	Cases	NT rate (per 1,000 livebirths)	Deaths	Cases	NT rate (per 1,000 livebirths)	Deaths
<b>PHL</b>	<b>54</b>	<b>0.02</b>	<b>29</b>	<b>85</b>	<b>0.03</b>	<b>55</b>
I	1	0.01	0	2	0.01	2
II	1	0.01	0	3	0.03	3
III	3	0.01	2	4	0.01	3
IVA	3	0.01	2	4	0.01	2
MIMAROPA	1	0.01	0	9	0.11	7
V	0	0.00	0	4	0.02	3
VI	3	0.01	3	5	0.02	4
VII	1	0.00	1	4	0.02	3
VIII	2	0.02	1	3	0.02	3
IX	3	0.03	2	1	0.01	1
X	6	0.05	3	4	0.03	1
XI	0	0.00	0	1	0.01	0
XII	8	0.06	4	11	0.09	7
ARMM	17	0.15	8	24	0.22	12
CAR	0	0.00	0	0	0.00	0
CARAGA	3	0.04	2	2	0.03	2
NCR	2	0.01	1	4	0.01	2



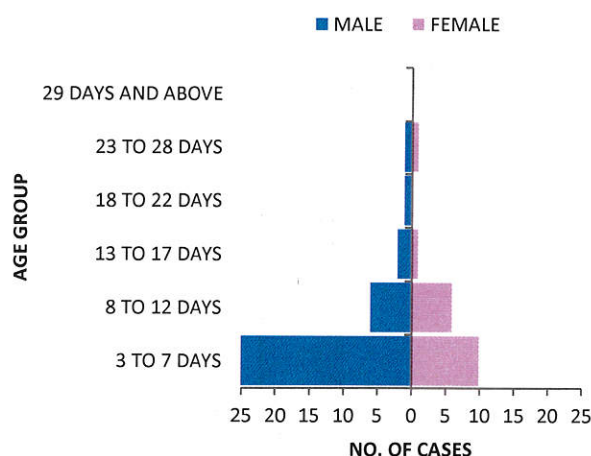


## Profile of Cases

### A. Age group and Sex

Among the clinically-confirmed NT cases, 36 (67%) were **male**. Age of the cases ranged from **3 to 27 days old** (median age of 6 days). More than half of the cases were from the **3 to 7 day age group** (36, 67%), followed by cases 8 to 12 days old (12, 22%) (Figure 24).

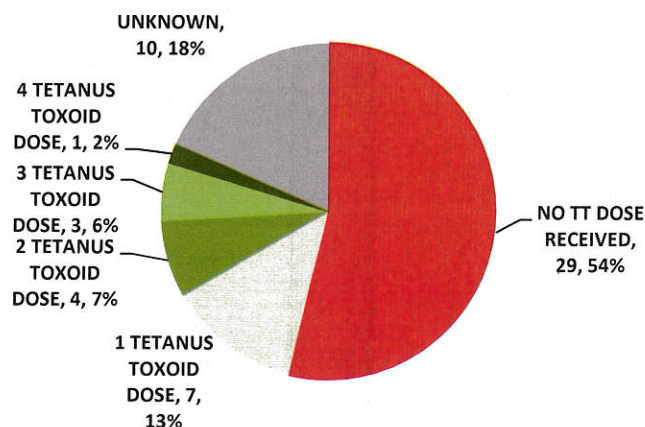
**Figure 24. Clinically Confirmed Neonatal Tetanus Cases by Age Group and Sex, Philippines, January 1 to December 31, 2018 (N=54)**



### B. Vaccination Status

Twenty nine (54%) of the mothers of clinically confirmed cases **did not receive any dose of the tetanus toxoid vaccine**, followed by those with unknown vaccination status (10, 19%). Seven (13%) received only 1 dose, 4 (7%) received 2 doses, 3 (5%) received 3 doses while the remaining 1 (2%) case received 4 doses (Figure 25).

