



January 1 – December 31, 2016

Epidemiology Bureau  
Public Health Surveillance Division

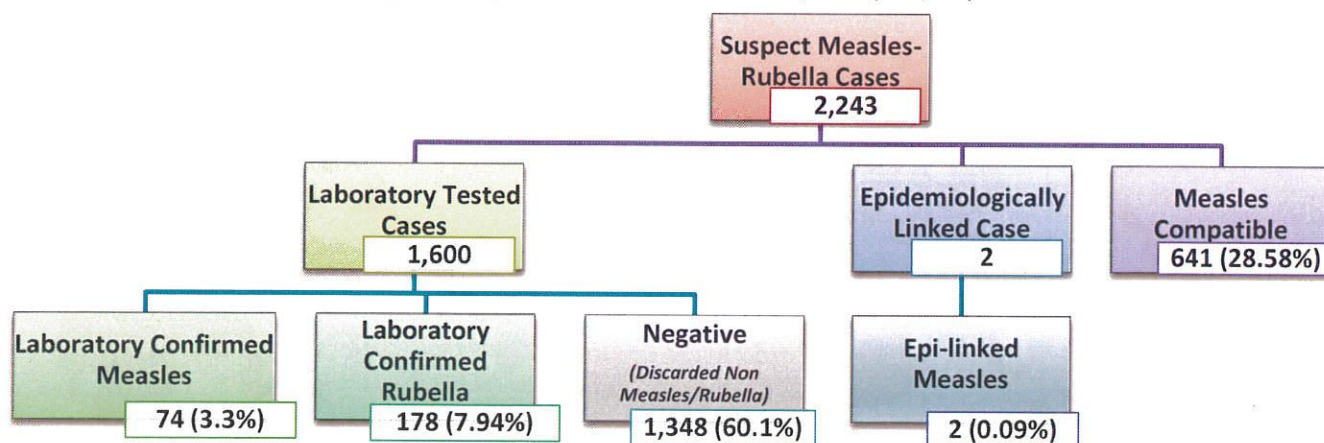
### Measles Elimination Goal in the Philippines

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 2,243 suspect measles-rubella cases were reported nationwide from January 1 to December 31, 2016. Of these, 1,600 were tested. Among the suspect cases, 76 (3.39%) were classified as confirmed measles (laboratory or epi-linked confirmed measles). One hundred seventy eight cases (7.94%) were classified as laboratory confirmed rubella (Figure 1). There were no reported deaths among the confirmed measles-rubella cases for 2016.

**FIGURE 1. CLASSIFICATION OF SUSPECT MEASLES-RUBELLA CASES, PHILIPPINES, JANUARY 1 – DECEMBER 31, 2016 (N=2,243)**



**TABLE 1. MEASLES AND RUBELLA CASES BY REGION PHILIPPINES, JANUARY 1 – DECEMBER 31, 2016 (N=2,243)**

REGION	REPORTED	CONFIRMED MEASLES		MEASLES COMPATIBLE	LABORATORY CONFIRMED RUBELLA	DISCARDED AS NON-MEASLES/RUBELLA
		LABORATORY CONFIRMED	EPI-LINKED CONFIRMED			
I	203	8	0	111	7	77
II	59	2	0	12	0	45
III	144	2	0	28	7	107
IVA	315	12	1	73	29	200
IVB	57	0	0	28	2	27
V	59	4	0	14	6	35
VI	301	4	0	15	56	226
VII	97	10	0	4	5	78
VIII	78	2	0	51	5	20
IX	73	11	1	29	0	32
X	292	2	0	163	7	120
XI	99	2	0	12	5	80
XII	73	1	0	12	2	58
ARMM	19	2	0	14	0	3
CAR	80	3	0	10	10	57
CRG	61	3	0	21	0	37
NCR	233	6	0	44	37	146
<b>PHL</b>	<b>2,243</b>	<b>74</b>	<b>2</b>	<b>641</b>	<b>178</b>	<b>1,348</b>

