

# Immunization in the Americas

## 2008 Summary

Comprehensive Family Immunization  
Family and Community Health



**Pan American  
Health  
Organization**

*Regional Office of the  
World Health Organization*



# preface

Published annually, *Immunization in the Americas* serves as a benchmark for monitoring the progress of national immunization programs in the following three main strategic areas of work:

**1. Protecting the achievements.** The Americas have been the first Region in the world in eradicating poliomyelitis and eliminating endemic measles transmission. National immunization programs in the Americas have reached approximately 90% vaccination coverage for all childhood vaccines, leading to epidemiological control of diphtheria, tetanus, pertussis, hepatitis B, and invasive disease caused by *Haemophilus influenzae* type b. However, to protect these achievements, it is necessary that countries aim to reach and maintain coverage levels  $>95\%$  for all childhood vaccines in all municipalities.

**2. Addressing the unfinished immunization agenda.** First, coverage levels are not homogenous between and within countries, leading to pockets of unvaccinated persons at risk of contracting vaccine-preventable diseases. Overall, 44% of the municipalities of Latin American and Caribbean countries report not having reached 95% coverage with three doses of diphtheria-tetanus-pertussis vaccine. Second, seasonal influenza vaccine use in Latin American and Caribbean countries needs to be extended to all at-risk groups. Third, yellow fever has not been fully controlled in all enzootic areas of the Region, and the risk of yellow fever reurbanization in the Americas does exist. Finally, countries have made great strides toward eliminating rubella and congenital rubella syndrome by 2010, as mandated by the Ministers of Health of the Americas during PAHO's 2003 Directing Council. Each country must now verify elimination to document the Region's measles- and rubella-free status.

**3. Meeting new challenges.** Countries must adapt to a growing number of vaccines and more complex demands placed on the immunization program at all levels. The effectiveness of these new vaccines varies by country. They are also much more costly than traditional childhood vaccines. Therefore, countries will have to make policy decisions based on a broader base of evidence, supported by a strong national surveillance and a robust laboratory network to evaluate disease burden and vaccine impact after introduction. Also key will be economical evaluations to take into account both high vaccine price and the logistical aspects of new vaccine introduction. PAHO's Pro-Vac initiative is providing countries with tools to conduct economic and cost-effectiveness studies to help them make decisions regarding new vaccine introduction. Also, PAHO's Revolving Fund for Vaccine Procurement will continue to ensure that quality vaccines are available at an affordable price to all countries of the Americas.

It is paramount to ensure that national immunization programs remain strong and sustainable so they can continue to catalyze the growth and achievements of primary care services. To that end, *Immunization in the Americas* provides an overview of vaccine-preventable disease and immunization data from all countries of the Americas.



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For this publication:

- Latin America is composed of Mexico, Central American Isthmus, Latin Caribbean, Andean Area, Brazil, and Southern Cone.
- Latin America & Caribbean is composed of Latin America and Non-Latin Caribbean.
- Because of their population size, Brazil and Mexico are shown separately.

