



Morbidity Week 28: January 1 – July 16, 2016

Epidemiology Bureau
Public Health Surveillance Division

Measles-Rubella Surveillance Case Definition

Any individual, regardless of age, with the following signs and symptoms:

- ✓ Fever (38°C) or hot to touch; and
- ✓ Maculopapular rash (non-vesicular); and
- ✓ At least one of the following: cough, coryza (runny nose) and conjunctivitis (red eyes).

Case Confirmation

Collect *blood specimen* from all suspect measles-rubella cases within 28 days of rash onset for confirmation. The National Reference Laboratory of RITM is now doing parallel testing of serum samples for Measles and Rubella IgM.

Oropharyngeal and/or nasopharyngeal swabbing are performed as soon as possible within 5 days of rash onset for virus isolation. The probability that the measles virus can be isolated is highest during the first 3 days of rash onset. (*VPDS Handbook, 2012*)

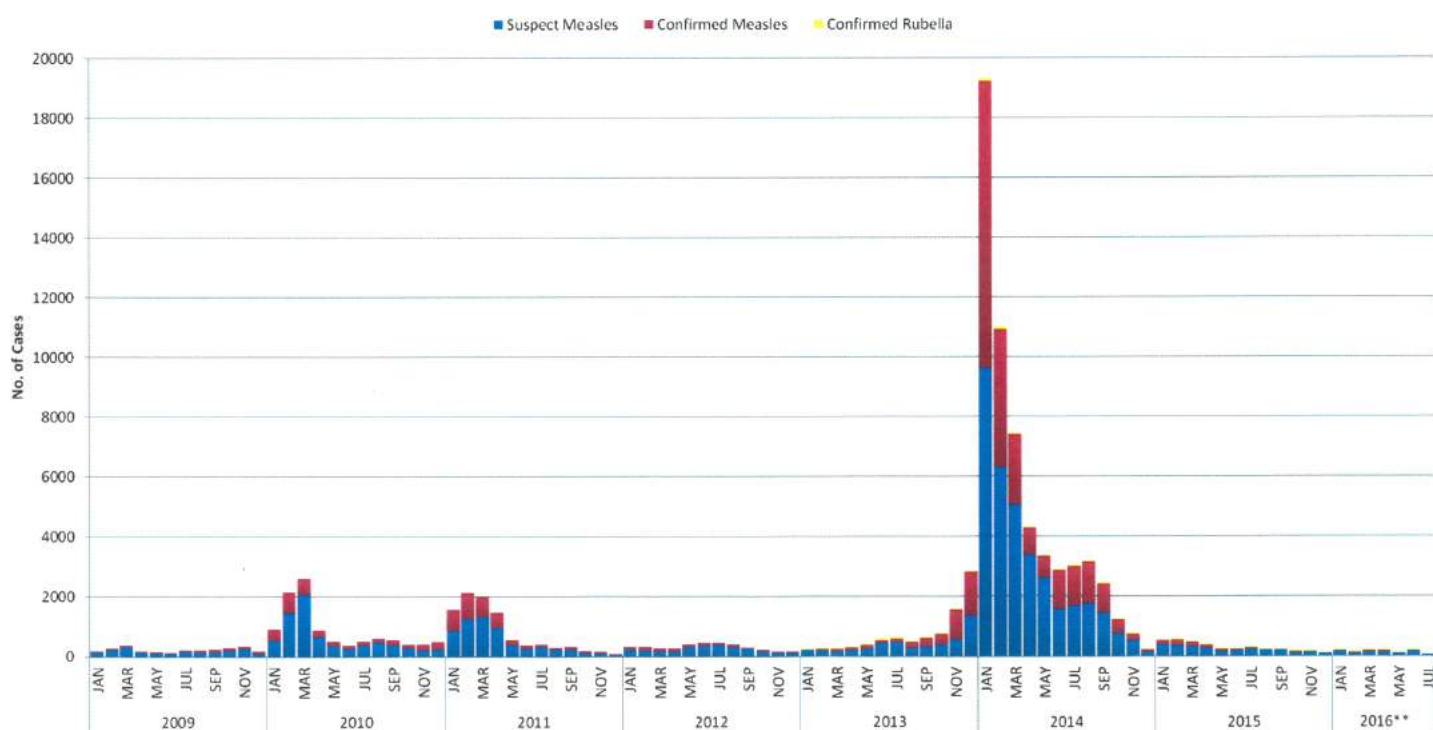
Measles Elimination Goal in the Philippines

Measles elimination goal is the absence of endemic measles virus transmission in a defined geographical area (e.g. region or country) for at least 12 months in the presence of a surveillance system that has been verified to be performing well. It was set in 2005 in the Western Pacific Region. In September 2012, the Regional Committee for the Western Pacific Region encouraged its member states to undertake the challenges for Measles elimination.

