Supplementary Appendix

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Supplement to: The direct impact of pneumococcal conjugate vaccines on invasive pneumococcal disease in Latin American children: Observational study, SIREVA 2006-2017

Content

Table 1. Introduction of PCVs (7, 10 and 13) in the Region

PCV	Date implemented	Schedule used	Date (year) switched	Coverage*			Comments
				Year	**dose**	%	
Argentina							
PCV13	January 2012	▪ 2, 4, 12 months (2+booster) ▪ Catch up with 2 doses in children between 12-24 months during the year 2012	NA	2013	1	97.6	Source: DiCEI-Dirección de Control de Enfermedades Inmunoprevenibles Ministerio de Salud-Argentina (2017) **www.msal.gob.ar**
					2	89.6	
					Booster	85.3	
				2014	1	98.7	
					2	92.7	
					Booster	88.8	
				2015	1	91.9	
					2	87.0	
					Booster	81.8	
				2016	1	87.9	
					2	83.9	
					Booster	82.6	
				2017	1	90.4	
					2	85.2	
					Booster	77.7	
Brazil							
PCV10	March 2010	**March 2010** ▪ 2, 4, 6, 12 months (3+booster) **January 2016** ▪ 2, 4, 12 months (2+booster)	NA	2011	3	81.7	Source: http://tabnet.datasus.gov.br/cgi/tabcgi.exe?pni/cnv/cpniuf.def The Brazilian Ministry of Health actualized the data at the site.
				2012	3	88.4	
				2013	3	93.6	
				2014	3	93.5	
				2015	3	94.2	
				2016	2	95.0	
				2017	2	91.6	

PCV	Date implemented	Schedule used	Date (year) switched	Coverage*			Comments
				Year	**dose**	%	
Chile							
PCV10	January 2011	▪ 2, 4, 6, 12 months (3+booster)		2012	1	91.0	http://www.deis.cl/estadisticas-inmunizaciones/
					2	90.0	
					3	18.0	
					Booster	83.0	Ministerio de Salud
				2013	1	93.0	
					2	91.0	
					Booster	85.0	
				2014	1	97.0	
					2	95.0	
					Booster	90.0	
				2015	1	97.0	
					2	97.0	
					Booster	90.0	
				2016	1	98.8	
					2	97.0	
					Booster	90.9	
				2017	1	98.0	Change to PCV13 in November 2017 (2, 4, 12 months (2+booster))
					2	96.4	
					Booster	90.8	

PCV	Date implemented	Schedule used	Date (year) switched	Coverage*			Comments
				Year	dose	%	
Colombia							
PCV7	January 2010	▪ 2, 4, 12 months (2+booster)	January 2012 (UMV)	2011	2	72.4	In 2009, PCV7 universal vaccination started in children <2 years of age. in 12 regions of Colombia. including Bogotá.
					3	45.9	
				2012	2	91.2	
					3	84.3	
PCV13	July 2011	▪ 2, 4, 12 months ▪ Catch-up 12-24 months (13-59 month two doses in special population)		2013	2	90.2	PCV7/PCV13 were used in high risk socioeconomic status and high-risk groups)
					3	87.4	
				2014	2	90.4	
					3	88.8	
				2015	2	91.4	
PCV10	January 2012	▪ 2, 4, 12 months			3	91.0	PCV10 was introduced for all population regardless the conditions population
				2016	2	89.5	
					3	89.1	
				2017	2	92.6	
					3	91.1	
Dominican Republic							
PCV13	September 2013	▪ 2, 4, 12 months (2+booster) ▪ No catch up		2013	1	61.9	In Dominican Republic PCV7 was available at private practice since 2000. Informe Inmunización en Las Américas. Resumen 2015 de la OPS Datos PAI: 2016 y 2017
					2	28.9	
				2014	1	93.8	
					2	80.0	
					Booster	20.5	
				2015	1	75.1	
					2	61.1	
					Booster	21.6	
				2016	1	88.9	
					2	80.3	
					Booster	30.3	
				2017	1	94.1	
					2	86.4	
					Booster	64.1	

PCV	Date implemented	Schedule used	Date (year) switched	Coverage*			Comments
				Year	dose	%	
Mexico							
PCV7	2006	▪ 2, 4, 6 months (3+0) (only children in the poorest regions)					In Mexico, PCV7 became available in the private sector in 2001.
	2008	▪ 2, 4, 6 months (universal program)					• Lancet. 375 (2010). pp. 114-115 • *Salud Publica Mex* 2013; **55** Suppl 2: S289-S299. http://www.censia.salud.gob.mx/contenidos/descargas/transparencia/especiales/PAE_Vacunacion_Universal_PAE_final_final.pdf • Salud Publica Mex 2018; 60: 338-346
	2010	▪ 2, 4 months (2+0) (only because of financial constraints caused by influenza A H1N1)		2010	3	86.9	• Children affiliated to the Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE) and children cared at medical units affiliated with the Secretaria de Salud (SS). • Children affiliated to the Instituto Mexicano del Seguro Social (IMSS) (approx. half of the population)
PCV10	2010	▪ 2, 4, 6 months					
PCV13	2011	▪ 2, 4, 6 months	Since 2011	2011	3	83.7	National Immunization Program (NIP) PCV13 is the only vaccine used in Mexico in the Universal Program.
		▪ 2, 4, 12 months (2+ booster) (than 2 years of age with a 2 + 1 schedule).		2012	3	85.5	
		▪ No catch-up programs were implemented		2013	3	85.3	Coverages considered for children between 12-23 months of age
				2014	3	88.9	We do not have coverage for doses of vaccines
				2015	3	100.0	
				2016	3	92.0	
				2017	3	91.0*	

PCV	Date implemented	Schedule used	Date (year) switched	Coverage*			Comments
				Year	dose	%	
Paraguay							
PCV10	March 2011	▪ 2, 4, 12 months (2+booster)		2012	3	98.8	National Immunization Program www.mspbs.gov.py/pai
				2013	3	73.4	
				2014	3	77.6	
				2015	3	83.5	
				2016	3	83.0	
				2017	3	82.0	Change to PCV13 in December 2017 (2, 4, 12 months
Uruguay							
PCV7 PCV13	March 2008 March 2010	▪ 2, 4, 12 months (2+ booster) ▪ Catch-up two doses (15-21 months). ▪ 2, 4, 12 months ▪ Catch-up one dose in less than 5 years	March 2010	2008	3	100.0	http://www.chlaep.org.uy/programas:inmunizaciones-estadisticas.php
				2009	3	94.0	
				2010	3	96.0	
				2011	3	95.0	
				2012	3	94.0	
				2013	3	94.0	
				2014	3	94.0	
				2015	3	94.0	
				2016	3	94.0	
				2017	3	94.0	

*http://ais.paho.org/imm/IM_JRF_COVERAGE.asp,
http://www.paho.org/hq/index.php?option=com_topics&view=readall&cid=7342&Itemid=40929&lang=es
http://www.paho.org/data/index.php/es/temas/inmunizaciones/297-cobertura-vacunacion-por-pais.html?showall=&start=1

PCV	Comments
Cuba	
PCV7-TT	A new conjugate heptavalent pneumococcal vaccine is under development in Cuba. It contains serotypes 1, 5, 14, 18C, 19F and 23F and 4 µg of 6B, conjugated to tetanus toxoid. Preliminary results of clinical evaluation in adults, children and toddler months of age are showing that it is safe and immunogenic. • Dotres CP, Puga R, Ricardo Y, et al; Laboratory-Pneumococci Group; Havana-Pneumococci Group. Safety and preliminary immunogenicity of Cuban pneumococcal conjugate vaccine candidate in healthy children: a randomized phase I clinical trial. *Vaccine*. 2014;32:5266–5270. • González N, Paredes B, Pérez S, et al. Safety and immunogenicity of Cuban antipneumococcal conjugate vaccine PCV7-TT in healthy adults. *MEDICC Rev*. 2015; 17:32–37. • Linares-Perez N, Toledo-Romani M, Santana-Mederos D, et al. From individual to herd protection of pneumococcal vaccines: The contribution of Cuban PCVs implementation strategy. Intern J Infect Dis 2017.

Table 2. Distribution of *Streptococcus pneumoniae* isolates

2a. By age groups and countries

Countries	Age groups in months						Total
	< 12		12-23		24-59		
	n	%	n	%	n	%	n
Argentina	1085	41.0	588	22.2	974	36.8	**2647**
Brazil	1051	42.4	522	21.1	905	36.5	**2478**
Chile	905	33.5	870	32.2	924	34.2	**2699**
Colombia	550	38.9	276	19.5	588	41.6	**1414**
Dominican Republic	211	49.9	74	17.5	138	32.6	**423**
Mexico	311	38.2	130	16.0	374	45.9	**815**
Paraguay	219	34.0	178	27.6	248	38.4	**645**
Uruguay	170	32.8	149	28.7	200	38.5	**519**
Cuba	131	40.9	91	28.4	98	30.6	**320**
Venezuela	112	36.2	61	19.7	136	44.0	**309**
Total	**4745**	**38.7**	**2939**	**24.0**	**4585**	**37.3**	**12269**

2b. By disease and countries

Country	Pneumonia		Bacteremia*		Meningitis		Others**		Total
	n	%	n	%	n	%	n	%	n
Argentina	1318	49.8	566	21.4	579	21.9	184	7.0	**2647**
Brazil	518	20.9	655	26.4	1289	52.0	16	0.6	**2478**
Chile	523	19.4	1854	68.7	279	10.3	43	1.6	**2699**
Colombia	520	36.8	565	40.0	255	18.0	74	5.2	**1414**
Dominican Republic	167	39.5	64	15.1	190	44.9	2	0.5	**423**
Mexico	492	60.4	178	21.8	122	15.0	23	2.8	**815**
Paraguay	528	82.3	27	4.2	84	13.0	6	0.9	**645**
Uruguay	405	78.0	42	8.1	60	11.6	12	2.3	**519**
Cuba	181	56.6	7	2.2	131	40.9	1	0.3	**320**
Venezuela	111	36.1	82	26.5	116	37.4	0	0.0	**309**
Total	**4763**	**38.8**	**4040**	**32.9**	**3105**	**25.3**	**361**	**2.9**	**12269**

* Bacteremia and febrile syndrome

** Others: arthritis, pericarditis, cellulitis EPI, mastoiditis, pulmonary cyst, nephrotic syndrome, cerebral edema

2c. By source and countries

Country	Blood		CSF		Pleural fluid		Other fluids*		Total
	n	%	n	%	n	%	n	%	n
Argentina	1696	64.1	536	20.2	360	13.6	55	2.1	**2647**
Brazil	1142	46.1	1119	45.2	194	7.8	23	0.9	**2478**
Chile	2300	85.2	233	8.6	131	4.9	35	1.3	**2699**
Colombia	1104	78.1	229	16.2	76	5.4	5	0.4	**1414**
Dominican Republic	133	31.4	182	43.0	107	25.3	1	0.2	**423**
Mexico	240	29.4	121	14.8	139	17.1	315	38.7	**815**
Paraguay	389	60.3	79	12.2	171	26.5	6	0,9	**645**
Uruguay	296	57.0	59	11.4	150	28.9	14	2.7	**519**
Cuba	153	47.8	111	34.7	55	17.2	1	0.3	**320**
Venezuela	102	33.0	116	37.5	89	28.8	2	0.6	**309**
Total	**7555**	**61.6**	**2785**	**22.7**	**1472**	**12.2**	**457**	**3.7**	**12269**

*Other fluids: pericardial, articular, peritoneal fluid, bronchoalveolar lavage

Table 3. Distribution of *Streptococcus pneumoniae* isolates by country, serotype and year of surveillance

3a. Brazil PCV10

Serotype	Years of surveillance																						Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	5	1·6	7	2·3	3	1·0	3	1·6	0	0·0	2	0·9	0	0·0	0	0·0	0	0·0	1	0·7	1	0·7	0	0·0	**22**	-	0·003
4	7	2·2	3	1·0	5	1·6	3	1·6	3	1·3	3	1·4	2	1·2	2	1·3	1	0·7	0	0·0	0	0·0	0	0·0	**29**	-	0·010
5	7	2·2	5	1·6	12	3·9	4	2·2	0	0·0	3	1·4	0	0·0	5	3·2	8	5·6	0	0·0	0	0·0	0	0·0	**44**	-	0·058
6B	39	12·3	42	13·5	35	11·3	22	11·9	34	14·6	23	10·9	10	5·8	6	3·9	4	2·8	0	0·0	1	0·7	0	0·0	**216**	-	<0·001
7F	7	2·2	7	2·3	3	1·0	7	3·8	3	1·3	1	0·5	5	2·9	3	1·9	2	1·4	2	1·4	1	0·7	1	0·7	**42**	-	0·149
9V	7	2·2	10	3·2	6	1·9	2	1·1	3	1·3	6	2·8	3	1·7	4	2·6	0	0·0	0	0·0	3	2·0	1	0·7	**45**	-	0·047
14	126	39·6	127	41·0	122	39·5	72	38·9	70	30·0	41	19·4	23	13·3	4	2·6	2	1·4	2	1·4	0	0·0	5	3·4	**594**	-	<0·001
18C	11	3·5	14	4·5	21	6·8	7	3·8	16	6·9	7	3·3	2	1·2	1	0·6	1	0·7	0	0·0	1	0·7	0	0·0	**81**	-	<0·001
19F	23	7·2	16	5·2	13	4·2	14	7·6	8	3·4	12	5·7	2	1·2	4	2·6	5	3·5	1	0·7	1	0·7	0	0·0	**99**	-	<0·001
23F	15	4·7	19	6·1	16	5·2	6	3·2	17	7·3	8	3·8	8	4·6	4	2·6	2	1·4	3	2·1	2	1·4	1	0·7	**101**	-	<0·001
subtotal‡	**247**	**77·7**	**250**	**80·6**	**236**	**76·4**	**140**	**75·7**	**154**	**66·1**	**106**	**50·2**	**55**	**31·8**	**33**	**21·3**	**25**	**17·5**	**9**	**6·3**	**10**	**6·8**	**8**	**5·4**	**1273**	**-**	**<0·001**
3	6	1·9	10	3·2	9	2·9	7	3·8	10	4·3	18	8·5	24	13·9	17	11·0	10	7·0	12	8·3	9	6·1	18	12·1	**150**	+	<0·001
6A	9	2·8	18	5·8	11	3·6	10	5·4	17	7·3	13	6·2	11	6·4	11	7·1	2	1·4	2	1·4	5	3·4	2	1·3	**111**	-	0·181
19A	10	3·1	6	1·9	16	5·2	5	2·7	14	6·0	15	7·1	17	9·8	19	12·3	37	25·9	39	27·1	44	29·7	48	32·2	**270**	+	<0·001
subtotal‡‡	**25**	**7·9**	**34**	**11·0**	**36**	**11·7**	**22**	**11·9**	**41**	**17·6**	**46**	**21·8**	**52**	**30·1**	**47**	**30·3**	**49**	**34·3**	**53**	**36·8**	**58**	**39·2**	**68**	**45·6**	**531**	**+**	**<0·001**
NVT	44	13·8	24	7·7	33	10·7	22	11·9	38	16·3	59	28·0	66	38·1	75	48·4	68	47·6	82	56·9	79	53·4	73	49·0	**663**	+	<0·001
NT	2	0·6	2	0·7	4	1·2	1	0·5	0	0·0	0	0·0	0	0·0	0	0·0	1	0·6	0	0·0	1	0·6	0	0·0	**11**	-	0·105
Total	**318**		**310**		**309**		**185**		**233**		**211**		**173**		**155**		**143**		**144**		**148**		**149**		**2478**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13

