

## Headlines

**Regional Measles Incidence Drops 58% from 2008 to 2009**

**Measles Deaths Decrease by 92% from 2000 to 2008, Exceeding GIVS and WHA 2010 Goals**

**Outbreaks in Viet Nam and Philippines Threaten Progress of Measles Elimination in the Western Pacific Region**

## News in Brief

**Global Measles Management Meetings** were held among WHO regional and global measles staff and partners in late 2009 and early 2010 to review progress in measles elimination and mortality reduction, evaluate and revise proposed indicators for monitoring progress towards measles elimination, and evaluate the feasibility of global measles eradication. Updates will be provided in the next issue of the Measles Bulletin.

The **WHO Executive Board**, which met on 21 January 2010, noted the report of the WHO Strategic Advisory Group of Experts (SAGE) Working Group on Measles Eradication and endorsed the following 2015 targets as milestones towards measles eradication: 1) to achieve at least 90% MCV1 coverage nationally and 80% coverage in every district, 2) to reduce measles mortality by 95% compared with 2000, and 3) to decrease measles incidence to <5 per million. The report will be submitted to the 2010 World Health Assembly.

The **2nd Western Pacific Regional Vaccine Preventable Diseases Laboratory Network Meeting** was held from 22 to 26 February 2010. A two-day session of the Regional Measles and Rubella Laboratory Network was held on 25 to 26 February 2010 to review the performance of the measles and rubella network laboratories in the Region and to discuss ways to strengthen the performance of the laboratories in support of the measles elimination. Main recommendations included full implementation of monthly case-based reporting using the new reporting format, regular communications with national surveillance and epidemiology staff to minimize discrepancies in laboratory and surveillance data, semi-annual confirmatory testing of serologic specimens, and increased virus isolation and/or molecular detection of measles and rubella viruses for genotype and sequence data.

## Reporting

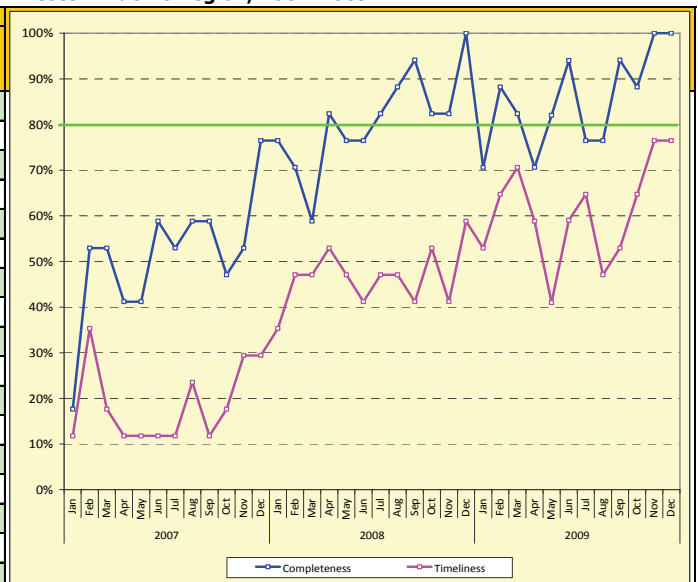
In 2009, completeness and timeliness of reporting case-based measles data to the Western Pacific Regional Office continued its increasing trend from previous years, reaching 85% completeness (an increase from 81% in 2008 and surpassing the 80% target for the 2nd year in a row) and 61% timeliness (up from 47% in 2008).

Both completeness and timeliness varied considerably by month, reaching their highest levels in November and December. During these last two months of the year, completeness reached 100% and timeliness peaked at 78% (Figure 1).