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

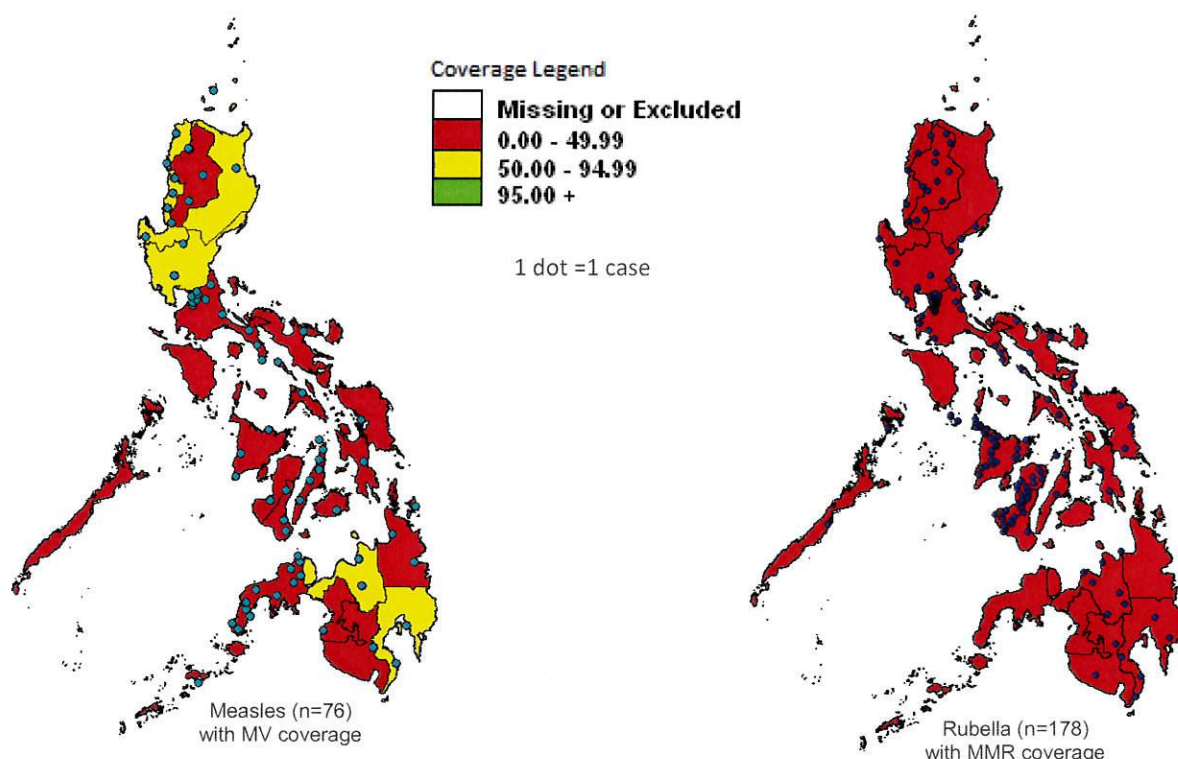


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National vaccine coverage for measles vaccine is 42% and for MMR vaccine is 35%. This vaccine coverage is based on the National Immunization Program data as of December 13, 2016. Figure 2 shows the concentration of measles and rubella cases among regions. Immunization coverage per region for both MV and MMR are noticeably low, having the coverage range at the lower limits.

**FIGURE 2. GEOGRAPHICAL DISTRIBUTION OF CONFIRMED MEASLES-RUBELLA CASES WITH MV & MMR COVERAGE\*, PHILIPPINES, JANUARY 1 – DECEMBER 31, 2016**



\*coverage data from FHO as of December 13, 2016

Clusters of measles have been identified in Regions IVA, IX and NCR while clusters of rubella in Regions VI and NCR (Table 2). No continuous transmission took place in the identified barangays. Observing the trends for 2016, rubella cases are increasing more than measles cases, implying that rubella prevention and control should be strengthened.

