MEASLES BULLETIN

World Health Organization
Western Pacific Region
Expanded Programme on Immunization

Volume 2, Issue 3 – September 2008 ISSN 1814 3601

News in Brief

The 17th Meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine Preventable Diseases (VPDs) in the Western Pacific Region was held in Manila from 7 to 11 July 2008. For the first three days, a Laboratory Network Meeting and a Workshop on VPD Surveillance were held. During the subsequent two-day advisory session, the TAG reviewed several strategic documents, including the "Strategic Direction of Immunization in the Western Pacific Region: 2008-2012" as well as regional strategic plans for measles elimination, Hepatitis B control and certification, maintaining poliomyelitis-free status, and new and underutilized vaccine introduction. In regard to measles elimination, the TAG recommended immediate action to address the financial shortfall for measles elimination activities, and encouraged countries to update their plans of action and budgets to include activities needed through 2012 to achieve and maintain measles elimination. The TAG also recognized the importance of monitoring surveillance performance and progress towards measles elimination by using standard indicators. However, the TAG also advised that countries should strive to achieve indicator targets in a phase-wise manner, recognizing that countries with extensive measles virus transmission should prioritize their current activities towards achieving high population immunity. Finally, the TAG recommended the Region adopt an accelerated control goal for rubella and congenital rubella syndrome (CRS).

Reporting

Completeness of reporting to the Western Pacific Regional Office has improved from 51.0% in 2007 to 76.5% in 2008 through August. Timeliness has improved from 18.6% to 45.6% during that same period. Countries with consistently high (≥80%) completeness and timeliness of reporting include Hong Kong (China), New Zealand, and Singapore. We thank Brunei Darussalam and Japan for beginning their regular submission of case-based measles surveillance data to the Regional Office.

Table 1. Completeness and timeliness of reporting - Western Pacific Region, 2007 and 2008*

Country	2007		2008†									
	Completeness	Timeliness	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Completeness	Timeliness
			07 Feb	*07 Mar*	*07 Apr*	*07 May*	*07 Jun*	*07 Jul*	*07 Aug*	*07 Sep*		
Australia	50%	8%	20 Feb	07 Mar	08 Apr	07 May	06 Jun	11 Jul	07 Aug	08 Sep	100%	50%
Brunei Darussalam	0%	0%				14 May	16 Jun	07 Jul	05 Aug	06 Sep	63%	38%
Cambodia	33%	8%		12 Mar	31 Mar	02 May			20 Aug	08 Sep	63%	25%
China	75%	0%	14 Feb	13 Mar		15 May	16 Jun	08 Jul	12 Aug	10 Sep	88%	0%
Hong Kong (China)	75%	25%	05 Feb	07 Mar	07 Apr	07 May	06 Jun	04 Jul	07 Aug	04 Sep	100%	100%
Japan	0%	0%					06 Jun	11 Jul	07 Aug	07 Sep	50%	38%
Lao PDR	8%	0%				15 May			20 Aug		25%	0%
Macao (China)	92%	17%	06 Feb	05 Mar	02 Apr	05 May	09 Jun	03 Jul	08 Aug	09 Sep	100%	63%
Malaysia	25%	0%	22 Feb	24 Mar	25 Apr	28 May			07 Aug		63%	13%
Mongolia	67%	25%	22 Feb	05 Mar	04 Apr	03 May	19 Jun	07 Jul	07 Aug	05 Sep	100%	75%
New Zealand	83%	58%	04 Feb	03 Mar	07 Apr	07 May	05 Jun	02 Jul	04 Aug	05 Sep	100%	100%
Papua New Guinea	25%	8%	08 Feb	03 Mar	01 Apr	02 May	01 Jun	05 Jul		12 Sep	88%	63%
Philippines	75%	42%	07 Feb			29 Apr	23 May	09 Jul	22 Aug	03 Sep	75%	50%
Republic of Korea	33%	8%	26 Feb							01 Sep	25%	13%
Singapore	83%	25%	06 Feb	05 Mar	04 Apr	05 May	03 Jun	04 Jul	06 Aug	12 Sep	100%	88%
Viet Nam	42%	17%	07 Feb	22 Mar	07 Apr	08 May	08 Jun	09 Jul	12 Aug	12 Sep	100%	25%
Pacific island countries	100%	75%	18 Feb	15 Mar			09 Jun	16 Jul		15 Sep	63%	38%
Monthly completeness	51.0%		76%	71%	59%	82%	76%	76%	82%	88%	76.5%	
Monthly timeliness		18.6%	35%	47%	47%	53%	47%	41%	47%	47%		45.6%

