

Measles Surveillance in the Western Pacific Region, 2007

In the September issue (No. 13) of the Measles Bulletin, measles case classification criteria were outlined and standard indicators for monitoring progress towards measles elimination were described, including surveillance performance indicators. In the November issue (No. 14), the quality of data submitted from epidemiology or programme units and national measles laboratories to the WHO Regional Office for the Western Pacific in 2007 were reviewed, focusing on data completeness and accuracy. Several methods to ensure data quality were recommended. This first issue of 2008 summarizes surveillance data on cases occurring from January to December 2007 based on reports received from countries

and areas in the Region as of 11 February 2008.

Table 1 lists the dates that the Regional Office for the Western Pacific received reports from 16 Asian countries and areas and 21 Pacific island countries and areas (PICs) as a group. Among all 17 reporting units (i.e., 16 Asian countries and areas and the PICs as a group), completeness and timeliness of reporting to the Regional Office was 50% and 19%, respectively, for 2007. Completeness of reporting by month has varied between 41% and 59% following the initial request for case-based data in February 2007. Timeliness was highest (35%) in February and has not reached the same level since. Timeliness is

defined as the per cent of reports received by the reporting deadline (the 7th of the subsequent month for all countries, except the PICs which are requested to report by the 15th). The PICs led other countries in completeness and timeliness of reporting at 100% and 75%, respectively, for 2007. Macao (China) ranked second in completeness of reporting with 92%, followed by New Zealand and Singapore with 83% each. New Zealand ranked second in timeliness of reporting with 58%, followed by the Philippines with 42%. Only Brunei Darussalam and Japan did not report any data to the Regional Office in 2007. These levels of completeness and timeliness will serve as a baseline upon which the Region may improve in 2008.

Table 1 – Completeness and timeliness of reporting – Western Pacific Region, 2007

Country	Date of submission of data*												Completeness (%)	Timeliness (%)
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Australia						09 Jul	09 Aug	10 Sep	19 Oct	07 Nov			42	8
Brunei Darussalam													0	0
Cambodia		04 Mar						10 Sep		17 Nov			25	8
China	28 Feb	14 Mar	16 Apr	10 May	11 Jun	16 Jul		13 Sep		13 Nov		11 Jan	75	0
Hong Kong (China)			10 May	06 Jun	06 Jul	14 Aug	07 Sep			07 Nov	07 Dec	07 Jan	75	25
Japan													0	0
Lao PDR												10 Jan	8	0
Macao (China)		09 Mar	12 Apr	10 May	13 Jun	13 Jul	15 Aug	19 Sep	16 Oct	12 Nov	07 Dec	07 Jan	92	17
Malaysia			18 Apr			26 Jul			12 Nov				25	0
Mongolia	24 Jan	23 Mar	06 Apr	10 May		03 Jul	21 Aug		15 Oct		10 Dec		67	25
New Zealand		07 Mar	18 Apr	07 May	14 Jun	19 Jul	06 Aug	06 Sep	05 Oct		04 Dec	07 Jan	83	58
Papua New Guinea								04 Sep			11 Dec	08 Feb	25	8
Philippines		02 Mar	02 Apr		26 Jun	04 Jul	10 Aug	03 Sep	08 Oct		04 Dec	17 Jan	75	42
Republic of Korea		07 Mar		15 May					11 Oct				25	8
Singapore		06 Mar	04 Apr		06 Jun	10 Jul	08 Aug	12 Sep	08 Oct	14 Nov	10 Dec	08 Jan	83	25
Viet Nam							15 Aug		29 Oct	16 Nov	06 Dec	06 Jan	42	17
Pacific island countries	15 Feb	15 Mar	16 Apr	15 May	15 Jun	16 Jul	15 Aug	14 Sep	15 Oct	15 Nov	17 Dec	15 Jan	100	75
Completeness (%)	18	53	53	41	41	59	53	59	59	47	53	59	50	
Timeliness (%)	12	35	18	12	12	12	12	24	12	18	29	29		19

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

Table 2A summarizes measles case classification and incidence data for 2006 and 2007. In 2006, only the Republic of Korea achieved a measles incidence of <1.0 per million. In 2007, four countries reported a measles incidence of <1.0 per million: Australia (0.6), Macao (China) (0.0), Papua New Guinea (0.0) and Viet Nam (0.2). However, these data are not yet final for 2007, as Australia has yet to report data to the Regional Office through December, and both Macao (China) and Viet Nam have cases pending classification. China reported 118 031 (91.6%) of 128 905 suspected measles cases in the Region in 2007; however, the number of confirmed cases has not been reported.