**Table 1. Completeness and timeliness of reporting by country and year, Western Pacific Region, 2007-2009**

Country	2007		2008		2009	
	Completeness	Timeliness	Completeness	Timeliness	Completeness	Timeliness
Australia	50%	8%	100%	67%	100%	100%
Brunei Darussalam	0%	0%	75%	58%	100%	100%
Hong Kong (China)	75%	25%	100%	100%	100%	100%
Japan	0%	0%	67%	58%	100%	92%
New Zealand	83%	58%	100%	100%	100%	92%
Cambodia	33%	8%	75%	25%	100%	83%
Macao (China)	92%	17%	100%	50%	100%	83%
Mongolia	67%	25%	100%	67%	100%	75%
Singapore	83%	25%	100%	83%	100%	67%
China	75%	0%	92%	0%	92%	0%
Viet Nam	42%	17%	100%	25%	83%	25%
Philippines	75%	42%	83%	50%	75%	58%
PICs*	100%	75%	75%	42%	67%	50%
Papua New Guinea	25%	8%	75%	42%	67%	17%
Malaysia	25%	0%	58%	8%	58%	42%
Lao PDR	8%	0%	50%	8%	58%	33%
Republic of Korea	33%	8%	25%	8%	50%	17%
<b>Completeness</b>	<b>51.0%</b>		<b>80.9%</b>		<b>85.3%</b>	
<b>Timeliness</b>		<b>18.6%</b>		<b>46.6%</b>		<b>60.8%</b>

**Figure 1. Completeness and timeliness of reporting by year, Western Pacific Region, 2007-2009**

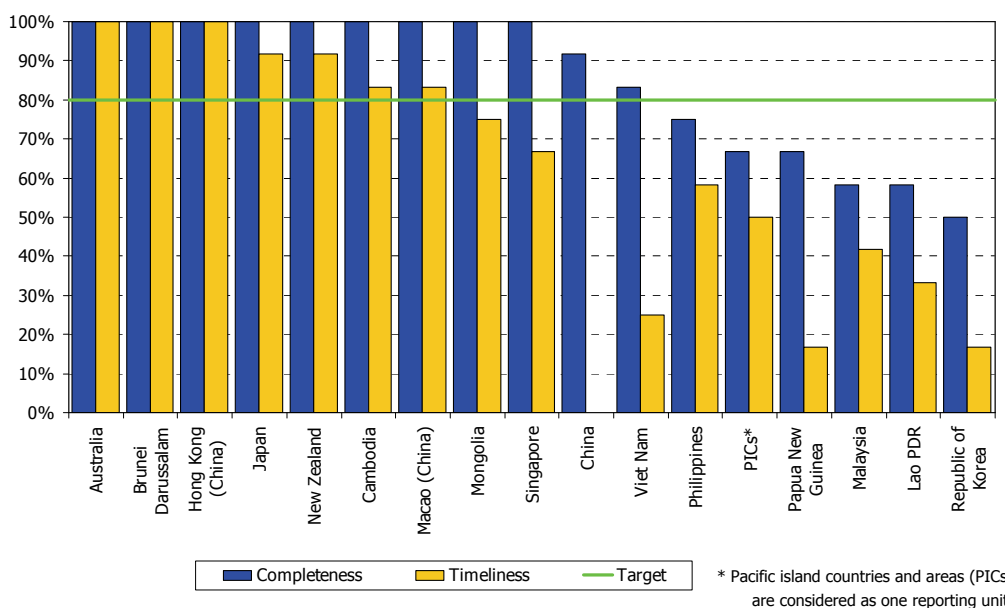


\* Pacific island countries and areas (PICs) are considered as one reporting unit.

Eleven (64.7%) of 17 reporting units in the Western Pacific Region achieved or surpassed the target of 80% completeness and seven (41.2%) achieved or surpassed the target of 80% timeliness of reporting to the Regional Office (Figure 2). Countries and areas achieving both completeness and timeliness targets include Australia, Brunei Darussalam, Hong Kong (China), Japan, New Zealand, Cambodia and Macao (China). Mongolia, Singapore, China and Viet Nam achieved at least 80% completeness but less than 80% timeliness. Lao

People's Democratic Republic, Malaysia, the Philippines and the Pacific island countries are making efforts to improve completeness and timeliness of reporting to the Regional Office. To facilitate better coordination with laboratory staff, we request all countries and areas to report case-based measles surveillance data to the Regional Office by the 10<sup>th</sup> of each month in 2010. The Regional Office stands ready to assist any country or area to improve case-based measles surveillance reporting and quality.