The Department of Health through the Epidemiology Bureau takes part in achieving this goal by closely monitoring the standard surveillance indicators to ensure that the Measles elimination goal will be attained and sustained.

Trend in the Philippines

**FIGURE 1. TREND OF MEASLES AND RUBELLA* CASES,
PHILIPPINES, 2009-2016****



*Rubella surveillance integrated in 2013

**partial data as of July 16, 2016

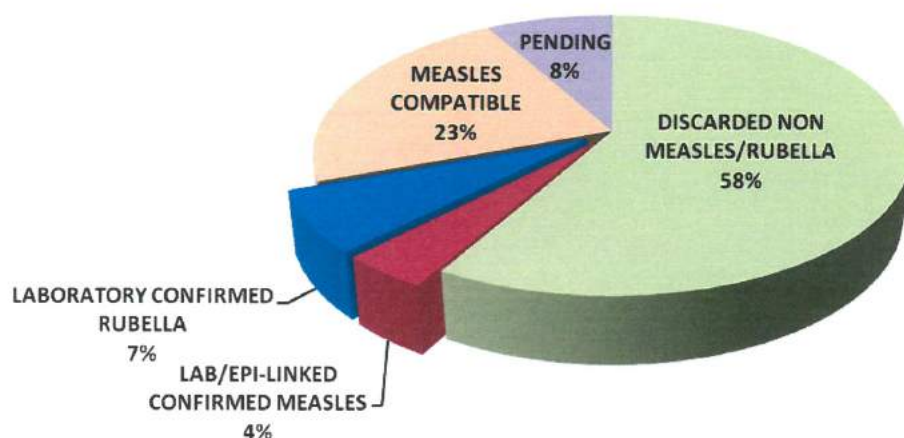


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For the past years, the trend of measles and rubella has been very dynamic. As seen in Figure 1, spikes in the number of cases has been evident in early 2010, early 2011, end of 2013 and year-round in 2014. Despite the country's efforts towards measles elimination, increasing incidence of measles continues to be a challenge. For the past year (2015), 3,708 reported cases equivalent to 6.8/1,000,000 population incidence rate has been obtained. Currently, the Philippines has an incidence rate of **0.73** per 1,000,000 population. Still, efforts should be made in order to sustain the elimination goal of <1/1million population until the end of the year.

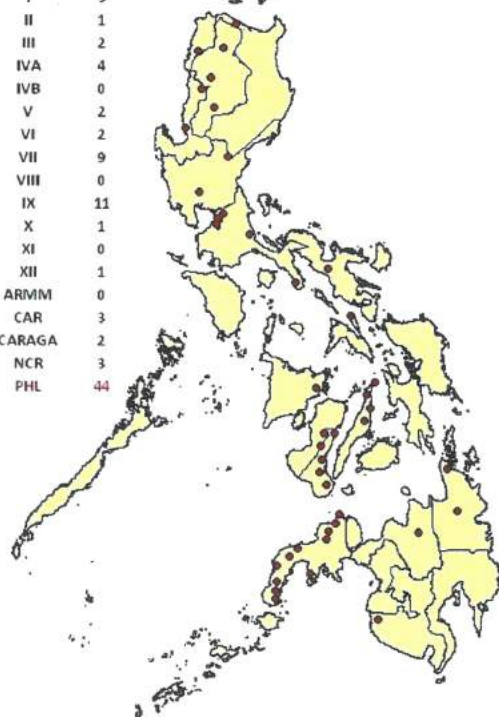
FIGURE 2. DISTRIBUTION OF REPORTED MEASLES-RUBELLA CASES, PHILIPPINES, JANUARY 1 - JULY 16, 2016 (N=1,069)



A total of 1,069 suspect measles cases were reported nationwide from January 1 to July 16, 2016. Of these, 736 were tested. Among the reported cases, 44 cases (4%) were classified as confirmed measles (laboratory or epi-linked confirmed measles). Seventy five cases (7%) were classified as laboratory confirmed rubella. Currently, there were no reported deaths among the confirmed measles cases (CFR=0.00%).