3b. Chile PCV10

Serotype	Years of surveillance																						Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	10	3·6	19	5·5	26	8·1	34	10·6	22	7·8	8	3·3	5	2·9	8	4·4	8	5·2	7	5·3	1	0·7	3	2·2	**151**	-	0·006
4	8	2·8	7	2·0	7	2·2	2	0·6	6	2·1	5	2·1	0	0·0	2	1·1	0	0·0	0	0·0	0	0·0	0	0·0	**37**	-	<0·001
5	11	3·9	9	2·6	5	1·6	9	2·8	12	4·3	8	3·3	3	1·8	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**57**	-	<0·001
6B	34	12·1	25	7·3	31	9·6	22	6·9	18	6·4	30	12·4	8	4·7	8	4·4	1	0·7	1	0·8	1	0·7	0	0·0	**179**	-	<0·001
7F	8	2·8	11	3·2	12	3·7	13	4·0	11	3·9	6	2·5	7	4·1	4	2·2	4	2·6	1	0·8	2	1·5	2	1·5	**81**	-	0·059
9V	2	0·7	0	0·0	7	2·2	5	1·6	2	0·7	4	1·7	3	1·8	3	1·7	1	0·7	0	0·0	1	0·7	2	1·5	**30**	+	0·806
14	90	32·0	113	32·9	112	34·8	110	34·3	90	31·9	76	31·5	46	26·9	24	13·3	10	6·5	5	3·8	5	3·6	3	2·2	**684**	-	<0·001
18C	19	6·8	20	5·8	13	4·0	15	4·7	14	5·0	9	3·7	10	5·8	4	2·2	5	3·3	1	0·8	1	0·7	1	0·7	**112**	-	<0·001
19F	22	7·8	29	8·5	16	5·0	13	4·0	22	7·8	14	5·8	3	1·8	4	2·2	3	2·0	2	1·5	1	0·7	1	0·7	**130**	-	<0·001
23F	10	3·6	17	5·0	10	3·1	14	4·4	12	4·3	7	2·9	3	1·8	8	4·4	6	3·9	2	1·5	1	0·7	0	0·0	**90**	-	0·006
subtotal‡	**214**	**76·1**	**250**	**72·9**	**239**	**74·2**	**237**	**73·8**	**209**	**74·1**	**167**	**69·3**	**88**	**51·5**	**65**	**35·9**	**38**	**24·8**	**19**	**14·4**	**13**	**9·5**	**12**	**8·9**	**1551**	**-**	**<0·001**
3	4	1·4	2	0·6	3	0·9	8	2·5	1	0·4	6	2·5	8	4·7	17	9·4	12	7·8	11	8·3	13	9·5	14	10·4	**99**	+	<0·001
6A	18	6·4	20	5·8	20	6·2	23	7·2	24	8·5	22	9·1	12	7·0	6	3·3	7	4·6	4	3·0	6	4·4	3	2·2	**165**	-	0·026
19A	6	2·1	15	4·4	23	7·1	17	5·3	15	5·3	12	5·0	14	8·2	19	10·5	42	27·5	34	25·8	47	34·3	37	27·4	**281**	+	<0·001
subtotal‡‡	**28**	**10·0**	**37**	**10·8**	**46**	**14·3**	**48**	**15·0**	**40**	**14·2**	**40**	**16·6**	**34**	**19·9**	**42**	**23·2**	**61**	**39·9**	**49**	**37·1**	**66**	**48·2**	**54**	**40·0**	**545**	**+**	**<0·001**
NVT	25	8·9	38	11·1	27	8·4	33	10·3	32	11·3	31	12·9	46	26·9	69	38·1	53	34·6	61	46·2	58	42·3	68	50·4	**541**	+	<0·001
NT	14	5·0	18	5·2	10	3·1	3	0·9	1	0·4	3	1·2	3	1·7	5	2·8	1	0·7	3	2·3	0	0·0	1	0·7	**62**	-	<0·001
Total	**281**		**343**		**322**		**321**		**282**		**241**		**171**		**181**		**153**		**132**		**137**		**135**		**2699**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13.

3c. Colombia PCV10

Serotype	Years of surveillance																								Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	14	9·9	16	10·0	11	7·8	4	3·7	17	12·4	13	10·7	11	12·9	7	9·0	4	4·4	1	1·1	3	2·6	0	0·0	**101**	-	<0·001
4	0	0·0	2	1·3	1	0·7	3	2·8	1	0·7	1	0·8	0	0·0	0	0·0	1	1·1	1	1·1	0	0·0	1	0·7	**11**	-	0·581
5	4	2·8	5	3·1	3	2·1	1	0·9	1	0·7	2	1·6	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**16**	-	<0·001
6B	12	8·5	18	11·3	12	8·5	10	9·3	14	10·2	8	6·6	7	8·2	3	3·8	2	2·2	3	3·3	0	0·0	0	0·0	**89**	-	<0·001
7F	1	0·7	2	1·3	1	0·7	3	2·8	1	0·7	0	0·0	1	1·2	1	1·3	0	0·0	0	0·0	0	0·0	0	0·0	**10**	-	0·061
9V	7	5·0	2	1·3	2	1·4	2	1·9	3	2·2	3	2·5	0	0·0	1	1·3	0	0·0	3	3·3	1	0·9	0	0·0	**24**	-	0·022
14	41	29·1	61	38·1	64	45·4	42	39·3	30	21·9	28	23·0	17	20·0	4	5·1	10	11·1	5	5·4	6	5·3	1	0·7	**309**	-	<0·001
18C	5	3·5	6	3·8	4	2·8	5	4·7	8	5·8	3	2·5	2	2·4	1	1·3	1	1·1	0	0·0	0	0·0	1	0·7	**36**	-	<0·001
19F	10	7·1	9	5·6	8	5·6	4	3·7	4	2·9	2	1·6	4	4·7	2	2·6	4	4·4	2	2·2	3	2·6	0	0·0	**52**	-	<0·001
23F	10	7·1	5	3·1	4	2·8	5	4·7	8	5·8	5	4·1	4	4·7	8	10·3	4	4·4	2	2·2	0	0·0	1	0·7	**56**	-	0·019
subtotal‡	**104**	**73·8**	**126**	**78·8**	**110**	**78·0**	**79**	**73·8**	**87**	**63·5**	**65**	**53·3**	**46**	**54·1**	**27**	**34·6**	**26**	**28·9**	**17**	**18·5**	**13**	**11·4**	**4**	**2·7**	**704**	**-**	**<0·001**
3	2	1·4	4	2·5	1	0·7	6	5·6	8	5·8	7	5·7	5	5·9	11	14·1	8	7·8	10	10·9	15	13·2	14	9·6	**91**	+	<0·001
6A	8	5·7	6	3·8	6	4·3	4	3·7	4	2·9	4	3·3	4	4·7	2	2·6	8	8·9	7	7·6	10	8·8	5	3·4	**68**	-	0·219
19A	2	1·4	7	4·4	5	3·5	8	7·5	14	10·2	10	8·2	11	12·9	7	9·0	21	23·3	31	33·7	45	39·5	64	43·8	**225**	+	<0·001
subtotal‡‡	**12**	**8·5**	**17**	**10·6**	**12**	**8·5**	**18**	**16·8**	**26**	**19·0**	**21**	**17·2**	**20**	**23·5**	**20**	**25·6**	**37**	**40·0**	**48**	**52·2**	**70**	**61·4**	**83**	**56·8**	**384**	**+**	**<0·001**
NVT	25	17·7	17	10·6	18	12·8	10	9·4	24	17·5	35	28·7	18	21·2	31	39·8	28	31·1	27	29·3	31	27·2	59	40·4	**323**	+	<0·001
NT	0	0·0	0	0·0	1	0·7	0	0·0	0	0·0	1	0·8	1	1·2	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**3**		0·698
Total	**141**		**160**		**141**		**107**		**137**		**122**		**85**		**78**		**91**		**92**		**114**		**146**		**1414**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13.

3d. Paraguay PCV10

Serotype	Years of surveillance																						Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	23	21·5	12	14·8	3	4·1	3	6·0	4	6·0	1	1·8	0	0·0	0	0·0	1	4·5	0	0·0	0	0·0	0	0·0	47	-	<0·001
4	2	1·9	0	0·0	2	2·7	2	4·0	3	4·5	0	0·0	0	0·0	0	0·0	1	4·5	0	0·0	0	0·0	0	0·0	10	-	0·167
5	27	25·2	9	11·1	2	2·7	0	0·0	0	0·0	1	1·8	2	4·9	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	41	-	<0·001
6B	3	2·8	3	3·7	5	6·8	5	10·0	10	14·9	4	7·0	1	2·4	4	10·8	2	9·1	1	3·4	1	2·9	0	0·0	39	-	0·726
7F	2	1·9	3	3·7	5	6·8	1	2·0	2	3·0	1	1·8	2	4·9	2	5·4	0	0·0	1	3·4	0	0·0	1	2·2	20	+	0·544
9V	3	2·8	2	2·5	1	1·4	0	0·0	0	0·0	1	1·8	2	4·9	0	0·0	1	4·5	1	3·4	2	5·7	0	0·0	13	-	0·797
14	31	29·0	30	37·0	36	48·6	29	58·0	33	49·3	27	47·4	15	36·6	10	27·0	4	18·2	6	20·7	4	11·4	1	2·2	226	-	<0·001
18C	0	0·0	0	0·0	0	0·0	0	0·0	1	1·5	3	5·3	1	2·4	1	2·7	0	0·0	1	3·4	0	0·0	0	0·0	7	-	0·211
19F	2	1·9	1	1·2	1	1·4	1	2·0	0	0·0	4	7·0	4	9·8	2	5·4	1	4·5	1	3·4	0	0·0	0	0·0	17	-	0·511
23F	2	1·9	2	2·5	3	4·1	0	0·0	0	0·0	3	5·3	2	4·9	0	0·0	0	0·0	1	3·4	1	2·9	0	0·0	14	-	0·698
subtotal‡	**95**	**88·8**	**62**	**76·5**	**58**	**78·4**	**41**	**82·0**	**53**	**79·1**	**45**	**78·9**	**29**	**70·7**	**19**	**51·4**	**10**	**45·5**	**12**	**41·4**	**8**	**22·9**	**2**	**4·4**	**434**	**-**	**<0·001**
3	0	0·0	0	0·0	0	0·0	1	2·0	0	0·0	0	0·0	1	2·4	3	8·1	5	22·7	2	6·9	6	17·1	15	33·3	33	+	<0·001
6A	0	0·0	2	2·5	3	4·1	0	0·0	2	3·0	6	10·5	3	7·3	5	13·5	0	0·0	4	13·8	1	2·9	2	4·4	28	+	0·007
19A	1	0·9	4	4·9	1	1·4	1	2·0	4	6·0	0	0·0	0	0·0	4	10·8	0	0·0	3	10·3	9	25·7	10	22·2	37	+	<0·001
subtotal‡‡	**1**	**0·9**	**6**	**7·4**	**4**	**5·4**	**2**	**4·0**	**6**	**9·0**	**6**	**10·5**	**4**	**9·8**	**12**	**32·4**	**5**	**22·7**	**9**	**31·0**	**16**	**45·7**	**27**	**60·0**	**98**	**+**	**<0·001**
NVT	9	8·4	10	12·3	10	13·5	6	12·0	6	9·0	5	8·8	6	14·6	6	16·2	7	31·8	6	20·7	11	31·4	15	33·3	97	+	<0·001
NT	2	1·9	3	3·7	2	2·7	1	2·0	2	3·0	1	1·8	2	4·9	0	0·0	0	0·0	2	6·9	0	0·0	1	2·2	16	+	0·802
Total	**107**		**81**		**74**		**50**		**67**		**57**		**41**		**37**		**22**		**29**		**35**		**45**		**645**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13.

3e. Argentina PCV13

Serotype	Years of surveillance																						Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	24	12·3	19	12·2	21	8·4	39	16·3	48	13·5	41	10·9	39	14·3	28	14·0	20	11·7	21	13·4	7	4·8	7	5·3	**314**	-	0·086
4	4	2·1	0	0·0	2	0·8	0	0·0	4	1·1	5	1·3	3	1·1	0	0·0	0	0·0	1	0·6	0	0·0	0	0·0	**19**	-	0·068
5	18	9·2	19	12·2	47	18·9	23	9·6	25	7·0	68	18·1	39	14·3	14	7·0	1	0·6	1	0·6	0	0·0	2	1·5	**257**	-	<0·001
6B	11	5·6	6	3·8	6	2·4	11	4·6	21	5·9	15	4·0	6	2·2	6	3·0	4	2·3	1	0·6	1	0·7	0	0·0	**88**	-	<0·001
7F	8	4·1	7	4·5	20	8·0	10	4·2	21	5·9	23	6·1	21	7·7	10	5·0	8	4·7	11	7·0	5	3·4	6	4·6	**150**	+	0·836
9V	12	6·2	1	0·6	6	2·4	9	3·8	8	2·3	12	3·2	4	1·5	4	2·0	6	3·5	5	3·2	1	0·7	4	3·1	**72**	-	0·193
14	48	24·6	37	23·7	63	25·3	58	24·3	87	24·5	83	22·1	42	15·4	16	8·0	9	5·3	4	2·5	7	4·8	5	3·8	**459**	-	<0·001
18C	12	6·2	6	3·8	10	4·0	6	2·5	13	3·7	12	3·2	12	4·4	0	0·0	4	2·3	0	0·0	1	0·7	1	0·8	**77**	-	<0·001
19F	7	3·6	3	1·9	5	2·0	7	2·9	9	2·5	9	2·4	4	1·5	1	0·5	2	1·2	0	0·0	3	2·1	2	1·5	**52**	-	0·024
23F	4	2·1	4	2·6	4	1·6	6	2·5	12	3·4	10	2·7	8	2·9	2	1·0	1	0·6	0	0·0	1	0·7	2	1·5	**54**	-	0·511
subtotal‡	**148**	**75·9**	**102**	**65·4**	**184**	**73·9**	**169**	**70·7**	**248**	**69·9**	**278**	**73·9**	**178**	**65·4**	**81**	**40·5**	**55**	**32·2**	**44**	**28·0**	**26**	**17·8**	**29**	**22·1**	**1542**	**-**	**<0·001**
3	5	2·6	4	2·6	4	1·6	10	4·2	14	3·9	10	2·7	11	4·0	16	8·0	7	4·1	10	6·4	8	5·5	7	5·3	**106**	+	0·002
6A	5	2·6	7	4·5	10	4·0	6	2·5	24	6·8	20	5·3	11	4·0	3	1·5	4	2·3	4	2·5	2	1·4	0	0·0	**96**	-	0·017
19A	11	5·6	11	7·1	9	3·6	10	4·2	22	6·2	22	5·9	15	5·5	8	4·0	10	5·8	3	1·9	8	5·5	8	6·1	**137**	+	0·669
subtotal‡‡	**21**	**10·8**	**22**	**14·1**	**23**	**9·2**	**26**	**10·9**	**60**	**16·9**	**52**	**13·8**	**37**	**13·6**	**27**	**13·5**	**21**	**12·3**	**17**	**10·8**	**18**	**12·3**	**15**	**11·5**	**339**	**+**	**0·866**
NVT	19	9·7	23	14·7	31	12·4	40	16·7	47	13·2	44	11·7	56	20·6	90	45·0	92	53·8	90	57·3	101	69·2	87	66·4	**720**	+	<0·001
NT	7	3·6	9	5·8	11	4·4	4	1·7	0	0·0	2	0·5	1	0·4	2	1·0	3	1·8	6	3·8	1	0·7	0	0·0	**46**	-	<0·001
Total	**195**		**156**		**249**		**239**		**355**		**376**		**272**		**200**		**171**		**157**		**146**		**131**		**2647**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13.

3f. Dominican Republic PCV13

Serotype	Years of surveillance																						Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	3	6·4	2	5·6	1	1·8	3	6·5	0	0·0	1	2·6	0	0·0	2	4·5	2	6·1	4	16·0	0	0·0	0	0·0	**18**	-	0·920
4	1	2·1	0	0·0	0	0·0	1	2·2	0	0·0	0	0·0	0	0·0	1	2·3	1	3·0	0	0·0	0	0·0	0	0·0	**4**	-	0·953
5	1	2·1	0	0·0	1	1·8	0	0·0	0	0·0	1	2·6	2	5·7	0	0·0	0	0·0	2	8·0	2	9·1	0	0·0	**9**	-	0·096
6B	3	6·4	3	8·3	8	14·0	3	6·5	4	14·3	6	15·4	2	5·7	9	20·5	9	27·3	2	8·0	4	18·2	0	0·0	**53**	-	0·100
7F	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	3·0	0	0·0	0	0·0	0	0·0	**1**	-	0·282
9V	1	2·1	1	2·8	1	1·8	2	4·3	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**5**	-	0.048
14	21	44·7	13	36·1	12	21·1	10	21·7	10	35·7	7	17·9	12	34·3	10	22·7	8	24·2	5	20·0	0	0·0	0	0·0	**108**	-	<0·001
18C	1	2·1	0	0·0	0	0·0	3	6·5	1	3·6	1	2·6	1	2·9	3	6·8	1	3·0	0	0·0	2	9·1	1	9·1	**14**	+	0·092
19F	1	2·1	3	8·3	4	7·0	2	4·3	1	3·6	2	5·1	2	5·7	0	0·0	2	6·1	1	4·0	0	0·0	0	0·0	**18**	-	0·265
23F	1	2·1	2	5·6	7	12·3	4	8·7	1	3·6	8	20·5	7	20·0	4	9·1	0	0·0	0	0·0	3	13·6	0	0·0	**37**	-	0·912
subtotal‡	**33**	**70·2**	**24**	**66·7**	**34**	**59·6**	**28**	**60·9**	**17**	**60·7**	**26**	**66·7**	**26**	**74·3**	**29**	**65·9**	**24**	**72·7**	**14**	**56·0**	**11**	**50·0**	**1**	**9·1**	**267**	**-**	**0·084**
3	2	4·3	0	0·0	1	1·8	2	4·3	2	7·1	0	0·0	1	2·9	4	9·1	0	0·0	1	4·0	2	9·1	1	9·1	**16**	+	0·185
6A	3	6·4	2	5·6	4	7·0	4	8·7	2	7·1	2	5·1	1	2·9	3	6·8	1	3·0	0	0·0	1	4·5	1	9·1	**24**	+	0·346
19A	3	6·4	0	0·0	2	3·5	1	2·2	0	0·0	1	2·6	1	2·9	1	2·3	4	12·1	4	16·0	1	4·5	2	18·2	**20**	+	0·017
subtotal‡‡	**8**	**17·0**	**2**	**5·6**	**7**	**12·3**	**7**	**15·2**	**4**	**14·3**	**3**	**7·7**	**3**	**8·6**	**8**	**18·2**	**5**	**15·2**	**5**	**20·0**	**4**	**18·2**	**4**	**36·4**	**60**	**+**	**0·120**
NVT	3	6·4	7	19·5	8	14·0	8	17·4	3	10·7	8	20·5	3	8·6	5	11·4	4	12·1	5	20·0	7	31·8	6	54·5	**67**	+	0·016
NT	3	6·4	3	8·3	8	14·0	3	6·5	4	14·3	2	5·1	3	8·6	2	4·5	0	0·0	1	4·0	0	0·0	0	0·0	**29**	-	0·020
Total	**47**		**36**		**57**		**46**		**28**		**39**		**35**		**44**		**33**		**25**		**22**		**11**		**423**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13.