**Figure 2. Completeness and timeliness of reporting, by country, Western Pacific Region, 2009**



## Incidence (Table 2A)

Measles incidence in 2009 decreased to 34.3 per million population, a 58% decrease from the 2008 rate of 81.6 per million and the lowest regional incidence ever. Reported deaths from measles decreased to 53 in 2009 compared with 116 in 2008, a decrease of 54%. The reported measles case fatality rate (CFR) in 2009 was  $53/61\ 683 = 0.09\%$ . However, reported CFRs are likely understated because deaths occurring from respiratory and gastrointestinal superinfections after apparent recovery from measles are unlikely to be reported as measles deaths. The large regional decrease in reported measles cases and deaths from 2008 to 2009 is attributable to the large decreases in reported measles cases from China and Japan, which in 2008 reported 98% of all measles cases in the Region. In China, the number of reported measles cases decreased by 60% from 131 441 in 2008 to 52 461 in 2009; the number of reported measles deaths decreased by 64% from 108 to 39. These dramatic reductions are likely attributable to the large number of provinces that conducted supplementary immunization activities (SIAs) in 2008 (N=9) and in 2009 (N=13). A nationwide SIA planned

in September and/or October 2010 should further reduce measles incidence dramatically. In Japan, the number of reported measles cases decreased by 94% from 10 939 in 2008 to 705 in 2009; no measles deaths were reported in 2008 or 2009.

In decreasing order, following China, the countries and areas reporting the most measles cases in 2009 were Viet Nam (5221 [59.3 per million]), Philippines (1498 [16.3 per million]), Cambodia (806 [54.4 per million]), Japan (705 [5.5 per million]), Malaysia (494 [18.0 per million]), New Zealand (253 [59.3 per million]), and Australia (104 [4.9 per million]). Countries with a particularly high percentage of clinically confirmed cases included Cambodia (91.9%), Malaysia (91.5%), Hong Kong (China) (59.1%) and the Philippines (54.7%), suggesting that actual measles incidence in these countries may be lower than reported. Overall, 2643 (28.7%) of 9222 confirmed cases from the Region (not including China because method of confirmation was not reported) were clinically confirmed.