Confirmed Measles
(n=44)

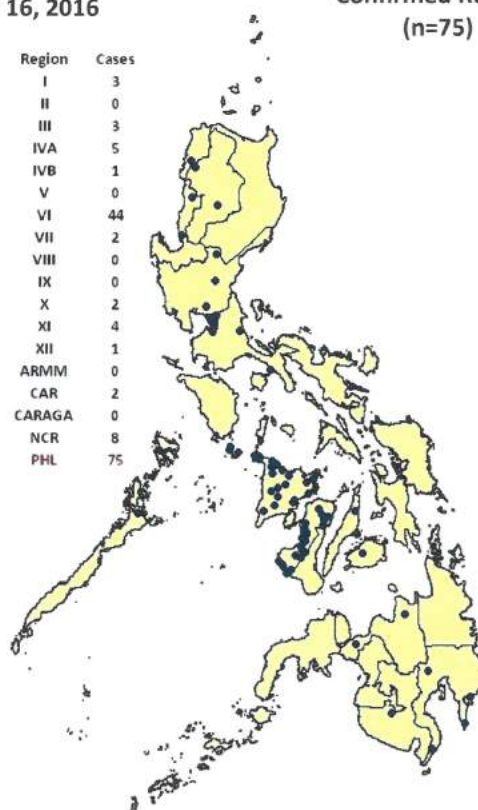
Region	Cases
I	3
II	1
III	2
IVA	4
IVB	0
V	2
VI	2
VII	9
VIII	0
IX	11
X	1
XI	0
XII	1
ARMM	0
CAR	3
CARAGA	2
NCR	3
PHL	44



Geographical Distribution of Confirmed Cases, Philippines, January 1 – July 16, 2016

Confirmed Rubella
(n=75)

Region	Cases
I	3
II	0
III	3
IVA	5
IVB	1
V	0
VI	44
VII	2
VIII	0
IX	0
X	2
XI	4
XII	1
ARMM	0
CAR	2
CARAGA	0
NCR	8
PHL	75



Legend
1 DOT = 1 Case

The maps above show the distribution of cases among regions. Twenty five percent (25%) of the confirmed measles cases came from Region IX (11 cases) while 59% of the confirmed rubella cases were from Region VI (44 cases). Community measles transmission was detected in Region IX while a school-based rubella transmission was identified in Region VI.



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TABLE 1. MEASLES AND RUBELLA CASES BY REGION
PHILIPPINES, JANUARY 1 – JULY 16, 2016 (N=1,069)

REGION	POPULATION 2016	TARGET 2/100K	REPORTED	CONFIRMED MEASLES		MEASLES COMPATIBLE	LABORATORY CONFIRMED RUBELLA	DISCARDED AS NON-MEASLES/RUBELLA	PENDING CLASSIFICATION
				LABORATORY CONFIRMED	EPI-LINKED CONFIRMED				
1	5,113,827	102	78	3	0	34	3	34	4
2	3,510,762	70	40	1	0	5	0	29	5
3	11,534,111	231	62	2	0	9	3	45	3
4A	15,172,632	303	99	3	1	20	5	62	8
4B	3,057,039	61	30	0	0	10	1	15	4
5	5,920,478	118	16	2	0	2	0	12	0
6	7,703,570	154	186	2	0	6	44	133	1
7	7,565,674	151	53	9	0	1	2	38	3
8	4,430,334	89	39	0	0	32	0	2	5
9	3,814,158	76	50	10	1	9	0	22	8
10	4,865,413	97	135	1	0	64	2	35	33
11	5,033,163	101	49	0	0	6	4	35	4
12	4,768,455	95	48	1	0	5	1	39	2
ARMM	3,566,757	71	6	0	0	2	0	1	3
CAR	1,792,078	36	46	3	0	6	2	35	0
CRG	2,657,380	53	23	2	0	10	0	11	0
NCR	13,205,216	264	109	3	0	20	8	74	4
PHL	103,711,049	2,074	1,069	42	2	241	75	622	87

From last month's surveillance report, 3 additional cases were confirmed as measles through serum testing. Rubella cases increased also from 72 to 75 cases for the current month. Measles compatible cases increased by 40% from the June case counts which implies decreased compliance in serum collection for laboratory confirmation.

