



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. 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.

Classification of Suspect Measles-Rubella Cases

A total of 2,024 suspect measles-rubella cases were reported nationwide from January 1 to December 3, 2016. Of these, 1,496 were tested. Among the suspect cases, 71 (3.5%) were classified as confirmed measles (laboratory or epi-linked confirmed measles). One hundred fifty four cases (7.6%) were classified as laboratory confirmed rubella (Figure 1). Currently, there were no reported deaths among the confirmed measles-rubella cases.

FIGURE 1. CLASSIFICATION OF SUSPECT MEASLES-RUBELLA CASES, PHILIPPINES, JANUARY 1 – DECEMBER 3, 2016 (N=2,024)

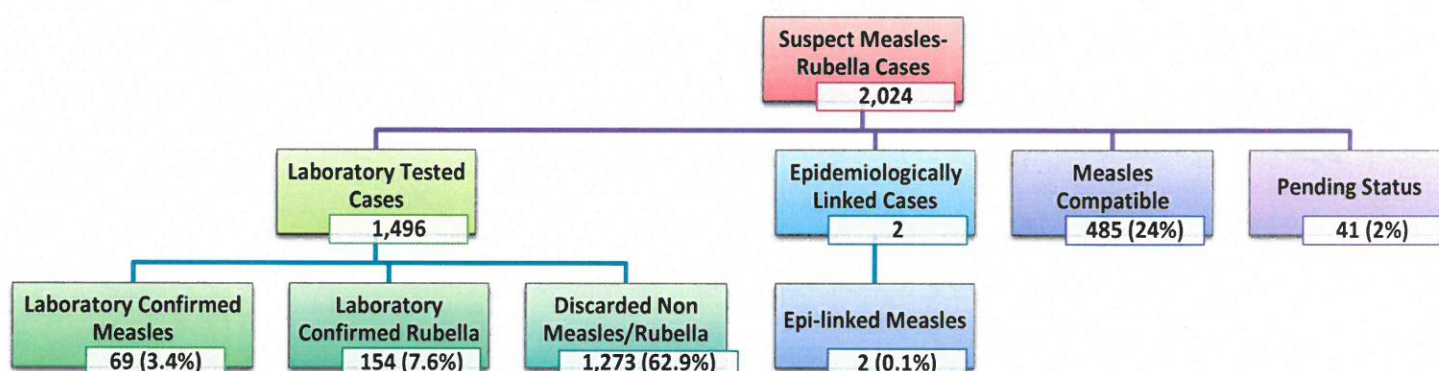


TABLE 1. MEASLES AND RUBELLA CASES BY REGION PHILIPPINES, JANUARY 1 – DECEMBER 3, 2016 (N=2,024)

REGION	REPORTED	CONFIRMED MEASLES		MEASLES COMPATIBLE	LABORATORY CONFIRMED RUBELLA	DISCARDED AS NON-MEASLES/RUBELLA	PENDING CLASSIFICATION
		LABORATORY CONFIRMED	EPI-LINKED CONFIRMED				
I	188	7	0	106	5	67	3
II	59	2	0	11	0	46	0
III	135	2	0	20	7	104	2
IVA	263	11	1	57	21	169	4
IVB	52	0	0	22	2	27	1
V	54	3	0	1	6	36	8
VI	296	4	0	10	55	227	0
VII	94	10	0	4	5	75	0
VIII	71	2	0	53	3	13	0
IX	67	11	1	27	0	28	0
X	224	2	0	89	5	112	16
XI	95	1	0	11	5	77	1
XII	71	1	0	8	2	58	2
ARMM	12	2	0	6	0	4	0
CAR	74	3	0	8	8	54	1
CRG	50	2	0	14	0	34	0
NCR	219	6	0	38	30	142	3
PHL	2,024	69	2	485	154	1,273	41



Morbidity Week 48: January 1 – December 3, 2016

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From morbidity week 44 (January 1 – November 5, 2016) surveillance report, 5 additional cases were confirmed as measles through serum testing. Rubella cases increased also from 122 to 154 cases. Measles compatible cases increased by 20% from the morbidity week 44 case counts which implies decreased compliance in serum collection for laboratory confirmation.