# demographic and socioeconomic data

	1	2	3	4		5	6		7	8	9		10
	total population (thousands)	crude birth rate (1,000 pop)	annual births average (thousands)	infant mortality rate or number of deaths (N) (1,000 lb)		women of childbearing age (WCBA) (thousands)	gross national income (US\$ per capita)		population below int'l poverty line (%) (latest available)	national health expenditure as a % of GDP			
	2007	2007	2007	rate	(N) year	2007	current value	ppp value	1998-04	public expenditure	private expenditure	2004	2004
<b>The Americas</b>	910,951	15.1	16,076.7	16.1		236,976	20,040	22,268			...	...	
<b>North America</b>	338,768	11.9	4,639.7	6.8		83,094	43,928	43,314			...	...	
Bermuda	66	11.3	0.7	NA	1 2005	...	...	...	...	...	3.7 <sup>c</sup>	5.3 <sup>k</sup>	
Canada	32,876	10.3	341.2	5.4	2005	8,173	36,650	36,280	...	...	7.4 <sup>d</sup>	1.4 <sup>d,l</sup>	
United States of America	305,826	14.0	4,297.8	6.9	2005	74,921	44,710	44,070	...	...	8.1 <sup>d</sup>	4.6 <sup>d,l</sup>	
<b>Latin America &amp; the Caribbean</b>	572,183	18.2	11,437.0	20.2		153,882	4,952	8,961	...	...	...	...	
<b>Latin America</b>	565,223	20.2	11,315.5	20.2		152,077	4,969	8,998	...	...	...	...	
<b>Mexico</b>	106,535	19.3	2,075.3	15.7	2007	29,583	7,830	11,990	3.0	2.4	2.7 <sup>d,m</sup>		
<b>Central American Isthmus</b>	41,019	24.7	1,106.0	22.3		10,508	2,614	5,330	17.4	...	...	...	
Belize	288	25.2	7.3	17.2	2007	74	3,740	7,080	...	1.9	1.5 <sup>l</sup>		
Costa Rica	4,468	17.8	79.9	10.1	2007	1,209	4,980	9,220	3.3	4.8 <sup>e</sup>	3.2 <sup>e,m</sup>		
El Salvador	6,857	22.8	157.6	21.5	2007	1,822	2,680	5,610	19.0	3.7 <sup>e,a</sup>	3.9 <sup>e,m</sup>		
Guatemala	13,354	33.2	450.3	...	...	3,239	2,590	5,120	13.5	2.2 <sup>d</sup>	4.8 <sup>d,m</sup>		
Honduras	7,106	27.9	200.3	23.0	2006	1,807	1,270	3,420	14.9	3.9 <sup>d</sup>	2.9 <sup>d,m</sup>		
Nicaragua	5,603	24.9	140.4	33.0	2006	1,480	930	2,720	45.1	3.5 <sup>d</sup>	4.1 <sup>d,n</sup>		
Panama	3,343	20.8	70.2	14.8	2006	877	5,000	8,690	7.4	4.3 <sup>d</sup>	2.0 <sup>d,m</sup>		
<b>Latin Caribbean</b>	35,663	18.0	687.0	34.5		9,260	...	...	...	...	...	...	
Cuba	11,268	10.3	116.3	5.3	2007	2,996	...	...	...	6.3 <sup>e,f</sup>	...	...	
Dominican Republic	9,760	23.5	230.7	30.7	2007	2,525	2,910	5,500	2.8	1.2 <sup>g</sup>	3.2 <sup>g,m</sup>		
French Guiana	202	23.9	4.9	10.4	2003	115	...	...	...	...	...	...	
Guadeloupe	445	14.8	6.6	7.1	2005	51	...	...	...	...	...	...	
Haiti	9,598	27.9	270.2	57.0	2006	2,470	430	1,070	53.9	2.7 <sup>f</sup>	2.1 <sup>m</sup>		
Martinique	399	12.4	4.9	6.1	2003	103	...	...	...	...	...	...	
Puerto Rico	3,991	13.3	53.4	8.7	2006	1,001	...	...	...	3.5	...	...	
<b>Andean Area</b>	124,582	21.9	2,597.7	21.5		33,274	3,568	7,183	12.7	...	...	...	
Bolivia	9,525	27.3	262.7	54.0	2003	2,364	1,100	3,810	23.2	4.2 <sup>d</sup>	1.6 <sup>d,m</sup>		
Colombia	46,156	18.7	869.5	15.9	2005	12,698	3,120	6,130	7.0	3.4 <sup>l</sup>	2.4 <sup>m</sup>		
Ecuador	13,341	21.0	281.6	20.1	2006	3,437	2,910	6,810	17.7	2.2	6.1 <sup>m</sup>		
Peru	27,903	20.9	586.1	21.0	2003	7,443	2,980	6,490	10.5	2.3 <sup>g</sup>	2.1 <sup>g,n</sup>		
Venezuela	27,657	21.4	597.8	16.5	2006	7,332	6,070	10,970	18.5	4.4 <sup>e</sup>	2.0 <sup>e,l</sup>		
<b>Brazil</b>	191,791	19.2	3,697.8	21.2	2005	52,709	4,710	8,700	7.5	3.6 <sup>c,d</sup>	3.8 <sup>d,m</sup>		
<b>Southern Cone</b>	65,633	18.1	1,151.7	12.4		16,743	5,227	10,771	5.9	...	...	...	
Argentina	39,531	17.5	696.4	12.9	2006	9,944	5,150	11,670	6.6	4.6 <sup>d,h</sup>	3.2 <sup>d,m</sup>		
Chile	16,635	15.0	251.4	7.6	2006	4,447	6,810	11,300	2.0	3.9 <sup>d,h</sup>	2.1 <sup>d,m</sup>		
Paraguay	6,127	24.8	153.4	18.0	2006	1,543	1,410	4,040	13.6	2.1	2.9 <sup>m</sup>		
Uruguay	3,340	15.1	50.5	11.9	2007	809	5,310	9,940	2.0	7.0 <sup>c,e,h</sup>	3.1 <sup>e,m</sup>		
<b>Non-Latin Caribbean</b>	6,960	16.3	121.5	...		1,805	5,544	9,369	...	...	...	...	
Anguilla	14	14.0	0.2	...	...	...	...	...	...	4.3	2.6 <sup>l</sup>		
Antigua & Barbuda	69	16.6	1.2	21.8	2007	...	11,050	15,130	...	2.9	1.0 <sup>l</sup>		
Aruba	104	14.1	1.4	NA	3 2004	28	...	...	...	8.5 <sup>e,f</sup>	2.5 <sup>e,m</sup>		
Bahamas, The	331	16.9	5.6	17.6	2007	93	...	...	...	3.4 <sup>e</sup>	2.9 <sup>e,l</sup>		
Barbados	294	11.0	3.2	14.2	2005	82	...	15,150	...	4.3 <sup>g</sup>	1.8 <sup>g,l</sup>		
Cayman Islands	47	12.6	0.6	NA	6 2007	...	...	...	...	3.7	...		
Dominica	69	14.8	1.0	NA	13 2007	...	4,160	7,870	...	3.8	2.2 <sup>l</sup>		
Grenada	106	18.0	1.9	11.0	2007	27	4,650	8,770	...	3.2	5.4 <sup>k</sup>		
Guyana	738	17.1	12.5	22.0	2005	182	1,150	3,410	...	5.6	1.1 <sup>k</sup>		
Jamaica	2,714	19.9	54.0	...	...	719	3,560	7,050	2.0	3.1 <sup>d</sup>	2.4 <sup>d,m</sup>		
Montserrat	10	17.5	0.2	NA	1 2007	...	...	...	...	7.1	1.1 <sup>l</sup>		
Netherlands Antilles	192	12.5	2.4	...	...	52	...	...	...	11.5	0.9 <sup>l</sup>		
Saint Kitts & Nevis	39	17.9	0.7	NA	15 2007	...	8,460	12,440	...	2.1	1.8 <sup>l</sup>		
Saint Lucia	165	19.1	3.2	15.0	2005	46	5,060	8,500	...	3.7	1.4 <sup>l</sup>		
Saint Vincent & the Grenadines	120	20.1	2.4	26.2	2006	33	3,320	6,220	...	3.6	0.6 <sup>l</sup>		
Suriname	458	19.5	8.9	19.1	2006	122	4,210	7,720	...	3.8	0.7		
Trinidad & Tobago	1,333	14.8	19.8	16.5	2004	394	12,500	16,800	...	2.5 <sup>e</sup>	2.9 <sup>e,m</sup>		
Turks & Caicos Islands	22	21.5	0.5	NA	2 2007	...	...	...	...	4.8	...		
Virgin Islands (UK)	24	14.8	0.3	NA	6 2006	...	...	...	...	2.3	...		
Virgin Islands (US)	111	13.4	1.5	NA	11 2005	27	...	...	...	3.0	...		

(a) estimated to be 11,116 USD or more; (b) estimated to be 906-3,595 USD; (c) institutional expenditure; (d) value 2006; (e) value 2005;

(f) expenditure by activities or budgetary program (includes public health insurance); (g) value 2003; (h) includes 'Obras Sociales' (ARG), ISAPRES and FONASA (CHL), IAMC (URY);

(k) personal care and health; (l) medical care and expense; (m) health; (n) health care and health conservation.