TABLE 2. CONFIRMED MEASLES CASES AND DEATHS BY REGION
PHILIPPINES, 2015 vs. 2016*

REGION	CASES			DEATHS			
	2016	2015	% CHANGE	2016	CFR (%)	2015	CFR (%)
1	3	5	↓ -40.00	0	0.00	0	0.00
2	1	14	↓ -92.86	0	0.00	0	0.00
3	2	5	↓ -60.00	0	0.00	0	0.00
4A	4	14	↓ -71.43	0	0.00	0	0.00
4B	0	2	↓ -100.00	0	0.00	0	0.00
5	2	1	↑ 100.00	0	0.00	0	0.00
6	2	61	↓ -96.72	0	0.00	0	0.00
7	9	44	↓ -79.55	0	0.00	0	0.00
8	0	20	↓ -100.00	0	0.00	0	0.00
9	11	102	↓ -89.22	0	0.00	0	0.00
10	1	63	↓ -98.41	0	0.00	0	0.00
11	0	122	↓ -100.00	0	0.00	2	1.64
12	1	70	↓ -98.57	0	0.00	0	0.00
ARMM	0	16	↓ -100.00	0	0.00	1	6.25
CAR	3	37	↓ -91.89	0	0.00	0	0.00
CRG	2	63	↓ -96.83	0	0.00	0	0.00
NCR	3	16	↓ -81.25	0	0.00	0	0.00
PHL	44	655	↓ -93.28	0	0.00	3	0.46

* as of July 16, 2016

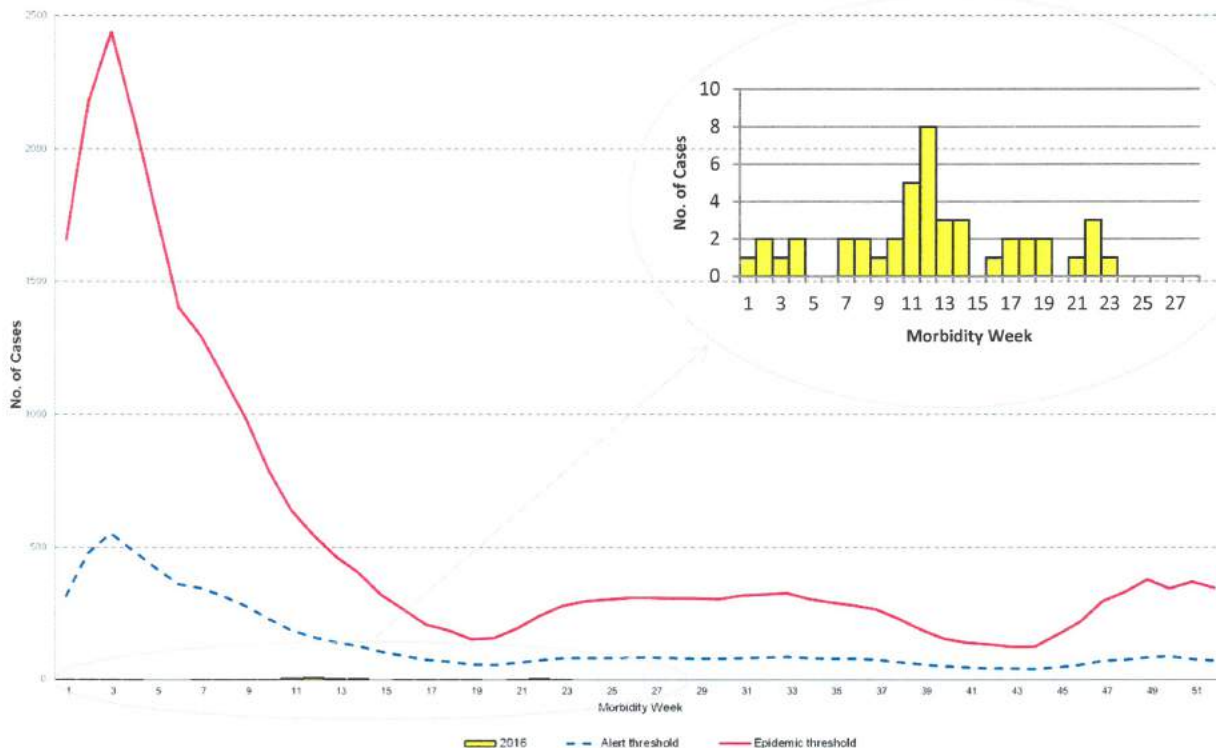
The number of confirmed measles cases decreased significantly in 2016 (93.28%) compared to last year's cases of the same time period (see Table 2).