**Table 2A. Measles case classification and incidence, by country and area, Western Pacific Region, 2008-2009**

Country	2008										2009									
	Population (in millions) <sup>2</sup>	Suspected measles cases	Confirmed measles cases				Discarded cases	Pending classification	Deaths due to measles	Measles incidence per 1 million pop.	Population (in millions) <sup>2</sup>	Suspected measles cases	Confirmed measles cases				Discarded cases	Pending classification	Deaths due to measles	Measles incidence per 1 million pop.
			Lab	Epi-linked	Clinical	Total							Lab	Epi-linked	Clinical	Total				
Australia <sup>1</sup>	20.95	65	65	0	0	65	0	0	0	3.1	21.29	104	104	0	0	104	0	0	0	4.9
Brunei Darussalam	0.40	18	2	0	1	3	15	0	0	7.5	0.40	8	2	0	0	2	6	0	0	5.0
Cambodia	14.70	4211	5	0	1760	1765	2446	0	0	120.1	14.81	4769	65	0	741	806	3339	624	0	54.4
China	1336.31	144 221	No data	No data	No data	131 441 <sup>3</sup>	No data	No data	108	98.4	1345.75	59 950 <sup>4</sup>	No data	No data	No data	52 461 <sup>4</sup>	No data	No data	39 <sup>4</sup>	39.0
Hong Kong (China)	7.28	89	51	1	19	71	18	0	0	9.8	7.02	32	9	0	13	22	9	1	0	3.1
Japan	127.94	10 945	4304	2405	4230	10 939	6	0	0	85.5	127.16	729	413	11	281	705	24	0	0	5.5
Lao PDR	5.96	243	2	0	111	113	109	21	0	19.0	6.32	276	21	51	0	72	158	46	2	11.4
Macao (China)	0.48	25	5	0	1	6	19	0	0	12.4	0.54	20	0	0	0	0	20	0	0	0.0
Malaysia	27.03	1899	92	17	222	331	1568	0	0	12.2	27.47	2070	42	0	452	494	1230	346	0	18.0
Mongolia	2.65	368	31	0	0	31	337	0	0	11.7	2.67	178	4	0	4	8	170	0	0	3.0
New Zealand	4.21	15	8	0	7	15	0	0	0	3.6	4.27	253	134	56	63	253	0	0	0	59.3
Papua New Guinea	6.46	50	0	0	1	1	47	2	0	0.2	6.73	82	0	0	0	0	82	0	0	0.0
Philippines	89.65	1581	262	16	596	874	707	0	8	9.7	91.98	2944	670	8	820	1498	1446	0	10	16.3
Republic of Korea	48.39	92	1	0	1	2	90	0	0	0.0	48.33	72	12	0	5	17	55	0	0	0.4
Singapore <sup>1</sup>	4.49	18	18	0	0	18	0	0	0	4.0	4.74	16	16	0	0	16	0	0	0	3.4
Viet Nam	88.54	1872	185	73	1	259	1337	276	0	2.9	88.07	9545	2682	2275	264	5221	3970	354	2	59.3
<b>Pacific island countries and areas</b>																				
American Samoa	0.07	0	0	0	0	0	0	0	0	0.0	0.07	0	0	0	0	0	0	0	0	0.0
Cook Islands	0.02	0	0	0	0	0	0	0	0	0.0	0.02	2	0	0	0	0	2	0	0	0.0
Fiji	0.84	14	0	0	0	0	10	4	0	0.0	0.85	84	4	0	0	4	76	4	0	4.7
French Polynesia	0.27	0	0	0	0	0	0	0	0	0.0	0.27	0	0	0	0	0	0	0	0	0.0
Guam	0.18	0	0	0	0	0	0	0	0	0.0	0.18	1	0	0	0	0	1	0	0	0.0
Kiribati	0.09	1	0	0	0	0	0	1	0	0.0	0.09	0	0	0	0	0	0	0	0	0.0
Marshall Islands	0.06	0	0	0	0	0	0	0	0	0.0	0.06	0	0	0	0	0	0	0	0	0.0
Micronesia, Federated States of	0.11	0	0	0	0	0	0	0	0	0.0	0.11	0	0	0	0	0	0	0	0	0.0
Nauru	0.01	0	0	0	0	0	0	0	0	0.0	0.01	0	0	0	0	0	0	0	0	0.0
New Caledonia	0.25	0	0	0	0	0	0	0	0	0.0	0.25	1	0	0	0	0	1	0	0	0.0
Niue	0.00	5	0	0	0	0	5	0	0	0.0	0.00	0	0	0	0	0	0	0	0	0.0
Northern Mariana Islands	0.08	0	0	0	0	0	0	0	0	0.0	0.08	0	0	0	0	0	0	0	0	0.0
Palau	0.02	0	0	0	0	0	0	0	0	0.0	0.02	0	0	0	0	0	0	0	0	0.0
Samoa	0.19	0	0	0	0	0	0	0	0	0.0	0.18	0	0	0	0	0	0	0	0	0.0
Solomon Islands	0.51	4	0	0	0	0	3	1	0	0.0	0.52	2	0	0	0	0	1	1	0	0.0
Tokelau	0.00	0	0	0	0	0	0	0	0	0.0	0.00	0	0	0	0	0	0	0	0	0.0
Tonga	0.10	0	0	0	0	0	0	0	0	0.0	0.10	0	0	0	0	0	0	0	0	0.0
Tuvalu	0.01	1	0	0	0	0	0	1	0	0.0	0.01	0	0	0	0	0	0	0	0	0.0
Vanuatu	0.23	0	0	0	0	0	0	0	0	0.0	0.24	1	0	0	0	0	0	1	0	0.0
Wallis and Futuna	0.02	0	0	0	0	0	0	0	0	0.0	0.02	0	0	0	0	0	0	0	0	0.0
<b>Western Pacific Region</b>	<b>1788.49</b>	<b>165 737</b>	<b>5031</b>	<b>2512</b>	<b>6950</b>	<b>145 934</b>	<b>6717</b>	<b>306</b>	<b>116</b>	<b>81.6</b>	<b>1800.63</b>	<b>81 139</b>	<b>4178</b>	<b>2401</b>	<b>2643</b>	<b>61 683</b>	<b>10 590</b>	<b>1 377</b>	<b>53</b>	<b>34.3</b>