# immunization coverage

	11	12	13	14	15	16	17	18	19	20	21	22
	percentage of coverage									percentage of municipalities with coverage level $\geq$ 95%		total number of districts/ municipalities
	< 1 year of age						1 year of age		influenza (for older adults) 2007	DTP3	MMR	
	BCG	polio3	DTP1	DTP3	Hib3	Hep B3	MMR	MMR2 <sup>h</sup>		2007	2007	2007
<b>The Americas</b>	96	94	96	93	91	89	93					
<b>North America</b>	NA	93	99	95	92	87	92					
Bermuda	NA	94	97	94	94	83	89	57	65 <sup>k</sup>	...	...	1 <sup>k</sup>
Canada	NA	90 <sup>c</sup>	...	94 <sup>c</sup>	70	14	94 <sup>c</sup>	...	37	...	...	13 <sup>l</sup>
United States of America	NA	93 <sup>c</sup>	99 <sup>c,e</sup>	95 <sup>c,e</sup>	93 <sup>c</sup>	93 <sup>c</sup>	92 <sup>c</sup>	...	65 <sup>e</sup>	66.7 <sup>e</sup>	7.8 <sup>e</sup>	51 <sup>m</sup>
<b>Latin America &amp; the Caribbean</b>	96	94	95	93	91	90	94			56.1	59.2	15,148
<b>Latin America</b>	96	94	95	93	91	90	94			56.1	59.3	14,917
<b>Mexico</b>	99	100	100	98	98	98	96	85	85	94.2	89.2	2,474
<b>Central American Isthmus</b>	97	93	95	93	93	93	94			43.4	40.1	1,208
Belize	99	97	98	96	96	96	96	89	NA	66.7	50.0	6
Costa Rica	91	89	90	89	88	89	90	...	...	24.7	25.9	81
El Salvador*	100 <sup>a,b</sup>	100 <sup>a,b</sup>	100 <sup>a,b</sup>	100 <sup>a,b</sup>	100 <sup>a,b</sup>	100 <sup>a,b</sup>	100 <sup>a,b</sup>	81	92	32.8	15.3	262
Guatemala	97	93	96	93	93	93	93	NA	49	58.7	57.2	332
Honduras	91	86	86	86	86	86	89	NA	91	33.2	38.3	298
Nicaragua	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	NA	78	58.8	62.7	153
Panama	100	87	100	88	88	88	89	80	94	40.3	27.3	76
<b>Latin Caribbean</b>	84	80	82	80	45	49	79			21.9	56.0	457
Cuba	100	99	...	93	97	93	100	100	...	5.9	100	169
Dominican Republic	92	86	87	87	70	81	96	...	...	29.0	37.4	...
French Guiana	...	...	...	...	...	...	...	...	...	...	...	...
Guadeloupe	...	...	...	...	...	...	...	...	...	...	...	133
Haiti	70	66	77	68	NA	NA	54 <sup>g</sup>	NA	NA	33.8	21.8	...
Martinique	...	...	...	...	...	...	...	...	...	...	...	...
Puerto Rico	...	...	...	...	...	...	...	...	...	...	...	155
<b>Andean Area</b>	92	85	88	84	84	84	85			30.2	41.0	3,815
Bolivia	86	82	85	82	82	82	83	NA	NA	22.6	26.9	327
Colombia	93	93	91	93	93	93	95	93	...	27.7	35.3	1,119
Ecuador	100 <sup>a</sup>	100	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	NA	58	...	...	169
Peru	100	87	100	87	87	87	95	9	NA	39.3	55.8	1,833
Venezuela	82	67	69	61	61	61	56	NA	21	9.3	10.9	367
<b>Brazil</b>	100 <sup>a</sup>	100	98	98	98	95	100 <sup>a</sup>	49	90	64.4	64.8	5,564
<b>Southern Cone</b>	97	92	93	94	94	91	95			52.0	52.0	1,399
Argentina	100 <sup>a</sup>	94	94	96	96	92	99	91	85	47.7	45.4	547
Chile	98	95	98	96	96	96	92	95	89	51.3	44.1	345
Paraguay	78	78	78	78	78	78	80	63	73	19.7	27.5	232
Uruguay	99	95	99	95	95	95	97	...	31	88.7	96.0	275
<b>Non-Latin Caribbean</b>	90	89	90	88	87	88	84			53.2	47.9	231
Anguilla	100 <sup>a</sup>	95	100	100	100	100	100	...	...	...	...	3
Antigua & Barbuda	NA	98	100	99	100	97	99	78	...	50.0	37.5	24
Aruba	...	...	...	...	...	...	...	...	...	...	...	...
Bahamas, The	NA	95	100 <sup>a</sup>	95	95	93	96	NA	NA	73.2 <sup>k</sup>	...	85
Barbados	NA	93	93	93	93	93	75	75	NA	...	...	8
Cayman Islands	84	91	...	91	91	79	87	...	...	...	...	6
Dominica	90	93	93	96	93	93	96	95	...	...	...	7
Grenada	NA	100 <sup>a</sup>	91	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	98	86	...	28.6	28.6	7
Guyana	97	94	96	94	94	94	96	90	NA	46.2	61.5	13
Jamaica	87	85	85	85	85	85	76	17	...	7.7 <sup>f</sup>	7.7 <sup>f</sup>	13
Montserrat	100	100 <sup>a</sup>	81	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100	80	100	100	4
Netherlands Antilles	...	100 <sup>d</sup>	...	100 <sup>d</sup>	100 <sup>d</sup>	86 <sup>d</sup>	82 <sup>d</sup>	...	...	...	...	1 <sup>d</sup>
Saint Kitts & Nevis	97	100	100	100	100	100	99	...	NA	100	100	17
Saint Lucia	100	99	95 <sup>f</sup>	99	99	99	94	...	...	100	...	9
Saint Vincent & the Grenadines	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	83	...	88.9	55.6	9
Suriname	NA	84	96	84	84	84	85	NA	NA	30.0	40.0	10 <sup>f</sup>
Trinidad & Tobago	NA	90	90	88	88	89	91	87	NA	33.3	44.4	9
Turks & Caicos Islands	100	80	90	80	80	80	87	...	...	100	100	6
Virgin Islands (UK)	98	83	95	95	80	19	71	...	NA	...	...	...
Virgin Islands (US)	...	...	...	...	...	...	...	...	...	...	...	...

(a) reported coverage > 100%; (b) coverage under revision by the country; (c) < 2 years of age; (d) St. Maarten only; (e) value 2004; (f) value 2006; (g) coverage report for measles vaccine in children < 1 year of age; (h) target age groups vary by country; (k) value 2005; (l) reports number of provinces and territories; (m) reports number of states.

