

# Immunization in the Americas

## 2007 Summary

Immunization Unit  
Family and Community Health Area



**Pan American  
Health  
Organization**



*Regional Office of the  
World Health Organization*



# preface

*Immunization in the Americas* is published every year to highlight the key data on vaccine-preventable disease surveillance and the provision of immunization services by the countries of the Americas. This publication serves as a benchmark for monitoring the progress of national immunization programs.

Since last published in 2006, much has been accomplished. The progress toward achieving rubella and congenital rubella syndrome elimination has been remarkable. All countries of the Region but one are including rubella-containing vaccine in their immunization schedules. Haiti will include it toward the end of 2007. Over 116 million people have received the vaccine in mass vaccination campaigns targeting adolescents and adults.

It is clear, however, that much more needs to be done. One out of every three children in Latin America and the Caribbean (LAC) lives in districts with poor immunization coverage levels. The unfinished agenda for us is to raise those coverage levels above 95%.

It is estimated that rotavirus kills over 16,000 children in LAC and causes over 77,000 hospitalizations, but only seven countries have introduced the cost-effective rotavirus vaccine to prevent this disease's unnecessary morbidity and mortality. Pneumococcal disease kills 2 children every hour in LAC although a vaccine is currently available that would prevent at least one of those deaths; only one Latin American country has been able to introduce this life-saving vaccine into its universal children immunization schedule. Cervical cancer kills more than 30,000 women per year in LAC, yet the vaccine to prevent these premature deaths is underutilized. The price of the vaccines currently available for all three diseases is beyond the current financial capacity of families and governments in most countries of our Region.

Strong national immunization programs, supported by PAHO's Regional program, will be paramount in breaking down the barriers to health that lead to inequities. Poor coverage and lack of access to new life-saving vaccines are likely to be the greatest challenges we will have to face if we are to succeed in achieving the Millennium Development Goals (MDGs).

The PAHO Directing Council, where the Ministers of Health of all countries of the Americas meet to discuss health policy, approved a resolution in 2006 urging all Member States to:

- Create the financial and legal mechanisms for introducing vaccines against rotavirus, pneumococcus, influenza, and human papillomavirus; and
- Optimize the use of the PAHO Revolving Fund for bulk purchase of new vaccines in order to achieve the targets set forth in the MDGs and the *Global Immunization Vision and Strategy* of the World Health Organization.

With the perseverance and hard work of the immunization programs of Member States, I am fully committed to making this resolution a reality. Working with all our partners, we can continue to make a difference in the health of children and their families in the Americas. I am proud to be able to support our countries in this process.



**Dr. Mirta Roses Periago**  
Director  
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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)	women of childbearing age (WCBA) (thousands)	gross national income (US\$ per capita)		annual GDP growth (%)	population below int'l poverty line (%) (latest available)	national health expenditure as a % of GDP	
	2006	2006	2006	2006	current value	ppp value	2004-05	1998-04	public expenditure	private expenditure
					2005	2005			2004	2004
<b>The Americas</b>	900,505	17.8	16,073.9	235,076	19,029	21,018	3.8	...	...	...
<b>North America</b>	335,484	13.6	4,603.8	82,969	42,495	41,006	3.2	...	...	...
Bermuda	66	11.4	0.8	...	...	...	...	3.7 <sup>c</sup>	6.1	
Canada	32,577	10.4	340.0	8,177	32,590	32,220	2.9	...	7.5 <sup>d</sup>	1.2 <sup>d</sup>