**TABLE 2. IDENTIFIED CLUSTERS OF CONFIRMED MEASLES AND RUBELLA  
JANUARY 1 – DECEMBER 31, 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





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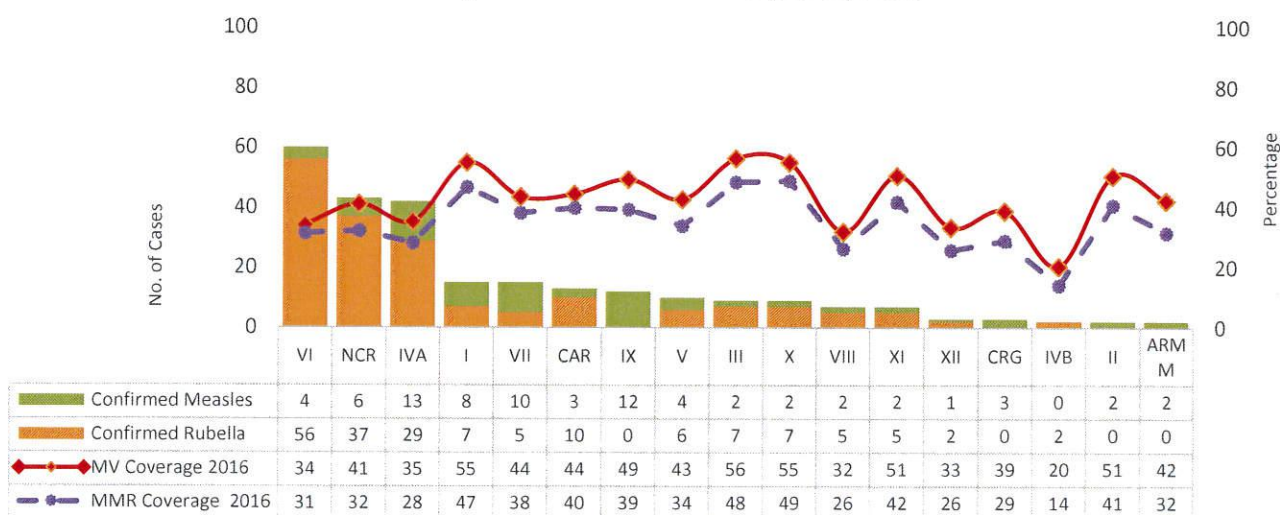
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TABLE 3. CONFIRMED MEASLES CASES AND DEATHS BY REGION  
 PHILIPPINES, 2015 vs. 2016

REGION	CONFIRMED MEASLES CASES			CONFIRMED RUBELLA CASES		
	2016	2015	% CHANGE	2016	2015	% CHANGE
I	8	8	→ 0.00	7	9	↓ -22.22
II	2	14	↓ -85.71	0	4	↓ -400.00
III	2	8	↓ -75.00	7	8	↓ -12.50
IVA	13	19	↓ -31.58	29	23	↑ 26.09
IVB	0	3	↓ -300.00	2	7	↓ -71.43
V	4	1	↑ 300.00	6	1	↑ 500.00
VI	4	63	↓ -93.65	56	59	↓ -5.08
VII	10	51	↓ -80.39	5	15	↓ -66.67
VIII	2	21	↓ -90.48	5	0	↑ 500.00
IX	12	105	↓ -88.57	0	7	↓ -700.00
X	2	64	↓ -96.88	7	2	↑ 250.00
XI	2	124	↓ -98.39	5	8	↓ -37.50
XII	1	81	↓ -98.77	2	3	↓ -33.33
ARMM	2	16	↓ -87.50	0	0	→ 0.00
CAR	3	38	↓ -92.11	10	3	↑ 233.33
CRG	3	63	↓ -95.24	0	2	↓ -200.00
NCR	6	18	↓ -66.67	37	12	↑ 208.33
<b>PHL</b>	<b>76</b>	<b>697</b>	<b>↓ -89.10</b>	<b>178</b>	<b>163</b>	<b>↑ 9.20</b>

There is an 89.10% decrease of measles cases from 697 cases in 2015 to 76 cases in 2016. Rubella cases increased by 9.20%, from 163 in 2015 to 178 in 2016 (Table 3). Measles incidence rate of 0.73 per 1,000,000 population has been achieved in 2016, meeting the target of <1 per 1,000,000 population for measles elimination.

FIGURE 3. CONFIRMED MEASLES-RUBELLA CASES WITH MV & MMR COVERAGE\* BY REGION, PHILIPPINES, JANUARY 1 – DECEMBER 31, 2016 (n=252)



\*coverage data from FHO as of December 13, 2016

Figure 3 reflects confirmed measles and rubella cases in relation with MV and MMR coverage per region. Top regions with cases are Regions VI, NCR and IVA.