# morbidity data

	23	24	25	26	27	28	29	30	31	32	33	34
	number of reported cases											
	confirmed cases				neonatal tetanus	tetanus (non-neonatal)			pertussis	diphtheria	Hib meningitis	mumps
	wild polio	measles	rubella	CRS		male	female	total				
	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007	2007
<b>The Americas</b>	0	176	13,193	19	63	457	154	723	19,753	103	212	47,562
<b>North America</b>	0	144	13	0	0	...	0	33	11,926	5	48	1,908
Bermuda	0	0	0	0	0	...	...	0	0	0	0	0
Canada	0	101 <sup>a</sup>	1	0	0	...	...	5	1,472	5	26	1,108
United States of America	0	43 <sup>a,b</sup>	12 <sup>b</sup>	0 <sup>b</sup>	0 <sup>b</sup>	...	...	28 <sup>b</sup>	10,454 <sup>b</sup>	0 <sup>b</sup>	22 <sup>b,d</sup>	800 <sup>b</sup>
<b>Latin America &amp; the Caribbean</b>	0	32	13,180	19	63	457	154	690	7,827	98	164	45,654
<b>Latin America</b>	0	32	13,180	19	63	446	149	674	7,824	98	162	45,653
<b>Mexico</b>	0	0	102	0	4	40	5	45	164	0	1	7,880
<b>Central American Isthmus</b>	0	0	0	0	2	22	7	29	2,323	0	5	912
Belize	0	0	0	0	0	0	0	0	0	0	0	0
Costa Rica	0	0	0	0	0	0	1	1	2,024	0	...	0
El Salvador	0	0	0	0	0	6	0	6	2	0	1	329
Guatemala	0	0	0	0	2	2	1	3	97	0	2	2
Honduras	0	0	0	0	0	11	2	13	71	0	0	233
Nicaragua	0	0	0	0	0	2	2	4	51	0	...	141
Panama	0	0	0	0	0	1	1	2	78	0	2	207
<b>Latin Caribbean</b>	0	0	0	0	40	92	64	156	834	98	3	267
Cuba	0	0	0	0	0	0	0	0	0	0	3	267
Dominican Republic	0	0	0	...	2	52	12	64	10	4	0	...
French Guiana	0	0	0	0	...	...	...	...	...	...	...	...
Guadeloupe	0	...	...	...	...	...	...	...	...	...	...	...
Haiti	0	0	0	0	38	40	52	92	824	94	...	...
Martinique	0	...	...	...	...	...	...	...	...	...	...	...
Puerto Rico	0	...	...	...	...	...	...	...	...	...	...	...
<b>Andean Area</b>	0	32	64	2	12	50	15	144	256	0	16	21,423
Bolivia	0	0	0	0	1	6	3	9	0	0	2	...
Colombia	0	0	2	0	4	0	0	65	125	0	14	2,294
Ecuador	0	0	0	0	2	...	...	15	84	0	0	11
Peru	0	0	0	2	4	43	12	55	47	0	...	...
Venezuela	0	32 <sup>a</sup>	62	0	1	1	...	...	...	...	...	19,118
<b>Brazil</b>	0	0	8,683 <sup>c</sup>	17 <sup>c</sup>	5	228	53	281	596	0	108	...
<b>Southern Cone</b>	0	0	4,331	0	0	14	5	19	3,651	0	29	15,171
Argentina	0	0	96 <sup>c</sup>	0	0	3	3	6	2,587	0	17	11,575
Chile	0	0	4,235	0	0	2	1	3	1,030	0	2	1,387
Paraguay	0	0	0	0	0	9	1	10	8	0	8	140
Uruguay	0	0	0	0	0	0	0	0	26	0	2	2,069
<b>Non-Latin Caribbean</b>	0	0	0	0	0	11	5	16	3	0	2	1
Anguilla	0	0	0	0	0	0	0	0	0	0	0	0
Antigua & Barbuda	0	0	0	0	0	0	0	0	0	0	0	...
Aruba	0	...	...	...	...	...	...	...	...	...	...	...
Bahamas, The	0	0	0	0	0	1	0	1	0	0	0	0
Barbados	0	0	0	0	0	1	1	2	0	0	0	0
Cayman Islands	0	0	0	0	0	0	0	0	0	0	0	1
Dominica	0	0	0	0	0	0	0	0	0	0	1	0
Grenada	0	0	0	0	0	1	0	1	0	0	0	0
Guyana	0	0	0	0	0	0	0	0	3	0	0	0
Jamaica	0	0	0	0	0	7	3	10	0	0	0	0
Montserrat	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands Antilles	0	0	0	0	0	...	...	0	0	0	0	0
Saint Kitts & Nevis	0	0	0	0	0	0	0	0	0	0	0	0
Saint Lucia	0	0	0	0	0	0	0	0	0	0	1	0
Saint Vincent & the Grenadines	0	0	0	0	0	0	0	0	0	0	0	...
Suriname	0	0	0	0	0	1	1	2	0	0	0	...
Trinidad & Tobago	0	0	0	0	0	...	...	0	0	0	0	...
Turks & Caicos Islands	0	0	0	0	0	0	0	0	0	0	0	0
Virgin Islands (UK)	0	0	0	0	0	0	0	0	0	0	...	0
Virgin Islands (US)	0	0	...	...	...	...	...	...	...	...	...	...

(a) cases related to importation; (b) Morbidity and Mortality Weekly Report (MMWR), August 22, 2008/Vol 57/No.33; (c) provisional data; (d) invasive disease (age <5 years).

# program management and financing

	35	36	37	38	39	40	41	42	43
	multi-year strategic plan for national immunization program	number of ICC meetings	number of NCIP meetings	number of districts with at least 1 supportive supervisory visit	plan for immunization injection safety	national system to monitor ESAVIs	spending on routine immunization financed using gov't funds (%)	spending on vaccine purchases financed using gov't funds (%)	budget line for vaccine purchases
	2007	2007	2007	2007	2007	2007	2007	2007	2007
<b>The Americas</b>									
<b>North America</b>									
Bermuda	no	NA	3	...	...	...	...	...	...
Canada	yes <sup>a</sup>	NA	3	NA	yes	yes	100 <sup>d</sup>	100 <sup>d</sup>	...
United States of America	no <sup>b</sup>	NA	3	NA	NA	NA	...	...	...
<b>Latin America &amp; the Caribbean</b>									
<b>Latin America</b>									
<b>Mexico</b>	yes	284	9	...	yes	yes	100	100	...
<b>Central American Isthmus</b>									
Belize	yes	NA	NA	6	yes	no	100	100	yes
Costa Rica	no	no ICC	9	81	yes	yes	100	100	yes
El Salvador	yes	3	10	262	yes	yes	95	100	yes
Guatemala	no	1	0	...	yes	yes	100 <sup>d</sup>	100	yes
Honduras	yes	3	4	298	yes	yes	97	100	yes
Nicaragua	yes	3	1	...	yes	yes	70	49	yes <sup>d</sup>
Panama	yes	no ICC	5	...	yes	yes	100 <sup>d</sup>	100 <sup>d</sup>	yes <sup>d</sup>
<b>Latin Caribbean</b>									
Cuba	yes	2	5	169	yes	yes	99	99	yes
Dominican Republic	yes	3	no NCIP	155	...	...	100	94	yes <sup>e</sup>
French Guiana	...	...	...	...	...	...	...	...	...
Guadeloupe	...	...	...	...	...	...	...	...	...
Haiti	yes	2	5	...	yes	no	10	0	no
Martinique	...	...	...	...	...	...	...	...	...
Puerto Rico	...	...	...	...	...	...	...	...	...
<b>Andean Area</b>									
Bolivia	yes	4	2	...	yes	yes	87	100	yes
Colombia	yes	1	4	...	yes	yes	100	100	yes
Ecuador	no	2	2	...	no	yes	99	100	yes
Peru	yes	0	12	850	yes	yes	100	100	yes
Venezuela	no	no ICC	...	0	no	yes	100	100	yes
<b>Brazil</b>	yes	3	3	5,564	no	yes	100 <sup>d</sup>	100 <sup>d</sup>	yes <sup>d</sup>
<b>Southern Cone</b>									
Argentina	yes	...	2	...	yes	yes	100 <sup>d</sup>	100 <sup>d</sup>	yes
Chile	yes	no ICC	2	345	yes	yes	100	100	yes <sup>d</sup>
Paraguay	yes	1	0	232	yes	yes	100 <sup>d</sup>	100 <sup>d</sup>	yes <sup>d</sup>
Uruguay	yes	no ICC	no NCIP	...	no	yes	100	100	yes
<b>Non-Latin Caribbean</b>									
Anguilla	no	no ICC	no NCIP	...	...	yes	...	...	...
Antigua & Barbuda	no	no ICC	no NCIP	24	...	yes	...	...	...
Aruba	...	...	...	...	...	...	...	...	...
Bahamas, The	yes	no ICC	no NCIP	24	yes	yes	100	100	yes
Barbados	no	1	no NCIP	0	no	yes	100	100 <sup>d</sup>	...
Cayman Islands	no	no ICC	no NCIP	...	yes	yes	100 <sup>d</sup>	100 <sup>d</sup>	...
Dominica	yes	no ICC	no NCIP	7	yes	yes	100	100	yes
Grenada	no	no ICC	no NCIP	7	yes	yes	100	100	yes
Guyana	yes	2	no NCIP	13	yes	yes	69	100	yes
Jamaica	no	0	no NCIP	13	yes	yes	100	100	yes
Montserrat	no	no ICC	no NCIP	4	no	yes	...	...	...
Netherlands Antilles	no	2	1	0	no	no	...	...	...
Saint Kitts & Nevis	yes	no ICC	no NCIP	17	...	yes	100 <sup>d</sup>	100 <sup>d</sup>	yes <sup>d,e</sup>
Saint Lucia	yes	no ICC	no NCIP	9	yes	yes	100	100	yes
Saint Vincent & the Grenadines	yes	no ICC	no NCIP	9	yes	yes	100	100	yes
Suriname	no	no ICC	no NCIP	...	no	no	100	100	yes
Trinidad & Tobago	yes	no ICC	2	8	yes	yes	100 <sup>d</sup>	100 <sup>d</sup>	yes
Turks & Caicos Islands	...	...	...	...	...	no	...	...	...
Virgin Islands (UK)	no	...	...	...	...	...	...	...	...
Virgin Islands (US)	...	...	...	...	...	...	...	...	...