† Surveillance data through August 2008

* Deadline for submission is on the 7th of every month, except for Pacific island countries, which is on the 15th.

Legend: black = timely report; red = untimely report

Table 2A. Measles case classification and incidence, by country, Western Pacific Region, 2007-2008*

Country	2007										2008*									
	Population (in millions) ф	Suspected measles cases	Confirmed measles cases				Discarded cases	Pending classification	Deaths due to measles	Measles incidence per 1 million pop.	Population (in millions) ф	Suspected measles cases	Confirmed measles cases				Discarded cases	Pending classification	Deaths due to measles	Anualised measles incidence per 1 million pop.
			Lab	Epi-linked	Clinical	Total							Lab	Epi-linked	Clinical	Total				
Australia †	20.74	11	11	0	0	11	0	0	0	0.5	20.95	63	63	0	0	63	0	0	0	4.5
Brunei Darussalam	0.39	No data	No data	No data	No data	No data	No data	No data	No data	No data	0.40	14	2	0	0	2	9	3	0	7.5
Cambodia	14.44	1 294	8	0	386	394	900	0	0	27.3	14.70	2 947	5	0	1 072	1 077	1 343	527	0	109.9
China	1 328.63	118 031	No data	No data	No data	No data	No data	No data	64	No data	1 336.31	129 195	No data	No data	No data	No data	No data	No data	90	No data
Hong Kong (China)	7.21	106	70	0	18	88	18	0	0	12.2	7.28	69	34	0	11	45	12	12	0	9.3
Japan	127.97	No data	No data	No data	No data	No data	No data	No data	No data	No data	127.94	10 630	4 049	48	6 530	10 627	3	0	0	124.6
Lao PDR	5.86	1 670	122	0	1 548	1 670	0	No data	12	285.0	5.96	172	2	0	94	96	76	0	0	24.1
Macao (China)	0.48	1	0	0	0	0	1	0	0	0.0	0.48	14	4	0	1	5	9	0	0	15.5
Malaysia	26.57	1 544	37	0	703	740	793	11	0	27.8	27.03	1 263	34	3	290	327	195	741	0	18.1
Mongolia	2.63	110	10	0	100	110	0	0	0	41.8	2.65	314	18	0	0	18	296	0	0	10.2
New Zealand	4.18	25	4	3	18	25	0	1	0	6.0	4.21	9	5	1	3	9	0	0	0	3.2
Papua New Guinea	6.33	4	0	0	0	0	4	0	0	0.0	6.46	28	0	0	0	0	0	28	0	0.0
Philippines	87.96	888	174	12	314	500	387	1	3	5.7	89.65	579	115	0	103	218	41	320	3	3.6
Republic of Korea	48.22	451	181	0	37	218	233	0	0	4.5	48.39	70	5	0	1	6	62	2	0	0.2
Singapore	4.44	15	15	0	0	15	0	0	0	3.4	4.49	15	14	0	0	14	0	1	0	4.7
Viet Nam	87.38	5 286	4	0	13	17	5 209	0	0	0.2	88.54	1 211	35	69	2	106	796	309	0	1.8
Pacific island countries and areas																				
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	0	0	0	0	0	0	0	0	0.0
Fiji	0.84	9	0	0	0	0	9	0	0	0.0	0.84	7	0	0	0	0	1	6	0	0.0
French Polynesia	0.26	0	0	0	0	0	0	0	0	0.0	0.27	0	0	0	0	0	0	0	0	0.0
Guam	0.17	0	0	0	0	0	0	0	0	0.0	0.18	0	0	0	0	0	0	0	0	0.0
Kiribati	0.09	0	0	0	0	0	0	0	0	0.0	0.09	1	0	0	0	0	0	1	0	0.0
Marshall Islands	0.06	3	0	0	0	0	0	3	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	1	0	0	0	0	1	0	0	0.0	0.01	0	0	0	0	0	0	0	0	0.0
New Caledonia	0.24	3	0	0	0	0	2	1	0	0.0	0.25	0	0	0	0	0	0	0	0	0.0
Niue	0.00	0	0	0	0	0	0	0	0	0.0	0.00	5	0	0	0	0	5	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	14	0	0	0	0	4	10	0	0.0	0.02	0	0	0	0	0	0	0	0	0.0
Pitcairn Islands	0.00	No data	No data	No data	No data	No data	No data	No data	No data	No data	0.00	No data	No data	No data	No data	No data	No data	No data	No data	No data
Samoa	0.19	2	0	0	0	0	0	2	0	0.0	0.19	0	0	0	0	0	0	0	0	0.0
Solomon Islands	0.50	0	0	0	0	0	0	0	0	0.0	0.51	2	0	0	0	0	0	2	0	0.0
Tokelau	0.00	1	0	0	0	0	0	1	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	0	0	0	0	0	0	0	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	0.23	0	0	0	0	0	0	0	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
Western Pacific Region	**1 776.44**	**129 469**	**636**	**15**	**3 137**	**3 788**	**7 561**	**30**	**79**	**2.1**	**1 788.49**	**146 608**	**4 385**	**121**	**8 107**	**12 613**	**2 848**	**1 952**	**93**	**10.6**