TABLE 2. GEOGRAPHICAL DISTRIBUTION OF CONFIRMED CASES, PHILIPPINES, JANUARY 1 – DECEMBER 3, 2016

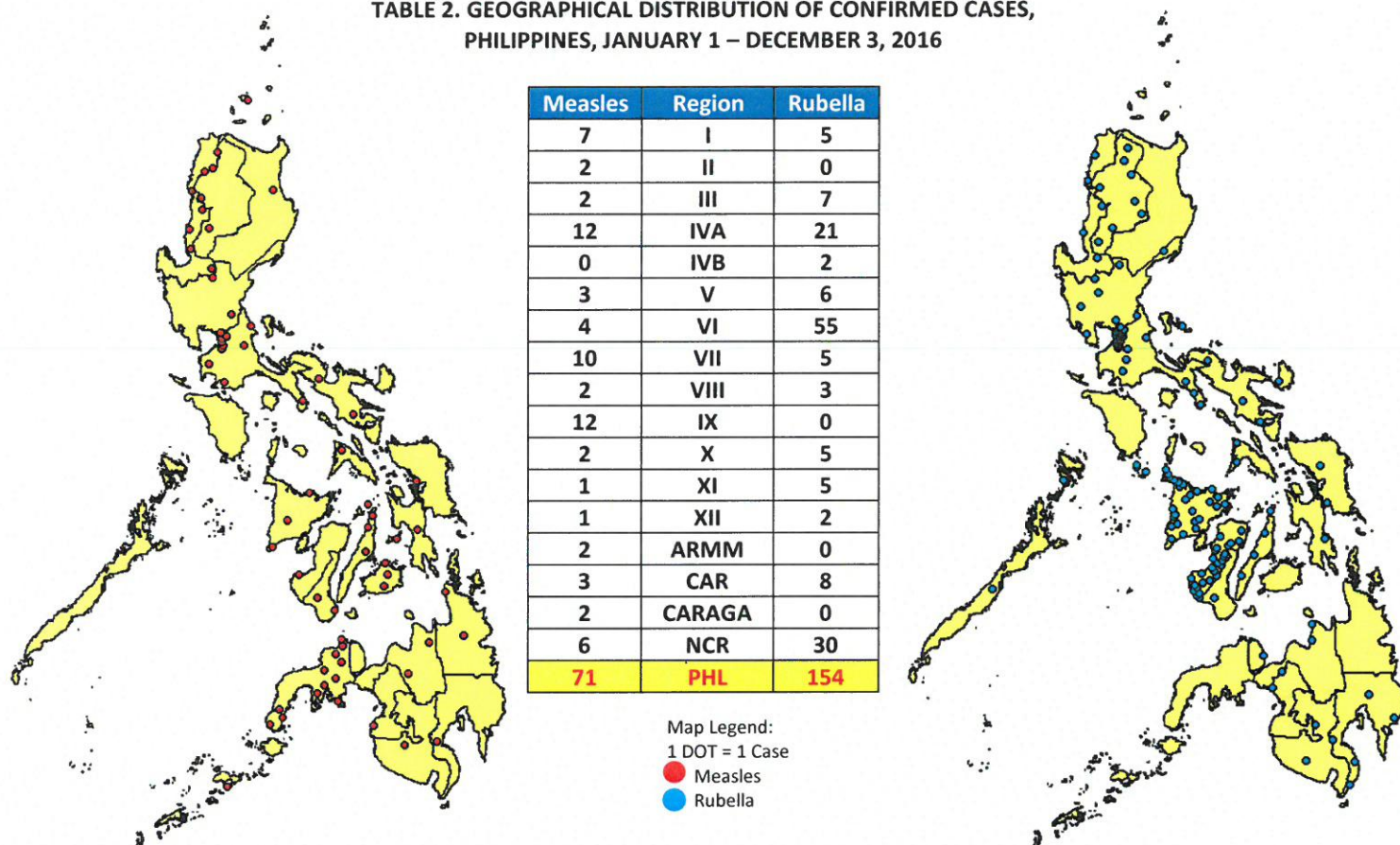


Table 2 and the maps above show the distribution of cases among regions. Regions IVA and IX have the highest confirmed measles cases (12 cases, 17% for each region). Thirty six percent (36%) of the confirmed rubella cases were from Region VI (55 cases).