United States of America	302,841	14.0	4,263.0	74,792	43,560	41,950	3.2	...	7.4 <sup>d</sup>	4.4 <sup>d,n</sup>
<b>Latin America &amp; the Caribbean</b>	565,021	20.2	11,470.1	152,107	4,164	8,336	4.2	...	...	...
<b>Latin America</b>	558,099	20.2	11,347.0	150,298	4,117	8,378	4.2	...	...	...
<b>Mexico</b>	105,342	19.8	2,096.9	29,140	7,310	10,030	3.0	3.0	2.4	2.7 <sup>d</sup>
<b>Central American Isthmus</b>	40,261	27.1	1,101.1	10,257	2,429	4,990	3.9	17.4	...	...
Belize	282	25.8	7.3	72	3,570	6,740	3.1	...	4.2 <sup>e</sup>	1.3 <sup>e</sup>
Costa Rica	4,399	18.0	79.7	1,195	4,700	9,680	5.9	3.3	5.0 <sup>f</sup>	3.2 <sup>fo</sup>
El Salvador	6,762	23.3	158.4	1,791	2,450	5,120	2.8	19.0	3.3 <sup>d</sup>	3.9 <sup>d</sup>
Guatemala	13,029	33.8	445.9	3,131	2,400	4,410	3.2	13.5	1.2 <sup>d</sup>	4.9 <sup>d</sup>
Honduras	6,969	28.3	199.5	1,754	1,120	2,900	4.0	14.9	3.9 <sup>g</sup>	2.8 <sup>g</sup>
Nicaragua	5,532	25.2	140.2	1,449	950	3,650	4.0	45.1	3.5 <sup>g</sup>	4.2 <sup>g,o</sup>
Panama	3,288	21.2	70.1	865	4,630	7,310	6.4	7.4	6.4	2.1
<b>Latin Caribbean</b>	35,333	19.4	689.8	9,192	...	...	5.6	...	...	...
Cuba	11,267	10.7	119.9	3,014	...	...	5.4	...	6.3 <sup>c,d</sup>	...
Dominican Republic	9,615	23.8	230.5	2,491	2,460	7,150	9.3	2.8	1.2 <sup>f</sup>	3.2
French Guiana	197	24.5	4.9	50	...	...	...	...	...	...
Guadeloupe	442	15.0	6.6	115	...	...	...	...	...	...
Haiti	9,446	28.3	269.4	2,420	450	1,840	2.0	53.9	2.7 <sup>c</sup>	2.9
Martinique	397	12.8	5.1	104	...	...	...	...	...	...
Puerto Rico	3,969	13.4	53.4	999	...	...	...	...	3.5	...
<b>Andean Area</b>	122,894	21.1	2,607.9	32,790	2,870	6,130	6.4	12.7	...	...
Bolivia	9,354	27.9	263.1	2,308	1,010	2,740	4.1	23.2	4.2 <sup>f</sup>	2.7 <sup>f</sup>
Colombia	45,558	19.2	879.2	12,540	2,290	7,420	5.1	7.0	3.4 <sup>c</sup>	2.5
Ecuador	13,202	21.4	284.1	3,399	2,620	4,070	...	17.7	2.2	3.9
Peru	27,589	21.1	586.3	7,327	2,650	5,830	6.4	10.5	2.3 <sup>f</sup>	2.1 <sup>fo</sup>
Venezuela	27,191	21.7	595.2	7,217	4,820	6,440	9.3	18.5	4.4 <sup>d</sup>	2.1 <sup>d</sup>
<b>Brazil</b>	189,323	19.5	3,702.8	52,357	3,550	8,320	2.3	7.5	3.4 <sup>cf</sup>	3.5 <sup>fp</sup>
<b>Southern Cone</b>	64,946	17.6	1,148.5	16,563	4,499	12,254	7.7	5.9	...	...
Argentina	39,134	17.6	693.4	9,828	4,470	13,920	9.2	6.6	3.5 <sup>h</sup>	3.5 <sup>p</sup>
Chile	16,465	15.2	251.0	4,422	5,870	11,470	6.3	2.0	3.9 <sup>d,h</sup>	2.2 <sup>d,p</sup>
Paraguay	6,016	25.2	153.0	1,507	1,040	4,970	2.9	13.6	2.3	4.7 <sup>fp</sup>
Uruguay	3,331	15.3	51.1	806	4,360	9,810	6.6	2.0	7.0 <sup>c,d,h</sup>	3.1 <sup>d,p</sup>
<b>Non-Latin Caribbean</b>	6,922	17.8	123.1	1,808	4,773	6,734	2.5	...	...	...
Anguilla	13	14.2	0.2	...	...	...	9.2	...	4.7 <sup>kl</sup>	2.2 <sup>k</sup>
Antigua & Barbuda	69	16.9	1.2	...	10,500	11,700	7.2	...	8.7 <sup>m</sup>	1.2 <sup>m</sup>
Aruba	104	14.5	1.5	29	...	...	...	12.7 <sup>ce</sup>	0.5 <sup>e</sup>	
Bahamas, The	327	17.1	5.6	92	...	...	...	3.1 <sup>f</sup>	3.0 <sup>d</sup>	
Barbados	293	11.2	3.3	82	...	...	...	4.3 <sup>f</sup>	1.8 <sup>ln</sup>	
Cayman Islands	45	12.7	0.6	...	...	...	...	3.3	...	
Dominica	69	15.3	1.1	...	3,800	5,560	6.4	...	4.4 <sup>m</sup>	2.0 <sup>m</sup>
Grenada	106	18.1	1.9	27	3,860	7,260	-4.1	...	4.5	3.7
Guyana	739	17.9	13.2	186	1,020	4,230	-2.2	...	1.1 <sup>e</sup>	...
Jamaica	2,699	20.3	54.7	716	3,390	4,110	1.3	2.0	2.4 <sup>d</sup>	5.1 <sup>d</sup>
Montserrat	9	17.6	0.2	...	...	...	...	...	6.1	1.1
Netherlands Antilles	189	12.9	2.5	52	...	...	...	11.7 <sup>e</sup>	1.2 <sup>g</sup>	
Saint Kitts & Nevis	39	18.0	0.7	...	7,840	12,500	8.8	...	2.3 <sup>f</sup>	1.9 <sup>f</sup>
Saint Lucia	163	19.1	3.1	46	4,580	5,980	5.8	...	3.3 <sup>m</sup>	1.4 <sup>m</sup>
Saint Vincent & the Grenadines	120	20.2	2.4	33	3,530	6,460	2.2	...	3.4	0.7
Suriname	455	19.8	9.0	122	2,540	...	...	...	3.8	...
Trinidad & Tobago	1,328	14.7	19.6	397	10,300	13,170	7.0	...	2.2	2.6
Turks & Caicos Islands	21	21.8	0.5	...	...	...	...	...	3.4 <sup>e</sup>	...
Virgin Islands (UK)	23	14.9	0.3	...	...	...	...	...	1.8 <sup>k</sup>	...
Virgin Islands (US)	111	13.7	1.5	27	...	...	...	3.0	...	