Table 2B summarizes measles surveillance performance indicators. Overall, the non-measles suspected case rate was 0.3 per 100 000 population in 2007, the same as in 2006. However, only Cambodia, Hong Kong (China), Macao (China), Malaysia, the Philippines, the Republic of Korea, Viet Nam, and the PICs reported measles case classification status to the Regional Office in 2006 and 2007. Among these countries, the non-measles suspected case rate was 2.0 per 100 000 population in both 2006 and 2007. However, this indicator varied by country: only three countries (Cambodia, Malaysia and Viet Nam) achieved a non-measles suspected case rate of ≥ 2 per 100 000 population in 2007, as they did also in 2006. Among the 21 PICs, only

Nauru (7.2) and Palau (20.1) reached or exceeded the non-measles suspected case rate target.

Among the 128 905 suspected measles cases reported to the Regional Office in 2007, adequate investigations were reported for 2167 (1.7%), and adequate blood specimens were reported from 5156 (4.0%) overall. However, among those countries submitting data needed to calculate these indicators (Cambodia, Hong Kong (China), Macao (China), Mongolia, the Philippines, the Republic of Korea, Viet Nam, and 20 of the PICs), 7603 suspected cases were reported in 2007, with adequate investigations conducted for 2167 (28.5%) and adequate blood specimens

collected from 5152 (67.8%). The Marshall Islands led all countries with respect to per cent of suspected cases with adequate investigations (66.7%), followed by the Hong Kong (China) (60.4%), Republic of Korea (58.3%), and Cambodia (42.6%). Papua New Guinea led all countries with respect to per cent of suspected cases with adequate specimens (100%), followed by the Republic of Korea (85.8%), Hong Kong (China) (74.5%), Viet Nam (71.6%), Cambodia (68.2%), the Marshall Islands (66.7%) and New Caledonia (66.7%). National measles laboratories performed particularly well in submitting laboratory results within seven days of receiving blood specimens in the Republic of Korea (98.7%), Hong Kong (China) (92.1%), and the Philippines (84.7%).

The per cent of districts with ≥ 1 non-measles suspected case per 100 000 population is an indicator of surveillance representativeness. Cambodia and Viet Nam had the best performance with 38.3% and 22.0%, respectively, of their districts achieving this minimum non-measles suspected case rate. One reason for the relatively low performance in regard to this indicator is that the average population size of districts in many Member States is <100 000 people. The probability of identifying a non-measles suspected case in a district with 50 000 inhabitants is likely to be substantially less than in a district with a population of 100 000, resulting in a large number of "zero-case" districts. For many countries, it may be more meaningful to monitor the per cent of provinces (i.e. one administrative level above districts) with \geq

1 non measles suspected cases per 100 000 population as an indicator of surveillance representativeness.

All countries and areas are requested to share their core variable data with the Regional Office in a timely manner so that we can provide individual feedback, monitor regional progress towards measles elimination and provide a forum for countries to share with other Member States their progress towards the common goal of measles elimination. Comments and suggestions from Member States are encouraged regarding the indicators for monitoring progress towards measles elimination in the Western Pacific Region, as well as any other issue related to the Measles Bulletin.

Table 2A – Measles case classification and incidence – Western Pacific Region, 2007