**TABLE 3. NEWLY CONFIRMED CASES
MW44 – MW48 (n=37)**

Region	Measles	Rubella
I	2	1
III	0	1
IVA	1	13
IVB	0	1
V	0	3
VI	0	1
VII	0	1
X	0	2
XI	1	0
ARMM	1	0
NCR	0	9
PHL	5	32

**TABLE 4. IDENTIFIED CLUSTERS OF CONFIRMED MEASLES AND RUBELLA
JANUARY 1 – DECEMBER 3, 2016**

MW	Disease	Region	Province	Muncity	Barangay	Place of Transmission	No. of Cases
11	Measles	NCR	Metro Manila	Pasay City	Brgy. 46	Unknown	2
12	Measles	IX	Zamboanga del Norte	Kalawit	Palalian	Community	6
2-5	Rubella	VI	Antique	Tobias Fornier	-	School	13
9-13							7
33	Rubella	NCR	Metro Manila	Parañaque City	Tambo	Unknown	2
39-41	Measles	NCR	Metro Manila	Manila City	Santa Cruz	Unknown	2
42-43	Measles	IVA	Cavite	Dasmariñas City	San Roque San Miguel	Barangay	2
45	Rubella	NCR	Metro Manila	San Juan City	West Crame	Unknown	2

One new cluster has been identified between morbidity weeks 44-48. Above is the list of clusters identified since January 2016.

Region IVA has a notable increase in number of laboratory confirmed rubella cases.



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Actions Taken for Newly Identified Cluster and Increasing Cases

1. Notified the VPDSO of NCR and Region IVA for validation of linkages between cases and active search for other cases.
2. Communicated with the National Immunization Program at the central level regarding identified cluster.

**TABLE 5. CONFIRMED MEASLES CASES AND DEATHS BY REGION
PHILIPPINES, 2015 vs. 2016***

REGION	CASES			DEATHS			
	2016	2015	% CHANGE	2016	CFR (%)	2015	CFR (%)
I	7	8	↓ -12.50	0	0.00	0	0.00
II	2	14	↓ -85.71	0	0.00	0	0.00
III	2	8	↓ -75.00	0	0.00	0	0.00
IVA	12	18	↓ -33.33	0	0.00	0	0.00
IVB	0	3	↓ -100.00	0	0.00	0	0.00
V	3	1	↑ 200.00	0	0.00	0	0.00
VI	4	63	↓ -93.65	0	0.00	0	0.00
VII	10	50	↓ -80.00	0	0.00	0	0.00
VIII	2	20	↓ -90.00	0	0.00	0	0.00
IX	12	105	↓ -88.57	0	0.00	0	0.00
X	2	64	↓ -96.88	0	0.00	0	0.00
XI	1	122	↓ -99.18	0	0.00	2	1.64
XII	1	81	↓ -98.77	0	0.00	0	0.00
ARMM	2	15	↓ -86.67	0	0.00	1	6.67
CAR	3	38	↓ -92.11	0	0.00	0	0.00
CRG	2	63	↓ -96.83	0	0.00	0	0.00
NCR	6	18	↓ -66.67	0	0.00	0	0.00
PHL	71	691	↓ -89.73	0	0.00	3	0.43

* as of December 3, 2016

The number of confirmed measles cases decreased significantly in 2016 (89.73%) compared to last year's cases of the same time period (see Table 5).