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### Virus Isolation and Genotyping

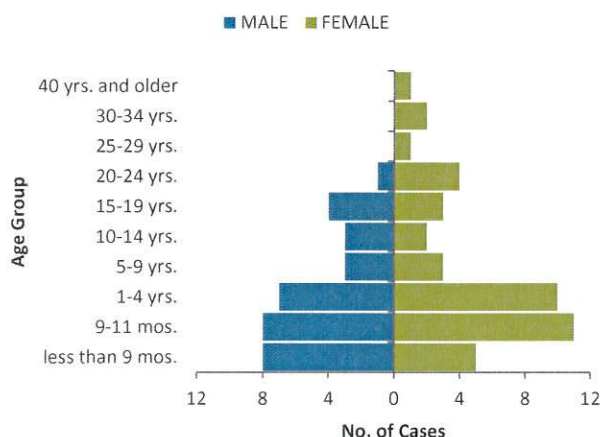
There were 62 oropharyngeal/nasopharyngeal swab samples submitted since January 2016. Among these, 6 have rubella virus isolates and all were 2B genotypes. Genotyping using serum samples yielded B3 genotype from Regions VII (Cebu) and IX (Zamboanga) which clearly do not represent the entire Philippines. Genotyping using serum samples is routinely performed by the Regional Reference Laboratory in Center for Health Protection Hong Kong. Data for virus isolation and genotyping are from the National Measles Laboratory of the Research Institute for Tropical Medicine (RITM).

### Profile of Cases

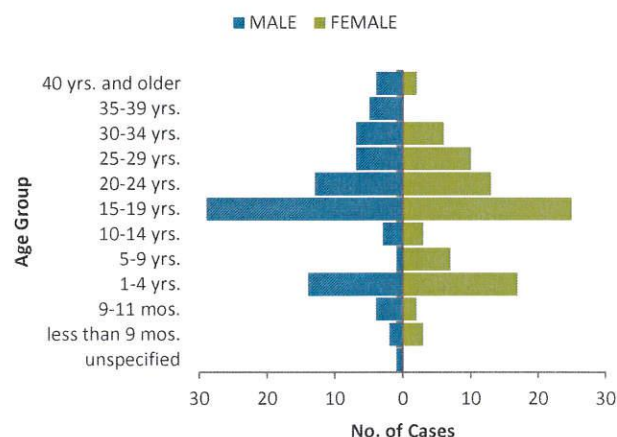
Among measles cases, 42 (55.26%) were females and 34 (44.74%) were males. On the other hand, among rubella cases, 90 (50.56%) were males and 88 (49.44%) were females. Majority (64.47%) of the confirmed measles cases belonged to the population under 5 years old and most (26.26%) of the confirmed rubella cases are aged 15-19 years old. (Figures 4 & 5)

In 2016, a school-based rubella transmission among high school students and teachers occurred in Antique. This has caused the increase in the number of cases in the mostly affected age group. This group is also the child-bearing age group, therefore, females in this cluster should be assessed for pregnancy. Pregnant women with rubella virus exposure should be monitored for delivery outcome since their newborns are at risk of having congenital rubella syndrome.

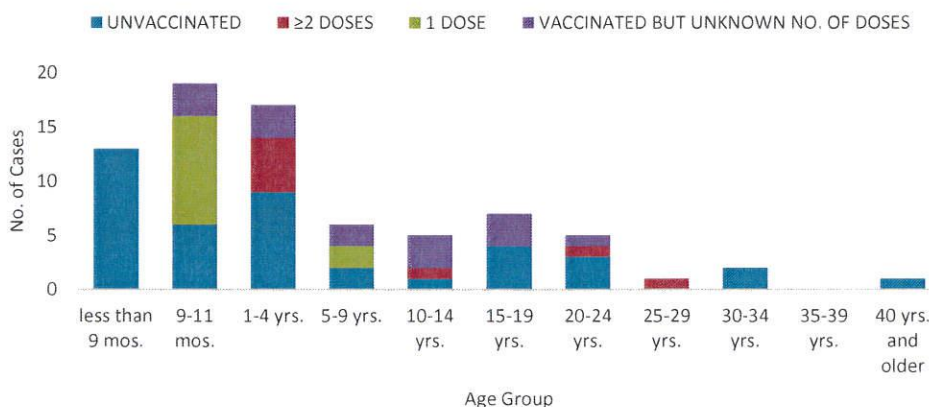
**FIGURE 4. CONFIRMED MEASLES CASES BY AGE GROUP AND SEX, PHILIPPINES, JANUARY 1 – DECEMBER 31, 2016 (n=76)**