3g. Mexico PCV7/PCV13

Serotype	Years of surveillance																						Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	0	0·0	1	2·0	0	0·0	0	0·0	2	2·0	1	1·0	2	2·3	1	1·4	0	0·0	0	0·0	0	0·0	0	0·0	**7**	-	0·573
4	1	2·0	0	0·0	1	1·6	0	0·0	0	0·0	0	0·0	0	0·0	1	1·4	0	0·0	0	0·0	0	0·0	0	0·0	**3**	-	0·182
5	0	0·0	0	0·0	0	0·0	2	2·6	0	0·0	1	1·0	0	0·0	0	0·0	1	1·6	0	0·0	0	0·0	0	0·0	**4**	-	0·688
6B	9	18·4	10	20·0	8	12·9	7	9·1	4	3·9	2	2·1	3	3·4	3	4·1	3	4·7	0	0·0	0	0·0	0	0·0	**49**	-	<0·001
7F	0	0·0	1	2·0	2	3·2	1	1·3	0	0·0	1	1·0	2	2·3	1	1·4	0	0·0	0	0·0	0	0·0	0	0·0	**8**	-	0·207
9V	0	0·0	0	0·0	2	3·2	3	3·9	3	2·9	3	3·1	3	3·4	3	4·1	1	1·6	1	2·0	0	0·0	1	2·3	**20**	-	0·982
14	7	14·3	9	18·0	5	8·1	6	7·8	0	0·0	2	2·1	1	1·1	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**30**	-	<0·001
18C	0	0·0	0	0·0	1	1·6	3	3·9	4	3·9	0	0·0	1	1·1	1	1·4	0	0·0	0	0·0	0	0·0	0	0·0	**10**	-	0·157
19F	9	18·4	6	12·0	8	12·9	13	16·9	12	11·8	8	8·2	6	6·8	4	5·5	5	7·8	2	4·1	2	3·3	1	2·3	**76**	-	<0·001
23F	8	16·3	5	10·0	9	14·5	6	7·8	7	6·9	5	5·2	3	3·4	2	2·7	0	0·0	0	0·0	0	0·0	0	0·0	**45**	-	<0·001
subtotal‡	**34**	**69·4**	**32**	**64·0**	**36**	**58·1**	**41**	**53·2**	**32**	**31·4**	**23**	**23·7**	**21**	**23·9**	**16**	**21·9**	**10**	**15·6**	**3**	**6·1**	**2**	**3·3**	**2**	**4·7**	**252**	**-**	**<0·001**
3	3	6·1	0	0·0	1	1·6	3	3·9	2	2·0	4	4·1	4	4·5	2	2·7	2	3·1	1	2·0	3	4·9	3	7·0	**28**	+	0·356
6A	2	4·1	4	8·0	2	3·2	7	9·1	8	7·8	3	3·1	2	2·3	2	2·7	4	6·3	1	2·0	1	1·6	2	4·7	**38**	+	0·118
19A	0	0·0	3	6·0	5	8·1	9	11·7	35	34·3	35	36·1	31	35·2	23	31·5	17	26·6	13	26·5	19	31·1	13	30·2	**203**	+	<0·001
subtotal‡‡	**5**	**10·2**	**7**	**14·0**	**8**	**12·9**	**19**	**24·7**	**45**	**44·1**	**42**	**43·3**	**37**	**42·0**	**27**	**37·0**	**23**	**35·9**	**15**	**30·6**	**23**	**37·7**	**18**	**41·9**	**269**	**+**	**<0·001**
NVT	9	18·4	11	22·0	15	24·2	13	16·9	22	21·6	30	30·9	28	31·8	26	35·6	27	42·2	29	59·2	33	54·1	20	46·5	**263**	+	<0·001
NT	1	2·0	0	0·0	3	4·8	4	5·2	3	2·9	2	2·1	2	2·3	4	5·5	4	6·3	2	4·1	3	4·9	3	7·0	**31**	+	0·112
Total	**49**		**50**		**62**		**77**		**102**		**97**		**88**		**73**		**64**		**49**		**61**		**43**		**815**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13.

Data for percentage of change for VT13 considering 2006-2008 as the prevaccine period for Mexico: -44·7% (74·5% [120/161] post, 41·2% [63/153] pre)

3h. Uruguay PCV7/PCV13

Serotype	Years of surveillance																						Total n	trend	*P**
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017				
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%			
1	21	21·0	10	15·9	9	12·0	8	14·5	7	17·1	5	17·2	1	4·0	4	13·8	1	6·7	1	4·0	0	0·0	0	0·0	**67**	-	<0·001
4	1	1·0	1	1·6	0	0·0	0	0·0	1	2·4	0	0·0	1	4·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**4**	-	0·503
5	17	17·0	0	0·0	1	1·3	10	18·2	3	7·3	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**31**	-	<0·001
6B	6	6·0	4	6·3	3	4·0	2	3·6	1	2·4	0	0·0	1	4·0	0	0·0	0	0·0	1	4·0	0	0·0	0	0·0	**18**	-	0·015
7F	4	4·0	8	12·7	7	9·3	8	14·5	2	4·9	2	6·9	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**31**	-	0·002
9V	3	3·0	2	3·2	0	0·0	1	1·8	0	0·0	0	0·0	1	4·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**7**	-	0·074
14	28	28·0	22	34·9	33	44·0	7	12·7	3	7·3	1	3·4	1	4·0	0	0·0	0	0·0	1	4·0	2	6·1	6	20·7	**104**	-	<0·001
18C	3	3·0	0	0·0	0	0·0	2	3·6	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**5**	-	0·081
19F	1	1·0	2	3·2	1	1·3	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	4·0	1	3·0	1	3·4	**7**	+	0·476
23F	0	0·0	3	4·8	0	0·0	0	0·0	3	7·3	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	3·0	0	0·0	**7**	-	0·792
subtotal‡	**84**	**84·0**	**52**	**82·5**	**54**	**72·0**	**38**	**69·1**	**20**	**48·8**	**8**	**27·6**	**5**	**20·0**	**4**	**13·8**	**1**	**6·7**	**4**	**16·0**	**4**	**12·1**	**7**	**24·1**	**281**	**-**	**<0·001**
3	6	6·0	2	3·2	7	9·3	0	0·0	7	17·1	4	13·8	1	4·0	6	20·7	3	20·0	3	12·0	9	27·3	6	20·7	**54**	+	<0·001
6A	1	1·0	2	3·2	1	1·3	2	3·6	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**6**	-	0·114
19A	4	4·0	3	4·8	3	4·0	5	9·1	1	2·4	1	3·4	1	4·0	2	6·9	0	0·0	2	8·0	1	3·0	2	6·9	**25**	+	0·769
subtotal‡‡	**11**	**11·0**	**7**	**11·1**	**11**	**14·7**	**7**	**12·7**	**8**	**19·5**	**5**	**17·2**	**2**	**8·0**	**8**	**27·6**	**3**	**20·0**	**5**	**20·0**	**10**	**30·3**	**8**	**27·6**	**85**	**+**	**<0·001**
NVT	5	5·0	4	6·3	10	13·3	10	18·2	13	31·7	16	55·2	18	72·0	17	58·6	11	73·3	16	64·0	19	57·6	14	48·3	**153**	+	<0·001
Total	**100**		**63**		**75**		**55**		**41**		**29**		**25**		**29**		**15**		**25**		**33**		**29**		**519**		

**P* of trend that includes all years of the period. in bold statistically significant. NVT: Non-vaccine type. NT: Non typable.

‡subtotal: Serotypes included in PCV10.

‡‡subtotal: Serotypes included, only in PCV13.

Data for percentage of change for VT13 considering 2006-2008 as the prevaccine period for Uruguay: -54·7% (92·01% [219/238] post, 43·7% [38/87] pre)

3i. Cuba NPCV

Serotype	Years of surveillance																			Total
	2007		2009		2010		2011		2012		2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
4	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	1·7	1	2·1	1	1·6	**3**
6B	1	50·0	5	26·3	5	18·5	5	20·0	9	37·5	2	13·3	0	0·0	6	10·2	4	8·3	1	1·6	**38**
7F	0	0·0	0	0·0	1	3·7	1	4·0	0	0·0	0	0·0	1	2·6	0	0·0	0	0·0	0	0·0	**3**
9V	0	0·0	0	0·0	2	7·4	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	2·1	1	1·6	**4**
14	0	0·0	1	5·3	6	22·2	9	36·0	4	16·7	4	26·7	9	23·7	21	35·6	15	31·3	35	55·6	**104**
18C	0	0·0	0	0·0	0	0·0	2	8·0	2	8·3	0	0·0	2	5·3	0	0·0	1	2·1	0	0·0	**7**
19F	1	50·0	1	5·3	2	7·4	0	0·0	2	8·3	2	13·3	5	13·2	3	5·1	3	6·3	1	1·6	**20**
23F	0	0·0	3	15·8	2	7·4	0	0·0	0	0·0	1	6·7	1	2·6	1	1·7	1	2·1	1	1·6	**10**
subtotal‡	**2**	**100·0**	**10**	**52·6**	**18**	**66·7**	**17**	**68·0**	**17**	**70·8**	**9**	**60·0**	**18**	**47·4**	**32**	**54·2**	**26**	**54·2**	**40**	**63·5**	**189**
3	0	0·0	2	10·5	0	0·0	2	8·0	0	0·0	0	0·0	1	2·6	3	5·1	3	6·3	0	0·0	**11**
6A	0	0·0	3	15·8	4	14·8	2	8·0	3	12·5	4	26·7	5	13·2	6	10·2	2	4·2	8	12·7	**37**
19A	0	0·0	2	10·5	2	7·4	1	4·0	3	12·5	2	13·3	9	23·7	13	22·0	15	31·3	13	20·6	**60**
subtotal‡‡	**0**	**0·0**	**7**	**36·8**	**6**	**22·2**	**5**	**20·0**	**6**	**25·0**	**6**	**40·0**	**15**	**39·5**	**22**	**37·3**	**20**	**41·7**	**21**	**33·3**	**108**
NVT	0	0·0	2	10·5	3	11·1	3	12·0	1	4·2	0	0·0	4	10·5	5	8·5	2	4·2	2	3·2	**22**
NT	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	2·6	0	0·0	0	0·0	0	0·0	**1**
Total	**2**		**19**		**27**		**25**		**24**		**15**		**38**		**59**		**48**		**63**		**320**

NT: Non typable. NVT: Non-vaccine type
Serotypes 14,19A and 6A represented 89%
‡subtotal: Serotypes included in PCV10
‡‡subtotal: Serotypes included, only in PCV13

3j. Venezuela NPCV

Serotype	Years of surveillance																						Total
	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
1	2	5·6	2	5·0	1	2·7	1	4·5	0	0·0	2	7·4	0	0·0	0	0·0	1	3·6	1	5·9	0	0·0	0	0·0	**10**
4	2	5·6	0	0·0	1	2·7	0	0·0	1	3·6	0	0·0	1	4·8	2	4·8	0	0·0	0	0·0	0	0·0	0	0·0	**7**
5	6	16·7	2	5·0	3	8·1	2	9·1	1	3·6	1	3·7	3	14·3	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	**18**
6B	4	11·1	10	25·0	5	13·5	4	18·2	0	0·0	2	7·4	1	4·8	3	7·1	4	14·3	3	17·6	1	14·3	0	0·0	**37**
7F	0	0·0	0	0·0	0	0·0	3	13·6	2	7·1	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	25·0	**6**
9V	0	0·0	0	0·0	2	5·4	1	4·5	0	0·0	0	0·0	0	0·0	3	7·1	0	0·0	0	0·0	0	0·0	0	0·0	**6**
14	12	33·3	6	15·0	6	16·2	4	18·2	6	21·4	4	14·8	5	23·8	5	11·9	3	10·7	5	29·4	0	0·0	0	0·0	**56**
18C	0	0·0	3	7·5	1	2·7	0	0·0	0	0·0	1	3·7	2	9·5	4	9·5	1	3·6	1	5·9	0	0·0	0	0·0	**13**
19F	5	13·9	2	5·0	4	10·8	1	4·5	3	10·7	2	7·4	0	0·0	1	2·4	4	14·3	2	11·8	2	28·6	1	25·0	**27**
23F	0	0·0	1	2·5	2	5·4	1	4·5	3	10·7	3	11·1	1	4·8	1	2·4	2	7·1	1	5·9	1	14·3	0	0·0	**16**
subtotal‡	**31**	**86·1**	**26**	**65·0**	**25**	**67·6**	**17**	**77·3**	**16**	**57·1**	**15**	**55·6**	**13**	**61·9**	**19**	**45·2**	**15**	**53·6**	**13**	**76·5**	**4**	**57·1**	**2**	**50·0**	**196**
3	0	0·0	1	2·5	1	2·7	1	4·5	1	3·6	3	11·1	0	0·0	0	0·0	1	3·6	0	0·0	0	0·0	0	0·0	**8**
6A	2	5·6	3	7·5	2	5·4	0	0·0	1	3·6	3	11·1	2	9·5	3	7·1	1	3·6	0	0·0	0	0·0	0	0·0	**17**
19A	1	2·8	3	7·5	7	18·9	3	13·6	9	32·1	3	11·1	5	23·8	14	33·3	9	32·1	2	11·8	2	28·6	1	25·0	**59**
subtotal‡‡	**3**	**8·3**	**7**	**17·5**	**10**	**27·0**	**4**	**18·2**	**11**	**39·3**	**9**	**33·3**	**7**	**33·3**	**17**	**40·5**	**11**	**39·3**	**2**	**11·8**	**2**	**28·6**	**1**	**25·0**	**84**
NVT	2	5·6	7	17·5	2	5·4	1	4·5	1	3·6	3	11·1	1	4·8	5	11·9	2	7·1	1	5·9	0	0·0	1	25·0	**26**
NT	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	0	0·0	1	2·4	0	0·0	1	5·9	1	14·3	0	0·0	**3**
Total	**36**		**40**		**37**		**22**		**28**		**27**		**21**		**42**		**28**		**17**		**7**		**4**		**309**

NT: Non typable. NVT: Non-vaccine type
‡subtotal: Serotypes included in PCV10
‡‡subtotal: Serotypes included, only in PCV13

Table 4. Distribution of *S. pneumoniae* isolates most frequent non-vaccine serotypes (NVT), non typable (NT) and three additional serotypes by year of surveillance, country and type of vaccine used

4a. Brazil PCV10

Serotype	2015 (n=144)		2016 (n=148)		2017 (n=149)		Total (n=441)	
	n	%	n	%	n	%	n	%
6C	10	6·9	10	6·8	15	10·1	35	7·9
24F	8	5·6	5	3·4	6	4·0	19	4·3
10A	5	3·5	6	4·1	4	2·7	15	3·4
12F	5	3·5	5	3·4	4	2·7	14	3·2
15C	6	4·2	4	2·7	3	2·0	13	2·9
23B	3	2·1	4	2·7	5	3·4	12	2·7
16F	2	1·4	3	2·0	6	4·0	11	2·5
35B	5	3·5	5	3·4	1	0·7	11	2·5
8	2	1·4	4	2·7	4	2·7	10	2·3
11A	4	2·8	4	2·7	2	1·3	10	2·3
15A	3	2·1	2	1·4	5	3·4	10	2·3
15B	3	2·1	3	2·0	4	2·7	10	2·3
22F	2	1·4	3	2·0	3	2·0	8	1·8
9N	2	1·4	3	2·0	2	1·3	7	1·6
20	5	3·5	2	1·4	0	0·0	7	1·6
23A	1	0·7	3	2·0	3	2·0	7	1·6
25A	3	2·1	3	2·0	1	0·7	7	1·6
28A	3	2·1	1	0·7	1	0·7	5	1·1
Others	10	6·9	9	6·1	4	2·7	23*	5·2
NT	0	0·0	1	0·7	0	0·0	1	0·2
Subtotal	**82**	**56·9**	**80**	**54·1**	**73**	**49·0**	**235**	**48·1**
Three additional serotypes								
19A	39	27·1	44	29·7	48	32·2	131	29·7
6A	2	1·4	5	3·4	2	1·3	9	2·0
3	12	8·3	9	6·1	18	12·1	39	8·8
Subtotal	**53**	**36·8**	**58**	**39·2**	**68**	**45·6**	**179**	**40·6**
Total	**135**	**93·8**	**138**	**93·2**	**141**	**94·6**	**414**	**93·9**