**FIGURE 3. CONFIRMED MEASLES ALERT AND EPIDEMIC THRESHOLD
PHILIPPINES, JANUARY 1 – DECEMBER 3, 2016 (n=71)**

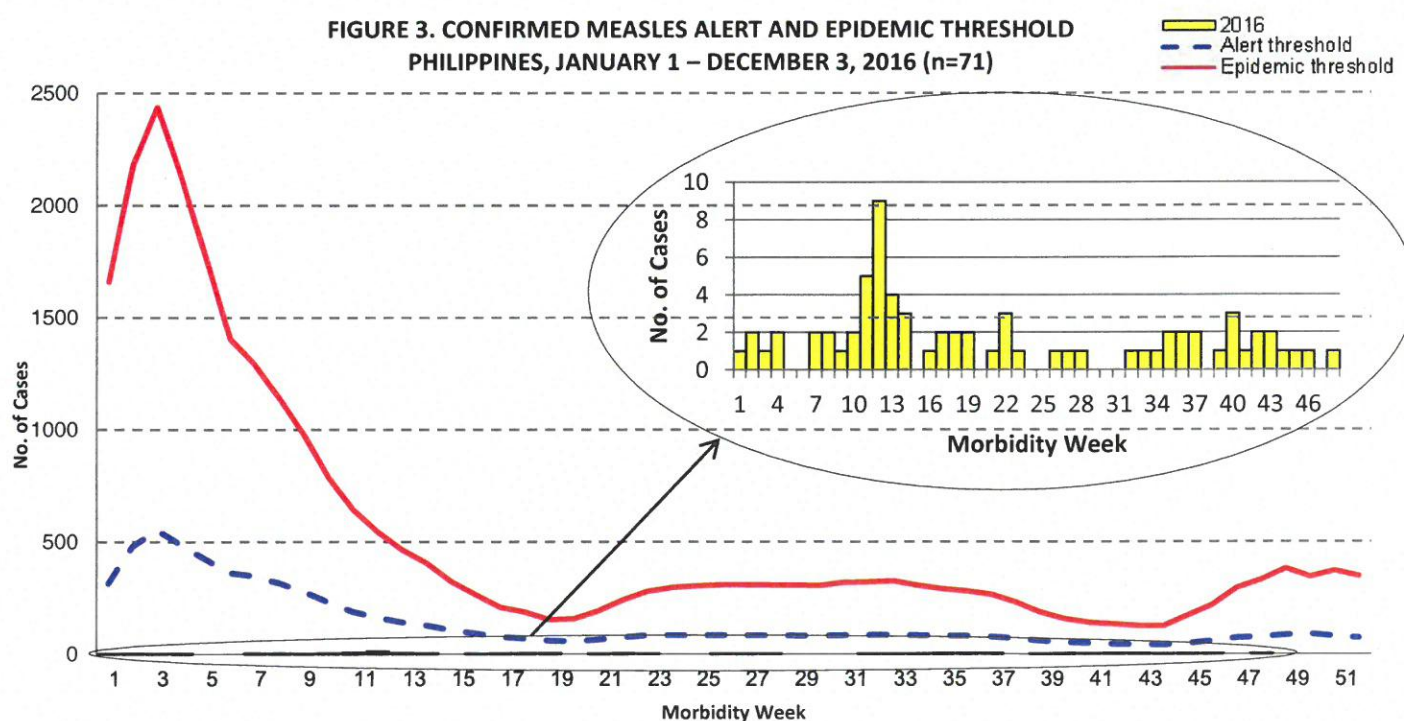




Figure 3 reflects the current number of confirmed measles cases in relation with the measles alert and epidemic thresholds. It can be noted that the number of measles cases is still way below the alert threshold.

Virus Isolation and Genotyping

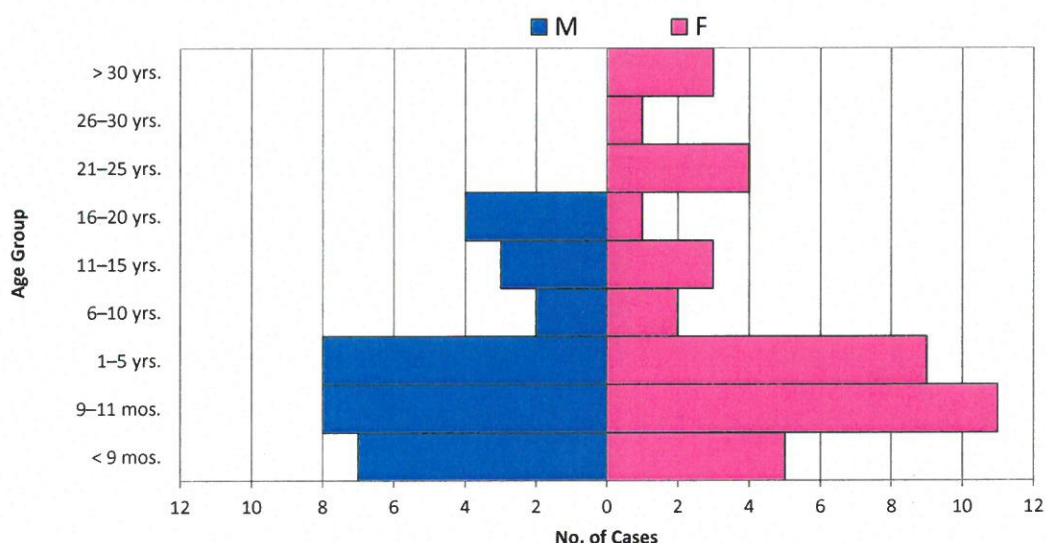
There were 60 oropharyngeal/nasopharyngeal swab samples submitted since January 2016. Among these, 7 have rubella virus isolates. Genotype identified for all the cases was 2B. None of the samples tested positive for measles virus.