**Figure 25. Clinically Confirmed Neonatal Tetanus Cases by Vaccination Status, Philippines, January 1 to December 31, 2018 (N=54)**



### C. Delivery Practices among Clinically Confirmed Neonatal Tetanus Cases

In terms of delivery practices, 44 (90%) of the neonatal tetanus cases were delivered at home. Thirty four (69%) of the cases were attended by a hilot. Seventeen (35%) cases had scissors as the common cord cutting tool used. Umbilical stump treatment of majority of the NT cases was alcohol (24, 49%) (Table 8).

**Table 8. Delivery Practices of Clinically Confirmed Neonatal Tetanus Cases, Philippines, January 1 to December 31, 2018 (N=54)**

Delivery Practices	No. of Cases	Percentage
<b>Place of Delivery</b>		
Home	44	89%
Hospital/Lying-In/Clinic	3	5%
Others	3	6%
<b>Delivery Attendant</b>		
Hilot	34	63%
Lay Person	7	13%
Midwife	5	9%
Nurse	1	2%
Unknown	4	7%
<b>Cord Cut Tool Used</b>		
Scissors	19	35%
Blade	15	28%
Bamboo	14	26%
Sharpened Wood	1	2%
Unknown	5	9%
<b>Stump Treatment Used</b>		
Alcohol	28	52%
None	4	7%
Cloth	1	2%
Cooking oil	1	2%
Powder	1	2%
Water	1	2%
Cotton	1	2%
Unknown	17	31%

## Profile of Neonatal Tetanus Deaths

There were 29 deaths (CFR=54%) among the 54 neonatal tetanus cases. Ages of deaths ranged from 3 days to 27 days old (median age of 6 days). Deaths came from the following age groups : 3 - 7 days old (19, 66%), 8 - 12 days (6, 21%) and 13 - 17 days (2, 7%). Majority (19, 65%) did not receive a dose of the tetanus toxoid vaccine. Six (21%) had unknown vaccination status, 2 (7%) received 2 doses while those that received 1 dose and 3 doses had 1 case each (3%).





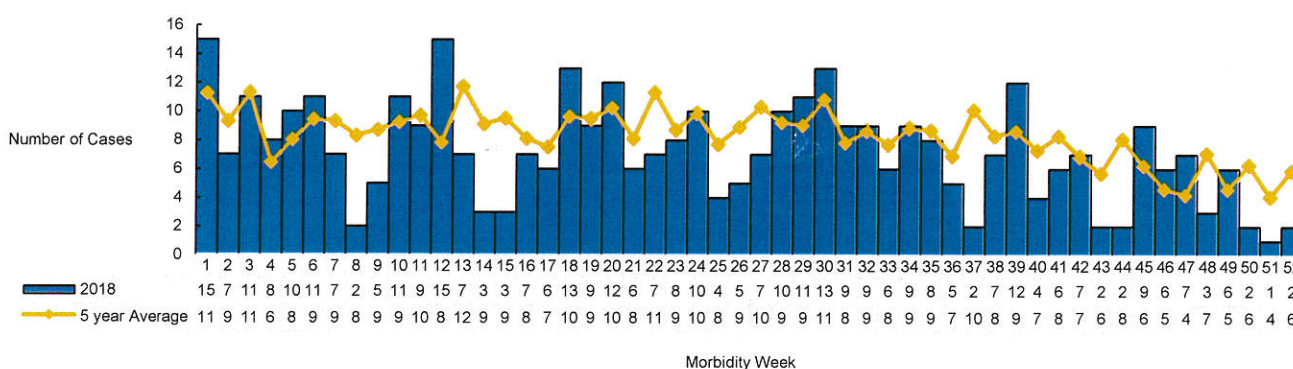
## V. ACUTE FLACCID PARALYSIS

AFP surveillance is an essential strategy which aims to look for poliovirus circulation in the community by investigating all possible polio cases. Its role is to identify high risk areas or groups and certify that the Philippines is still polio-free.