(a) estimated to be 10,726 USD or more; (b) estimated to be 3,466-10,725 USD; (c) includes institutional expenditure (by activity or program), includes public health insurance; (d) value 2005; (e) value 2002; (f) value 2003; (g) value 2006; (h) includes Obras Sociales (ARG), ISAPRES and FONASA (CHL), IAMC (URY); (k) value 2001; (l) general government expenditures in compensations to employees plus intermediate consumption in market prices; (m) value 2000; (n) health and personal care; (o) health conservation and medical care expenses; (p) health (MERCOSUR).

# immunization coverage

	11	12	13	14	15	16	17	18	19	20	21	22
	percentage of coverage									percentage of municipalities		total number of districts/ municipalities
	< 1 year of age						1 year of age		influenza (for older adults)	with coverage level ≥ 95%		
	BCG	polio3	DTP1	DTP3	Hib3	Hep B3	MMR	MMR2 <sup>k</sup>		DTP3	MMR	
	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
<b>The Americas</b>	95	93	96	94	93	92	94					
<b>North America</b>	NA	90	99	95	93	91	91					
Bermuda	NA	85 <sup>c</sup>	98 <sup>d</sup>	85 <sup>c</sup>	85 <sup>c</sup>	82 <sup>c</sup>	96 <sup>c</sup>	84 <sup>c</sup>	65 <sup>c</sup>	...	...	1 <sup>l</sup>
Canada	NA	94 <sup>d,e</sup>	...	94 <sup>d,e</sup>	94 <sup>d,e</sup>	...	94 <sup>d,e</sup>	...	37	...	...	13 <sup>m</sup>
United States of America	NA	90 <sup>d,e</sup>	99 <sup>d,e</sup>	95 <sup>d,e</sup>	93 <sup>d,e</sup>	91 <sup>d,e</sup>	91 <sup>d,e</sup>	...	65 <sup>d</sup>	66.7 <sup>d</sup>	7.8 <sup>d</sup>	51 <sup>n</sup>
<b>Latin America &amp; the Caribbean</b>	95	94	94	93	94	92	95			57.9	64.4	15,113
<b>Latin America</b>	95	94	94	93	94	92	95			58.0	64.5	14,880
<b>Mexico</b>	99 <sup>a</sup>	98	99 <sup>a</sup>	98	98	98	96	55	89	71.8	89.4	2,444
<b>Central American Isthmus</b>	94	91	89	91	91	91	95			35.8	51.7	1,207
Belize	97	98	96	98	98	98	99 <sup>b</sup>	92	NA	83.3	83.3	6
Costa Rica	87	89	89	89	88	88	90	...	98 <sup>c</sup>	31.0 <sup>c</sup>	31.0 <sup>c</sup>	81
El Salvador	93	96	67	96	96	96	98	73	92	28.2	37.4	262
Guatemala	96	92	95	91	91	91	95	NA	NA	46.2	64.4	332
Honduras	90	87	85	87	87	87	91	NA	90	31.9	52.0	298
Nicaragua	99 <sup>b</sup>	88	94	87	87	87	98	NA	NA	16.4	36.8	152
Panama	99 <sup>b</sup>	98	99 <sup>b</sup>	99 <sup>b</sup>	99 <sup>b</sup>	99 <sup>b</sup>	94	60	86	72.4	93.4	76
<b>Latin Caribbean</b>	81	85	91	85	87	84	82			41.8	40.0	460
Cuba	99	99 <sup>b</sup>	...	89	97	89	96	97	99 <sup>b,c</sup>	59.2	57.4	169
Dominican Republic	95	88	93	89	82	81	99	NA	...	23.9	36.1	158
French Guiana	...	...	...	...	...	...	...	...	...	...	...	...
Guadeloupe	...	...	...	...	...	...	...	...	...	...	...	...
Haiti	59	75	90	80	NA	NA	66 <sup>g</sup>	NA	NA	40.6	22.6 <sup>g</sup>	133
Martinique	...	...	...	...	...	...	...	...	...	...	...	...
Puerto Rico	...	...	...	...	...	...	...	...	...	...	...	...
<b>Andean Area</b>	90	86	88	85	85	85	93			37.0	44.9	3,809
Bolivia	87	82	87	83	83	83	88	NA	NA	26.9	30.9	324
Colombia	88	87	85	86	86	86	88	...	10 <sup>c</sup>	34.9	32.5	1,119
Ecuador	99 <sup>b</sup>	97	99 <sup>b</sup>	98	98	98	97	NA	67	43.8	47.9	167
Peru	99 <sup>b</sup>	95	98	94	94	94	99 <sup>b</sup>	NA	NA	43.3	55.7	1,832
Venezuela	83	73	79	71	71	71	95 <sup>h</sup>	NA	55	18.0	40.8	367
<b>Brazil</b>	99 <sup>b</sup>	99 <sup>b</sup>	99	99 <sup>a</sup>	99 <sup>a</sup>	97	99 <sup>b</sup>	...	86	73.7	74.9	5,564
<b>Southern Cone</b>	97	92	93	91	91	87	95			52.7	52.5	1,396
Argentina	99 <sup>b</sup>	92	93	91	91	84	97	91	50	50.1	48.5	548
Chile	98	94	95	94	94	94	91	95	89	44.3	37.0	341
Paraguay	85	85	84	85	85	85	88	58	74	26.7	38.8	232
Uruguay	99	95	99	95	95	95	94	...	...	89.8	90.5	275
<b>Non-Latin Caribbean</b>	92	88	90	88	88	88	88			54.1	46.2	233
Anguilla	99 <sup>b</sup>	93	87	99	87	87	93	95	...	...	...	3
Antigua & Barbuda	NA	99 <sup>b</sup>	96	99 <sup>b</sup>	99 <sup>b</sup>	99 <sup>b</sup>	99 <sup>b</sup>	68	NA	...	...	26
Aruba	...	...	...	...	...	...	...	...	...	...	...	...
Bahamas, The	NA	94	95	95	95	96	88	88	10	73.2 <sup>c</sup>	...	92
Barbados	NA	85	81	84	84	84	93	94	...	...	...	8
Cayman Islands	87	96	...	96	96	78	86	...	...	...	...	6
Dominica	99 <sup>b</sup>	96	...	95	NA	NA	99	99	NA	...	...	7
Grenada	NA	91	87	91	91	91	99	87	...	0.0	100	7
Guyana	96	92	95	93	93	93	90	74	NA	46.2	15.4	13
Jamaica	90	86	86	85	87	87	87	44	...	7.7	7.7	13
Montserrat	99 <sup>b</sup>	99 <sup>b</sup>	...	99 <sup>b</sup>	99 <sup>b</sup>	99 <sup>b</sup>	99 <sup>b</sup>	...	NA	...	...	...
Netherlands Antilles	NA	88 <sup>f</sup>	...	88 <sup>f</sup>	88 <sup>f</sup>	87 <sup>f</sup>	93 <sup>f</sup>	...	...	...	...	...
Saint Kitts & Nevis	99 <sup>b</sup>	99	99	99 <sup>a</sup>	99 <sup>b</sup>	99 <sup>b</sup>	99 <sup>b</sup>	...	NA	82.4	100	17
Saint Lucia	94	85	95	85	85	85	94	...	...	...	...	9
Saint Vincent & the Grenadines	99 <sup>b</sup>	99	99	99 <sup>a</sup>	99	99 <sup>a</sup>	99 <sup>b</sup>	93 <sup>c</sup>	NA	100 <sup>c</sup>	100 <sup>c</sup>	9
Suriname	NA	84	94	84	84	84	83	NA	NA	10.0	0.0	10
Trinidad & Tobago	NA	89	93	92	89	89	89	78	NA	55.6	44.4	9
Turks & Caicos Islands	99 <sup>b</sup>	99	93	91	91	91	99 <sup>b</sup>	...	...	...	...	4 <sup>c</sup>
Virgin Islands (UK)	99 <sup>b,c</sup>	99 <sup>b,c</sup>	99 <sup>b,c</sup>	99 <sup>b,c</sup>	99 <sup>b,c</sup>	99 <sup>b,c</sup>	99 <sup>b,c</sup>	99 <sup>b,c</sup>	< 33 <sup>b,c</sup>	...	...	...
Virgin Islands (US)	...	...	...	...	...	...	...	...	...	...	...	...