*13 different serotypes

4b. Chile PCV10

Serotype	2015 (n=132)		2016 (n=137)		2017 (n=135)		Total (n=404)	
	n	%	n	%	n	%	n	%
24/24F	5	3.8	8	5.8	17	12.6	30	7.4
6C	7	5.3	4	2.9	8	5.9	19	4.7
22F	3	2.3	4	2.9	8	5.9	15	3.7
38	4	3.0	5	3.6	6	4.4	15	3.7
33F	4	3.0	3	2.2	4	3.0	11	2.7
15A	4	3.0	4	2.9	2	1.5	10	2.5
12F	4	3.0	3	2.2	2	1.5	9	2.2
15B	2	1.5	2	1.5	4	3.0	8	2.0
10A	5	3.8	1	0.7	1	0.7	7	1.7
23B	2	1.5	2	1.5	3	2.2	7	1.7
9N	4	3.0	1	0.7	2	1.5	7	1.7
24B	2	1.5	1	0.7	3	2.2	6	1.5
19B	3	2.3	2	1.5	0	0.0	5	1.2
8	1	0.8	2	1.5	1	0.7	4	1.0
9A	3	2.3	0	0.0	1	0.7	4	1.0
15C	1	0.8	3	2.2	0	0.0	4	1.0
23A	1	0.8	3	2.2	0	0.0	4	1.0
35B	1	0.8	1	0.7	2	1.5	4	1.0
16F	0	0.0	2	1.5	1	0.7	3	0.7
11A	0	0.0	1	0.7	0	0.0	1	0.2
Others	5	3.8	6	4.4	3	2.2	14*	3.5
NT	3	2.3	0	0.0	1	0.7	4	1.0
Subtotal	**64**	**48.5**	**58**	**42.3**	**69**	**51.1**	**191**	**47.3**
Three additional serotypes								
19A	34	25·8	47	34·3	37	27·4	118	29·2
3	11	8·3	13	9·5	14	10·4	38	9·4
6A	4	3·0	6	4·4	3	2·2	13	3·2
Subtotal	49	37·1	66	48·2	54	40·0	169	41·8
Total	**113**	**85·6**	**124**	**90·5**	**123**	**91·1**	**360**	**89·1**

*12 different serotypes

4c. Colombia PCV10

Serotype	2015 (n=92)		2016 (n=114)		2017 (n=146)		Total (n=352)	
	n	%	n	%	n	%	n	%
6C	3	3·3	3	2·6	13	8·9	19	5·4
23A	0	0·0	7	6·1	7	4·8	14	4·0
24F	1	1·1	3	2·6	9	6·2	13	3·7
15A	2	2·2	4	3·5	2	1·4	8	2·3
23B	2	2·2	3	2·6	3	2·1	8	2·3
15C	5	5·4	0	0·0	1	0·7	6	1·7
35B	2	2·2	2	1·8	2	2·2	6	1·7
9N	0	0·0	2	1·8	3	2·1	5	1·4
25A	0	0·0	1	0·9	3	2·1	4	1·1
7C	1	1·1	1	0·9	1	0·7	3	0·9
11A	2	2·2	0	0·0	1	0·7	3	0·9
13	2	2·2	1	0·9	0	0·0	3	0·9
15B	0	0·0	0	0·0	3	2·1	3	0·9
16F	2	2·2	1	0·9	0	0·0	3	0·9
8	0	0·0	1	0·9	1	0·7	2	0·6
10A	1	1·1	1	0·9	0	0·0	2	0·6
17F	2	2·2	0	0·0	0	0·0	2	0·6
20	0	0·0	0	0·0	2	2·2	2	0·6
24A	0	0·0	0	0·0	2	2·2	2	0·6
22F	0	0·0	0	0·0	1	0·7	1	0·3
12F	0	0·0	0	0·0	0	0·0	0	0·0
Others	2	2·2	2	1·8	7	4·8	11*	3·1
NT	0	0·0	0	0·0	0	0·0	0	0·0
Subtotal	**27**	**29·3**	**31**	**27·2**	**59**	**40·4**	**117**	**33·2**
Three additional serotypes								
3	10	10·9	15	13·2	14	9·6	39	11·1
6A	7	7·6	10	8·8	5	3·4	22	6·3
19A	31	33·7	45	39·5	64	43·8	140	39·8
Subtotal	**48**	**52·2**	**70**	**61·4**	**83**	**56·9**	**201**	**57·1**
Total	75	81·5	101	88·6	142	97·3	318	90·3

*11 different serotypes

4d. Paraguay PCV10

Serotype	2015 (n=29)		2016 (n=35)		2017 (n=45)		Total (n=109)	
	n	%	n	%	n	%	n	%
12F	1	3·4	2	5·7	2	4·4	5	4·6
24/24F	1	3·4	2	5·7	2	4·4	5	4·6
6C	0	0·0	1	2·9	3	6·7	4	3·7
8	0	0·0	2	5·7	0	0·0	2	1·8
11A	0	0·0	1	2·9	1	2·2	2	1·8
15A	0	0·0	1	2·9	1	2·2	2	1·8
15B	0	0·0	1	2·9	1	2·2	2	1·8
18F	1	3·4	1	2·9	0	0·0	2	1·8
23B	0	0·0	1	2·9	0	0·0	1	0·9
9N	0	0.0	0	0.0	0	0.0	0	0.0
10A	0	0.0	0	0.0	0	0.0	0	0.0
15C	0	0.0	0	0.0	0	0.0	0	0.0
16F	0	0.0	0	0.0	1	2.2	1	0.9
22F	0	0.0	0	0.0	0	0.0	0	0.0
23A	0	0.0	0	0.0	0	0.0	0	0.0
35B	0	0.0	0	0.0	0	0.0	0	0.0
Others	3	10·3	0	0·0	3	6.7	6*	5.5
NT	2	6·9	0	0·0	1	2·2	3	2·8
Subtotal	**8**	**27·6**	**11**	**31·4**	**16**	**35·6**	**35**	**32·1**
Three additional serotypes								
3	2	6·9	6	17·1	15	33·3	23	21·1
6A	4	13·8	1	2·9	2	4·4	7	6·4
19A	3	10·3	9	25·7	10	22·2	22	20·2
Subtotal	**9**	**31·0**	**16**	**45·7**	**27**	**60·0**	**52**	**47·7**
Total	**17**	**58·6**	**27**	**77·1**	**43**	**95·6**	**87**	**79·8**

*6 different serotypes

4e. Argentina PCV13

Serotype	2015 (n=157)		2016 (n=146)		2017 (n=131)		Total (n=434)	
	n	%	n	%	n	%	n	%
24/24F	17	10·8	11	7·5	5	3·8	33	7·6
12F	16	10·2	16	11·0	13	9·9	45	10·4
23B	4	2·5	8	5·5	6	4·6	18	4·1
15A	3	1·9	3	2·1	6	4·6	12	2·8
23A	2	1·3	7	4·8	3	2·3	12	2·8
24B	3	1·9	6	4·1	3	2·3	12	2·8
15B	2	1·3	6	4·1	3	2·3	11	2·5
7C	2	1·3	4	2·7	3	2·3	9	2·1
11A	3	1·9	3	2·1	3	2·3	9	2·1
10A	0	0·0	4	2·7	3	2·3	7	1·6
9N	3	1·9	3	2·1	1	0·8	7	1·6
8	4	2·5	1	0·7	1	0·8	6	1·4
13	3	1·9	1	0·7	2	1·5	6	1·4
16F	1	0·6	2	1·4	3	2·3	6	1·4
21	2	1·3	1	0·7	3	2·3	6	1·4
22F	0	0·0	5	3·4	1	0·8	6	1·4
24A	3	1·9	2	1·4	1	0·8	6	1·4
33F	4	2·5	1	0·7	1	0·8	6	1·4
6C	2	1·3	2	1·4	1	0·8	5	1·2
10F	1	0·6	1	0·7	3	2·3	5	1·2
38	1	0·6	1	0·7	3	2·3	5	1·2
15C	0	0·0	1	0·7	0	0·0	1	0·2
35B	0	0·0	0	0·0	0	0·0	0	0·0
Others	14	8·9	12	8·2	19	14·5	45*	10·4
NT	6	3·8	1	0·7	0	0·0	7	1·6
Subtotal	**96**	**61·1**	**102**	**69·9**	**87**	**66·4**	**285**	**65·7**
Three additional serotypes								
3	10	6·4	8	5·5	7	5·3	25	5·8
6A	4	2·5	2	1·4	0	0·0	6	1·4
19A	3	1·9	8	5·5	8	6·1	19	4·4
Subtotal	**17**	**10·8**	**18**	**12·3**	**15**	**11·5**	**50**	**11·5**
Total	**113**	**72·0**	**120**	**82·2**	**102**	**77·9**	**335**	**77·2**

*22 different serotypes

4f. Dominican Republic PCV13

Serotype	2015 (n=25)		2016 (n=22)		2017 (n=11)		Total (n=58)	
	n	%	n	%	n	%	n	%
6C	2	8·0	0	0·0	0	0·0	2	3·4
13	1	4·0	1	4·5	0	0·0	2	3·4
35F	0	0·0	1	4·5	0	0·0	1	1·7
8	0	0·0	1	4·5	0	0·0	1	1·7
9N	0	0·0	1	4·5	0	0·0	1	1·7
10F	1	4·0	0	0·0	0	0·0	1	1·7
15A	1	4·0	0	0·0	0	0·0	1	1·7
15B	0	0·0	0	0·0	1	9·1	1	1·7
21	0	0·0	1	4·5	0	0·0	1	1·7
35	0	0·0	0	0·0	1	9·1	1	1·7
24/24F	0	0·0	1	4·5	0	0·0	1	1·7
10A	0	0·0	0	0·0	0	0·0	0	0·0
11A	0	0·0	0	0·0	0	0·0	0	0·0
12F	0	0·0	0	0·0	0	0·0	0	0·0
15C	0	0·0	0	0·0	0	0·0	0	0·0
16F	0	0·0	0	0·0	0	0·0	0	0·0
22F	0	0·0	0	0·0	0	0·0	0	0·0
23A	0	0·0	0	0·0	0	0·0	0	0·0
23B	0	0·0	0	0·0	0	0·0	0	0·0
35B	0	0·0	0	0·0	0	0·0	0	0·0
Pool D	0	0·0	0	0·0	1	9·1	1	1·7
Pool H	0	0·0	0	0·0	1	9·1	1	1·7
NT	1	4·0	0	0·0	0	0·0	1	1·7
Subtotal	**6**	**24·0**	**7**	**31·8**	**6**	**54·5**	**19**	**32·8**
Three additional serotypes								
3	1	4·0	2	9·1	1	9·1	4	6·9
6A	0	0·0	1	4·5	1	9·1	2	3·4
19A	4	16·0	1	4·5	2	18·2	7	12·1
Subtotal	**5**	**20·0**	**4**	**18·2**	**4**	**36·4**	**13**	**22·4**
Total	11	44·0	11	50·0	10	90·9	32	55·2

Pool D: serotypes 9, 11, 16, 36 or 37
Pool H: serotypes 14, 23 or 15

4g. Mexico PCV7/PCV13

Serotype	2015 (n=49)		2016 (n=61)		2017 (n=43)		Total (n=153)	
	n	%	n	%	n	%	n	%
15C	6	12·2	4	6·6	1	2·3	11	7·2
23B	3	6·1	4	6·6	1	2·3	8	5·2
15A	1	2·0	4	6·6	2	4·7	7	4·6
35B	5	10·2	1	1·6	1	2·3	7	4·6
24/24F	3	6·1	1	1·6	3	7·0	7	4·6
15B	4	8·2	2	3·3	0	0·0	6	3·9
6C	1	2·0	2	3·3	1	2·3	4	2·6
10A	0	0·0	2	3·3	2	4·7	4	2·6
23A	1	2·0	1	1·6	2	4·7	4	2·6
34	1	2·0	1	1·6	2	4·7	4	2·6
11A	1	2·0	1	1·6	1	2·3	3	2·0
2	0	0·0	2	3·3	0	0·0	2	1·3
8	0	0·0	1	1·6	1	2·3	2	1·3
16F	2	4·1	0	0·0	0	0·0	2	1·3
28A	0	0·0	1	1·6	1	2·3	2	1·3
31	0	0·0	2	3·3	0	0·0	2	1·3
12F	1	2·0	0	0·0	0	0·0	1	0·7
22F	0	0·0	1	1·6	0	0·0	1	0·7
9N	0	0·0	0	0·0	0	0·0	0	0·0
Others	0	0·0	3	4·9	2	4·7	5*	3·3
NT	2	4·1	3	4·9	3	7·0	8	5·2
Subtotal	**31**	**63·3**	**36**	**59·0**	**23**	**53·5**	**90**	**58·8**
Three additional serotypes								
3	1	2·0	3	4·9	3	7·0	7	4·6
6A	1	2·0	1	1·6	2	4·7	4	2·6
19A	13	26·5	19	31·1	13	30·2	45	29·4
Subtotal	**15**	**30·6**	**23**	**37·7**	**18**	**41·9**	**56**	**36·6**
Total	**46**	**93·9**	**59**	**96·7**	**41**	**95·3**	**146**	**95·4**

*5 different serotypes

4h. Uruguay PCV7/PCV13

Serotype	2015 (n=25)		2016 (n=33)		2017 (n=29)		Total (n=87)	
	n	%	n	%	n	%	n	%
12F	1	4·0	6	18·2	4	13·8	11	12·6
24/24F	2	8·0	0	0·0	4	13·8	6	6·9
15A	2	8·0	1	3·0	1	3·4	4	4·6
23B	2	8·0	1	3·0	1	3·4	4	4·6
13	1	4·0	2	6·1	0	0·0	3	3·4
15B	0	0·0	3	9·1	0	0·0	3	3·4
24A	3	12·0	0	0·0	0	0·0	3	3·4
Group 33	1	4·0	1	3·0	1	3·4	3	3·4
8	0	0·0	1	3·0	1	3·4	2	2·3
9N	2	8·0	0	0·0	0	0·0	2	2·3
7B/C	0	0·0	1	3·0	0	0·0	1	1·1
12B	1	4·0	0	0·0	0	0·0	1	1·1
20	0	0·0	0	0·0	1	3·4	1	1·1
22F	0	0·0	1	3·0	0	0·0	1	1·1
23A	0	0·0	1	3·0	0	0·0	1	1·1
6C	0	0·0	0	0·0	0	0·0	0	0·0
10A	0	0·0	0	0·0	0	0·0	0	0·0
11	0	0·0	0	0·0	0	0·0	0	0·0
15C	0	0·0	0	0·0	0	0·0	0	0·0
35B	0	0·0	0	0·0	0	0·0	0	0·0
pool G	1	4·0	0	0·0	1	3·4	2	2·3
pool C	0	0·0	1	3·0	0	0·0	1	1·1
NT	0	0·0	0	0·0	0	0·0	0	0·0
Subtotal	**16**	**64·0**	**19**	**57·6**	**14**	**48·3**	**49**	**56·3**
Three additional serotypes								
3	3	12·0	9	27·3	6	20·7	18	20·7
6A	0	0·0	0	0·0	0	0·0	0	0·0
19A	2	8·0	1	3·0	2	6·9	5	5·7
Subtotal	**5**	**20·0**	**10**	**30·3**	**8**	**27·6**	**23**	**26·4**
Total	**21**	**84·0**	**29**	**87·9**	**22**	**75·9**	**72**	**82·7**

Pool C: serotypes 7, 20, 24, 31 or 40
Pool G: serotypes 29, 34, 35,42 or 47

Table 5. Annual Reported Rate (ARR) of pneumococcal serotypes per country and per year of surveillance

5a. PCV10 serotypes

Country/PCV	Years of surveillance											
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
	Annual Reported Rate by 100,000 children < 5 years of age											
Brazil/PCV10	1.540	1.589	1.522	0.913	1.015	0.705	0.367	0.221	0.167	0.061	0.067	0.054
Chile/ PCV10	17.145	20.060	19.177	19.032	16.834	13.440	7.128	5.325	3.148	1.587	1.098	1.018
Colombia/ PCV10	2.520	3.074	2.721	1.985	2.214	1.680	1.202	0.711	0.690	0.455	0.350	0.109
Paraguay/ PCV10	14.408	9.408	8.722	6.105	7.850	6.586	4.240	2.796	1.482	1.781	1.191	0.297
Argentina/ PCV13	4.066	2.791	5.043	4.641	6.803	7.635	4.870	2.201	1.484	1.183	0.696	0.776
Dominican Republic/ PCV13	3.097	2.243	3.180	2.625	1.595	2.446	2.448	2.727	2.256	1.318	1.038	0.095
Mexico/ PCV7/PCV13	0.293	0.277	0.313	0.358	0.280	0.201	0.183	0.139	0.087	0.026	0.017	0.017
Uruguay/ PCV7/PCV13	33.123	20.651	21.596	15.295	8.094	3.250	2.042	1.644	0.413	1.661	1.669	2.931

Note: pink color, year of vaccine introduction.