### Trend in the Philippines

A total of **376 AFP** cases were reported nationwide from January 1 to December 31, 2018. The distribution of AFP cases for 2018 compared to the 5-year average of cases from 2013 to 2017 is shown below (Figure 26).

**Figure 26. Trend of Reported AFP Cases (N=376)**  
**Philippines, January 1 to December 31, 2018**



### Geographic Distribution

A total of 376 AFP cases were reported from January to December 31, 2018; while 516 AFP cases were reported during the same time period last year. Among the 376 reported AFP cases, 248 (66%) were discarded as non-polio AFP, while 68 (18%) are still pending for 60 day follow-up, expert panel review and for official laboratory result. There were 60 (16%) reported cases that did not fit the case definition and were classified as not AFP. For this period, the non-polio AFP rate\* is 0.80 which nearly reached the target indicator of 1/100,00 children under 15 years old (Table 9).

**Table 9. Reported AFP Cases by Region and Classification**  
**January 1 to December 31, 2018 vs. January 1 to December 31, 2017**

Region	2018					2017	
	No. of Cases (A)	Discarded as non-polio (B)	Pending (C)	Not AFP (D)	Non-polio AFP Rate (E)	No. of Cases (F)	Non-polio AFP Rate (G)
<b>PHL</b>	<b>376</b>	<b>248</b>	<b>68</b>	<b>60</b>	<b>0.80</b>	<b>516</b>	<b>1.32</b>
I	20	12	4	4	0.82	56	2.84
II	9	7	1	1	0.69	19	1.32
III	50	33	13	4	1.00	68	1.50
IVA	49	27	9	13	0.63	71	1.11
MIMAROPA	6	5	1	0	0.50	5	0.45
V	27	20	5	2	0.99	28	1.23
VI	42	32	6	4	1.45	41	2.48
VII	27	20	6	1	0.87	16	0.68
VIII	18	10	4	4	0.68	23	1.21
IX	13	12	0	1	1.01	16	1.02
X	11	4	0	7	0.26	24	1.15
XI	23	13	3	7	0.83	36	1.66
XII	18	15	0	3	1.02	34	1.88
ARMM	8	3	4	1	0.19	8	0.51
CAR	13	9	3	1	1.64	7	1.09
CARAGA	9	6	3	0	0.73	7	0.69
NCR	33	20	6	7	0.59	57	1.16

**Note:** \*Non-polio AFP Rate is an indicator which measures the sensitivity of surveillance. To meet the minimum level for a polio-free certification, at least one case of non-polio AFP should be detected annually per 100,000 population aged less than 15 years (1/100,000 of children under 15 years old). In endemic regions, to ensure even higher sensitivity, this rate should be two per 100,000. **Cases classified as NOT AFP are excluded from the non-polio AFP rate computation.**



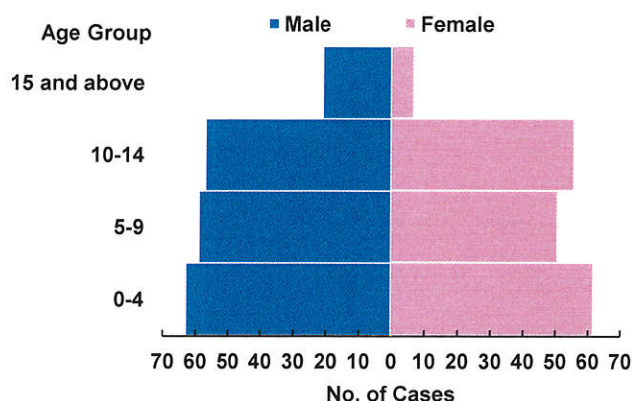


## Profile of Cases

### A. Age group and Sex

Two hundred (200,53%) are males. Age ranges from < 1 month to 56 years (median age of 8 years old). One hundred twenty five (125,33%) of the AFP cases reported belong to 0-4 age group (Figure 27).