<sup>1</sup> Reports only laboratory-confirmed cases

<sup>2</sup> Population figures from World Population Prospects: The 2008 Revision, New York, United Nations, 2007.

<sup>3</sup> Data from WHO/UNICEF Joint Reporting Form (JRF) for 2008

<sup>4</sup> Based on the Notifiable Infectious Diseases statistic data of China CDC (<http://www.chinacdc.net.cn/n272442/n272530/n272757/32660.html>)

**Green** <1 confirmed measles case / 1 000 000 population  
**Yellow** 1-1.9 confirmed measles case / 1 000 000 population  
**Red** > 2 confirmed cases / 1 000 000 population

**Table 2B. Measles surveillance performance indicators, by country and area, Western Pacific Region, 2008-2009**

Country	2009 Population (in millions) <sup>2</sup>	Second level administrative units	2008					2009				
			Discarded measles rate per 100 000 pop	Second level units with ≥ 1 discarded cases per 100 000	Suspected cases with adequate investigation	Suspected cases with adequate blood specimens <sup>3</sup>	Laboratory results ≤ 7 days <sup>4</sup>	Discarded measles rate per 100 000 pop	Second level units with ≥ 1 discarded cases per 100 000	Suspected cases with adequate investigation	Suspected cases with adequate blood specimens <sup>3</sup>	Laboratory results ≤ 7 days <sup>4</sup>
			≥ 2	≥ 80%	≥ 80%	≥ 80%	≥ 80%	≥ 2	≥ 80%	≥ 80%	≥ 80%	≥ 80%
Australia <sup>1</sup>	21.29	8	Insufficient data	Insufficient data	Insufficient data	Insufficient data	100.0%	Insufficient data	Insufficient data	Insufficient data	Insufficient data	100.0%
Brunei Darussalam	0.40	1	3.8	100.0%	66.7%	27.8%	Insufficient data	1.5	100.0%	87.5%	75.0%	Insufficient data
Cambodia	14.81	24	16.6	79.2%	47.0%	58.3%	39.9%	22.6	54.2%	41.5%	83.1%	42.6%
China	1 345.75	31	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Hong Kong (China)	7.02	1	0.2	0.0%	77.5%	80.7%	97.5%	0.1	0.0%	46.9%	71.9%	96.8%
Japan	127.16	47	0.0	0.0%	Insufficient data	Insufficient data	Insufficient data	0.0	0.0%	Insufficient data	Insufficient data	Insufficient data
Lao PDR	6.32	17	1.8	35.3%	9.5%	26.7%	28.2%	2.5	35.3%	41.3%	60.0%	Insufficient data
Macao (China)	0.54	1	3.9	100.0%	88.0%	92.0%	94.4%	3.7	100.0%	100.0%	100.0%	100.0%
Malaysia	27.47	15	5.8	73.3%	77.1%	79.7%	98.1%	4.5	60.0%	64.1%	71.6%	90.8%
Mongolia	2.67	21	12.7	61.9%	21.2%	79.9%	100.0%	6.4	57.1%	33.7%	98.9%	100.0%
New Zealand	4.27		Insufficient data	Insufficient data	Insufficient data	Insufficient data	97.1%	Insufficient data	Insufficient data	Insufficient data	Insufficient data	99.3%
Papua New Guinea	6.73	20	0.7	20.0%	36.0%	18.0%	Insufficient data	1.2	35.0%	25.6%	2.4%	Insufficient data
Philippines	91.98	17	0.8	29.4%	21.9%	47.5%	43.3%	1.6	82.4%	11.6%	56.2%	73.5%