5b. PCV13 serotypes

Country/PCV	Years of surveillance											
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
	Annual Reported Rate by 100,000 children < 5 years of age											
Brazil/PCV10	1.696	1.805	1.754	1.057	1.286	1.011	0.715	0.535	0.496	0.417	0.456	0.513
Chile/ PCV10	19.388	23.029	22.868	22.886	20.056	16.659	9.883	8.765	8.203	5.681	6.674	5.599
Colombia/ PCV10	2.811	3.488	3.018	2.437	2.876	2.223	1.725	1.238	1.671	1.739	2.236	2.363
Paraguay/ PCV10	14.560	10.319	9.324	6.402	8.739	7.464	4.825	4.562	2.222	3.117	3.573	4.304
Argentina/ PCV13	4.643	3.393	5.673	5.355	8.449	9.063	5.882	2.934	2.051	1.641	1.178	1.177
Dominican Republic/ PCV13	3.847	2.430	3.835	3.281	1.970	2.729	2.730	3.479	2.726	1.789	1.416	0.474
Mexico/ PCV7/PCV13	0.336	0.338	0.383	0.524	0.673	0.568	0.506	0.374	0.286	0.156	0.216	0.173
Uruguay/ PCV7/PCV13	37.461	23.431	25.996	18.112	11.331	5.281	2.859	4.931	1.654	3.738	5.841	6.281

Note: pink color, year of vaccine introduction.

5c. Three additional serotypes

Country/PCV	Years of surveillance											
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
	Annual Reported Rate by 100,000 children < 5 years of age											
Brazil/PCV10	0.156	0.216	0.232	0.144	0.270	0.306	0.347	0.314	0.328	0.356	0.389	0.459
Chile/ PCV10	2.243	2.969	3.691	3.854	3.222	3.219	2.754	3.441	5.054	4.094	5.575	4.581
Colombia/ PCV10	0.291	0.415	0.297	0.452	0.662	0.543	0.523	0.527	0.981	1.284	1.886	2.254
Paraguay/ PCV10	0.152	0.910	0.602	0.298	0.889	0.878	0.585	1.766	0.741	1.336	2.382	4.007
Argentina/ PCV13	0.577	0.602	0.630	0.714	1.646	1.428	1.012	0.734	0.567	0.457	0.482	0.401
Dominican Republic/ PCV13	0.751	0.187	0.655	0.656	0.375	0.282	0.282	0.752	0.470	0.471	0.378	0.379
Mexico/ PCV7/PCV13	0.043	0.061	0.070	0.166	0.393	0.367	0.323	0.235	0.199	0.130	0.199	0.156
Uruguay/ PCV7/PCV13	4.338	2.780	4.399	2.817	3.237	2.031	0.817	3.288	1.240	2.077	4.172	3.350

Note: pink color, year of vaccine introduction.

5d. Non-vaccine types (NVT)

Country/PCV	Years of surveillance											
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
	Annual Reported Rate by 100,000 children < 5 years of age											
Brazil/PCV10	0.274	0.153	0.213	0.144	0.251	0.393	0.441	0.502	0.456	0.551	0.530	0.492
Chile/ PCV10	2.003	3.049	2.166	2.650	2.578	2.495	3.726	5.652	4.391	5.096	4.900	5.769
Colombia/ PCV10	0.606	0.415	0.445	0.251	0.611	0.905	0.471	0.817	0.743	0.722	0.835	1.602
Paraguay/ PCV10	1.365	1.517	1.504	0.893	0.889	0.732	0.877	0.883	1.037	0.890	1.638	2.226
Argentina/PCV13	0.522	0.629	0.850	1.098	1.289	1.208	1.532	2.445	2.483	2.421	2.704	2.328
Dominican Republic/ PCV13	0.282	0.654	0.748	0.750	0.281	0.753	0.282	0.470	0.376	0.471	0.661	0.569
Mexico/ PCV7/PCV13	0.077	0.095	0.131	0.113	0.192	0.262	0.244	0.226	0.234	0.251	0.285	0.173
Uruguay/ PCV7/PCV13	1.972	1.589	3.999	4.025	5.261	6.500	7.352	6.986	4.547	6.646	7.927	5.862

Note: pink color, year of vaccine introduction.

5e. Total serotypes

Country/PCV	Years of surveillance											
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
	Annual Reported Rate by 100,000 children < 5 years of age											
Brazil/PCV10	1.983	1.970	1.993	1.207	1.536	1.404	1.156	1.037	0.958	0.968	0.992	1.005
Chile/ PCV10	22.513	27.523	25.837	25.777	22.714	19.395	13.852	14.827	12.677	11.028	11.573	11.453
Colombia/ PCV10	3.416	3.903	3.488	2.688	3.487	3.154	2.222	2.054	2.414	2.461	3.071	3.965
Paraguay/ PCV10	16.228	12.292	11.129	7.445	9.923	8.342	5.995	5.445	3.259	4.304	5.211	6.678
Argentina/ PCV13	5.357	4.268	6.824	6.563	9.738	10.326	7.442	5.434	4.615	4.223	3.908	3.505
Dominican Republic/ PCV13	4.410	3.364	5.332	4.312	2.627	3.670	3.295	4.137	3.102	2.354	2.076	1.042
Mexico/ PCV7/PCV13	0.422	0.433	0.540	0.672	0.891	0.848	0.768	0.635	0.555	0.425	0.527	0.372
Uruguay/ PCV7/PCV13	39.432	25.020	29.995	22.137	16.592	11.780	10.211	11.917	6.201	10.384	13.768	12.142

Note: pink color, year of vaccine introduction.

Table 6. Annual Reported Rate (ARR) of *Streptococcus pneumoniae* isolates by country, serotype and year of isolation.

6a. Brazil PCV10

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-4)	2007 (-3)	2008 (-2)	2009 (-1)	**2010 (0)**	2011 (1)	2012 (2)	2013 (3)	2014 (4)	2015 (5)	2016 (6)	2017 (7)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	0.031	0.044	0.019	0.020	**0.000**	0.013	0.000	0.000	0.000	0.007	0.007	0.000
3	0.037	0.064	0.058	0.046	**0.066**	0.120	0.160	0.114	0.067	0.081	0.060	0.121
4	0.044	0.019	0.032	0.020	**0.020**	0.020	0.013	0.013	0.007	0.000	0.000	0.000
5	0.044	0.032	0.077	0.026	**0.000**	0.020	0.000	0.033	0.054	0.000	0.000	0.000
6A	0.056	0.114	0.071	0.065	**0.112**	0.086	0.073	0.074	0.013	0.013	0.034	0.013
6B	0.243	0.267	0.226	0.144	**0.224**	0.153	0.067	0.040	0.027	0.000	0.007	0.000
7F	0.044	0.044	0.019	0.046	**0.020**	0.007	0.033	0.020	0.013	0.013	0.007	0.007
9V	0.044	0.064	0.039	0.013	**0.020**	0.040	0.020	0.027	0.000	0.000	0.020	0.007
14	0.786	0.807	0.787	0.470	**0.462**	0.273	0.154	0.027	0.013	0.013	0.000	0.034
18C	0.069	0.089	0.135	0.046	**0.105**	0.047	0.013	0.007	0.007	0.000	0.007	0.000
19A	0.062	0.038	0.103	0.033	**0.092**	0.100	0.114	0.127	0.248	0.262	0.295	0.324
19F	0.143	0.102	0.084	0.091	**0.053**	0.080	0.013	0.027	0.033	0.007	0.007	0.000
23F	0.094	0.121	0.103	0.039	**0.112**	0.053	0.053	0.027	0.013	0.020	0.013	0.007
NVT	0.274	0.153	0.213	0.144	**0.251**	0.393	0.441	0.502	0.456	0.551	0.530	0.492
NT	0.012	0.013	0.026	0.007	**0.000**	0.000	0.000	0.000	0.007	0.000	0.007	0.000
Total	**1.983**	**1.970**	**1.993**	**1.207**	**1.536**	**1.404**	**1.156**	**1.037**	**0.958**	**0.968**	**0.992**	**1.005**

NVT: Non-vaccine type. NT: Non typable. Note: pink color, year of vaccine introduction.

6b. Chile PCV10

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-5)	2007 (-4)	2008 (-3)	2009 (-2)	2010 (-1)	**2011 (0)**	2012 (1)	2013 (2)	2014 (3)	2015 (4)	2016 (5)	2017 (6)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	0.801	1.525	2.086	2.730	1.772	**0.644**	0.405	0.655	0.663	0.585	0.084	0.255
3	0.320	0.160	0.241	0.642	0.081	**0.483**	0.648	1.393	0.994	0.919	1.098	1.188
4	0.641	0.562	0.562	0.161	0.483	**0.402**	0.000	0.164	0.000	0.000	0.000	0.000
5	0.881	0.722	0.401	0.723	0.967	**0.644**	0.243	0.000	0.000	0.000	0.000	0.000
6A	1.442	1.605	1.605	1.847	1.933	**1.771**	0.972	0.492	0.580	0.334	0.507	0.255
6B	2.724	2.006	2.487	1.767	1.450	**2.414**	0.648	0.655	0.083	0.084	0.084	0.000
7F	0.641	0.883	0.963	1.044	0.886	**0.483**	0.567	0.328	0.331	0.084	0.169	0.170
9V	0.160	0.000	0.562	0.402	0.161	**0.322**	0.243	0.246	0.083	0.000	0.084	0.170
14	7.210	9.067	8.987	8.833	7.249	**6.116**	3.726	1.966	0.829	0.418	0.422	0.255
18C	1.522	1.605	1.043	1.205	1.128	**0.724**	0.810	0.328	0.414	0.084	0.084	0.085
19A	0.481	1.204	1.845	1.365	1.208	**0.966**	1.134	1.556	3.480	2.841	3.970	3.139
19F	1.763	2.327	1.284	1.044	1.772	**1.127**	0.243	0.328	0.249	0.167	0.084	0.085
23F	0.801	1.364	0.802	1.124	0.967	**0.563**	0.243	0.655	0.497	0.167	0.084	0.000
NVT	2.003	3.049	2.166	2.650	2.578	**2.495**	3.726	5.652	4.391	5.096	4.900	5.769
NT	1.122	1.444	0.802	0.241	0.081	**0.241**	0.243	0.410	0.083	0.251	0.000	0.085
Total	**22.513**	**27.523**	**25.837**	**25.777**	**22.714**	**19.395**	**13.852**	**14.827**	**12.677**	**11.028**	**11.573**	**11.453**

NVT: Non-vaccine type. NT: Non typable.
Note: pink color, year of vaccine introduction.

6c. Colombia PCV10

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-5)	2007 (-4)	2008 (-3)	2009 (-2)	2010 (-1)	**2011 (0)**	2012 (1)	2013 (2)	2014 (3)	2015 (4)	2016 (5)	2017 (6)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	0.339	0.390	0.272	0.101	0.433	**0.336**	0.288	0.184	0.106	0.027	0.081	0.000
3	0.048	0.098	0.025	0.151	0.204	**0.181**	0.131	0.290	0.212	0.268	0.404	0.380
4	0.000	0.049	0.025	0.075	0.025	**0.026**	0.000	0.000	0.027	0.027	0.000	0.027
5	0.097	0.122	0.074	0.025	0.025	**0.052**	0.000	0.000	0.000	0.000	0.000	0.000
6A	0.194	0.146	0.148	0.101	0.102	**0.103**	0.105	0.053	0.212	0.187	0.269	0.136
6B	0.291	0.439	0.297	0.251	0.356	**0.207**	0.183	0.079	0.053	0.080	0.000	0.000
7F	0.024	0.049	0.025	0.075	0.025	**0.000**	0.026	0.026	0.000	0.000	0.000	0.000
9V	0.170	0.049	0.049	0.050	0.076	**0.078**	0.000	0.026	0.000	0.080	0.027	0.000
14	0.993	1.488	1.583	1.055	0.764	**0.724**	0.444	0.105	0.265	0.134	0.162	0.027
18C	0.121	0.146	0.099	0.126	0.204	**0.078**	0.052	0.026	0.027	0.000	0.000	0.027
19A	0.048	0.171	0.124	0.201	0.356	**0.259**	0.288	0.184	0.557	0.829	1.212	1.738
19F	0.242	0.220	0.198	0.101	0.102	**0.052**	0.105	0.053	0.106	0.054	0.081	0.000
23F	0.242	0.122	0.099	0.126	0.204	**0.129**	0.105	0.211	0.106	0.054	0.000	0.027
NVT	0.606	0.415	0.445	0.251	0.611	**0.905**	0.471	0.817	0.743	0.722	0.835	1.602
NT	0.000	0.000	0.025	0.000	0.000	**0.026**	0.026	0.000	0.000	0.000	0.000	0.000
Total	**3.416**	**3.903**	**3.488**	**2.688**	**3.487**	**3.154**	**2.222**	**2.054**	**2.414**	**2.461**	**3.071**	**3.965**

NVT: Non-vaccine type. NT: Non typable.

Note: pink color, year of vaccine introduction.

6d. Paraguay PCV10

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-6)	2007 (-5)	2008 (-4)	2009 (-3)	2010 (-2)	2011 (-1)	**2012 (0)**	2013 (1)	2014 (2)	2015 (3)	2016 (4)	2017 (5)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	3.488	1.821	0.451	0.447	0.592	0.146	**0.000**	0.000	0.148	0.000	0.000	0.000
3	0.000	0.000	0.000	0.149	0.000	0.000	**0.146**	0.441	0.741	0.297	0.893	2.226
4	0.303	0.000	0.301	0.298	0.444	0.000	**0.000**	0.000	0.148	0.000	0.000	0.000
5	4.095	1.366	0.301	0.000	0.000	0.146	**0.292**	0.000	0.000	0.000	0.000	0.000
6A	0.000	0.303	0.451	0.000	0.296	0.878	**0.439**	0.736	0.000	0.594	0.149	0.297
6B	0.455	0.455	0.752	0.744	1.481	0.585	**0.146**	0.589	0.296	0.148	0.149	0.000
7F	0.303	0.455	0.752	0.149	0.296	0.146	**0.292**	0.294	0.000	0.148	0.000	0.148
9V	0.455	0.303	0.150	0.000	0.000	0.146	**0.292**	0.000	0.148	0.148	0.298	0.000
14	4.702	4.552	5.414	4.318	4.888	3.951	**2.193**	1.472	0.593	0.890	0.596	0.148
18C	0.000	0.000	0.000	0.000	0.148	0.439	**0.146**	0.147	0.000	0.148	0.000	0.000
19A	0.152	0.607	0.150	0.149	0.592	0.000	**0.000**	0.589	0.000	0.445	1.340	1.484
19F	0.303	0.152	0.150	0.149	0.000	0.585	**0.585**	0.294	0.148	0.148	0.000	0.000
23F	0.303	0.303	0.451	0.000	0.000	0.439	**0.292**	0.000	0.000	0.148	0.149	0.000
NVT	1.365	1.517	1.504	0.893	0.889	0.732	**0.877**	0.883	1.037	0.890	1.638	2.226
NT	0.303	0.455	0.301	0.149	0.296	0.146	**0.292**	0.000	0.000	0.297	0.000	0.148
Total	**16.228**	**12.292**	**11.129**	**7.445**	**9.923**	**8.342**	**5.995**	**5.445**	**3.259**	**4.304**	**5.211**	**6.678**

NVT: Non-vaccine type. NT: Non typable.

Note: pink color, year of vaccine introduction.