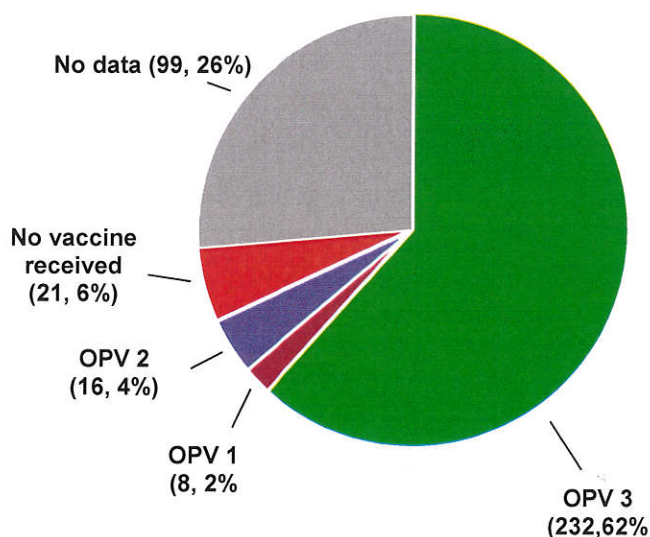
**Figure 27. AFP Cases by Sex and Age Group (N=376)**  
Philippines, January 1 to December 31, 2018



### B. Vaccination Status

Among the 376 reported AFP cases, 232 (62%) completed 3 doses of OPV. Ninety-nine (26%) had no data (Figure 28).

**Figure 28. Vaccination Status of AFP Cases (N=376)**  
Philippines, January 1 to December 31, 2018



### C. Laboratory Status

There were no isolated wild or vaccine-derived poliovirus from January 1 to December 31. Stool 1 was collected in 324 (86%) AFP cases and stool 2 in 296 (79%) of AFP cases. Three cases had poliovirus Sabin-like type 1 and 3 isolated (Table 10).

**Table 10. Laboratory Status of Reported AFP Cases (N=376)**  
Philippines, January 1 to December 31, 2018

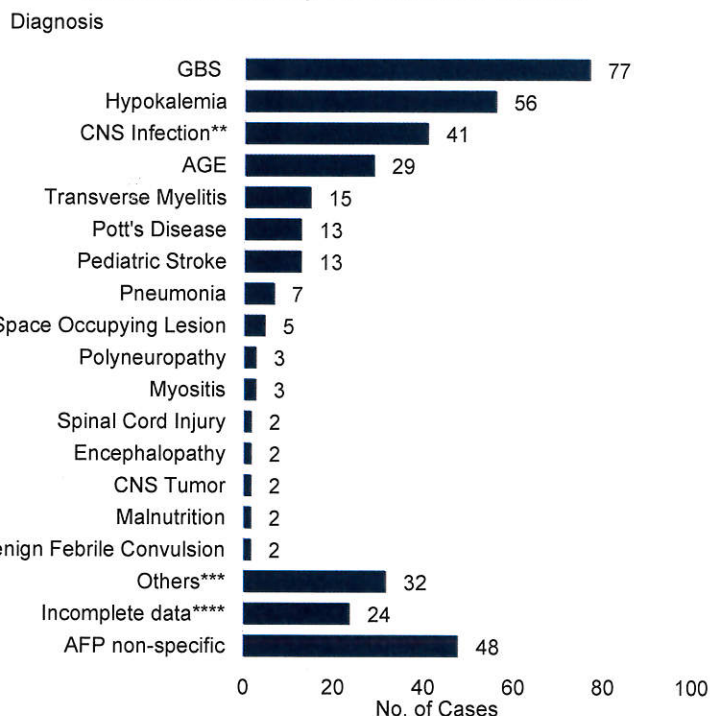
Stool Specimen Result	Stool Specimen 1		Stool Specimen 2	
<b>Total</b>	<b>324</b>	<b>86%</b>	<b>296</b>	<b>79%</b>
Negative for poliovirus	296	91%	270	91%
Others				
Poliovirus (Sabin-Like)*	3	1%	3	1%
Non-polio enterovirus (NPEV)	10	3%	8	3%
Pending Lab Results	15	5%	15	5%

\* PV Sabin like type 1,3 and Sabin like type 3

### D. Differential Diagnosis

The top diagnosis among AFP cases reported were Guillain Barre Syndrome or GBS (77, 20%), Hypokalemia\* (56,15%) and CNS Infection\*\* (41,11%) (Figure 29).