(a) value 2005; (b) value 2004; (c) created in 2007; (d) value 2006; (e) budget line is for medications and vaccines.

# surveillance indicators

## Acute Flaccid Paralysis (AFP), 2007

Country	Number of AFP cases	AFP rate per 100,000 <15 years old	% cases investigated <48 hours	% with 1 sample taken within 14 days of onset	Sites reporting weekly	
					Number	%
Argentina	133	1.30	86	83	24	93
Bolivia	22	0.61	91	82	2,074	78
Brasil	636	1.16	98	76	3,328	93
Canada	33	0.59	...	...	...	...
CAREC	42	2.08	83	43	487	100
Chile	83	2.10	82	73	317	99
Colombia	149	1.17	70	77	4,653	88
Costa Rica	33	2.68	91	67	...	...
Cuba	21	0.96	100	90	25	100
Dominican Republic	17	0.54	53	76	245	82
Ecuador	39	0.91	95	79	984	70
El Salvador	50	2.14	98	90	11	75
Guatemala	85	1.87	87	78	...	...
Haiti	13	0.32	92	77	53	83
Honduras	56	1.87	100	100	242	94
Mexico	485	1.55	98	82	15,749	96
Nicaragua	27	1.26	96	89	177	100
Panama	11	1.12	64	82	234	91
Paraguay	20	1.00	90	65	451	91
Peru	91	1.07	97	65	...	...
Uruguay	12	1.47	33	50	3	65
USA	...	...	...	...	...	...
Venezuela	58	0.70	91	81	1,921	77
<b>TOTAL/AVERAGE</b>	<b>2,116</b>	<b>1.23</b>	<b>92</b>	<b>78</b>	<b>30,978</b>	<b>90</b>

## Measles/Rubella, 2007

Country	Number of suspect cases	% of cases with adequate investigation	% of cases with adequate samples	% samples received in lab ≤5 days	% lab samples results ≤4 days	% of cases discarded by lab	Sites reporting weekly	
							Number	%
Argentina	289 <sup>a</sup>	28	85	64	84	99	25	89
Bolivia	151	98	99	76	74	100	2,086	78
Brazil	37,687 <sup>a</sup>	69 <sup>b</sup>	81	44	71	95	10,199	78
Canada	...	...	...	...	...	...	...	...
CAREC	507	74	97	25	95	98	701	99
Chile	4,235 <sup>a</sup>	31	71	73	97	85	533	98
Colombia	1,767	66	97	80	90	98	4,476	87
Costa Rica	86	57	92	80	75	87	...	...
Cuba	621	100 <sup>b</sup>	100	95	100	100	444	97
Dominican Republic	202	68	100	49	61	100	251	82
Ecuador	544	63	99	88	81	98	1,045	70
El Salvador	121	51	100	88	84	98	12	81
French Guiana	...	...	...	...	...	...	...	...
Guadeloupe	...	...	...	...	...	...	...	...
Guatemala	426	97	99	77	85	97	834	...
Haiti	31	97	100	29	35	94	45	82
Honduras	224	97	96	85	98	100	236	94
Martinique	...	...	...	...	...	...	...	...
Mexico	6,457	99	99	92	86	98	14,517	95
Nicaragua	169	77	99	78	88	99	176	100
Panama	142	77	99	66	94	99	238	91
Paraguay	399	59	100	88	100	99	451	91
Peru	2,838	96	98	94	19	98	3,299	100
Puerto Rico	...	...	...	...	...	...	...	...
Uruguay	21	24	75	94	72	90	4	37
USA	...	...	...	...	...	...	...	...
Venezuela	2,677	88	98	66	75	99	2,561	78
<b>TOTAL/AVERAGE</b>	<b>59,594</b>	<b>72</b>	<b>85</b>	<b>58</b>	<b>74</b>	<b>95</b>	<b>42,133</b>	<b>88</b>

(a) provisional data; (b) also includes information on active case-searches.

Source: Polio Eradication Surveillance System (PESS), Measles Elimination Surveillance System (MESS), and country reports, FCH-IM/PAHO.

# technical notes and data sources

## Main Data Sources

**Demographic data:** United Nations Population Division. World Population Prospects: The 2006 Revision. New York; 2007. US Bureau of the Census. International Database: Update for countries/territories with populations under 100,000 inhabitants. Last accessed in May 2008 at <http://www.census.gov/ipc/www/idbacc.html>.