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**FIGURE 3. CONFIRMED MEASLES ALERT AND EPIDEMIC THRESHOLD
PHILIPPINES, JANUARY 1 – JULY 16, 2016* (n=44)**



*NOTE: Case counts reported here do NOT represent the final number and are subject to change after inclusion of delayed reports and review of cases.

Figure 3 reflects the current number of confirmed measles cases in relation with the measles alert and epidemic threshold. It can be noted that the number of measles cases is still way below the threshold.

Identified Clusters of Confirmed Measles and Rubella Among Regions

No new clusters identified after last week's report. Below is the list of clusters identified since January 2016:

Morbidity Week	Disease	Region	Province	Muncity	Barangay	Place of Transmission	No. of Cases
12	Measles	Region 9	Zamboanga del Norte	Kalawit	Palalian	Community	6
2-5	Rubella	Region 6	Antique	Tobias Fornier	-	School	13
9-13							7

Actions Taken in Regions with Identified Clusters of Confirmed Measles and Rubella:

Region 9:

1. Mop-up immunization in the affected barangay and in neighboring barangays (April)
2. Active case finding and continuous monitoring

Region 6:

1. Coordination from municipal to regional levels
2. Immunization of close contacts and community catch-up immunization (March)
3. Contact tracing and continuous monitoring



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TABLE 3. MEASLES SURVEILLANCE INDICATORS* BY REGION
PHILIPPINES, 2015 vs. 2016**

REGION	POPULATION 2016	ANNUALIZED MEASLES INCIDENCE RATE		BLOOD ADEQUACY RATE		SUSPECT MEASLES CASES ADEQUATELY INVESTIGATED		ANNUALIZED SUSPECT MEASLES REPORTING RATE		ANNUALIZED NON- MEASLES/ NON- RUBELLA RATE		MEASLES COMPATIBLE %	
		Target: <1/1,000,000 Pop.		Target: ≥80%		Target: ≥80%		Target: ≥2/100,000 Pop.		Target: ≥2/100,000 Pop.		Target: <10%	
		2015	2016	2015	2016	2015	2016	2015	2016	2015	2016	2015	2016
1	5,113,827	1.58	1.01	76	54	66	50	3.27	2.61	1.96	1.14	30	44
2	3,510,762	4.04	0.49	73	80	70	78	3.61	1.95	1.33	1.42	49	13
3	11,534,111	0.71	0.30	85	87	80	76	1.40	0.92	1.00	0.67	18	15
4A	15,172,632	1.29	0.45	64	77	57	68	2.41	1.12	1.17	0.70	40	20
4B	3,057,039	1.00	0.00	47	57	38	53	2.83	1.68	0.93	0.84	55	33
5	5,920,478	0.17	0.58	96	94	92	94	0.41	0.46	0.33	0.35	13	13
6	7,703,570	8.29	0.45	97	96	89	87	5.10	4.14	3.12	2.96	7	3
7	7,565,674	6.86	2.04	98	98	86	92	2.14	1.20	1.14	0.86	5	2
8	4,430,334	4.80	0.00	20	18	16	13	4.59	1.51	0.11	0.08	87	82
9	3,814,158	28.04	4.94	70	67	62	62	10.81	2.25	4.03	0.99	35	18
10	4,865,413	13.42	0.35	43	51	42	44	6.94	4.76	0.78	1.23	69	47
11	5,033,163	25.12	0.00	92	90	87	84	6.04	1.67	2.15	1.19	20	12
12	4,768,455	17.40	0.36	60	88	57	79	8.12	1.73	2.94	1.40	42	10
ARMM	3,566,757	4.55	0.00	47	67	46	67	2.33	0.29	0.34	0.05	66	33
CAR	1,792,078	21.56	2.87	90	80	87	80	9.02	4.40	5.45	3.35	14	13
CRG	2,657,380	24.05	1.29	74	57	64	57	6.07	1.48	1.79	0.71	30	43
NCR	13,205,216	1.39	0.39	60	79	50	72	1.82	1.42	0.87	0.96	39	18
PHL	103,711,049	6.85	0.73	70	75	64	69	3.64	1.77	1.48	1.03	36	23
LEGEND:		<1	>1	≥80%	<80%	≥80%	<80%	≥2/100,000 Pop.	≤2/100,000 Pop.	≥2/100,000 Pop.	≤2/100,000 Pop.	<10%	>50%