**FIGURE 5. CONFIRMED MEASLES CASES BY AGE GROUP AND SEX, PHILIPPINES, JANUARY 1 – DECEMBER 31, 2016 (n=178)**



**FIGURE 6. VACCINATION STATUS OF CONFIRMED MEASLES CASES BY AGE GROUP, PHILIPPINES, JANUARY 1 – DECEMBER 31, 2016 (n=76)**



Of the confirmed measles cases, 41 (53.95%) cases were not vaccinated as shown in Figure 6. Median age of unvaccinated children is 1.65 years old which belongs to the targeted population for immunization. Vaccination status of confirmed rubella cases were not specific to rubella-containing vaccine. This is a vital data to be reinforced during investigation of rubella cases in order to come up with appropriate strategies for prevention and control.

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Measles Surveillance Performance Indicators

TABLE 4. MEASLES SURVEILLANCE PERFORMANCE INDICATORS\* BY REGION  
PHILIPPINES, 2015 vs. 2016

REGION	POPULATION 2016	MEASLES INCIDENCE RATE		BLOOD ADEQUACY RATE		SUSPECT MEASLES CASES ADEQUATELY INVESTIGATED		SUSPECT MEASLES REPORTING RATE		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	1.56	68	42	66	40	3.27	3.97	1.96	1.51	30%	55%
II	3,510,762	4.04	0.57	52	71	70	75	3.61	1.68	1.33	1.28	49%	20%
III	11,534,111	0.71	0.17	82	81	80	77	1.40	1.25	1.00	0.93	18%	19%
IVA	15,172,632	1.29	0.86	52	72	57	61	2.41	2.08	1.17	1.32	40%	23%
IVB	3,057,039	1.00	0.00	36	44	38	42	2.83	1.86	0.93	0.88	55%	49%
V	5,920,478	0.17	0.68	88	76	92	75	0.41	1.00	0.33	0.59	13%	24%
VI	7,703,570	8.29	0.52	93	94	89	90	5.12	3.91	3.12	2.93	8%	5%
VII	7,565,674	6.86	1.32	94	96	86	93	2.14	1.28	1.14	1.03	5%	4%
VIII	4,430,334	4.80	0.45	8	27	16	33	4.59	1.76	0.11	0.45	87%	65%
IX	3,814,158	28.04	3.15	63	53	62	47	10.81	1.91	4.03	0.84	35%	40%
X	4,865,413	13.42	0.41	25	39	42	38	6.94	6.00	0.78	2.47	69%	56%
XI	5,033,163	25.12	0.40	77	89	87	86	6.04	1.97	2.15	1.59	20%	12%
XII	4,768,455	17.40	0.21	58	84	57	81	8.12	1.53	2.94	1.22	42%	16%
ARMM	3,566,757	4.55	0.56	23	21	46	26	2.33	0.53	0.34	0.08	66%	74%
CAR	1,792,078	21.56	1.67	88	84	87	84	9.02	4.46	5.45	3.18	14%	13%
CRG	2,657,380	24.05	1.13	68	64	64	67	6.07	2.30	1.79	1.39	30%	34%
NCR	13,205,216	1.39	0.45	59	75	50	70	1.82	1.76	0.87	1.11	39%	19%
PHL	103,711,049	6.85	0.73	61	68	64	65	3.64	2.16	1.48	1.30	36%	29%
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

Table 4 presents the 2016 surveillance performance of regions in comparison to the previous year 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.

These surveillance indicators gauge 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.





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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:  $\geq 2$  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:  $\geq 2$  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 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.


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