**Figure 29. AFP Cases by Differential Diagnosis (N=376)**  
Philippines, January 1 to December 31, 2018



\*Includes Hypokalemic Periodic Paralysis and Electrolyte Imbalance

\*\*Includes Bacterial Meningitis, TB Meningitis, Aseptic Meningitis

\*\*\*Others : Acute Infarction, Acute Lower Motor Neuron Disease, Acute Tenosynovitis, Cardiac Arrhythmia, Cerebellar Ataxia, Epilepsy, Ileus Azotemia, Suspect Leptospirosis, Lower Motor Weakness, Malnutrition, Rheumatic Fever, Juvenile Rheumatoid Arthritis, SVI, TB Arthritis, Urinary Retention, UTI

\*\*\*\*For verification





**ANNEX A. CLUSTER OF DIPHTHERIA CASES**

MORBIDITY WEEK	REGION	PROVINCE	MUNCITY	BARANGAY	CASES	
					CONFIRMED	SUSPECT
14	4A	CAVITE	DASMARIÑAS	LUZVIMINDA I	0	2
14-15	NCR	METRO MANILA	MANILA	BARANGAY 533	2	0
16-17	NCR	METRO MANILA	CALOOCAN CITY	BARANGAY 166	2	0
17-19	ARMM	BASILAN	MALUSO	TOWNSITE (POB.)	0	3
25-26	5	ALBAY	LEGAZPI CITY	BGY. 53 - BONGA (BGY. 48)	0	2
30	NCR	METRO MANILA	QUEZON CITY	GULOD	2	1
46	NCR	METRO MANILA	MANILA	BGY. 905	2	0
50-51	4A	BATANGAS	LIPA CITY	PLARIDEL	1	15

**ANNEX B. CLUSTER OF PERTUSSIS CASES**

MORBIDITY WEEK	REGION	PROVINCE	MUNCITY	BARANGAY	CASES	
					CONFIRMED	SUSPECT
7-10	2	CAGAYAN	BALLESTEROS	FUGU	1	1
15-19	CAR	BENGUET	ITOGON	LOACAN	6	5
16-17	CAR	BENGUET	BOKOD	DACLAN	1	1
16-18	NCR	METRO MANILA	QUEZON CITY	COMMONWEALTH	1	2
18-20	8	LEYTE	PASTRANA	CALSADAHAY	0	2
18-19	11	DAVAO DEL SUR	DAVAO CITY	MALAMBA	1	1
19-22	NCR	METRO MANILA	QUEZON CITY	TATALON	0	2
19-22	CAR	BAGUIO	BAGUIO CITY	BAKAKENG CENTRAL	3	0
20	NCR	METRO MANILA	QUEZON CITY	HOLY SPIRIT	0	2
20	11	DAVAO DEL SUR	DAVAO CITY	BARANGAY 23-C (POB.)	0	2
22-23	CAR	BENGUET	LA TRINIDAD	BALILI	2	0
23	3	PAMPANGA	ANGELES CITY	CUTCUT	0	2
24-27	11	DAVAO DEL SUR	DAVAO CITY	TALOMO (POB.)	0	3
24	CAR	APAYAO	LUNA	CALABIGAN	2	0
28-31	11	DAVAO DEL SUR	DAVAO CITY	CABANTIAN	0	2
33-35	NCR	METRO MANILA	QUEZON CITY	COMMONWEALTH	0	2
37-38	11	DAVAO DEL SUR	DAVAO CITY	CATALUNAN GRANDE	0	3
41	10	BUKIDNON	LANTAPAN	POBLACION	0	2
44-45	ARMM	LANAO DEL SUR	MARAWI CITY	ROROGAGUS PROPER	0	2