*see Annex B

** as of July 16, 2016

Table 3 presents the current surveillance performance of regions based on the indicators for measles surveillance. Countrywide incidence rate of 0.73 per 1,000,000 population has been achieved, reaching the target of <1 per 1,000,000 population. Regions I, VII, IX, CAR and CARAGA did not meet the target which implies increased occurrence of measles in these regions.

For the blood adequacy rate, the country achieved 75% which is below the ≥80% target. This is a reflection of the decreased compliance in serum collection among all suspected measles cases. This may pose risks of under or overestimation of measles and rubella cases since not all cases are confirmed through laboratory testing. Only 8 out of 17 regions have reached the target of blood adequacy.

In adequately investigating suspect measles cases, only 5 regions, namely, Regions V, VI, VII, XI and CAR, have attained the ≥80% target. Overall, the country is not performing well in adequately investigating all the suspect measles cases reported. If cases are inadequately investigated, the sensitivity and performance of epidemiological surveillance to track sources of infection or establish evidences of measles transmission will be compromised.

The non-measles/non-rubella rate surveillance target has not been attained by almost all of the regions. Only Regions VI and CAR have been reporting cases fitting in the case definition but were discarded through laboratory confirmation. This may be an indication of active case finding in their surveillance units.

Measles compatible cases are cases which fit the case definition but for which no adequate blood specimen were taken and have not been linked epidemiologically to other case positive for measles. This is related to the blood adequacy rate indicator in which blood collection is being measured. Twenty three percent measles compatibility is still an acceptable value but may be brought down to the <10% target to ensure that all reported cases are being confirmed through laboratory testing.

These surveillance indicators gauges the capacity of the country in achieving the measles elimination goal. Analyzing the overall performance of all the surveillance indicators, the country needs a joint effort among regions in order to cope up with these targets. Intensification of active surveillance should be initiated across the country in order to reach the targets towards measles elimination.



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Profile of Cases

Measles

Fifty seven percent (57%) of the confirmed measles cases were female. Majority of the confirmed cases belonged to children aged 1 to 5 years old (34%) as shown in Figure 4. Among the confirmed measles cases, 22 (50%) were not vaccinated, 18 (41%) were vaccinated and 4 (9%) have an unknown vaccination status (Figure 5).

FIGURE 4. CONFIRMED MEASLES CASES BY AGE GROUP AND SEX
PHILIPPINES, JANUARY 1- JULY 16, 2016 (n=44)