6e. Argentina PCV13

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-6)	2007 (-5)	2008 (-4)	2009 (3)	2010 (-2)	2011 (-1)	**2012 (0)**	2013 (1)	2014 (2)	2015 (3)	2016 (4)	2017 (5)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	0.659	0.520	0.576	1.071	1.317	1.126	**1.067**	0.761	0.540	0.565	0.187	0.187
3	0.137	0.109	0.110	0.275	0.384	0.275	**0.301**	0.435	0.189	0.269	0.214	0.187
4	0.110	0.000	0.055	0.000	0.110	0.137	**0.082**	0.000	0.000	0.027	0.000	0.000
5	0.495	0.520	1.288	0.632	0.686	1.868	**1.067**	0.380	0.027	0.027	0.000	0.054
6A	0.137	0.192	0.274	0.165	0.658	0.549	**0.301**	0.082	0.108	0.108	0.054	0.000
6B	0.302	0.164	0.164	0.302	0.576	0.412	**0.164**	0.163	0.108	0.027	0.027	0.000
7F	0.220	0.192	0.548	0.275	0.576	0.632	**0.575**	0.272	0.216	0.296	0.134	0.161
9V	0.330	0.027	0.164	0.247	0.219	0.330	**0.109**	0.109	0.162	0.134	0.027	0.107
14	1.319	1.012	1.727	1.593	2.387	2.280	**1.149**	0.435	0.243	0.107	0.187	0.134
18C	0.330	0.164	0.274	0.165	0.357	0.330	**0.328**	0.000	0.108	0.000	0.027	0.027
19A	0.302	0.301	0.247	0.275	0.603	0.604	**0.410**	0.217	0.270	0.081	0.214	0.214
19F	0.192	0.082	0.137	0.192	0.247	0.247	**0.109**	0.027	0.054	0.000	0.080	0.054
23F	0.110	0.109	0.110	0.165	0.329	0.275	**0.219**	0.054	0.027	0.000	0.027	0.054
NVT	0.522	0.629	0.850	1.098	1.289	1.208	**1.532**	2.445	2.483	2.421	2.704	2.328
NT	0.192	0.246	0.301	0.110	0.000	0.055	**0.027**	0.054	0.081	0.161	0.027	0.000
Total	**5.357**	**4.268**	**6.824**	**6.563**	**9.738**	**10.326**	**7.442**	**5.434**	**4.615**	**4.223**	**3.908**	**3.505**

NVT: Non-vaccine type. NT: Non typable.
Note: pink color, year of vaccine introduction.

6f. Dominican Republic PCV13

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-7)	2007 (-6)	2008 (-5)	2009 (-4)	2010 (-3)	2011 (-2)	2012 (-1)	**2013 (0)**	2014 (1)	2015 (2)	2016 (3)	2017 (4)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	0.282	0.187	0.094	0.281	0.000	0.094	0.000	**0.188**	0.188	0.377	0.000	0.000
3	0.188	0.000	0.094	0.187	0.188	0.000	0.094	**0.376**	0.000	0.094	0.189	0.095
4	0.094	0.000	0.000	0.094	0.000	0.000	0.000	**0.094**	0.094	0.000	0.000	0.000
5	0.094	0.000	0.094	0.000	0.000	0.094	0.188	**0.000**	0.000	0.188	0.189	0.000
6A	0.282	0.187	0.374	0.375	0.188	0.188	0.094	**0.282**	0.094	0.000	0.094	0.095
6B	0.282	0.280	0.748	0.281	0.375	0.565	0.188	**0.846**	0.846	0.188	0.378	0.000
7F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	0.094	0.000	0.000	0.000
9V	0.094	0.093	0.094	0.187	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000
14	1.971	1.215	1.122	0.937	0.938	0.659	1.130	**0.940**	0.752	0.471	0.000	0.000
18C	0.094	0.000	0.000	0.281	0.094	0.094	0.094	**0.282**	0.094	0.000	0.189	0.095
19A	0.282	0.000	0.187	0.094	0.000	0.094	0.094	**0.094**	0.376	0.377	0.094	0.190
19F	0.094	0.280	0.374	0.187	0.094	0.188	0.188	**0.000**	0.188	0.094	0.000	0.000
23F	0.094	0.187	0.655	0.375	0.094	0.753	0.659	**0.376**	0.000	0.000	0.283	0.000
NVT	0.282	0.654	0.748	0.750	0.281	0.753	0.282	**0.470**	0.376	0.471	0.661	0.569
NT	0.282	0.280	0.748	0.281	0.375	0.188	0.282	**0.188**	0.000	0.094	0.000	0.000
Total	**4.410**	**3.364**	**5.332**	**4.312**	**2.627**	**3.670**	**3.295**	**4.137**	**3.102**	**2.354**	**2.076**	**1.042**

NVT: Non-vaccine type. NT: Non typable

Note: pink color, year of vaccine introduction.

6g. Mexico PCV7/PCV13

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-5)	2007 (-4)	**2008 (PCV7) (-3)**	2009 (-2)	2010 (-1)	**2011 (PCV13) (0)**	2012 (1)	2013 (2)	2014 (3)	2015 (4)	2016 (5)	2017 (6)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	0.000	0.009	0.000	0.000	0.017	**0.009**	0.017	0.009	0.000	0.000	0.000	0.000
3	0.026	0.000	0.009	0.026	0.017	**0.035**	0.035	0.017	0.017	0.009	0.026	0.026
4	0.009	0.000	0.009	0.000	0.000	**0.000**	0.000	0.009	0.000	0.000	0.000	0.000
5	0.000	0.000	0.000	0.017	0.000	**0.009**	0.000	0.000	0.009	0.000	0.000	0.000
6A	0.017	0.035	0.017	0.061	0.070	**0.026**	0.017	0.017	0.035	0.009	0.009	0.017
6B	0.077	0.087	0.070	0.061	0.035	**0.017**	0.026	0.026	0.026	0.000	0.000	0.000
7F	0.000	0.009	0.017	0.009	0.000	**0.009**	0.017	0.009	0.000	0.000	0.000	0.000
9V	0.000	0.000	0.017	0.026	0.026	**0.026**	0.026	0.026	0.009	0.009	0.000	0.009
14	0.060	0.078	0.044	0.052	0.000	**0.017**	0.009	0.000	0.000	0.000	0.000	0.000
18C	0.000	0.000	0.009	0.026	0.035	**0.000**	0.009	0.009	0.000	0.000	0.000	0.000
19A	0.000	0.026	0.044	0.079	0.306	**0.306**	0.271	0.200	0.147	0.113	0.164	0.113
19F	0.077	0.052	0.070	0.113	0.105	**0.070**	0.052	0.035	0.043	0.017	0.017	0.009
23F	0.069	0.043	0.078	0.052	0.061	**0.044**	0.026	0.017	0.000	0.000	0.000	0.000
NVT	0.077	0.095	0.131	0.113	0.192	**0.262**	0.244	0.226	0.234	0.251	0.285	0.173
NT	0.009	0.000	0.026	0.035	0.026	**0.017**	0.017	0.035	0.035	0.017	0.026	0.026
Total	**0.422**	**0.433**	**0.540**	**0.672**	**0.891**	**0.848**	**0.768**	**0.635**	**0.555**	**0.425**	**0.527**	**0.372**

NVT: Non-vaccine type. NT: Non typable.

Note: pink color, year of vaccine introduction.

Data of ARR reduction for VT13 considering 2006-2008 as the prevaccine period for Mexico: -48.4% (0.352 vs 0.182 per 100,000, 95% CI-12.6 to -65.9%)

6h. Uruguay PCV7/PCV13

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006 (-4)	2007 (-3)	**2008 (PCV7) (-2)**	2009 (-1)	**2010 (PCV13) (0)**	2011 (1)	2012 (2)	2013 (3)	2014 (4)	2015 (5)	2016 (6)	2017 (7)
	Annual Reported Rate by 100,000 children < 5 years of age											
1	8.281	3.971	3.599	3.220	**2.833**	2.031	0.408	1.644	0.413	0.415	0.000	0.000
3	2.366	0.794	2.800	0.000	**2.833**	1.625	0.408	2.466	1.240	1.246	3.755	2.512
4	0.394	0.397	0.000	0.000	**0.405**	0.000	0.408	0.000	0.000	0.000	0.000	0.000
5	6.703	0.000	0.400	4.025	**1.214**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6A	0.394	0.794	0.400	0.805	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6B	2.366	1.589	1.200	0.805	**0.405**	0.000	0.408	0.000	0.000	0.415	0.000	0.000
7F	1.577	3.177	2.800	3.220	**0.809**	0.812	0.000	0.000	0.000	0.000	0.000	0.000
9V	1.183	0.794	0.000	0.402	**0.000**	0.000	0.408	0.000	0.000	0.000	0.000	0.000
14	11.041	8.737	13.198	2.817	**1.214**	0.406	0.408	0.000	0.000	0.415	0.834	2.512
18C	1.183	0.000	0.000	0.805	**0.000**	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19A	1.577	1.191	1.200	2.012	**0.405**	0.406	0.408	0.822	0.000	0.831	0.417	0.837
19F	0.394	0.794	0.400	0.000	**0.000**	0.000	0.000	0.000	0.000	0.415	0.417	0.419
23F	0.000	1.191	0.000	0.000	**1.214**	0.000	0.000	0.000	0.000	0.000	0.417	0.000
NVT	1.972	1.589	3.999	4.025	**5.261**	6.500	7.352	6.986	4.547	6.646	7.927	5.862
Total	**39.432**	**25.020**	**29.995**	**22.137**	**16.592**	**11.780**	**10.211**	**11.917**	**6.201**	**10.384**	**13.768**	**12.142**

NVT: Non-vaccine type. NT: Non typable.

Note: pink color, year of vaccine introduction.

Data of ARR reduction for VT13 considering 2006-2008 as the prevaccine period for Uruguay: -81.7% (28.96 vs 5.28 per 100,000; 95% CI -66.9 to -89.9%)

6i. Cuba NPCV

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Annual Reported Rate by 100,000 children < 5 years of age											
3				0.328		0.330			0.160	0.477	0.471	
4										0.159	0.157	0.158
6A		0.160		0.491	0.659	0.330	0.491	0.646	0.798	0.953	0.314	1.265
6B				0.819	0.823	0.824	1.472	0.323		0.953	0.629	0.158
7F					0.165	0.165			0.160			
9V					0.329						0.157	0.158
14				0.164	0.988	1.484	0.654	0.646	1.437	3.337	2.357	5.533
18C						0.330	0.327		0.319		0.157	
19A		0.160		0.328	0.329	0.165	0.491	0.323	1.437	2.066	2.357	2.055
19F				0.164	0.329		0.327	0.323	0.798	0.477	0.471	0.158
23F				0.491	0.329			0.161	0.160	0.159	0.157	0.158
NVT				0.328	0.494	0.495	0.164		0.639	0.794	0.314	0.316
NT									0.160			
Total		**0.32**		**3.113**	**4.445**	**4.123**	**3.926**	**2.422**	**6.068**	**9.375**	**7.541**	**9.959**

NVT: Non-vaccine type. NT: Non typable.

6j. Venezuela NPCV

Serotype	Years of surveillance (Year according to the introduction of the vaccine)											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Annual Reported Rate by 100,000 children < 5 years of age											
1	0.069	0.068	0.034	0.034		0.068			0.034	0.034		
3		0.034	0.034	0.034	0.034	0.101			0.034			
4	0.069		0.034		0.034		0.034	0.067				
5	0.206	0.068	0.102	0.068	0.034	0.034	0.101					
6A	0.069	0.103	0.068		0.034	0.101	0.067	0.101	0.034			
6B	0.138	0.342	0.171	0.136		0.068	0.034	0.101	0.134	0.101	0.034	
7F				0.102	0.068							0.034
9V			0.068	0.034				0.101				
14	0.413	0.205	0.205	0.136	0.203	0.135	0.169	0.168	0.101	0.168		
18C		0.103	0.034			0.034	0.067	0.135	0.034	0.034		
19A	0.034	0.103	0.239	0.102	0.305	0.101	0.169	0.471	0.303	0.067	0.067	0.034
19F	0.172	0.068	0.136	0.034	0.102	0.068		0.034	0.134	0.067	0.067	0.034
23F		0.034	0.068	0.034	0.102	0.101	0.034	0.034	0.067	0.034	0.034	
NVT	0.069	0.240	0.068	0.034	0.034	0.101	0.034	0.168	0.067	0.034		0.034
NT								0.034		0.034	0.034	
Total	**1.239**	**1.368**	**1.261**	**0.748**	**0.95**	**0.912**	**0.709**	**1.413**	**0.942**	**0.573**	**0.236**	**0.136**

NT: non typable. NVT: Non-vaccine type

Figure 1. ARR of *Streptococcus pneumoniae* isolates by PCV country, VT13, NVT and NT and year of vaccine introduction