**Infant mortality rate (1,000 lb) or number of deaths (N):** Reported or estimated by countries. Data are presented when the relative standard error is less than 23%; otherwise, the number of deaths is shown. An increase in infant mortality rate may reflect an improvement in data coverage and quality.

**Socioeconomic indicators:** The World Bank. 2008 World Development Indicators. Washington DC; 2008. For national health expenditure data, Technical Reports from HSS/HP - WHO/PAHO Regional Unit; 2008.

**Immunization coverage, immunization program management, and financing information:** Annual country reports to Comprehensive Family Immunization (IM)/PAHO via EPI tables PAHO-WHO/UNICEF Joint Reporting Form (JRF); 2008.

**Morbidity:** Annual country reports to IM/PAHO via JRF, vaccine-preventable disease specific surveillance reports for measles/rubella and polio; 2007-2008.

**Surveillance indicators:** Vaccine-preventable disease specific surveillance reports for measles/rubella and acute flaccid paralysis/polio to IM/PAHO; 2007-2008.

## Symbols and Abbreviations

...	not available
pop	population
lb	live births
ppp	purchase power parity
GDP	gross domestic product
int'l	international
BCG	bacille Calmette-Guérin (anti-tuberculosis vaccine)
NA	not applicable
Polio3	third dose of polio vaccine (oral polio vaccine or inactivated polio vaccine)
DTP1	first dose of diphtheria-pertussis-tetanus vaccine (as DTP or combination vaccine)
DTP3	third dose of diphtheria-pertussis-tetanus vaccine (as DTP

	or combination vaccine)
Hib3	third dose of Haemophilus influenzae type b (Hib) vaccine (as monovalent Hib or combination vaccine)
Hep B3	third dose of hepatitis B vaccine (as monovalent hepatitis B or combination vaccine)
MMR	measles, mumps, rubella vaccine
MMR2	second dose of measles, mumps, rubella vaccine (when offered in the routine program)
CRS	congenital rubella syndrome
NNT	neonatal tetanus
Hib	Haemophilus influenzae type b
ICC	interagency coordinating committee for immunization
NCIP	national committee on immunization practices
ESAVI	event supposedly attributable to vaccination or immunization
gov't	government
Pentavalent	combination vaccine DTP-Hib-Hepatitis B
m	months
y	years

## Technical Notes

For detailed information on demographic data and socioeconomic indicators, please visit: [www.paho.org/English/dd/ais/coredata.htm](http://www.paho.org/English/dd/ais/coredata.htm). To see the methodology used to calculate national health expenditure, please visit: [www.paho.org/Spanish/DPM/SHD/HPnhexp-metodos.htm](http://www.paho.org/Spanish/DPM/SHD/HPnhexp-metodos.htm).

**Immunization coverage:** Proportion of children aged < 1 year vaccinated with one dose of BCG vaccine, the third dose of polio vaccine (oral polio vaccine or inactivated polio vaccine), the first and third doses of DTP, and the third dose of Hib vaccine and hepatitis B vaccine, respectively. Proportion of children aged 1 year vaccinated with one dose of MMR vaccine. Proportion of children vaccinated with a second dose of MMR vaccine, as targeted in the countries routinely offering a second MMR dose. Proportion of older adults vaccinated with one dose of seasonal influenza vaccine, as targeted in the countries routinely offering this vaccine. Coverage rates are expressed as a percentage of the corresponding mid-year population, as reported by the country. Reported coverage rates  $\geq 100\%$  are presented as 99%. Subregional aggregated data express average values weighted by population aged < 1 year, when a figure is available.

## Selected Information Products of the Comprehensive Family Immunization



- **Immunization Newsletter:** A bi-monthly publication that includes information on all aspects of program implementation, from scientific articles on vaccine-preventable diseases and vaccines to practical matters related to the day-to-day running of an immunization program.
- **Rubella Watch:** Supplement to the Immunization Newsletter providing the most up-to-date information on all aspects of the rubella and CRS elimination initiative being implemented in the Americas.
- **Measles/Rubella and Polio Bulletins:** Weekly epidemiological surveillance bulletins.
- **Immunization Field Guides:** Seven practical field guides presenting the most recent techniques, coupled with useful illustrations, to help health workers in their efforts to control, eliminate, or eradicate diseases such as poliomyelitis, measles, rubella, yellow fever, neonatal tetanus, diphtheria, tetanus, pertussis, Haemophilus influenzae type b, hepatitis B, and rotavirus.
- **Safe Vaccination Training Modules:** Designed to give health workers the information they need to guarantee the use of quality vaccines, safe injections, and the monitoring of ESAVIs and to address public concerns regarding the potential risks of vaccines and adverse events following vaccination.
- **Recent Advances in Immunization:** The second edition (2006) of this publication deals with the most relevant topics that countries face in trying to deliver high-quality immunization services.

Please visit the Comprehensive Family Immunization page at [www.paho.org/immunization](http://www.paho.org/immunization)



**Municipalities reaching coverage  $\geq 95\%$  for DTP3 and MMR:** Proportion of municipalities reporting coverage levels equal to or greater than 95% for DTP3 and MMR1 vaccines, respectively, expressed as a percentage. Municipalities are defined as the third administrative level (country level being first), unless otherwise stated.

**Morbidity:** Number of reported cases of wild polio, confirmed measles, confirmed rubella, confirmed CRS, NNT, non-NNT, pertussis, diphtheria, Hib meningitis, and mumps. Subregional aggregated data is the sum of the totals. These are not rates; hence, inter-country comparisons may not be appropriate.

**Immunization program management and financing:**

- Multi-year strategic plan: Written strategic plan regarding the immunization program and its activities for multiple years, usually covering 5 years.
- ICC meetings: ICCs channel efforts by international agencies, governments, and the civil society to help countries strengthen their immunization programs and control vaccine-preventable diseases. ICCs are charged with the task of ensuring coordination of all inter-agency inputs.
- NCIP meetings: NCIPs provide recommendations on immunization practices, including advice on vaccines to be included into the national immunization schedule.
- Number of districts with at least one supervisory visit: immunization supervision including all or most aspects of the program to the local level, generally by region/department/state or national level.
- Plan for immunization injection safety: the existence of a plan to ensure the safety of injections, including training, supervision, the proper use of