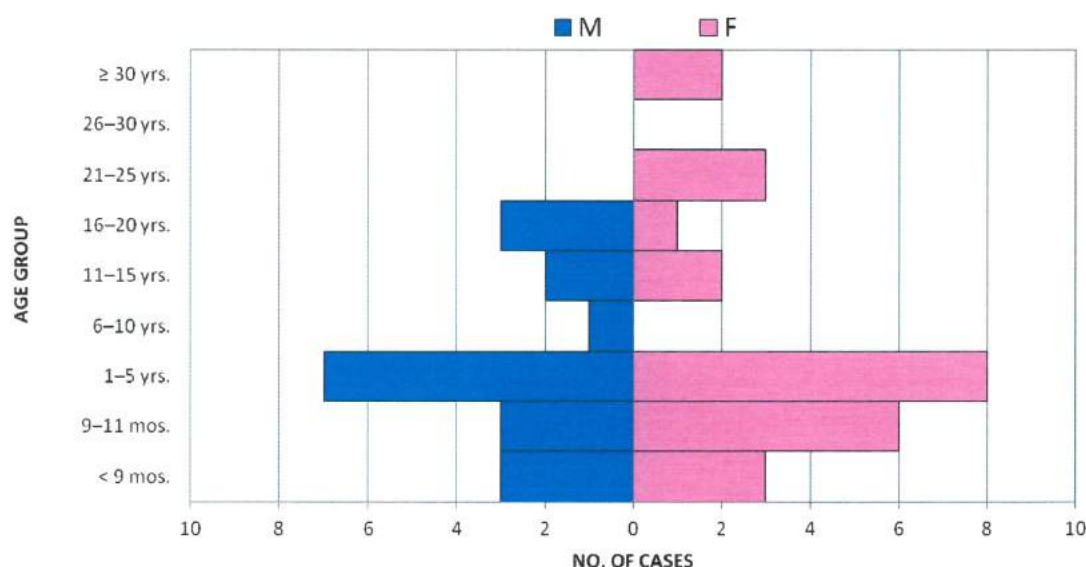
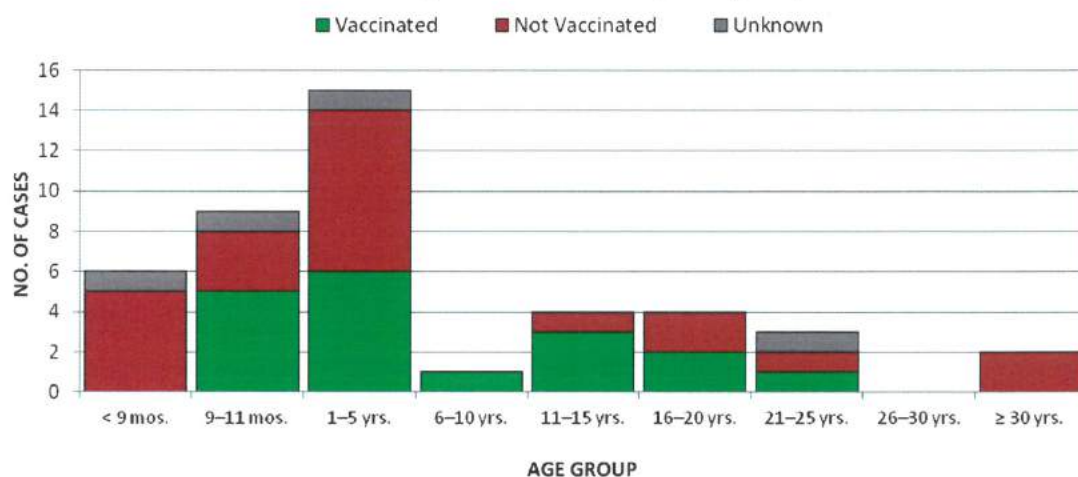


FIGURE 5. IMMUNIZATION STATUS OF CONFIRMED MEASLES CASES BY AGE GROUP
PHILIPPINES, JANUARY 1 - JULY 16, 2016 (n=44)



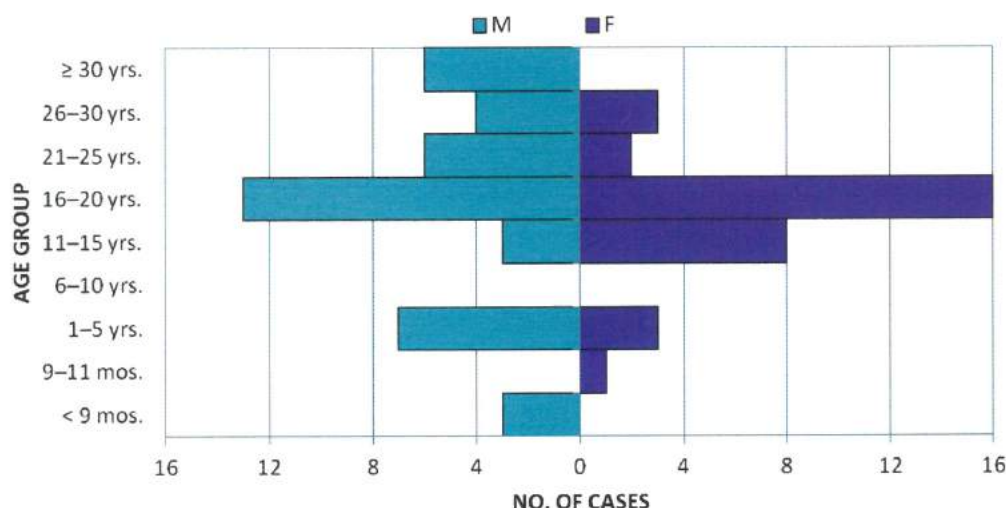
NOTE: Case counts reported here do NOT represent the final number and are subject to change after inclusion of delayed reports and review of cases.