Republic of Korea	48.33	16	0.2	0.0%	52.2%	52.2%	99.0%	0.1	0.0%	52.8%	59.7%	100.0%
Singapore <sup>1</sup>	4.74	1	Insufficient data	Insufficient data	44.4%	Insufficient data	98.4%	Insufficient data	Insufficient data	81.3%	Insufficient data	97.3%
Viet Nam	88.07	64	1.5	31.3%	58.5%	78.7%	96.6%	4.5	78.1%	49.5%	72.3%	49.9%
<b>Pacific island countries and areas</b>												
American Samoa	0.07	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Cook Islands	0.02	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	10.2	100.0%	0.0%	0.0%	Insufficient data
Fiji	0.85	4	1.2	25.0%	42.9%	78.6%	33.3%	8.9	50.0%	9.5%	13.1%	85.5%
French Polynesia	0.27	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Guam	0.18	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.6	0.0%	100.0%	100.0%	Insufficient data
Kiribati	0.09	1	0.0	0.0%	0.0%	0.0%	Insufficient data	0.0	0.0%	Not applicable	Not applicable	Not applicable
Marshall Islands	0.06	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Micronesia, Federated States of	0.11	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Nauru	0.01	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
New Caledonia	0.25	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.4	0.0%	100.0%	0.0%	Insufficient data
Niue	0.00	1	306.7	100.0%	0.0%	0.0%	Insufficient data	0.0	0.0%	Not applicable	Not applicable	Not applicable
Northern Mariana Islands	0.08	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Palau	0.02	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Samoa	0.18	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Solomon Islands	0.52	1	0.6	0.0%	0.0%	0.0%	Insufficient data	0.2	0.0%	0.0%	50.0%	Insufficient data
Tokelau	0.00	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Tonga	0.10	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
Tuvalu	0.01	1	0.0	0.0%	0.0%	0.0%	Insufficient data	0.0	0.0%	Not applicable	Not applicable	Not applicable
Vanuatu	0.24	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	0.0%	0.0%	Insufficient data
Wallis and Futuna	0.02	1	0.0	0.0%	Not applicable	Not applicable	Not applicable	0.0	0.0%	Not applicable	Not applicable	Not applicable
<b>Western Pacific Region</b>	<b>1 800.63</b>	<b>307</b>	<b>1.6</b>	<b>30.7%</b>	<b>49.3%</b>	<b>64.0%</b>	<b>76.3%</b>	<b>2.5</b>	<b>43.4%</b>	<b>43.1%</b>	<b>71.9%</b>	<b>60.2%</b>

<sup>1</sup> Reports only laboratory-confirmed cases

<sup>2</sup> Population figures from World Population Prospects: The 2008 Revision, New York, United Nations, 2007.

<sup>3</sup> Excludes epi-linked cases; not applicable for countries reporting only laboratory confirmed cases.

<sup>4</sup> This indicator has been computed using data from laboratory reports.