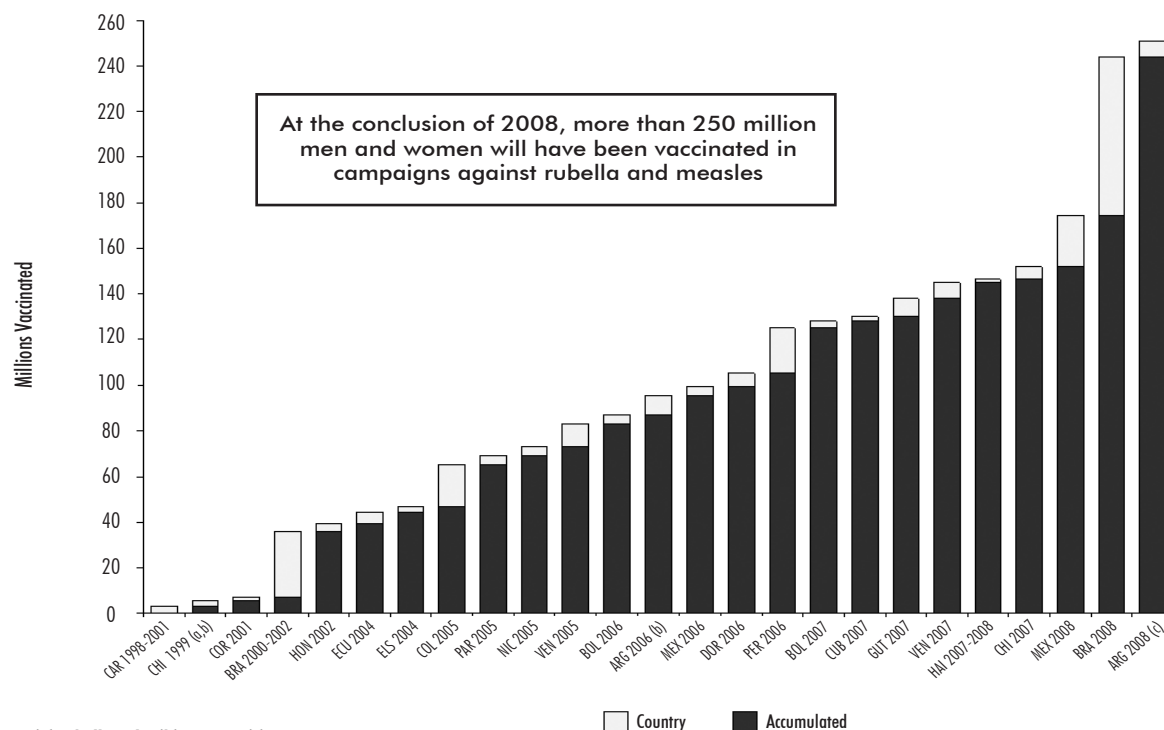
safety boxes, etc. This plan may be part of the annual immunization plan of action.

- National system to monitor ESAVIs: System in place for the reporting and follow-up of ESAVIs.
- Spending on routine immunization financed using government funds: Percentage of all of recurrent immunization-specific spending that was financed using government funds (for all recurrent inputs including vaccines, injection supplies, salaries and per-diems of health staff working full-time on immunization, transport, vehicles and cold chain maintenance, training, social mobilization, monitoring, and surveillance). This excludes any external financing from donors, but may include loans.
- Spending on vaccine purchases financed using government funds: Percentage of all vaccine spending that was financed using government funds. This excludes any external financing from donors, but may include loans.
- Budget line for vaccine purchase: Specific line in the national budget for the purchase of vaccines.

**Surveillance indicators:** For measles/rubella definitions refer to PAHO. Measles Elimination: Field Guide. (Scientific and Technical Publication No. 605). Washington DC: PAHO, 2005. For acute flaccid paralysis definitions refer to PAHO. Poliomyelitis Eradication: Field Guide. (Scientific and Technical Publication No. 607). Washington DC: PAHO, 2005. Available at [www.paho.org/english/ad/fch/im/FieldGuide\\_Index.htm](http://www.paho.org/english/ad/fch/im/FieldGuide_Index.htm).

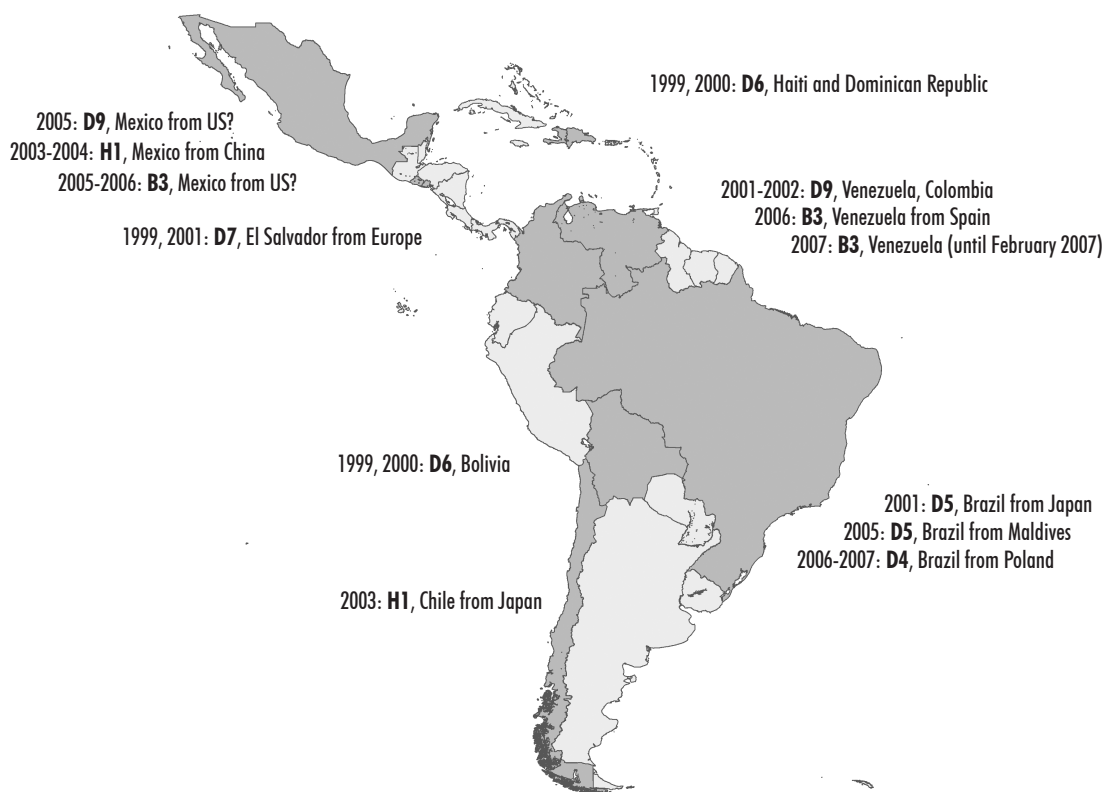
This brochure is published in collaboration with Health Information and Analysis, Pan American Health Organization.

## Towards Rubella and CRS Elimination in the Americas Adolescent and Adult Vaccination Campaigns, 1998-2008



(a) rubella only; (b) women; (c) men.  
Source: Country reports to FCH-IM/PAHO.