Profile of Cases

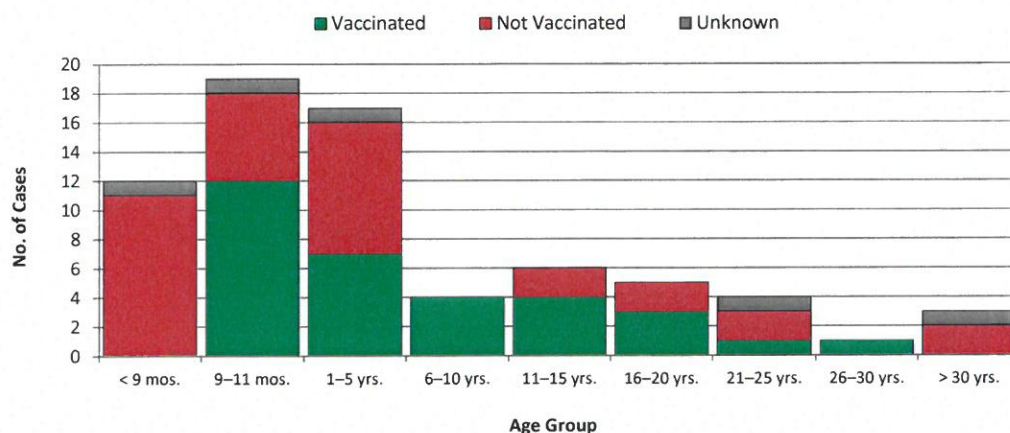
Measles

Fifty five percent (55%) of the confirmed measles cases were female. Majority of the confirmed cases belonged to children aged 9 to 11 months old (27%) as shown in Figure 4. Among the confirmed measles cases, 34 (48%) were not vaccinated, 32 (45%) were vaccinated and 5 (7%) have an unknown vaccination status (Figure 5).

**FIGURE 4. CONFIRMED MEASLES CASES BY AGE GROUP AND SEX
PHILIPPINES, JANUARY 1- DECEMBER 3, 2016 (n=71)**



**FIGURE 5. IMMUNIZATION STATUS OF CONFIRMED MEASLES CASES BY AGE GROUP
PHILIPPINES, JANUARY 1 - DECEMBER 3, 2016 (n=71)**