* Monthly reports for Jan-Aug 2008

ф Population figures from World Population Prospects: The 2006 Revision, New York, United Nations, 2007.

† Reported cases for Australia are laboratory confirmed

Green	Reached target of <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, Western Pacific Region, 2007-2008*

Country	2008 Population (in millions) ф	2007					2008*					
		Discarded measles rate per 100 000 pop	Districts with ≥ 1 non-measles case per 100 000	Suspected cases with adequate investigation	Suspected cases with adequate blood specimens	Laboratory results ≤ 7 days †	Discarded measles rate per 100 000 pop	Annualized discarded measles rate per 100 000 pop	Districts with ≥ 1 non-measles case per 100 000	Suspected cases with adequate investigation	Suspected cases with adequate blood specimens	Laboratory results ≤ 7 days †
		≥ 2	≥ 80%	≥ 80%	≥ 80%	≥ 80%	≥ 2	≥ 2	≥ 80%	≥ 80%	≥ 80%	≥ 80%
Australia	20.95	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	100.0%
Brunei Darussalam	0.40	No data	No data	No data	No data	No data	2.3	3.4	100.0%	14.3%	64.3%	No data
Cambodia	14.70	6.2	40.0%	42.5%	67.5%	59.2%	9.1	13.7	35.0%	40.6%	65.6%	67.0%
China	1 336.31	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Hong Kong (China)	7.28	0.2	0.0%	60.4%	74.5%	No data	0.2	0.2	0.0%	39.1%	65.2%	98.0%
Japan	127.94	No data	No data	No data	No data	No data	0.0	0.0	No data	No data	No data	No data
Lao PDR	5.96	0.0	No data	No data	No data	No data	1.3	1.9	No data	7.6%	32.0%	24.0%
Macao (China)	0.48	0.2	No data	No data	No data	No data	1.9	2.8	100.0%	85.7%	92.9%	No data
Malaysia	27.03	3.0	No data	No data	No data	95.5%	0.7	1.1	No data	No data	No data	99.3%
Mongolia	2.65	0.0	No data	0.0%	7.3%	100.0%	11.2	16.7	No data	20.1%	77.4%	100.0%
New Zealand	4.21	0.0	No data	No data	No data	No data	0.0	0.0	No data	No data	No data	100.0%
Papua New Guinea	6.46	0.1	No data	0.0%	100.0%	No data	0.0	0.0	No data	50.0%	53.6%	No data
Philippines	89.65	0.4	5.4%	8.6%	47.6%	73.0%	0.0	0.1	1.1%	24.5%	46.1%	59.4%
Republic of Korea	48.39	0.5	No data	29.3%	84.7%	100.0%	0.1	0.2	No data	57.1%	70.0%	98.7%
Singapore	4.49	0.0	No data	No data	No data	88.5%	0.0	0.0	0.0%	40.0%	86.7%	99.1%
Viet Nam	88.54	6.0	28.7%	26.0%	66.6%	67.5%	0.9	1.3	7.6%	53.9%	74.3%	95.9%
Pacific island countries and areas												
American Samoa	0.07	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Cook Islands	0.02	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Fiji	0.84	1.1	100.0%	0.0%	0.0%	No data	0.1	0.2	0.0%	14.3%	71.4%	No data
French Polynesia	0.27	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Guam	0.18	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Kiribati	0.09	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	0.0%	0.0%	No data
Marshall Islands	0.06	0.0	0.0%	33.3%	33.3%	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Micronesia, Federated States of	0.11	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Nauru	0.01	9.9	100.0%	0.0%	0.0%	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
New Caledonia	0.25	0.8	0.0%	0.0%	66.7%	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Niue	0.00	0.0	0.0%	Not applicable	Not applicable	No data	306.7	460.1	100.0%	0.0%	0.0%	No data
Northern Mariana Islands	0.08	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Palau	0.02	20.0	100.0%	0.0%	7.1%	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Pitcairn Islands	0.00	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Samoa	0.19	0.0	0.0%	0.0%	0.0%	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Solomon Islands	0.51	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	0.0%	0.0%	No data
Tokelau	0.00	0.0	0.0%	0.0%	0.0%	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Tonga	0.10	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Tuvalu	0.01	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Vanuatu	0.23	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Wallis and Futuna	0.02	0.0	0.0%	Not applicable	Not applicable	No data	0.0	0.0	0.0%	Not applicable	Not applicable	No data
Western Pacific Region	**1 788.49**	**0.4**	**5.4%**	**1.7%**	**4.1%**	**79.8%**	**0.2**	**0.2**	**2.3%**	**1.5%**	**2.4%**	**86.4%**