(a) coverage data is between 99.5-99.9%; (b) reported coverage > 100% is recorded as 99%; (c) value 2005; (d) value 2004; (e) < 2 years of age; (f) St. Maarten only; (g) coverage reports for measles vaccine in children < 1 year of age; (h) coverage includes MR campaign doses; (i) target age groups vary by country; (l) based on coverage in a large clinic; (m) reports number of provinces and territories; (n) 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				
	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006	2006
<b>The Americas</b>	0	237	2,912	14	93	550	138	877	24,513	285	288	37,426
<b>North America</b>	0	58	11	0	0	12	12	24	17,577	0	66	6,376
Bermuda	0	0	...	0	0	0	0	0	0	0	0	0
Canada	0	13 <sup>a,b</sup>	7 <sup>b</sup>	...	0	2	0	2	1,945	0	38	37
United States of America	0	45 <sup>a,c</sup>	4 <sup>c</sup>	0 <sup>c</sup>	0 <sup>c</sup>	10 <sup>c</sup>	12 <sup>c</sup>	22 <sup>c</sup>	15,632 <sup>c</sup>	0 <sup>c</sup>	28 <sup>a,g</sup>	6,339 <sup>c</sup>
<b>Latin America &amp; the Caribbean</b>	0	179	2,901	14	93	538	126	853	6,936	285	222	31,050
<b>Latin America</b>	0	179	2,901	14	91	531	124	844	6,935	285	218	31,033
<b>Mexico</b>	0	23 <sup>a</sup>	74	0	4	46	4	50	171	0	0	8,322
<b>Central American Isthmus</b>	0	0	13	0	2	27	12	40	1,508	0	4	1,816
Belize	0	0	0	0	0	1	0	1	0	0	1	24
Costa Rica	0	0	0	0	0	...	...	1	1,037	0	0	...
El Salvador	0	0	2	0	0	4	1	5	5	0	3	980
Guatemala	0	0	11	0	2	3	3	6	48	0	0	...
Honduras	0	0	0	0	0	12	6	18	138	0	0	456
Nicaragua	0	0	0	...	0	4	2	6	148	0	...	151
Panama	0	0	0	0	0	3	0	3	132	0	0	205
<b>Latin Caribbean</b>	0	0	32	0	57	57	11	115	17	276	10	882
Cuba	0	0	0	0	0	2	1	3	0	0	8	882
Dominican Republic	0	0	21	...	4	55	10	65	17	16	2	...
French Guiana	0	0	0	...	...	...	...	...	...	...	...	...
Guadeloupe	0	0	...	...	...	...	...	...	...	...	...	...
Haiti	0	0	11	0	53	...	...	47	...	260	...	...
Martinique	0	0	...	...	...	...	...	...	...	...	...	...
Puerto Rico	0	0	0	...	...	...	...	...	...	...	...	...
<b>Andean Area</b>	0	99	852	12	18	29	7	172	1,529	0	27	5,178
Bolivia	0	0	2	0	2	4	4	8	6	0	4	...
Colombia	0	0	4	0	4	...	...	59	233	0	20	2,243
Ecuador	0	0	0	0	4	...	...	43	23	0	3	0
Peru	0	0	658	12 <sup>f</sup>	4	25	3	28	84	0	0	0
Venezuela	0	99 <sup>a</sup>	188	...	4	...	...	34	1,183	0	0	2,935
<b>Brazil</b>	0	57 <sup>a,d</sup>	1,631 <sup>b</sup>	2 <sup>b</sup>	8	360	84	444	797	9	147	...
<b>Southern Cone</b>	0	0	299	0	2	12	6	23	2,913	0	30	14,835
Argentina	0	0	299 <sup>a</sup>	0	0	...	...	5	1,607	0	16	11,461
Chile	0	0	0	0	0	5	2	7	1,285	0	5	1,494
Paraguay	0	0	0	0	2	6	3	9	6	0	9	234
Uruguay	0	0	0	0	0	1	1	2	15	0	0	1,646
<b>Non-Latin Caribbean</b>	0	0	0	0	2	7	2	9	1	0	4	17
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	0
Aruba	0	...	...	...	...	...	...	...	...	...	...	...
Bahamas, The	0	0	0	0	0	0	0	0	0	0	0	0
Barbados	0	0	0	0	0	0	0	0	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	0	0
Grenada	0	0	0	0	0	0	0	0	0	0	0	0
Guyana	0	0	0	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	7	2	9	1	0	1	2
Montserrat	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands Antilles	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	0	1 <sup>e</sup>
Saint Vincent & the Grenadines	0	0	0	0	0	0	0	0	0	0	0	0
Suriname	0	0	0	0	2	0	0	0	0	0	3	...
Trinidad & Tobago	0	0	0	0	0	0	0	0	0	0	0	13
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	0
Virgin Islands (US)	0	0	0	...	...	...	...	...	...	...	...	...

(a) outbreaks related to importation; (b) provisional data; (c) all U.S. data presented for vaccine-preventable disease surveillance are PROVISIONAL, taken from the National Notifiable Diseases Surveillance System (NNDSS); (d) cases of unknown origin; however, the D4 genotype isolated is not endemic to the Americas; (e) clinically confirmed; (f) 2 congenital rubella infection (CRI) cases; (g) H. influenzae meningitis data are for children <5 years of age, all serotypes.

# 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	year of last updated inventory of all refrigeration equipment	AD syringe used	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
	2006	2006	2006		2006	2006	2006	2006	2006
<b>The Americas</b>									
<b>North America</b>									
Bermuda	no <sup>a</sup>	...	1 <sup>a</sup>	...	no <sup>b</sup>	yes <sup>a</sup>	...	...	...
Canada	yes <sup>a</sup>	NA	3 <sup>a</sup>	...	all <sup>b</sup>	yes <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	...
United States of America	no <sup>b</sup>	NA	3 <sup>a</sup>	...	all <sup>b</sup>	yes <sup>a</sup>	NA	NA	NA
<b>Latin America &amp; the Caribbean</b>									
<b>Latin America</b>									
Mexico	yes	284	12	2006	all	yes	100	100	yes
<b>Central American Isthmus</b>									
Belize	yes	NA	no NCIP	2005	no	yes	100	100	yes
Costa Rica	no <sup>a</sup>	NA	9 <sup>a</sup>	...	no <sup>b</sup>	yes <sup>a</sup>	100 <sup>a</sup>	100 <sup>a</sup>	yes <sup>a</sup>
El Salvador	yes	0	8	2006	no <sup>a</sup>	yes <sup>a</sup>	90	100	yes
Guatemala	yes	2	2	2006	some	yes	91	100	yes
Honduras	yes	2	3	2006	some	yes	92	100	yes
Nicaragua	yes	6 <sup>a</sup>	8	1998	no	yes	87	83	yes
Panama	yes	0	2	2006	no	yes	100	100	yes
<b>Latin Caribbean</b>									
Cuba	yes	2	3	2005	no	yes	99	99	yes
Dominican Republic	yes	5	no NCIP	2006	no	yes	62	69	yes <sup>c</sup>
French Guiana	...	...	...	...	...	...	...	...	...
Guadeloupe	...	...	...	...	...	...	...	...	...
Haiti	yes	12	no NCIP	2006	all	no	4	0	no
Martinique	...	...	...	...	...	...	...	...	...
Puerto Rico	...	...	...	...	...	...	...	...	...
<b>Andean Area</b>									
Bolivia	yes	3	3	2006	some	yes	62	69	yes
Colombia	yes	1	2	2004	no	yes	100	100	yes
Ecuador	yes	1	2	2006	some	yes	100	100	yes
Peru	yes	3	19	2004	no	yes	100	96	yes
Venezuela	yes	NA	no NCIP	2006	no	yes <sup>a</sup>	100	100	yes
Brazil	yes	0	3	...	no	yes	100	100	yes
<b>Southern Cone</b>									
Argentina	no	NA	4	...	no	yes	100	100	yes
Chile	yes	NA	5	2006	no	yes	100	100	yes
Paraguay	yes	2	2	2006	some	yes	100	100	yes
Uruguay	yes	NA	2	2006	no	no	100	100	yes
<b>Non-Latin Caribbean</b>									
Anguilla	no	NA	...	...	...	...	100	100	yes
Antigua & Barbuda	no	NA	3	...	no	yes	100	100	yes
Aruba	...	...	...	...	...	...	...	...	...
Bahamas, The	yes	NA	no NCIP	...	some	yes	100	100	yes
Barbados	yes	1 <sup>b</sup>	0	2006	no	yes	100	100	...
Cayman Islands	no	NA	1	...	no	yes	100	100	...
Dominica	yes	NA	...	2003	no	no	100	100	yes
Grenada	no	0	0	2006	some	yes	100	100	yes
Guyana	yes	2	no NCIP	2004	all	yes	95	95	yes
Jamaica	no	0	no NCIP	2002	no	yes	93	100	yes <sup>c</sup>
Montserrat	...	...	...	...	...	...	...	...	...
Netherlands Antilles	...	...	...	...	...	...	...	...	...
Saint Kitts & Nevis	yes	NA	no NCIP	2006	some	yes	100	100	yes <sup>a,c</sup>
Saint Lucia	yes	NA	no NCIP	2005	some	yes	100	100	...
Saint Vincent & the Grenadines	yes	NA	no NCIP <sup>a</sup>	2006	some	yes	100	100	yes <sup>a</sup>
Suriname	yes	NA	0	...	some	no	95	100	yes
Trinidad & Tobago	yes	NA	1	2005-2006	no	yes	100	100	yes <sup>a</sup>
Turks & Caicos Islands	no <sup>a</sup>	0 <sup>a</sup>	no NCIP <sup>a</sup>	...	some <sup>b</sup>	yes <sup>b</sup>	...	...	...
Virgin Islands (UK)	...	...	...	...	...	...	...	...	...
Virgin Islands (US)	...	...	...	...	...	...	...	...	...