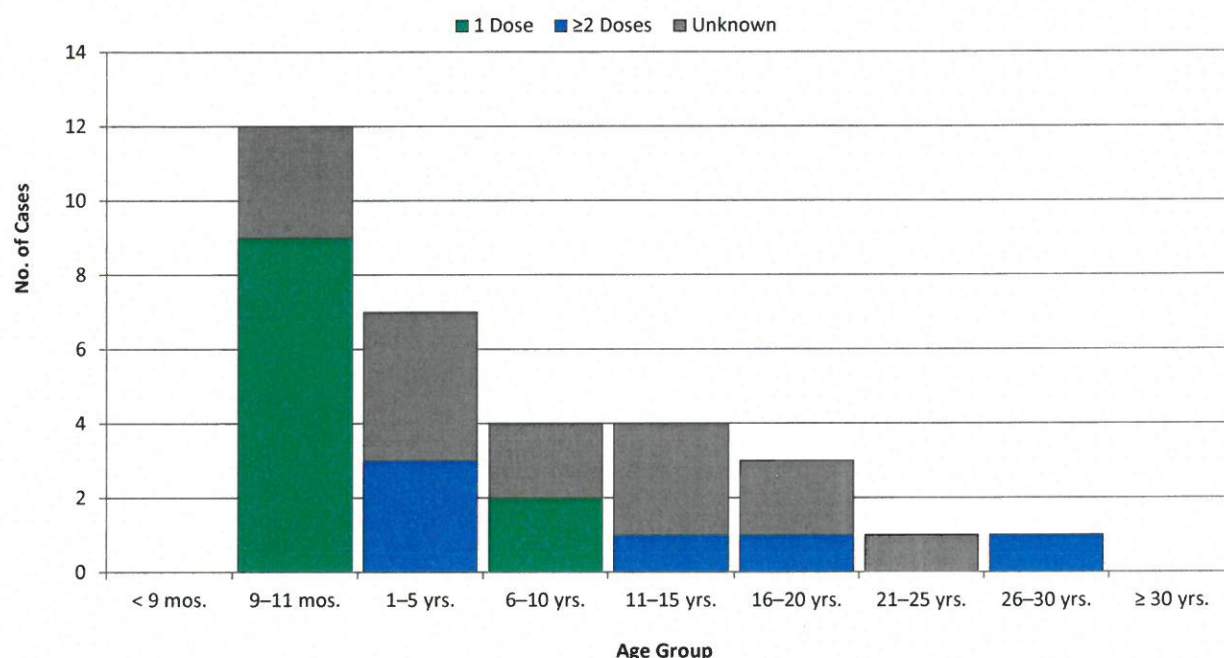


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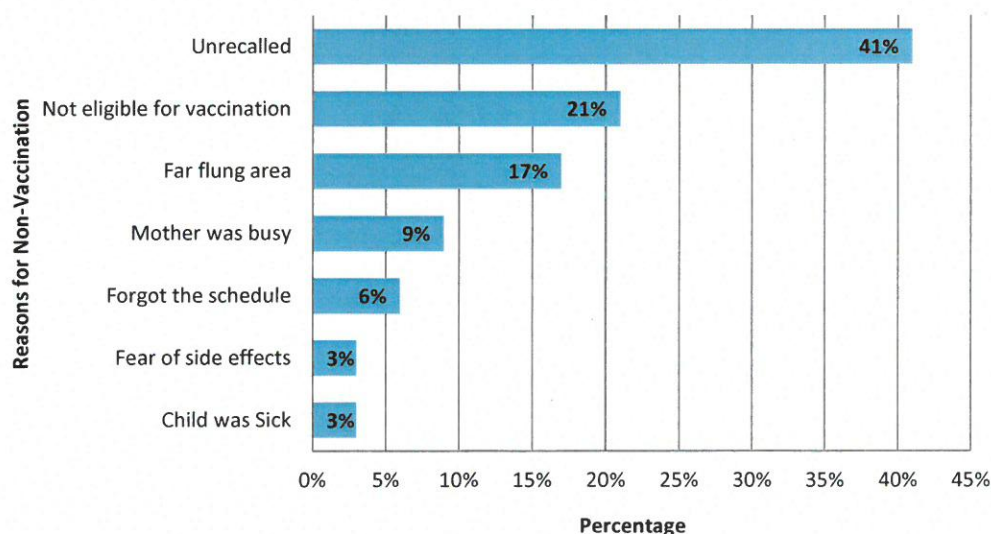
Among the confirmed measles cases, 32 were vaccinated with MCV. Of these, 34% received 1 dose of MCV, 19% were administered with 2 or more doses while 47% were also vaccinated but with unknown number of doses (Figure 6).

**FIGURE 6. MCV DOSE RECEIVED AMONG CONFIRMED VACCINATED MEASLES CASES
BY AGE GROUP
PHILIPPINES, JANUARY 1 - DECEMBER 3, 2016 (n=32)**



Out of the 71 confirmed measles cases, 34 were not vaccinated with MCV. Reasons for non-vaccination varied among the cases as shown in Figure 7.

**FIGURE 7. REASONS FOR NON-VACCINATION OF CONFIRMED MEASLES CASES
PHILIPPINES, JANUARY 1 - DECEMBER 3, 2016 (n=34)**





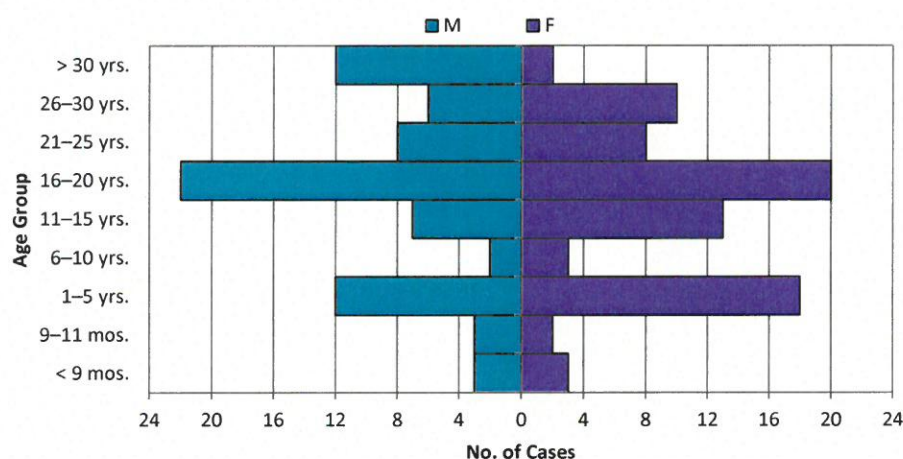
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Rubella