* Monthly reports for Jan-Aug 2008

ф Population figures from World Population Prospects: The 2006 Revision, New York, United Nations, 2007.

† 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

Incidence

Measles incidence in the Region increased from 2.1 per million in 2007 to 10.6 per million for 2008 (annualized from cases occurring from January to August, Table 2A). The primary reason for increased incidence in 2008 is the addition of case-based data from Japan. Japan is experiencing a large outbreak of measles that began in 2007 and includes 10 627 confirmed cases in 2008 through August. In addition, Cambodia has reported a larger number of cases thus far in 2008 (1077) than it did throughout 2007 (394). The increase in reported cases in Cambodia in 2008 may be due to increased sensitivity of the surveillance system, as the discarded measles case rate* increased from 6.2 per 100 000 population in 2007 to 13.7 per 100 000 population in 2008 (Table 2b). Other countries with substantially increased measles incidence from 2007 to 2008 (annualized) include Australia (0.5 to 4.5), Macao (China) (0 to 15.5), and Viet Nam (0.2 to 1.8). The increase in Australia may be due to several limited outbreaks occurring in different parts of the country. Macao (China) has reported four measles cases in 2008, the large increase in incidence resulting from its small population. Unlike Cambodia, Viet Nam's increase in measles incidence is associated with a substantial decrease in sensitivity (discarded measles rate decreased from 6.0 in 2007 to 1.3 in 2008 [annualized]). However, most reported measles cases in Viet Nam are from an outbreak in one district.

The Lao People's Democratic Republic has the greatest decrease in measles incidence, from 285.0 in 2007 to 24.1 in 2008 (annualized), a decrease that has occurred in the setting of much improved surveillance sensitivity (the discarded measles rate increased from 0 in 2007 to 1.9 in 2008 [annualized]). In fact, actual measles incidence in 2008 may be substantially lower as only two (2%) of 96 confirmed cases were laboratory-confirmed, the other cases being clinically confirmed. Mongolia had a fivefold decrease in measles incidence from 41.8 in 2007 to 10.2 in 2008 (annualized) in the setting of markedly increased surveillance sensitivity. Papua New Guinea remains with measles incidence of 0 in 2007 and in 2008; however, surveillance sensitivity is low. No measles cases have been confirmed in the Pacific island countries and areas (PICs).