Green	Reached or surpassed target
Yellow	Nearly reached target: 1.00-1.99 for non-measles suspected case rate; 60-79% for other indicators
Red	Substantially below target

## Surveillance Performance Indicators (Table 2B)

### *Reporting rates*

The discarded measles rate among countries from which data were available was 2.5 per 100 000 population, an increase from 1.6 in 2008 and surpassing the regional target of  $\geq 2$  per 100 000. However, performance was not uniform. Among 32 countries and areas reporting case-based data (China and Pitcairn Island do not report case-based data, and Australia, New Zealand and Singapore report only confirmed cases), eight (25.0%) achieved the target rate and another three nearly reached the target with 1.0 to 1.9 discarded cases per 100 000. Cambodia, with a discarded rate of 22.6 per 100 000 population, was the main contributor to the achievement of the regional target. Among 12 non-Pacific island countries and areas that reported discarded cases, six (50.0%) achieved the target and three (25.0%) nearly achieved the target. The remaining three, Hong Kong (China), Japan and the Republic of Korea, reported very low discarded case rates. Among 20 Pacific island countries, only Cook Islands and Fiji achieved the target rate (10.2 and 8.9, respectively). Three more (Guam, Niue, and Solomon Islands) were substantially below the target rate, reporting one discarded case each. The remaining 15 did not report any suspected or discarded measles cases. The percentage of second-level administrative units with at least one discarded measles case per 100 000 population (target  $\geq 80\%$ ) increased from 30.7% in 2008 to 43.4% in 2009. Four countries or areas achieved the target, and another two nearly achieved the target with 60% to 79% of second-level administrative units reporting a discarded rate of at least 1 per 100 000. Countries improving substantially in 2009 vs. 2008 included Viet Nam (78.1% vs. 31.3%) and the Philippines (82.4% vs. 29.4%). Cambodia had a substantial decrease in representativeness of subnational reporting: 54.2% in 2009 vs. 79.2% in 2008.

### *Adequate case investigation*

The percentage of suspected cases with adequate investigations decreased in 2009 (43.1%) compared with 2008 (49.3%). Nevertheless, five countries and areas (Brunei Darussalam, Guam, Macao [China], New Caledonia and Singapore) achieved or exceeded the 80% target in 2009 compared with one (Macao [China]) in 2008. Malaysia nearly achieved the target with 64.1% of suspected cases investigated adequately. A case in-

vestigation is considered adequate if it is initiated within 48 hours of notification and specific core variable data are collected, including personal identifiers, place of residence or infection, date of birth or age, sex, vaccination status, date of most recent vaccination, date of rash onset, date of notification, date of investigation, and date of specimen collection. Many case investigations are inadequate because they are missing one or more of these core data elements. In addition, information on travel history or contact with others with travel history should be collected and contact tracing and additional case finding should be conducted for every case.

### *Adequate specimens*

Adequate specimens were collected from 71.9% of suspected cases (target  $\geq 80\%$ ), an increase from 64.0% in 2008. Four countries and areas (Cambodia, Guam, Macao [China] and Mongolia) achieved the target, and five (Brunei Darussalam, Hong Kong [China], Lao PDR, Malaysia and Viet Nam) nearly achieved the target with adequate specimens collected from 60% to 79% of suspected cases. In 2008, two countries and areas achieved the target and four nearly achieved the target.

Currently, data are not collected by the Regional Office to determine the percentage of outbreaks with adequate specimens for virus identification.

### *Laboratory results within 7 days*

The percentage of specimens with laboratory results reported within seven days after receipt decreased to 60.2% in 2009 compared with 76.3% in 2008 (target  $\geq 80\%$ ). Among 12 countries and areas with data to calculate this indicator, nine (75%) achieved the target. Reasons for the decreased timeliness in providing laboratory results, particularly in Cambodia and Viet Nam, included 1) very large numbers of suspected measles cases with specimens 2) difficulties in timely procurement of testing kits, and 3) the need for measles laboratory staff to test specimens for pandemic influenza (H1N1) 2009.

A regional summary of incidence and surveillance performance from 2007 to 2009 is provided in Table 3. Congratulations to the many countries and areas that have contributed to progress towards measles elimination in the Region as reflected in the decreasing incidence and indicator results.