Country	Population ^a (in millions)	2006								2007									
		Total suspected measles cases	No. confirmed measles				No. discarded measles	No. pending classification	No. of deaths due to measles	Confirmed measles cases (per 1 000 000)	Total suspected measles cases	No. confirmed measles				No. discarded measles	No. pending classification	No. of deaths due to measles	Confirmed measles cases (per 1 000 000)
			Lab	Epi	Clinical	Total						Lab	Epi	Clinical	Total				
Australia [†]	20.74	124	124	0	0	124	0	0	0	6.0	12	12	0	0	12	0	0	0	0.6
Brunei Darussalam	0.39	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Cambodia	14.44	508	2	0	186	188	287	33	0	13.2	1 177	7	0	348	355	820	2	0	24.7
China	1 328.63	107 538	No data	No data	No data	No data	No data	No data	31	No data	118 031	No data	No data	No data	No data	No data	No data	64	No data
Hong Kong (China)	7.21	139	68	0	38	106	33	0	0	14.9	106	70	0	18	88	18	0	0	12.2
Japan	127.97	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Lao People's Democratic Republic	5.86	22	0	0	18	18	0	4	0	3.1	1 670	122	0	1 548	1 670	0	No data	12	285.0
Macao (China)	0.48	3	2	0	0	2	1	0	0	4.2	1	0	0	0	0	0	1	0	0.0
Malaysia	26.57	1 731	18	0	965	983	748	No data	No data	37.6	1 544	37	0	703	740	793	11	0	27.8
Mongolia	2.63	26	26	0	0	26	0	0	0	10.0	110	10	0	0	10	0	0	0	3.8
New Zealand	4.18	20	1	1	18	20	0	0	0	4.8	26	4	3	14	21	0	1	0	5.0
Papua New Guinea	6.33	No data	No data	No data	No data	No data	No data	No data	No data	No data	4	0	0	0	0	4	0	No data	0.0
Philippines [‡]	87.96	312	6	0	210	216	96	0	3	2.5	888	174	12	314	500	387	1	3	5.7
Republic of Korea	48.22	112	22	3	0	25	84	3	1	0.5	400	162	0	35	197	202	1	0	4.1
Singapore	4.44	28	28	0	0	28	0	0	0	6.4	15	15	0	0	15	0	0	0	3.4
Viet Nam	87.38	6 461	203	1 412	357	1 972	4 198	291	3	22.9	4 888	4	0	13	17	3 458	1 413	0	0.2
Pacific island countries and areas																			
American Samoa	0.07	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Cook Islands	0.02	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Fiji	0.84	132	22	0	110	132	0	0	0	158.5	9	0	0	0	0	9	0	0	0.0
French Polynesia	0.26	No data	No data	No data	No data	No data	No data	No data	No data	No data	0	0	0	0	0	0	0	0	0.0
Guam	0.17	1	0	0	0	0	1	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Kiribati	0.09	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Marshall Islands	0.06	6	0	0	0	0	0	6	No data	0.0	3	0	0	0	0	0	3	0	0.0
Micronesia, Federated States of	0.11	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Nauru	0.01	2	0	0	0	0	2	0	No data	0.0	1	0	0	0	0	1	0	0	0.0
New Caledonia	0.24	2	0	0	0	0	1	1	No data	0.0	3	0	0	0	0	2	1	0	0.0
Niue	0.00	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Northern Mariana Islands	0.08	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Palau	0.02	1	0	0	0	0	0	1	No data	0.0	14	0	0	0	0	4	10	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	No data	No data	No data	No data	No data	No data	No data	No data	No data
Samoa	0.19	10	0	0	0	0	2	8	No data	0.0	2	0	0	0	0	2	0	0	0.0
Solomon Islands	0.50	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Tokelau	0.00	0	0	0	0	0	0	0	No data	0.0	1	0	0	0	0	0	1	0	0.0
Tonga	0.10	2	0	0	0	0	2	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Tuvalu	0.01	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Vanuatu	0.23	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Wallis and Futuna	0.02	0	0	0	0	0	0	0	No data	0.0	0	0	0	0	0	0	0	0	0.0
Western Pacific Region	1 776.45	117 180	522	1 416	1 902	3 840	5 455	347	38	2.2	128 905	617	15	2 993	3 625	5 698	1 447	79	2.0

^{*} Cases reported through 11 February 2008

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

[†] Reported cases for Australia are either laboratory confirmed or epidemiologically linked to a laboratory-confirmed case

[‡] Sentinel surveillance system

Reached target of <1 confirmed measles case per 1 000 000 population
 1.0 - 1.9 confirmed measles case per 1 000 000 population
 ≥ 2 confirmed cases per 1 000 000 population

Table 2B – Measles surveillance performance indicators – Western Pacific Region, 2007