(a) value 2005; (b) value 2004; (c) budget line is for medications and vaccines.

# surveillance indicators

## Acute Flaccid Paralysis (AFP), 2006

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	143	1.40	87	78	24	74
Bolivia	40	1.10	95	78	2,634	52
Brazil	614	1.12	97	71	3,447	89
Canada	30	0.53	...	...	...	...
CAREC	17	0.84	96	57	493	100
Chile	76	1.90	83	84	340	96
Colombia	218	1.72	59	82	5,293	91
Costa Rica	18	1.46	78	33	...	...
Cuba	25	1.15	100	96	25	100
Dominican Republic	17	0.54	59	94	252	82
Ecuador	32	0.75	97	75	1,477	67
El Salvador	84	3.59	95	87	30	90
Guatemala	98	2.15	91	73	...	...
Haiti	15	0.37	93	27	72	73
Honduras	76	2.57	96	93	267	97
Mexico	461	1.46	98	82	14,517	96
Nicaragua	27	1.26	100	93	185	100
Panama	9	0.92	78	78	257	93
Paraguay	14	0.70	93	86	457	92
Peru	77	0.91	92	61	... <sup>a</sup>	100
Uruguay	8	0.98	100	88	34	75
USA	...	...	...	...	...	...
Venezuela	68	0.82	94	85	296	85
TOTAL/AVERAGE	2,167	1.26	91	77	30,100	88

## Measles/Rubella, 2006

Country	Number of suspect cases	% of cases with adequate investigation	% of cases with adequate samples	% lab samples received ≤5 days	% lab samples results ≤4 days	% of cases discarded by lab	Sites reporting weekly	
							Number	%
Argentina	413	11	92	73	82	99	24	85
Bolivia	207	96	99	81	77	99	2,430	52
Brazil	20,016	76 <sup>b</sup>	78	44	82	96	11,514	86
Canada	...	...	...	...	...	...	...	...
CAREC	208	81	97	28	91	98	658	99
Chile	340	30	92	79	93	96	571	96
Colombia	2,086	62	96	79	84	97	5,188	92
Costa Rica	...	...	...	...	...	...	...	...
Cuba	1,019	96 <sup>b</sup>	100	65	100	96	444	95
Dominican Republic	275	72	98	59	64	97	236	81
Ecuador	417	60	99	87	81	99	1,242	67
El Salvador	158	80	99	96	93	99	20	88
French Guiana	70	...	...	...	...	...	...	...
Guadeloupe	...	...	...	...	...	...	...	...
Guatemala	578	94	99	77	93	98	834	49
Haiti	77	88	83	22	32	90	40	73
Honduras	150	98	98	84	91	100	256	94
Martinique	...	...	...	...	...	...	...	...
Mexico	4,504	99	99	90	82	98	14,517	95
Nicaragua	194	84	99	57	94	99	170	100
Panama	219	73	99	68	95	100	251	93
Paraguay	596	70	99	87	100	100	457	92
Peru	2,390	84	90	76	52	89	489	98
Puerto Rico	...	...	...	...	...	...	...	...
Uruguay	10	20	80	100	44	100	68	59
USA	...	...	...	...	...	...	...	...
Venezuela	2,459	88	98	67	79	99	631	72
TOTAL/AVERAGE	36,386	79	86	59	81	97	40,040	87

(a) base sites were changed in 2006; (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 (linear interpolation of indicators). New York; 2007. From this year on, Grenada and Aruba are included in the United Nations estimates. US Bureau of the Census. International Database. 08-24-2006 Update for countries/territories with populations under 100,000 inhabitants. Last accessed in April 2007 at: <http://www.census.gov/ipc/www/idbacc.html>

**Socioeconomic indicators:** The World Bank. 2007 World Development Indicators. Washington DC; 2007. For national health expenditure data, Technical Reports from HSS/HP - WHO/PAHO Regional Units; 2007.

**Immunization coverage, immunization program management, and financing information:** Annual country reports to Immunization Unit (IM)/PAHO via EPI tables PAHO-WHO/UNICEF Joint Reporting Form (JRF); 2007.

**Morbidity:** Annual country reports to IM/PAHO via JRF and specific surveillance reports for measles/rubella and polio; 2006-2007.

**Surveillance indicators:** Specific surveillance reports for measles/rubella and acute flaccid paralysis/polio to IM/PAHO; 2006-2007.