a-d PCV10 countries

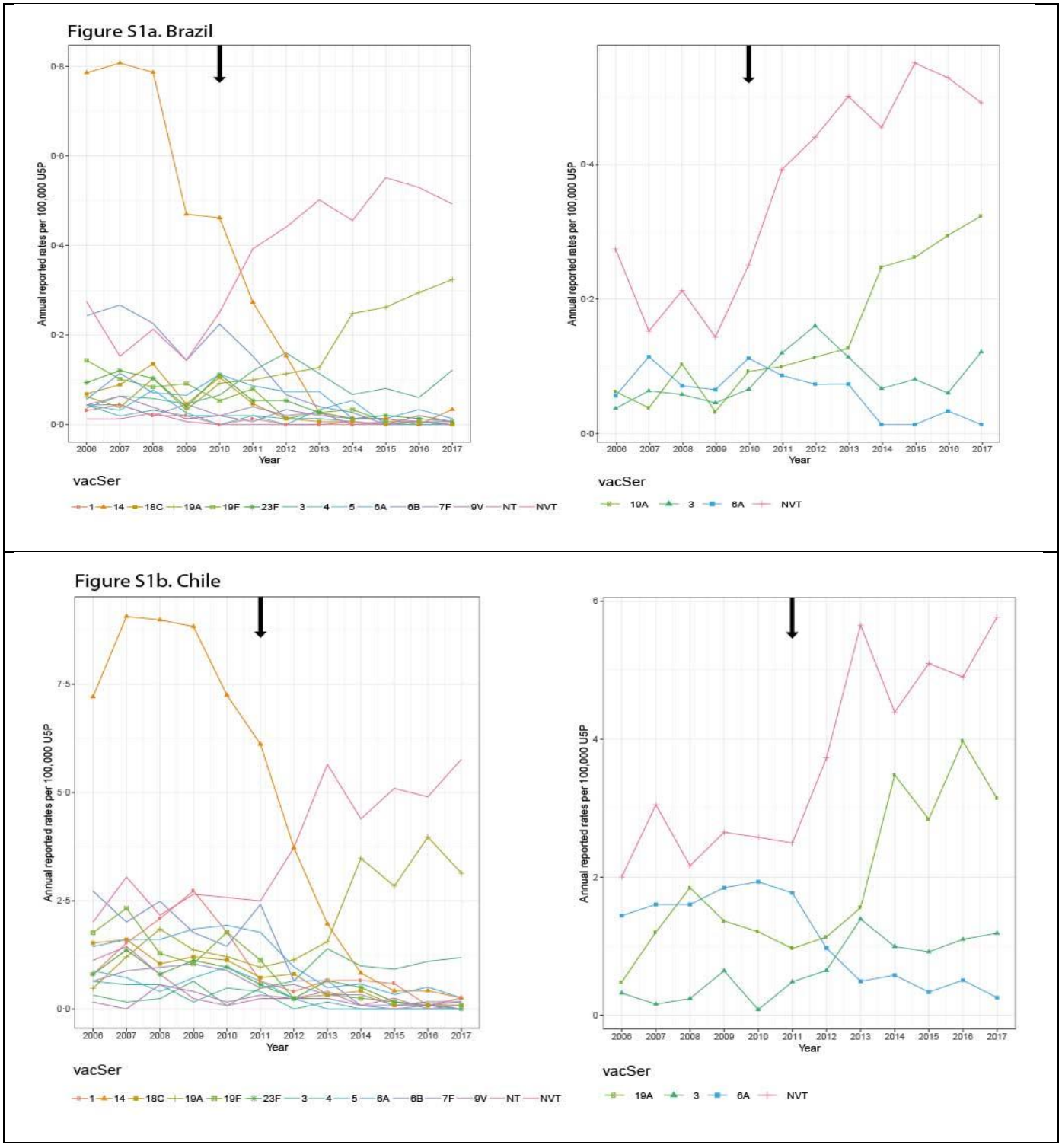


Figure S1c. Colombia

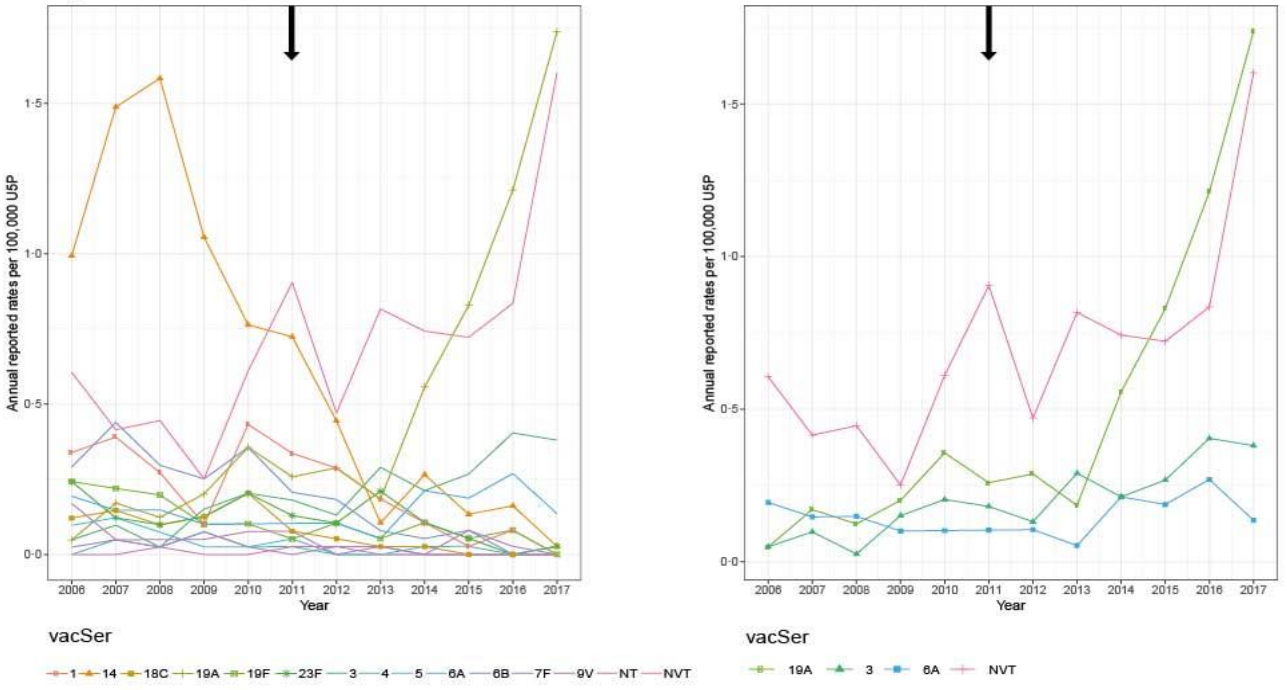
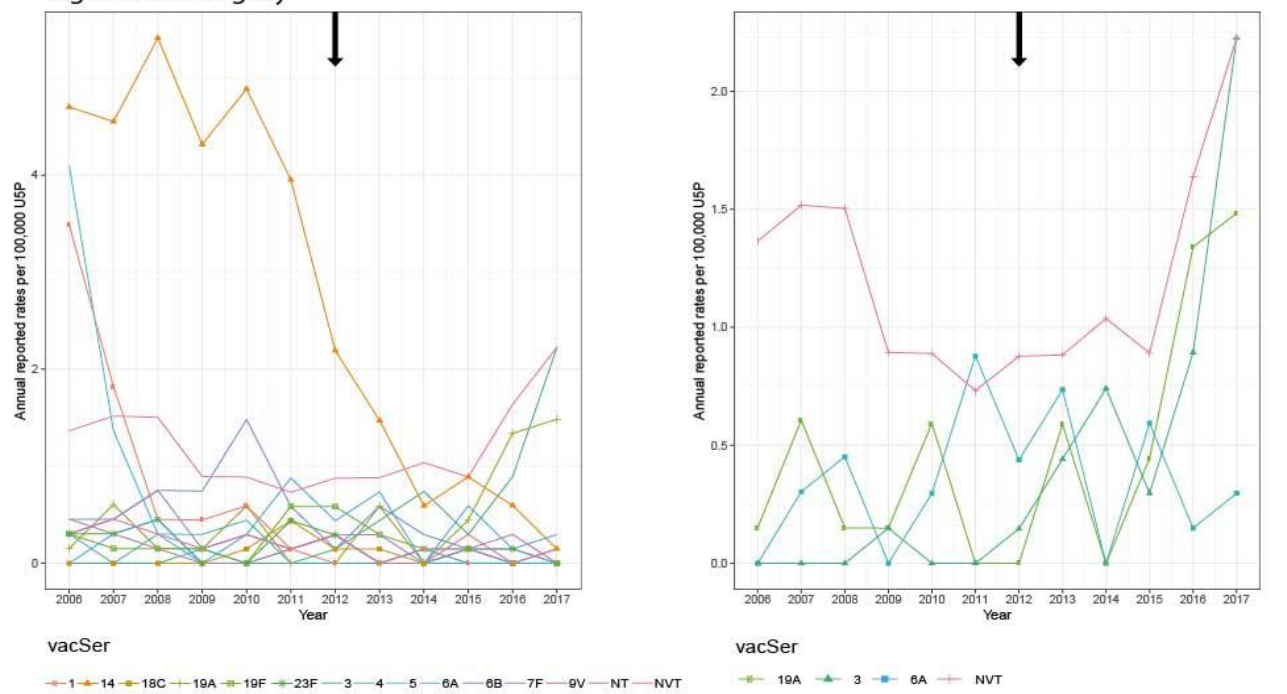
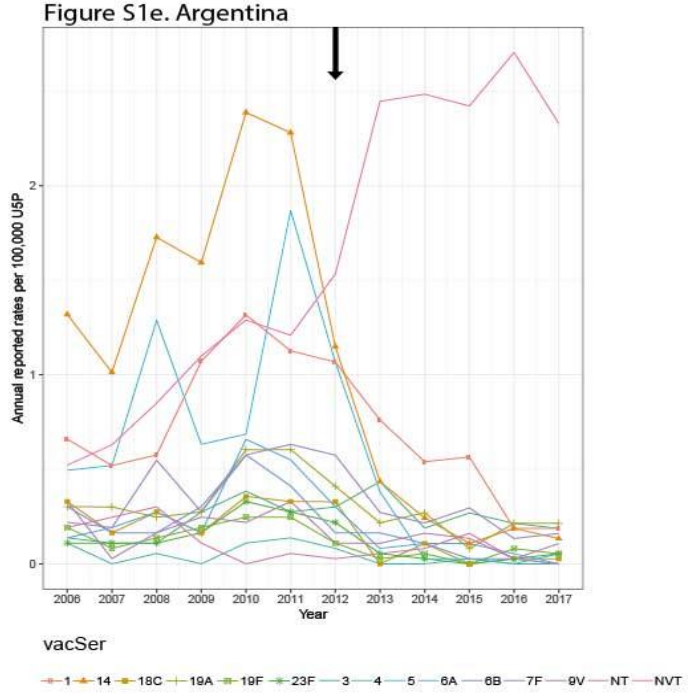


Figure S1d. Paraguay



e-h PCV13 countries

Figure S1e. Argentina



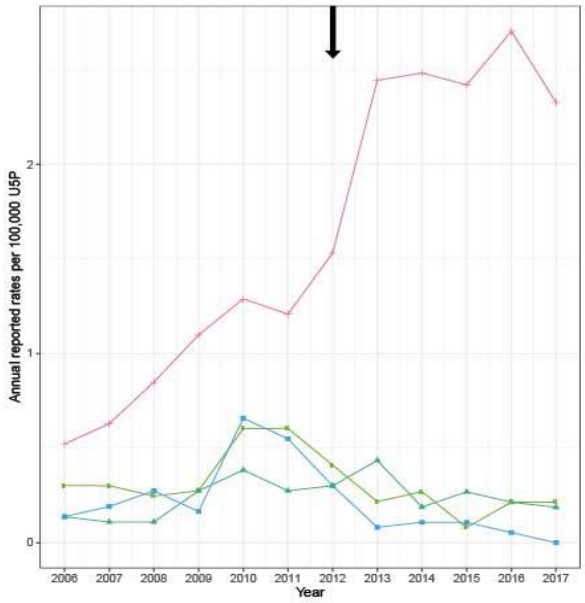
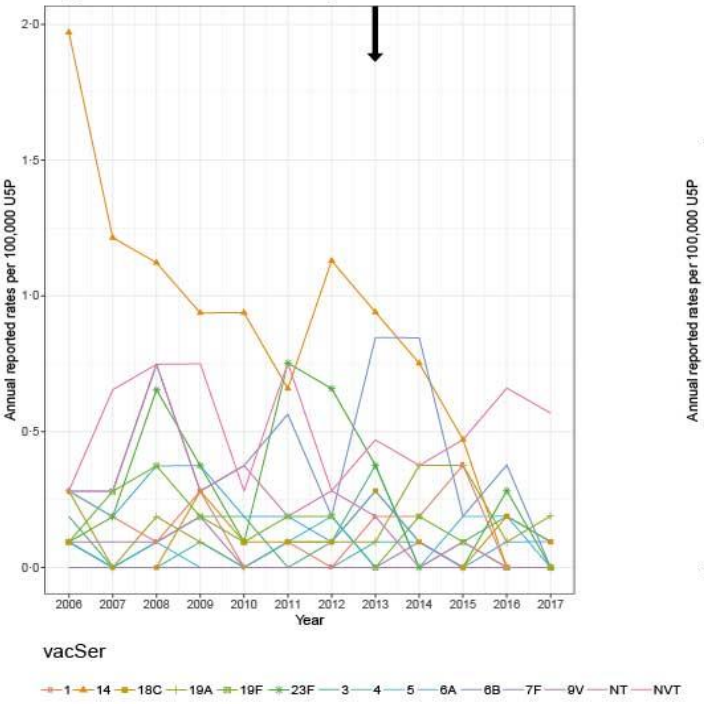


Figure S1f. Dominican Republic



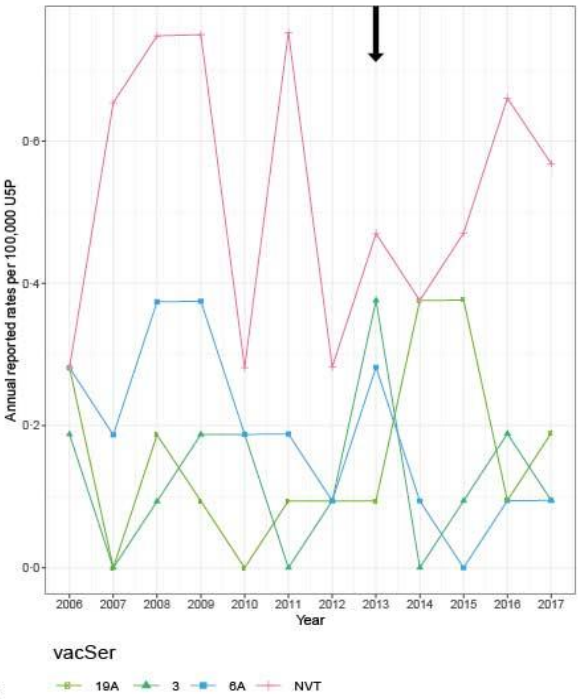
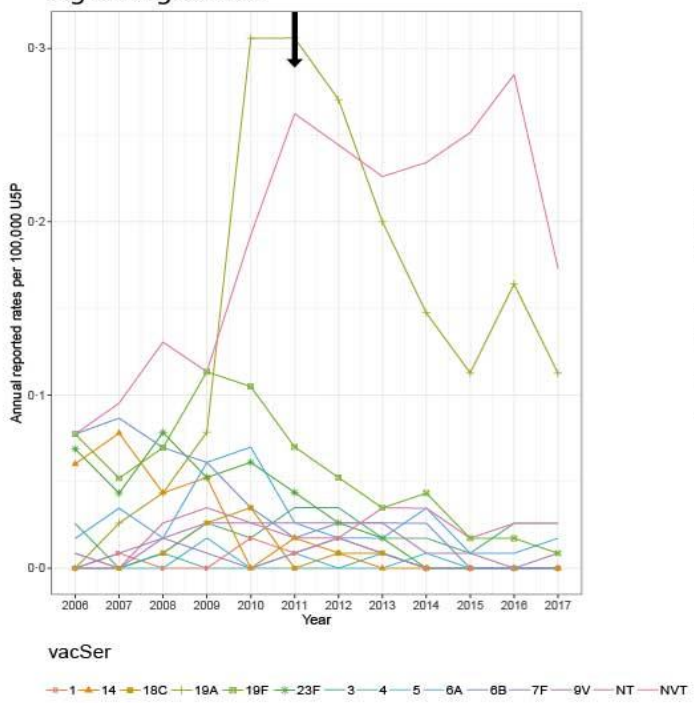


Figure S1g. Mexico



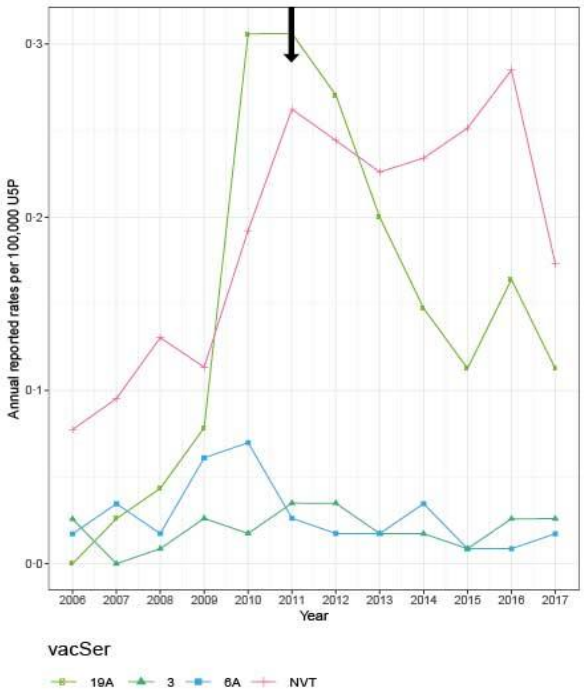
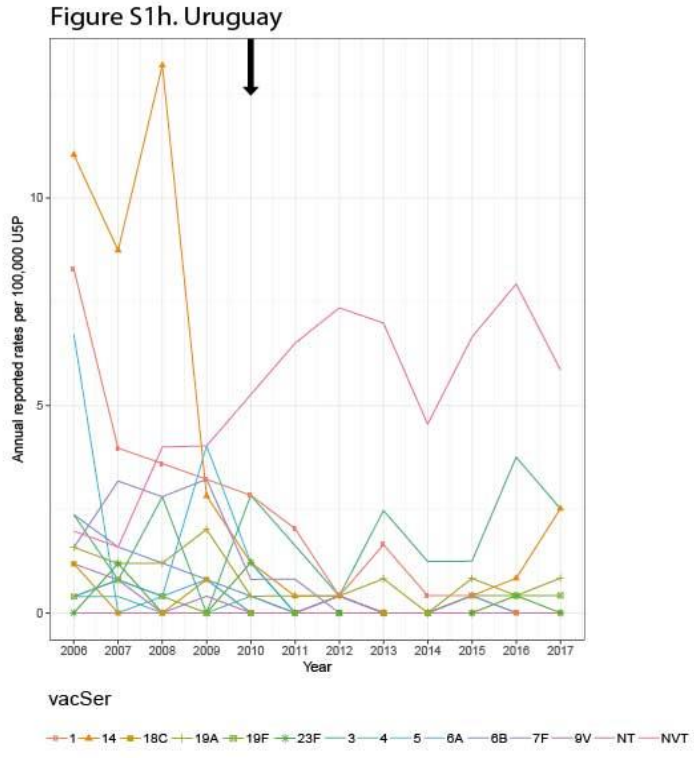
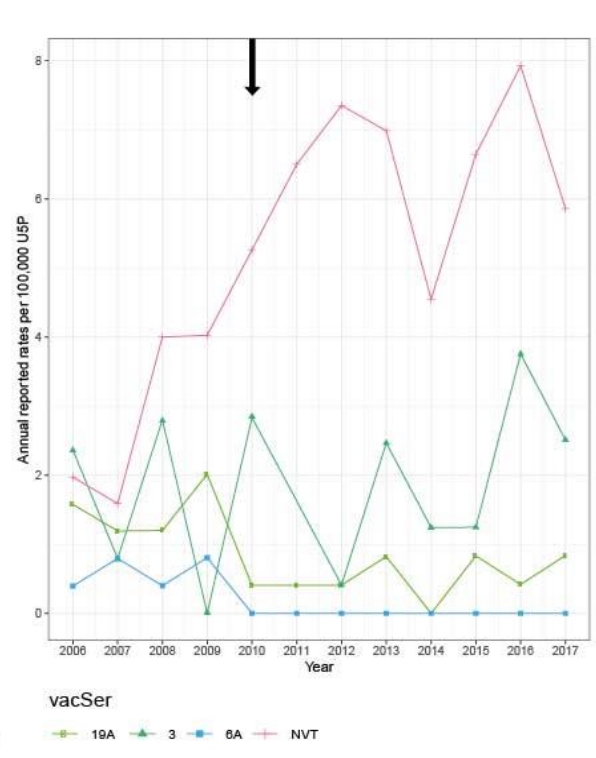


Figure S1h. Uruguay





VT= Vaccine type, NVT= Non-vaccine type. NT= Non-typable. ↓ Year of PCV introduction

7. Join-point regression analysis

Methods

A trend analysis with join-point regression was carried out in each country to estimate the average annual percentage of change (APC) in the ARRs per 100,000 children < 5 years of age, by serotype, associated with year of PCV introduction. Breakpoints to identify changes in the ARR trend were estimated selecting at least one inflection point between years -1 and 1 of PCV introduction. Join-point regression allows identifying statistically significant shift in temporal trend of the population parameter (i.e. the ARR of IPD), reporting the breakpoint, APC between breakpoints, and 95% Confidence Intervals (CI) of APC.[1]

Results

In the join-point regression analysis, the statistically significant trends associated to vaccination (inflection points after the year of introduction) and the annual % change (APC) are shown in the next table. Only Chile and Colombia showed variation in VT serotypes groups after PCV introduction: Chile decreased the VT10 ARR trend (APC -65·57% (CI 95%: -87·00 to -8·84%)) and Colombia increase the additional VT13 ARR (APC: 54·71% (CI 95%: 45·55 to 65·58%)). For individual serotypes, the results showed significance for serotype 19A in Colombia APC: 48·09% (CI 95%: 34·39 to 63·17%), serotype 1 in Dominican Republic, APC: -17·15% (CI 95%: -31·23 to -0·19%), serotype 9V in Mexico APC: -0·47% (CI 95%: -0·83 to -0·11%), and NT serotypes in Paraguay, APC 87·05% (CI 95%: 2·41 to 241·64%). In these countries the noted serotypes evidenced a statistically significant change in their temporal trend after the PCV introduction.