Country	Population ^a (in millions)	No. of districts [†]	Average population per district	2006				2007								
				Total suspected measles cases	Confirmed cases	Discarded cases	Non-measles suspected case rate (per 100 000)	Total suspected measles cases	Confirmed cases	Discarded cases	Non-measles suspected case rate (per 100 000)	Districts with ≥ 1 non-measles suspected case (per 100 000)	Suspected cases with adequate investigation	Suspected cases with adequate blood specimens	Laboratory results ≤ 7 days	
Target							≥ 2					≥ 2	≥ 80%	≥ 80%	≥ 80%	≥ 80%
Australia	20.74	No data		124 [†]	124	0	0.0	12 [†]	12	0	0.0	No data	No data	No data	No data	No data
Brunei Darussalam	0.39	No data		No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Cambodia	14.44	180	79 797	508	188	287	2.0	1 177	355	820	5.7	69 (38.3%)	501 (42.6%)	803 (68.2%)	No data	No data
China	1 328.63	3 132	424 211	107 538	No data	No data	No data	118 031	No data	No data	No data	No data	No data	No data	No data	No data
Hong Kong (China)	7.21	1		139	106	33	0.5	106	88	18	0.2	0 (0.0%)	64 (60.4%)	79 (74.5%)	82 (92.1%)	No data
Japan	127.97	No data		No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
Lao People's Democratic Republic	5.86	140	41 850	22	18	0	0.0	1 670	1 670	0	0.0	No data	No data	No data	No data	No data
Macao (China)	0.48	1		3	2	1	0.2	1	0	0	0.0	0 (0.0%)	No data	No data	No data	No data
Malaysia	26.57	132	201 303	1 731	983	748	2.9	1 544	740	793	3.0	No data	No data	No data	No data	No data
Mongolia	2.63	342	7 687	26 [†]	26	0	0.0	110 [†]	10	0	0.0	No data	0 (0.0%)	No data	No data	No data
New Zealand	4.18	No data		20 [†]	20	0	0.0	26 [†]	21	0	0.0	No data	No data	No data	No data	No data
Papua New Guinea	6.33	89	71 135	No data	No data	No data	No data	4	0	4	0.1	No data	No data	4 (100.0%)	No data	No data
Philippines [‡]	87.96	186	472 903	312	216	96	0.1	888	500	387	0.4	10 (5.4%)	76 (8.6%)	423 (47.6%)	486 (84.7%)	No data
Republic of Korea	48.22	251	192 127	112	25	84	0.2	400	197	202	0.4	No data	233 (58.3%)	343 (85.8%)	370 (98.7%)	No data
Singapore	4.44	1		28 [†]	28	0	0.0	15 [†]	15	0	0.0	0 (0.0%)	No data	No data	No data	No data
Viet Nam	87.38	673	129 829	6 461	1 972	4 198	4.9	4 888	17	3 458	4.0	148 (22.0%)	1 290 (26.4%)	3 499 (71.6%)	No data	No data
Pacific island countries and areas:																
American Samoa	0.07	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Cook Islands	0.02	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Fiji	0.84	1		132	132	0	0.0	9	0	9	1.1	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
French Polynesia	0.26	1		No data	No data	No data	No data	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Guam	0.17	1		1	0	1	0.6	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Kiribati	0.09	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Marshall Islands	0.06	1		6	0	0	0.0	3	0	0	0.0	0 (0.0%)	2 (66.7%)	2 (66.7%)	0 (0.0%)	0 (0.0%)
Micronesia, Federated States of	0.11	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Nauru	0.01	1		2	0	2	14.5	1	0	1	7.2	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
New Caledonia	0.24	1		2	0	1	0.4	3	0	2	0.8	0 (0.0%)	0 (0.0%)	2 (66.7%)	0 (0.0%)	0 (0.0%)
Niue	0.00	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Northern Mariana Islands	0.08	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Palau	0.02	1		1	0	0	0.0	14	0	4	20.1	1 (100.0%)	1 (7.1%)	1 (7.1%)	0 (0.0%)	0 (0.0%)
Pitcairn Islands	0.00	1		No data	No data	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	1		10	0	2	1.1	2	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Solomon Islands	0.50	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Tokelau	0.00	1		0	0	0	0.0	1	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Tonga	0.10	1		2	0	2	2.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Tuvalu	0.01	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Vanuatu	0.23	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Wallis and Futuna	0.02	1		0	0	0	0.0	0	0	0	0.0	0 (0.0%)	Not applicable	Not applicable	Not applicable	Not applicable
Western Pacific Region	1 776.45	5 149		117 180	3 840	5 455	0.3	128 905	3 625	5 698	0.3	230 (4.5%)	2 167 (1.7%)	5 156 (4.0%)	938 (0.7%)	

^a Cases reported through 11 February 2008

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

[†] District data from WHO/UNICEF Joint Reporting Forms 2007

[‡] Only confirmed cases were reported: in Australia, Mongolia, and Singapore, only laboratory-confirmed cases were reported.

[§] Sentinel surveillance system

	Reached or surpassed target
	Nearly reached target (1.0 - 1.99 for non-measles suspected case rate; 60-79% for other indicators)
	Substantially below target

Expanded Programme on Immunization
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Please send your comments and monthly data to measles_bulletin@wpro.who.int.