## Symbols and Abbreviations

...	not available
pop	population
ppp	purchasing 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-tetanus-pertussis vaccine (as DTP or combination vaccine)
DTP3	third dose of diphtheria-tetanus-pertussis vaccine (as DTP or combination vaccine)
Hib3	third dose of <i>Haemophilus influenzae</i> 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	first dose of measles, mumps, rubella vaccine
MMR2	second dose of measles, mumps, rubella vaccine (when offered in the routine program)
CRS	congenital rubella syndrome
Hib	<i>Haemophilus influenzae</i> type b
ICC	interagency coordinating committee for immunization
NCIP	national committee on immunization practices
AD syringes	auto-disable syringes
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: <http://www.paho.org/English/dd/ais/coredata.htm>. To see the methodology used to calculate national health expenditure, please visit: <http://www.paho.org/Spanish/DPM/SHD/HP/nhexp-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 Immunization Unit



- **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.
- **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.
- **Training Course on Effective Management of EPI:** Designed for use in training workshops for human resources of the Expanded Program on Immunization (EPI); updated versions reflect changes to basic aspects of the EPI, such as supervision, monitoring, safe vaccination, identification of at-risk municipalities, decentralization, social mobilization, management, and administration.
- **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 Immunization page : <http://www.paho.org/immunization>

**Municipalities reaching coverage  $\geq 95\%$  for DTP3, and MMR:** Proportion of municipalities reporting coverage levels  $\geq 95\%$  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 congenital rubella syndrome, neonatal tetanus, non-neonatal tetanus, 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.
- Year of last updated inventory of all refrigeration equipment: Update can refer to a new inventory or regular status reports.
- AD syringe use: Auto-disable syringes used for all, some, or none of routine immunization (excluding reconstitution syringes).
- 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.

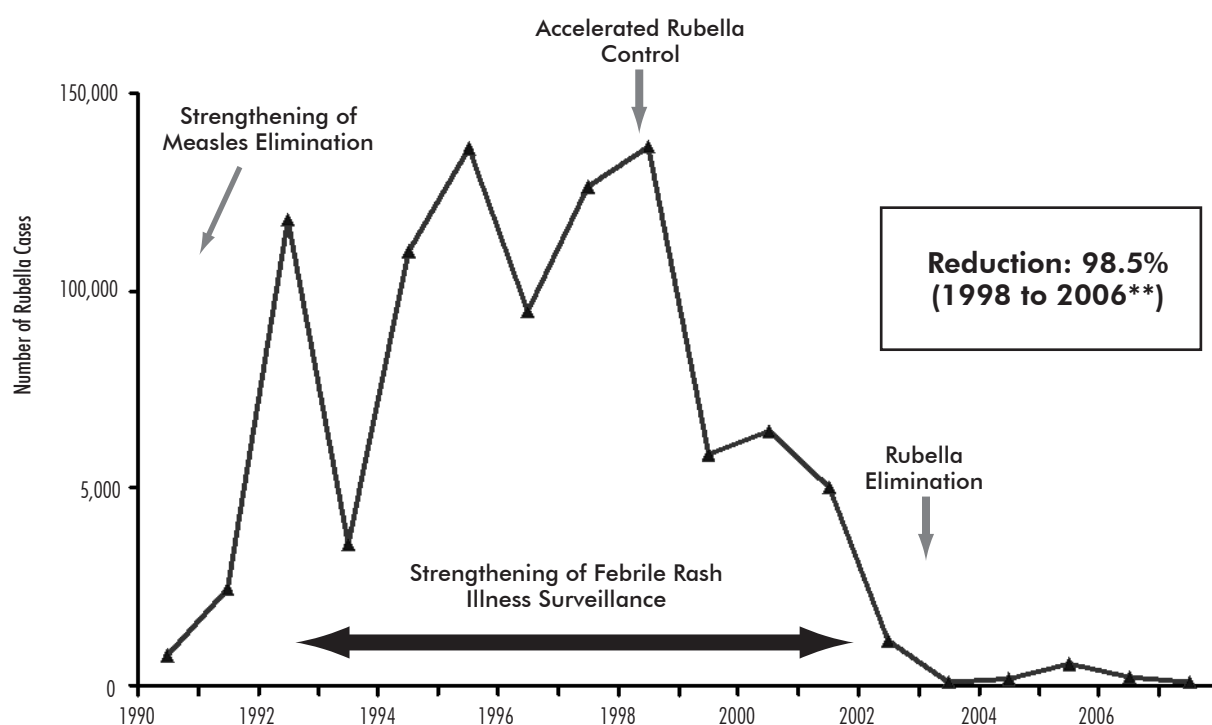
- Spending on vaccine purchases financed using government funds: Percentage of all vaccine spending that was financed using government funds. This excludes any external financing from donors, but may include loans.

- 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: [http://www.paho.org/english/ad/fch/im/FieldGuide\\_Index.htm](http://www.paho.org/english/ad/fch/im/FieldGuide_Index.htm).

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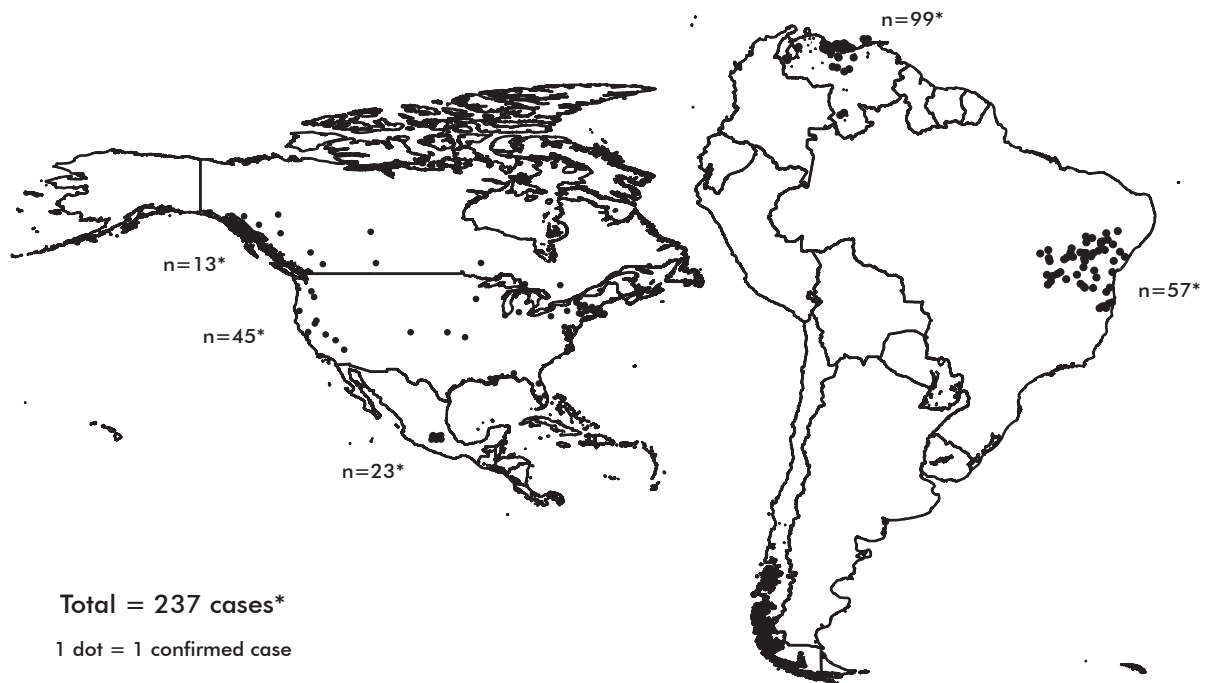
## Impact of Rubella Control and Elimination Strategies, The Americas, 1990-2007\*



\* Includes rubella cases reported to PAHO as of epidemiological week 21/2007; \*\* Provisional data.