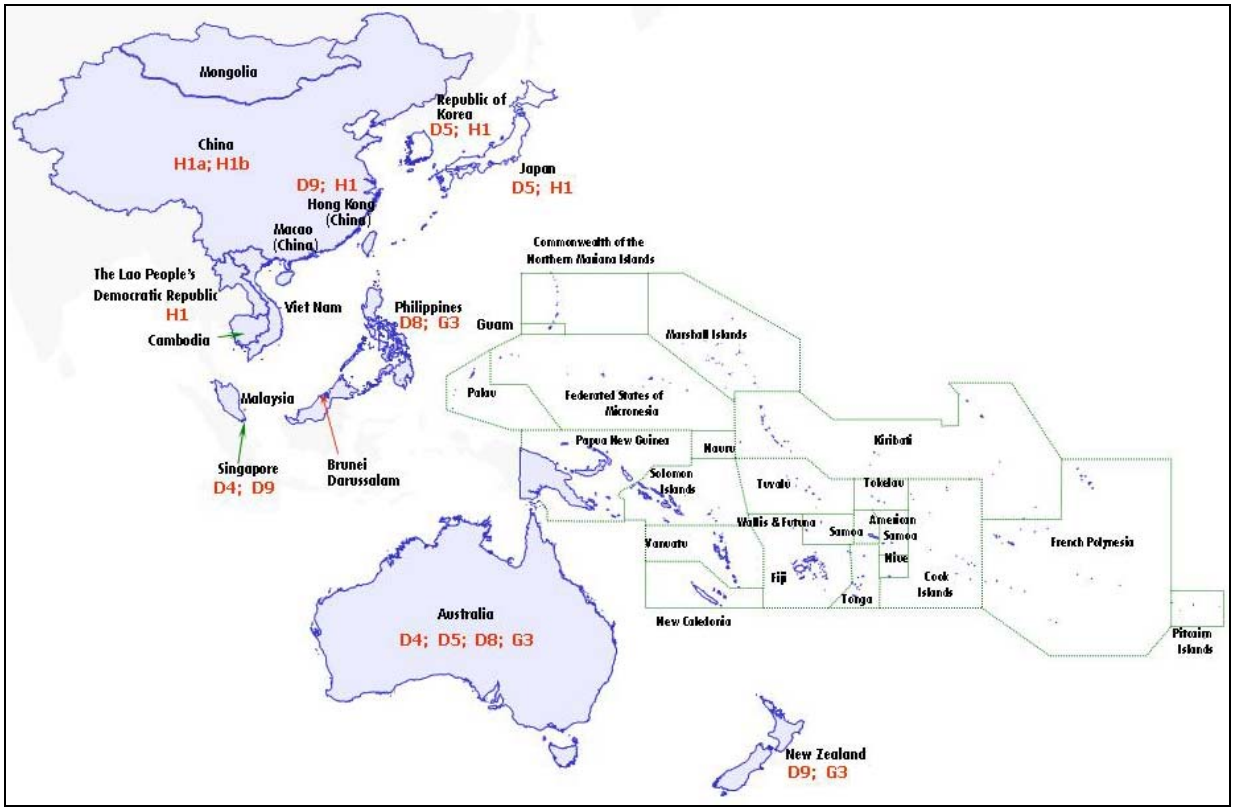
Surveillance performance indicators

Overall, discarded measles case rates were 0.4 per 100 000 in 2007 and 0.2 per 100 000 in 2008 (annualized, Table 2b). Excluding from the denominator the population of countries that didn't report measles case classification to the Regional Office in 2007 and 2008, the discarded measles case rates were 2.4 per 100 000 in 2007 and 0.9 per 100 000 in 2008 (annualized). However, as a large number of suspected measles cases were pending classification at the end of August 2008, the number and rate of discarded cases may increase substantially. Countries achieving the minimum target (≥ 2 per 100 000) in 2008 (annualized) include Brunei Darussalam, Cambodia, Macao (China), Mongolia and Niue. Among Pacific island countries and areas, Fiji, Kiribati, Niue, and Solomon Islands have reported suspected measles cases; only Niue has achieved the target discarded measles case rate.