Rubella

Fifty six percent (56%) of the confirmed rubella cases were male. Majority of the confirmed cases belonged to the young adult age group ranging from 16 to 20 years old (39%) as shown in Figure 6. Among the female confirmed rubella cases, there were 4 pregnant cases, all tested negative for measles and rubella IgM. (*Pregnancy data source: CIF encoded by RITM*)

**FIGURE 6. CONFIRMED RUBELLA CASES BY AGE GROUP AND SEX
PHILIPPINES, JANUARY 1- JULY 16, 2016 (n=75)**



NOTE: Case counts reported here do NOT represent the final number and are subject to change after inclusion of delayed reports and review of cases.

Annex A. Definition of Terms

Laboratory confirmed measles case	☞ A suspect measles case with a positive laboratory test result for measles-specific IgM antibodies or other approved laboratory test method
Laboratory confirmed rubella case	☞ A suspect measles case with a positive laboratory test result for rubella-specific IgM antibodies or other approved laboratory test method
Measles compatible case	☞ A case that meets the suspect case definition for measles but for which no adequate blood specimen was taken and which has not been linked epidemiologically to another case positive for measles IgM or another laboratory-confirmed communicable disease
Confirmed Measles cases	☞ Laboratory confirmed + Epidemiologically-linked measles cases
Epidemiologically-linked measles (or rubella) case	☞ A suspect measles case that has not been confirmed by laboratory but that is geographically AND temporally related (with dates of rash onset occurring between 7 and 21 days apart) to a laboratory-confirmed case or (in the event of an outbreak) to another epidemiologically confirmed measles case.
Discarded as non-measles/non-rubella	☞ A case that meets the clinical case definition for measles and discarded as non-measles/rubella case.
Pending Classification	☞ Cases with blood specimen collected and pending laboratory results.
Alert threshold	☞ Refers to the level of occurrence of disease that serves as an early warning for epidemics. An increase in the number of cases above the threshold level should trigger an investigation, epidemic preparedness and implement appropriate prevention and control measures.



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Epidemic threshold

Refers to the level of occurrence of disease above which an urgent response is required. The threshold is specific to each disease and depends on the infectiousness, other determinants of transmission and local endemicity levels.

Annex B. Measles Surveillance Indicators

Measles incidence rate*, target: $<1/1,000,000$ of the total population. It measures the progress of a country towards measles elimination. High incidence rate indicates persistence of measles transmission in some areas.

Suspect Measles Reporting Rate (or Measles Rate)*, target: >2 per 100,000 of the total population. It measures the ability to detect suspect measles cases. Reporting an adequate number of suspected cases provides confidence that the system is sensitive to detect measles cases.

Non-Measles Reporting Rate*, target: >2 per 100,000 of the total population. If non-measles reporting rate is equal or proportion to the number of suspected measles cases in all regions, it gives us higher chance in attaining our goal of measles elimination.

Adequacy of blood specimen (blood adequacy rate), target: $\geq 80\%$ adequate specimen collection rate. This will facilitate the specificity (ability to determine measles virus as the cause of illness) of reported measles cases. With adequate specimen collection there will be an access to identify the circulating measles virus in the community.


Timeliness of investigation, provides venue to prevent further transmission of measles cases in the community, furthermore, provides immediate response to prevent potential outbreaks. Its target rate is $>80\%$ of cases were investigated within 48 hours of notification.

*Annualized rate, measures the incidence or reporting in a period of 1 year. This is computed by the number of specific measles cases over the target measles cases divided by 12 months then multiplied by the number of months to be analyzed.

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