Source: Country reports to FCH-IM/PAHO.

## Confirmed Measles Cases in the Americas, 2006



\* outbreaks related to importation

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

## Seasonal Influenza Vaccine Use in the Americas, 2006

	Children	Older Adults	Other Risk Groups				
			Health Workers	Chronic Diseases	Pregnant Women	Poultry Workers	Other
Anguilla	...	...	✓	✓			
Argentina	6m-34m	≥65y	✓	✓			
Aruba	...	>65y	✓	✓			
Bahamas	6m-5y	>65y	✓	✓	✓		
Barbados	...	>65y	✓	✓		✓	
Bermuda	6m-18y	≥50	✓	✓	✓		
Brazil	...	≥60y	✓	✓			✓
British Virgin Islands	...	...	✓	✓			
Canada	6m-23m	≥65y	✓	✓			
Cayman Islands	6m-5y	>50y	✓	✓			✓
Chile	6m-23m	≥65y	✓	✓	✓	✓	
Colombia	Starting 2007	>65y		✓			
Costa Rica	6m-5y	≥65y		✓			
Cuba	...	≥65y	✓	✓		✓	✓
Dominican Republic	...	>60y <sup>b</sup>		✓			
Ecuador	...	≥65y		✓			
El Salvador	6m-23m	>60y	✓	✓			
French Guiana	...	≥65y	✓	✓			
Grenada	...	>60y	✓	✓		✓	
Honduras	...	>65y	✓	✓		✓	
Jamaica	6m-5y <sup>a</sup>	>60y <sup>a</sup>		✓			
Mexico	6m-23m	≥50y	✓	✓			
Netherland Antilles	...	≥65y	✓	✓	✓ <sup>d</sup>		
Panama	6m-23m	>60y <sup>c</sup>	✓	✓			
Paraguay	6m-23m	>60y	✓	✓		✓	
Saint Lucia	...	>65y	✓	✓			✓
Turks and Caicos Islands	6m-5y	>60y	✓	✓			
United States of America	6m-5y	≥50y	✓	✓	✓		✓
Uruguay	6m-23m	≥65y	✓	✓			
Venezuela	...	≥65y		✓			

(a) with chronic diseases; (b) in retirement homes; (c) institutionalized persons; (d) Saba only.

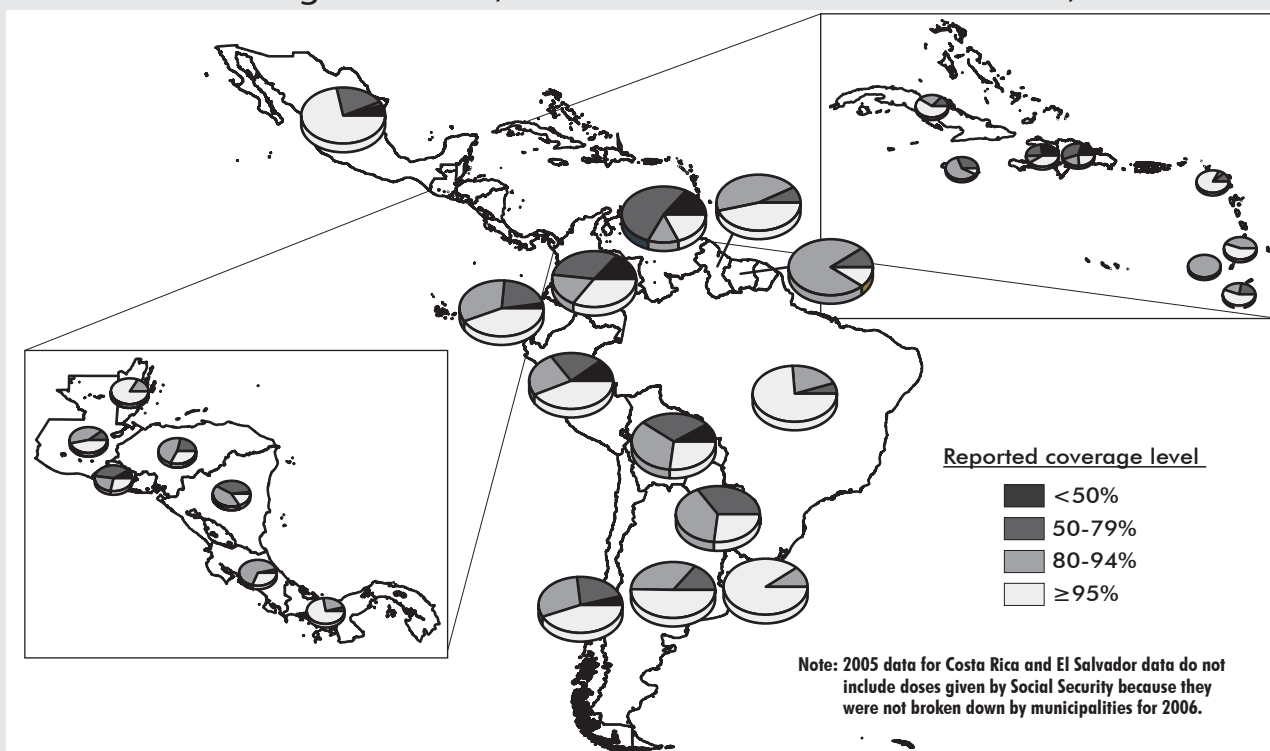
Source: Country reports through the PAHO-WHO/UNICEF Joint Reporting Forms (JRF), 2007 and to FCH-IM/PAHO.