Fifty one percent (51%) of the confirmed rubella cases were female. Majority of the confirmed cases belonged to the young adult age group ranging from 16 to 20 years old (27%) as shown in Figure 8.

**FIGURE 8. CONFIRMED RUBELLA CASES BY AGE GROUP AND SEX
PHILIPPINES, JANUARY 1- DECEMBER 3, 2016 (n=154)**



Among the female suspect measles-rubella cases, there were 24 pregnant cases, 2 tested positive for measles and 1 tested positive for rubella. This rubella positive pregnant woman was endorsed to the Family Health Office for follow-up of the outcome of delivery since exposure to rubella virus during pregnancy poses a risk for Congenital Rubella Syndrome.

Measles Surveillance Performance Indicators

**TABLE 6. MEASLES SURVEILLANCE PERFORMANCE 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
I	5,113,827	1.58	1.49	76	41	66	38	3.27	4.01	1.96	1.43	30	56
II	3,510,762	4.04	0.62	73	80	70	76	3.61	1.83	1.33	1.43	49	19
III	11,534,111	0.71	0.19	85	84	80	81	1.40	1.28	1.00	0.98	18	15
IVA	15,172,632	1.29	0.86	64	71	57	58	2.41	1.89	1.17	1.22	40	22
IVB	3,057,039	1.00	0.00	47	46	38	46	2.83	1.86	0.93	0.96	55	42
V	5,920,478	0.17	0.55	96	98	92	96	0.41	1.00	0.33	0.66	13	2
VI	7,703,570	8.29	0.57	97	95	89	91	5.10	4.19	3.12	3.21	7	3
VII	7,565,674	6.86	1.44	98	96	86	91	2.14	1.36	1.14	1.08	5	4
VIII	4,430,334	4.80	0.49	20	25	16	24	4.59	1.75	0.11	0.32	87	75
IX	3,814,158	28.04	3.43	70	50	62	46	10.81	1.92	4.03	0.80	35	40
X	4,865,413	13.42	0.45	43	58	42	53	6.94	5.02	0.78	2.51	69	40
XI	5,033,163	25.12	0.22	92	88	87	86	6.04	2.06	2.15	1.67	20	12
XII	4,768,455	17.40	0.23	60	87	57	83	8.12	1.62	2.94	1.33	42	11
ARMM	3,566,757	4.55	0.61	47	50	46	50	2.33	0.37	0.34	0.12	66	50
CAR	1,792,078	21.56	1.83	90	84	87	84	9.02	4.50	5.45	3.29	14	11
CRG	2,657,380	24.05	0.82	74	72	64	70	6.07	2.05	1.79	1.40	30	28
NCR	13,205,216	1.39	0.50	60	72	50	69	1.82	1.81	0.87	1.17	39	17
PHL	103,711,049	6.85	0.75	70	72	64	68	3.64	2.13	1.48	1.34	36	24
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%
													>50%

*see Annex B

**as of December 3, 2016



Table 6 presents the current surveillance performance of regions based on the indicators for measles surveillance. Countrywide incidence rate of 0.75 per 1,000,000 population has been achieved, reaching the target of <1 per 1,000,000 population. Regions I, VII, IX and CAR did not meet the target which implies increased occurrence of measles in these regions.

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.

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.
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.
Cluster of cases	☞ 2 or more cases with temporal (occurring in a span of 4 weeks) and geographical association (within the same barangay)

Annex B. Measles Surveillance Indicators Targets

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.



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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 and adequacy 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 $\geq 80\%$ of cases were investigated within 48 hours of notification.

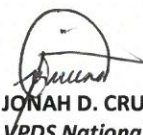
*Annualized rate, measures the incidence or reporting in a period of 1 year. This is computed by the number of specific measles cases over the target measles cases divided by 12 months then multiplied by the number of months to be analyzed.


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