## Measles Genotypes in Latin America and the Caribbean, 1999-2007



Source: Measles Strain Bank, Centers for Disease Control and Prevention (CDC).

## Summary of Yellow Fever Vaccination in Countries with Areas at Risk, the Americas, 2007-2008

Country	Vaccination in the Routine Childhood Schedule (<2 Years)			Other Interventions (≥2 years)
	Routine Schedule	National/Sub-national	Coverage	
Argentina	1 year	Northern Municipalities at Risk	...	Vaccination campaigns in areas at risk, 2008
Bolivia	12-23 months	National	82%	National Vaccination campaign, 2007
Brazil	9 months	Municipalities at Risk	100% <sup>a</sup>	Vaccination campaigns in areas at risk
Colombia	12-23 months	National	84%	Vaccination campaigns in areas at risk
Ecuador	12-23 months	Amazon Region	90%	Vaccination campaigns in areas at risk, 2007
French Guiana	1 year	National	...	...
Guyana	1 year	National	96%	NA
Panama	1 year	Areas at Risk	80%	NA
Paraguay	1 year	National (Sub-national Before 2007)	34%	Vaccination campaigns in areas at risk, 2008
Peru	1 year	National	87%	Mass campaigns since 2004 starting in areas at higher risk
Suriname	1 year	Hinterland	83%	NA
Trinidad & Tobago	1 year	National	90%	NA
Venezuela	1 year	Areas at Risk	58%	Vaccination campaigns in areas at risk

(a) reported coverage > 100%.

Source: Country reports through the PAHO-WHO/UNICEF Joint Reporting Forms (JRF), 2007 and to FCH-IM/PAHO.

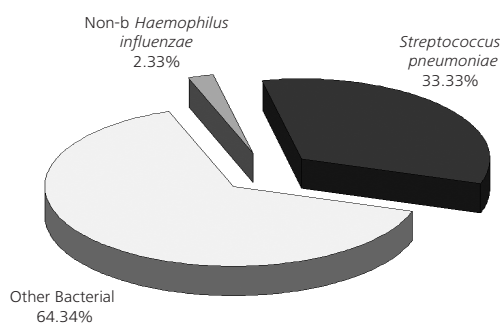
## Data and Indicators of Rotavirus Sentinel Hospital-based Surveillance in Reporting Countries, The Americas, 2007

DATA and INDICATORS	Number of hospitalizations in children aged <5 years		Number of hospitalizations due to diarrhea in children aged <5 years		Number of children aged <5 years that meet the case definition		Number of children with complete form and stool sample collected		Number of cases with result positive for rotavirus	
	n		n	%	n	%	n	%	n	%
Bolivia	11,121		2,097	18.9	1,756	83.7	1,548	88.2	629	40.6
Chile	21,880		2,074	9.5	1,077	51.9	1,077	100	323	30.0
El Salvador	32,311		5,942	18.4	3,188	53.7	2,927	91.8	1,144	39.1
Guatemala	18,434		3,674	19.9	1,772	48.2	1,483	83.7	630	42.5
Guyana	561		52	9.3	...	...	47	...	12	25.5
Honduras	44,628		5,463	12.2	5,326	97.5	2,665	50.0	1,080	40.5
Nicaragua	12,284		2,278	18.5	1,577	69.2	829	52.6	80	9.7
Paraguay	5,690		500	8.8	323	64.6	258	79.9	111	43.0
St. Vincent	403		81	20.1	81	100	61	75.3	24	39.3
Suriname	697		127	18.2	127	100	105	82.7	17	16.2
Venezuela	13,002		1,366	10.5	696	51.0	696	100	183	26.3

Source: Country Reports to Rotavirus Database, FCH-IM/PAHO.

### Bacterial Pneumonias and Bacterial Meningitis

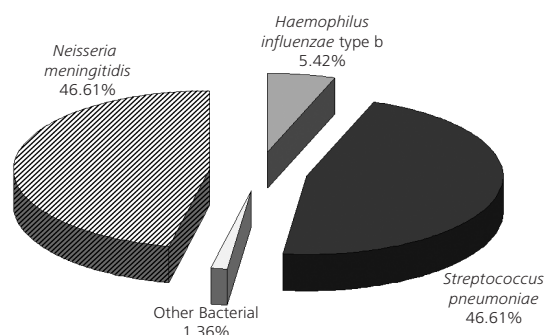
Sentinel Hospital Surveillance of Bacterial Pneumonias in Children Aged Under 5 Years, Selected Countries Region of the Americas, 2007



Ecuador  
El Salvador  
Guatemala  
Honduras  
Paraguay

Number of Confirmed Bacterial Pneumonias With Isolation: 129

Sentinel Hospital Surveillance of Bacterial Meningitis in Children Aged Under 5 Years Selected Countries Region of the Americas, 2007



Brazil  
Ecuador  
El Salvador  
Honduras  
Paraguay



Number of Confirmed Bacterial Meningitis Cases With Isolation: 632

Source: Country reports to FCH-IM/PAHO.

# Regional Laboratory Network Quality Control of Syringes



**ECRI Institute** is a nonprofit organization dedicated to draw on the discipline of applied scientific research to determine the best medical procedures, devices, drugs, and processes, and improve patient care. ECRI Institute is a center for health technologies engaged in the areas of consulting, research, analysis, and training. It serves as an information repository and a laboratory for the evaluation of medical devices.

 ECRI Regional reference laboratory  
 Countries with laboratory in organization process

Source: FCH-IM/PAHO.

## Pro-Vac Work Plan

Pro-Vac is a multiyear project for the promotion of evidence-based policy decisions for new vaccine introduction in Latin America and the Caribbean.\*

	Country	Subregion	Vaccine(s)
<b>Country Activities Committed</b>	Bolivia	Andean	Pneumococcus
	Cuba	Caribbean	Pneumococcus
	Guyana	Caribbean	Pneumococcus Rotavirus Human Papillomavirus
	Honduras	Central America	Pneumococcus Rotavirus
	Jamaica	Caribbean	Human Papillomavirus
	Nicaragua	Central America	Pneumococcus
<b>Country Activity Planned</b>	Brazil	Southern Cone	Pneumococcus
	Paraguay	Southern Cone	Pneumococcus Rotavirus Human Papillomavirus
<b>Regional Activity Committed</b>	Economic Workshop for GAVI-eligible countries		
<b>Regional Activity Planned</b>	E-learning Module development Economics of Human Papillomavirus Workshop Key center Network Development		

Source: FCH-IM/PAHO.

\* See Immunization Newsletter, Vol.XXVIII, Number 5  
[www.paho.org/english/ad/fch/im/sne2805.pdf](http://www.paho.org/english/ad/fch/im/sne2805.pdf)