## Data and Indicators of Rotavirus Sentinel Hospital-based Surveillance in Reporting Countries, The Americas, 2006

DATA and INDICATORS	Bolivia Jan-Dec	El Salvador Jan-Dec	Guatemala Jan-Dec	Honduras Jan-Dec	Nicaragua Oct-Dec	Paraguay Jan-Dec	Venezuela Jan-Dec	TOTAL
Number of hospitalizations in children aged <5 years	10,169	30,780	15,794	42,969	8,795	4,956	4,370	117,833
Number of hospitalizations due to diarrhea in children aged <5 years	2,100	5,344	3,164	4,992	1,400	437	968	18,405
% of hospitalizations due to diarrhea	20.7	17.4	20.0	11.6	15.9	8.8	22.2	15.6
Number of children aged <5 years that meet the case definition	1,707	3,291	1,512	4,678	565	315	1,146	13,214
Number of children with complete form and stool sample collected	1,170	2,370	1,228	2,699	395	256	808	8,926
% of suspect cases with complete form and stool sample collected	68.5	72.0	81.2	57.7	69.9	81.3	70.5	67.6
Number of cases with result positive for rotavirus	455	1,025	642	1,193	169	92	258	3,834
% of confirmed rotavirus cases	38.9	43.3	52.3	44.2	42.8	35.9	31.9	43.0

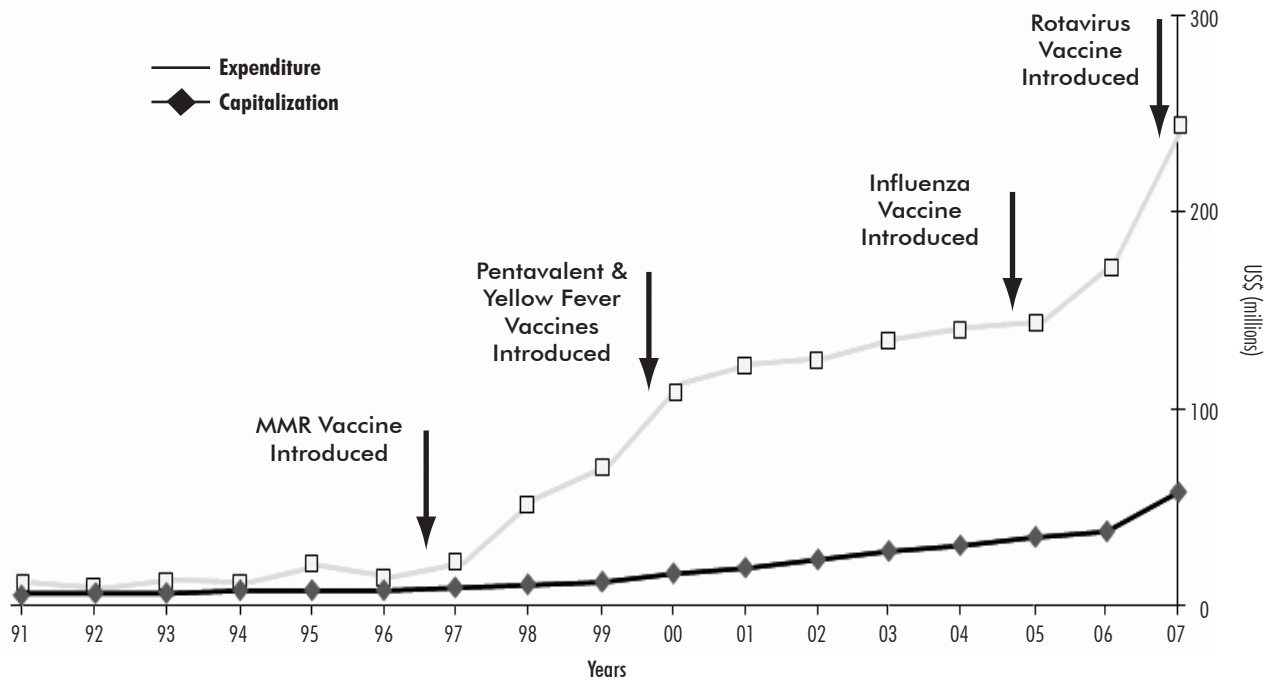
Source: Country Reports to Rotavirus Database, FCH-IM/PAHO.

## Percent of Municipalities With Different DTP3 Coverage Levels in Children Aged <1 Year, Latin America and the Caribbean, 2006



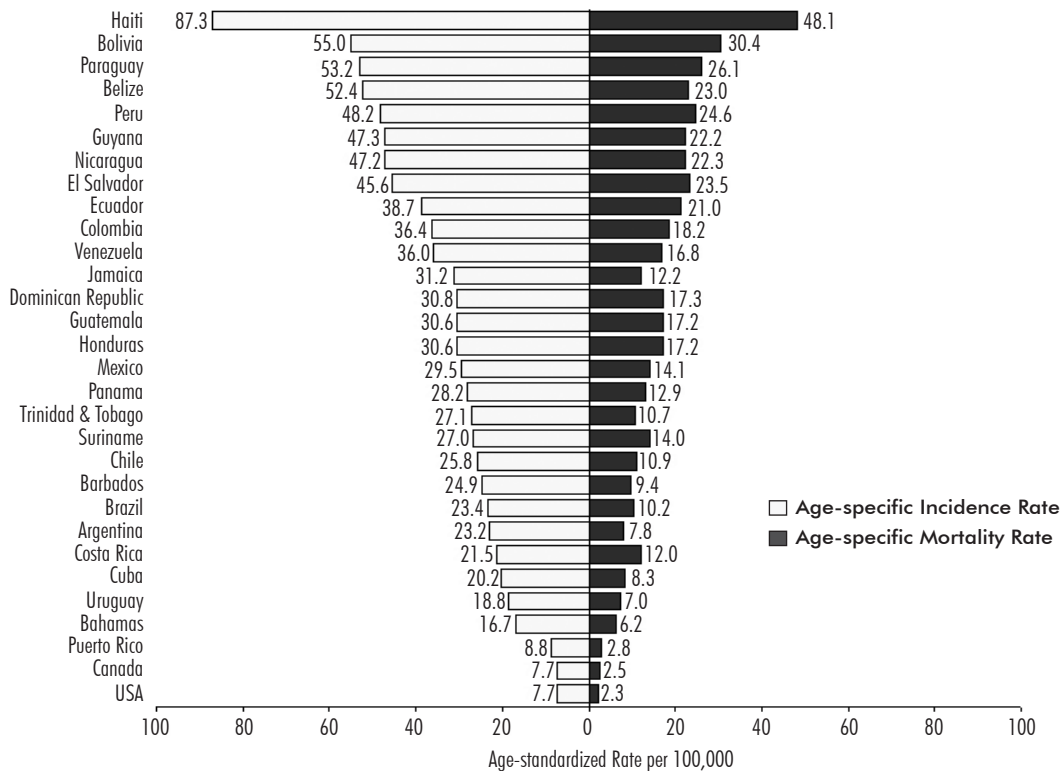
Source: Country reports through the PAHO-WHO/UNICEF Joint Reporting Forms (JRF), 2007.

## Growth of the Revolving Fund, 1991-2007



Source: Revolving Fund, Immunization Unit, PAHO (2007 data provisional).

## Cervical Cancer Age-standardized Incidence and Mortality Rates per 100,000 Population, the Americas, 2002



Source: Ferlay et al. GLOBOCAN 2002 Database. International Agency for Cancer Research (IARC).