Overall, adequate specimen rates dropped from 4.1% in 2007 to 2.4% in 2008. Excluding those countries that do not report data needed to determine adequacy of specimens and those that only report laboratory-confirmed cases, adequate specimen rates were 64.8% in 2007 (N=14 countries and areas) and 65.1% in 2008 (N=13). In 2008, only two countries collected adequate specimens from ≥ 80% of suspected cases: Macao (China) and Singapore. Overall, adequate investigations were conducted on 1.7% and 1.5% of all suspected measles cases. Again, excluding countries that do not submit data needed to calculate percent of adequate investigations, adequate investigations were conducted on 26.9% (N=14) and 39.8% (N=13) of suspected measles cases. Only Macao (China) conducted adequate investigations on ≥80% of suspected cases. Laboratory results were available within 7 days of receipt in the laboratory for 79.8% of laboratory specimens in 2007 and 86.4% in 2008. Eight countries had laboratory results available within 7 days of specimen receipt for ≥ 80% of suspected cases: Australia, Hong Kong (China), Malaysia, Mongolia, New Zealand, the Republic of Korea, Singapore and Viet Nam. Following suggestions from Member States, the computation of this laboratory-related indicator for 2008 was based on data from laboratory reports rather than from epidemiologic line lists.

* The TAG in its 2008 Meeting recommended changing the name of "non-measles suspected case rate" to "discarded measles case rate"

Figure 1. Measles virus genotype distribution, Western Pacific Region, 2006-2008



Virus detection for genotyping

The measles laboratory plays a critical role in achieving measles elimination for two main reasons: (1) the laboratory can quickly and accurately confirm or discard suspected cases as measles by serologic testing; and (2) the laboratory can track measles genotype distribution to determine existing endemic strains and identify potential importations. Figure 1 shows the genotype distribution of measles virus in the Western Pacific Region during 2006-2008. Genotype identification of endemic measles virus remains unknown in several countries because specimens required for virus detection and genotype determination have not been collected.

To better understand measles genotype distribution throughout the Region, it is important that all countries collect specimens appropriate for measles virus identification. In addition to virus isolation, measles and rubella virus often can be detected directly from specimens using molecular techniques (reverse transcriptase polymerase chain reaction, or RT-PCR) from (1) pharyngeal or oropharyngeal swabs or aspirates, (2) urine samples, (3) peripheral blood mononuclear cells (PBMCs) from venous blood, and (4) oral fluid (alternative sampling method). After collection, specimens ideally should be kept cold and arrive to the laboratory within 48 hours. RT-PCR can also be used on serum and dried blood spots (which may be shipped at room temperature), but with much less sensitivity. Virus detection yields are optimal if specimens are collected within 7 days after onset of rash. Details on specimen collection, storage and transport can be found in the Western Pacific Region Field Guidelines for Measles Elimination and the Manual for Laboratory Diagnosis of Measles and Rubella Infection, 2nd edition.

Collection of appropriate specimens for measles virus detection from at least 80% of transmission chains is a recommended indicator of high quality measles surveillance and is important for determining sources of infection. For laboratories that perform RT-PCR, timely identification of measles genotypes is important for laboratory accreditation. Timeliness of submission of genotype data from national measles laboratories and regional reference laboratories to the WHO global genotype database needs to be improved.

Expanded Programme on Immunization
Regional Office for the Western Pacific
World Health Organization
United Nations Avenue, P.O. Box 2932, 1000 Manila, Philippines
Fax No. (632) 5211036, 5260279, 5260362 Tel. No. (632) 5288001
Please send your comments and monthly data before the 7th of the month to: ***measles_bulletin@wpro.who.int.***