**Table 3. Measles incidence and surveillance performance indicators, Western Pacific Region, 2007-2009**

Category	Target	2007	2008	2009
<b>Incidence:</b>				
Confirmed measles cases (confirmed by lab, epidemiologic linkage or clinically)		67.2	81.6	34.3
<b>High Quality Surveillance:</b>				
National reporting of discarded measles cases	> 2 per 100 000	2.3	1.6	2.5
% of districts reporting $\geq$ 1/100 000 discarded measles cases	> 80%	55%	31%	43%
% of suspected cases with adequate investigation within 48 hours of notification	> 80%	59%	49%	43%
% of suspected cases with adequate blood specimens	> 80%	67%	64%	72%
% with any blood specimen		72%	70%	82%
% of specimens with lab results $\leq$ 7 days after arrival to lab	> 80%	80%	76%	60%

## Special Topic: Measles Outbreaks in Viet Nam and Philippines Threaten Progress of Measles Elimination in the Western Pacific Region

A large measles outbreak began in October 2008 in Viet Nam and is continuing to date. Viet Nam reported a total of 174 confirmed cases from October to December 2008, involving primarily young adults in Ha Noi and neighbouring provinces in the Northern Region. The outbreak spread throughout the country in 2009, resulting in a reported 5221 confirmed cases. Age distribution is bi-modal, with the majority of cases 18 to 26 years of age followed by children six years old and younger. Importations of measles virus genotype H1 from Viet Nam in 2009 were documented in Australia, New Zealand, and an importation of unknown genotype was documented in the United States of America. Viet Nam is planning to conduct a nationwide SIA, targeting children 12 to 71 months, in the fourth quarter of 2010 with support from the Measles Initiative\*, followed by a change in the schedule of its second-dose measles-containing vaccine (MCV2) from seven years old to 18 to 24 months old. A strategy targeting young adults is being considered.

The Philippines reported 1498 confirmed measles cases from 36 provinces in eight of 17 regions in 2009 compared with 874 confirmed cases reported in 2008. In 2010, 1123 confirmed cases were reported to the Regional Office with rash onset in January and February. In contrast to Viet Nam, the national age distribution of the Philippine cases is primarily among children under eight years of age with few affected adults. Importations of measles virus genotype D9 from the Philippines in 2009 and 2010 were identified in Australia and Hong Kong (China) and an importation of unknown measles genotype was identified in the United States of America. Affected cities began conducting outbreak response immunization for children from six months to six years, 11 months of age in late February and early March. A nationwide SIA is being planned for later in 2010. The

Philippines is currently in the process of a phase-wise introduction into the routine programme of MCV2 (measles, mumps and rubella vaccine) at 12 to 15 months of age. Introduction of MCV2 will be accelerated in 2010 in coordination with the completion of SIAs.

The 2010 WHO International Travel and Health Guidelines<sup>†</sup> indicate that for infants travelling to countries where measles is highly endemic, a dose of vaccine may be given at six months of age. However, children who receive the first dose between six and eight months should subsequently receive two doses according to the national schedule. Older children or adults who did not receive two lifetime doses should consider this before travel. These recommendations would also apply to countries that are currently experiencing measles outbreaks, particularly in densely populated cities that are currently experiencing increased levels of measles virus transmission.

It is noteworthy that the Philippines likely interrupted measles virus transmission for over two years following its highly successful 2004 *Ligtas Tigdas* (Safe from Measles) SIA targeting children from nine months to seven years, 11 months old. Measles genotypes D9 and G3 but not D3 (which was identified for several years prior to the 2004 SIA) have been identified in the Philippines since 2007. This suggests that measles virus circulation may be interrupted when high coverage is achieved nationwide during a single SIA. While measles outbreaks and their related exportations to other countries threaten regional measles elimination, the 2012 regional measles elimination goal is achievable provided national governments provide the highest level of political, operational and financial commitments to ensure very high measles coverage nationwide during upcoming SIAs and through routine immunization.

\* The Measles Initiative is a global consortium of donors and development partners whose core members include the American Red Cross, United Nations Children Fund (UNICEF), United Nations Foundation, US Centers for Disease Control & Prevention, and WHO.

† Available at <http://www.who.int/ith/en/>