Analysis by VT groups

Vaccine	Country	VT	Join-points*	Period (in vaccination years)	% APC** (CI 95%
PCV10	Brazil	VT10	0	-4 to 0	**-15.84% (-24.77 to -5.86%)**
			2	0 to 2	-28.67% (-56.80 to 17.79%)
				2 to 7	-4.25% (-14.41 to 7.12%)
		Add VT13	-1	-4 to -1	0.15% (-4.44 to 4.96%)
			1	-1 to 1	5.55% (-9.00 to 22.43%)
				1 to 7	1.97% (-0.55 to 4.56%)
	Chile	VT10	-1	-5 to -1	-15.2% (-67.98 to 124.53%)
			1	-1 to 1	**-99.82% (-100.00 to -85.87%)**
				1 to 6	**-65.57% (-87.00 to -8.84%)**
	Colombia	VT10	-1	-5 to -1	-15.66% (-31.75 to 4.23%)
			2	-1 to 2	-38.12% (-75.99 to 59.47%)
				2 to 6	-14.30% (-30.65 to 5.91%)
		Add VT13	-1	-5 to -1	**8.01% (0.91 to 15.60%)**
			2	-1 to 2	-2.64% (-28.15 to 31.92%)
				2 to 6	**54.71% (44.55 to 65.58%)**
PCV13	Argentina	VT10	-1	-6 to -1	**132.17% (47.89 to 264.47%)**
			1	-1 to 1	**-93.07% (-99.52 to -0.13%)**
				1 to 5	-23.00% (-66.88 to 79.04%)
		Add VT13	-1	-6 to -1	**25.23% (4.31 to 50.35%)**
			1	-1 to 1	-29.34% (-53.05 to 6.34%)
				1 to 5	-4.61% (-26.34 to 23.54%)
	Mexico	Add VT13	0	-5 to 0	**8.39% (3.33 to 13.70%)**
			4	0 to 4	-5.74% (-11.90 to 0.85%)
				4 to 6	1.30% (-8.97 to 12.73%)
	Uruguay	VT10	1	-4 to 1	**-99.60% (-99.90 to -98.45%)**
			4	1 to 4	-52.70% (-99.14 to 2488.7%)
				4 to 7	105.16% (-96.25 to 11128.00%)

Dominican Republic and Paraguay did not meet the conditions to perform JPR.

Analysis by serotypes

Country	Serotype	Join-points*	Periods (in vaccination sequence years)	% APC (CI 95%)**
Argentina	1	-1	-6 to -1	**16.08 (4.32 to 29.17)**
		1	-1 to 1	-26.39 (-60.88 to 38.51)
			1 to 5	-13.37 (-29.06 to 5.8)
	14	-1	-6 to -1	**31.21 (8.62 to 58.49)**
		1	-1 to 1	**-60.24 (-73.94 to -39.34)**
			1 to 5	-2.45 (-25.32 to 27.44)
	19A	-1	-6 to -1	**7.24 (0.45 to 14.48)**
		1	-1 to 1	-17.56 (-43.99 to 21.35)
			1 to 5	-0.34 (-11.81 to 12.62)
	19F	-1	-6 to -1	2.24 (-0.66 to 5.23)
		1	-1 to 1	-10.21 (-24.28 to 6.48)
			1 to 5	0.99 (-4.31 to 6.58)
	23F	-1	-6 to -1	**4.49 (1.65 to 7.41)**
		1	-1 to 1	**-15.17 (-27.93 to -0.16)**
			1 to 5	1.07 (-4.01 to 6.41)
	3	-1	-6 to -1	4.65 (-0.59 to 10.47)
		1	-1 to 1	0.85 (-25.58 to 36.66)
			1 to 5	-4.27 (-13.04 to 5.39)
	5	-1	-6 to -1	21.12 (-3.08 to 51.36)
		2	-1 to 2	-49.68 (-86.54 to 88.1)
			2 to 5	0.53 (-33.75 to 5.53)
	6A	-1	-6 to -1	**10.69 (0.95 to 21.36)**
		1	-1 to 1	-21.99 (-48.31 to 17.73)
			1 to 5	-2.15 (-10.75 to 7.28)
	9V	-5	-6 to -5	-15.2 (-41.63 to 23.2)
		2	-5 to 2	0.08 (-4.79 to 5.2)
			2 to 5	-4.21 (-20.52 to 15.46)
	NT	-1	-6 to -1	**-4.64 (-8.64 to -0.46)**
		3	-1 to 3	3.56 (-8.77 to 17.57)
			3 to 5	-7.12 (-18.21 to 5.47)
	NVT	0	-6 to 0	**17.56 (8.39 to 27.49)**
		1	0 to 1	**149.17 (54.17 to 302.69)**

Country	Serotype	Join-points*	Periods (in vaccination sequence years)	% APC (CI 95%)**
			1 to 5	-1.81 (-15.64 to 14.28)
Brazil	14	0	-4 to 0	**-9.23 (-17.12 to -0.59)**
		2	0 to 2	-17.2 (-37.89 to 10.38)
			2 to 7	-1.92 (-6.58 to 2.96)
	3	0	-4 to 0	0.19 (-3.23 to 3.74)
		1	0 to 1	5.53 (-5.46 to 17.8)
			1 to 7	-0.97 (-2.79 to 0.89)
	4	-1	-4 to -1	-0.59 (-1.32 to 0.15)
		1	-1 to 1	0.01 (-4.1 to 4.3)
			1 to 7	-0.36 (-0.75 to 0.04)
	NT	-1	-4 to -1	-0.13 (-0.89 to 0.64)
		1	-1 to 1	-0.63 (-3 to 1.81)
			1 to 7	0.08 (-0.33 to 0.49)
	NVT	-1	-4 to -1	-3.27 (-7.83 to 1.53)
		1	-1 to 1	15.26 (-1.09 to 34.3)
			1 to 7	1.25 (-1.33 to 3.91)
Chile	14	-1	-5 to -1	-1.55 (-48.1 to 86.74)
		2	-1 to 2	-90.84 (-99.48 to 60.43)
			2 to 6	-31.81 (-64.05 to 29.33)
	3	0	-5 to 0	-0.19 (-16.95 to 19.95)
		2	0 to 2	42.81 (-5.32 to 115.41)
			2 to 6	-1.67 (-24.18 to 27.52)
	5	0	-5 to 0	1.73 (-11.16 to 16.48)
		2	0 to 2	-33.02 (-63.45 to 22.73)
			2 to 6	0 (-12.67 to 14.5)
	6A	0	-5 to 0	**13.02 (5.17 to 21.46)**
		2	0 to 2	**-55 (-67.39 to -37.9)**
			2 to 6	-5.32 (-11.9 to 1.74)
	9V	0	-5 to 0	4.11 (-9.2 to 19.38)
		4	0 to 4	-7.73 (-19.53 to 5.81)
			4 to 6	8.89 (-40.95 to 100.82)
	NT	-1	-5 to -1	**-27.99 (-43.81 to -7.72)**
		2	-1 to 2	8.46 (-26.72 to 60.54)
			2 to 6	-7.06 (-22.01 to 10.75)

Country	Serotype	Join-points*	Periods (in vaccination sequence years)	% APC (CI 95%)**
Colombia	14	-1	-5 to -1	-8.54 (-25.56 to 12.37)
		2	-1 to 2	-24.38 (-69.89 to 89.92)
			2 to 6	-2.57 (-20.7 to 19.71)
	18C	-1	-5 to -1	1.25 (-1.19 to 3.75)
		1	-1 to 1	-6.23 (-15.92 to 4.57)
			1 to 6	-0.52 (-2.91 to 1.94)
	19A	-4	-5 to -4	13.01 (-16.85 to 53.59)
		2	-4 to 2	1.34 (-3.78 to 6.73)
			2 to 6	**48.09 (34.39 to 63.17)**
	3	-1	-5 to -1	3.79 (-0.99 to 8.80)
		1	-1 to 1	-0.74 (-19.61 to 22.55)
			1 to 6	4.75 (-0.07 to 9.81)
	4	-1	-5 to -1	0.78 (-1.07 to 2.67)
		1	-1 to 1	-2.53 (-11.46 to 7.3)
			1 to 6	0.39 (-1.46 to 2.27)
	5	-1	-5 to -1	**-2.05 (-3.74 to -0.34)**
		1	-1 to 1	-1.09 (-8.48 to 6.89)
			1 to 6	-0.23 (-1.95 to 1.52)
	6A	-2	-5 to -2	-2.74 (-9.03 to 3.98)
		1	-2 to 1	0.14 (-9.91 to 11.3)
			1 to 6	2.26 (-2.46 to 7.21)
	6B	-1	-5 to -1	-0.8 (-5.59 to 4.22)
		2	-1 to 2	-7.05 (-16.78 to 3.81)
			2 to 6	-2.12 (-8.72 to 4.97)
	7F	-1	-5 to -1	0.02 (-1.74 to 1.81)
		1	-1 to 1	-1.03 (-8.59 to 7.15)
			1 to 6	-0.41 (-2.16 to 1.38)
Dominican Republic	1	-1	-7 to -1	-3.68 (-9.55 to 2.58)
		2	-1 to 2	9.88 (-8.79 to 32.37)
			2 to 4	**-17.15 (-31.23 to -0.19)**
	14	-1	-7 to -1	-11.96 (-23.62 to 1.49)
		1	-1 to 1	0.25 (-65.4 to 190.46)
			1 to 4	-25.77 (-56.39 to 26.34)
	19A	0	-7 to 0	-1.98 (-6.85 to 3.14)

Country	Serotype	Join-points*	Periods (in vaccination sequence years)	% APC (CI 95%)**
		1	0 to 1	32.57 (-9.44 to 94.06)
			1 to 4	-8.93 (-24.73 to 10.19)
	7F	-1	-7 to -1	-0.14 (-1.24 to 0.98)
		1	-1 to 1	3.19 (-5.07 to 12.17)
			1 to 4	-2.41 (-6.4 to 1.75)
	NT	-1	-7 to -1	-1.86 (-9.8 to 6.78)
		1	-1 to 1	-11.7 (-53.06 to 66.09)
			1 to 4	-1.22 (-27.98 to 35.47)
	NVT	-1	-7 to -1	-0.89 (-11.49 to 10.98)
		1	-1 to 1	-4.97 (-59.25 to 121.57)
			1 to 4	7.8 (-29.41 to 64.6)
Mexico	1	-1	-5 to -1	0.24 (-0.27 to 0.76)
		1	-1 to 1	0.1 (-2.17 to 2.42)
			1 to 6	-0.31 (-0.82 to 0.2)
	14	-1	-5 to -1	**-1.4 (-2.53 to -0.26)**
		1	-1 to 1	-0.66 (-5.63 to 4.57)
			1 to 6	-0.16 (-1.3 to 0.99)
	19F	-1	-5 to -1	1.26 (-0.45 to 3.01)
		1	-1 to 1	-2.59 (-5.19 to 0.08)
			1 to 6	-0.78 (-1.97 to 0.43)
	23F	-1	-5 to -1	-0.06 (-0.99 to 0.87)
		2	-1 to 2	-1.74 (-5.74 to 2.43)
			2 to 6	-0.35 (-1.27 to 0.58)
	4	-1	-5 to -1	-0.2 (-0.51 to 0.12)
		2	-1 to 2	0.16 (-0.54 to 0.87)
			2 to 6	-0.14 (-0.58 to 0.31)
	7F	-1	-5 to -1	-0.01 (-0.55 to 0.54)
		1	-1 to 1	0.28 (-2.13 to 2.74)
			1 to 6	-0.32 (-0.86 to 0.22)
	9V	-2	-5 to -2	**0.96 (0.28 to 1.65)**
		1	-2 to 1	0 (-2.12 to 2.17)
			1 to 6	**-0.47 (-0.83 to -0.11)**
	NT	-2	-5 to -2	0.88 (-0.91 to 2.7)
		4	-2 to 4	-0.06 (-0.54 to 0.42)
			4 to 6	0.11 (-3.41 to 3.76)

Country	Serotype	Join-points*	Periods (in vaccination sequence years)	% APC (CI 95%)**
Paraguay	14	-2	-6 to -2	1.38 (-26.20 to 39.28)
		1	-2 to 1	**-71.06 (-85.77 to -41.13)**
			1 to 5	-15.02 (-45.76 to 33.15)
	3	-1	-6 to -1	1.5 (-11.85 to 16.87)
		4	-1 to 4	12.62 (-2.19 to 29.67)
			4 to 1	**279.12 (101.83 to 612.14)**
	4	-1	-6 to -1	-1.35 (-11.25 to 9.66)
		1	-1 to 1	-7.56 (-50.56 to 72.85)
			1 to 5	-0.45 (-18.32 to 21.34)
	6A	-1	-6 to -1	11.14 (-8.26 to 34.65)
		1	-1 to 1	-5.06 (-69.49 to 195.47)
			1 to 5	-6.21 (-34.50 to 34.29)
	NT	-1	-6 to -1	**-14.66 (-25.42 to -2.36)**
		3	-1 to 3	5.08 (-8.16 to 20.24)
			3 to 5	**87.05 (2.41 to 241.64)**
Uruguay	14	-1	-4 to -1	-89.08 (-99.44 to 113.32)
		1	-1 to 1	-94.83 (-100 to 62338)
			1 to 7	40.5 (-71.31 to 588.03)
	19F	0	-4 to 0	**-14.64 (-26.94 to -0.28)**
		3	0 to 3	0 (-29.38 to 41.59)
			3 to 7	13.41 (-8.99 to 41.31)
	9V	0	-4 to 0	**-27.62 (-44.92 to -4.88)**
		2	0 to 2	10.62 (-53.37 to 162.44)
			2 to 7	-5 (-17.91 to 9.94)
	NVT	-1	-4 to -1	135.62 (-36.01 to 767.65)
		1	-1 to 1	245.13 (-94.41 to 21193)
			1 to 7	-6.97 (-53.65 to 86.74)

* **Join-point Regression** is a statistical modeling technique that explains the relationship between two variables by means of a segmented linear **regression.**
** APC: annual percentage change

Reference

1. Muggeo VMR. Interval estimation for the breakpoint in segmented regression: a smoothed score-based approach. *Australian N Z J Stat.* 2017; **59**: 311–22.

8. STROBE Statement

The direct impact of pneumococcal conjugate vaccines on invasive pneumococcal disease in Latin American children: Observational study, SIREVA 2006-2017

	Item No	Recommendation
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract R/ Title include information about the observational study: The direct impact of pneumococcal conjugate vaccines on invasive pneumococcal disease in Latin American children: Observational study, SIREVA 2006-2017
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found R/ The abstract describes the objective, methods and results for the observational study
Introduction		
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported R/ Included in lines 60-83
Objectives	3	State specific objectives, including any prespecified hypotheses R/ The objective is stated in line 86-88
Methods		
Study design	4	Present key elements of study design early in the paper R/ Design is explained in lines 91-113
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection R/ included in lines 92-97. References of additional information is provided (Di Fabio JL, Castañeda E, Agudelo CI, et al. Evolution of *Streptococcus pneumoniae* serotypes and penicillin susceptibility in Latin America, Sireva-Vigía Group.1993-1999. *Pediatr Infect Dis J* 2001; **20**: 959-67 and Castañeda E, Agudelo CI, Regueira M, et al. Laboratory-based surveillance of *Streptococcus pneumoniae* invasive disease in children in 10 Latin American countries: a SIREVA II project, 2000-2005. *Pediatr Infect Dis J*. 2009; **28**: e265-70. doi: 10.1097/INF.0b013e3181a74b22.)
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up R/ NA *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls R/ NA *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants R/ Methods are explicit in present the criterial of selection of participants in the framework of lab based passive surveillance system. Lines 91-113 report the details.
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case R/ NA
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable R/ Information of the pneumococcal isolations is presented in methods, lines 98-113
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group

		R/ Only SIREVA database was the source of information. Information is presented in lines 98-113
Bias	9	Describe any efforts to address potential sources of bias R/ Potential information bias was avoided with structured database of the SIREVA group. Lines 91-113 and 119-125 describe the way to obtain and manipulate the information
Study size	10	Explain how the study size was arrived at R/ The study is based in passive voluntary lab-based surveillance. Discussion section considers that as limitation and implications for the results
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why R/ Included in. methods, lines 119-125
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding R/ Included in lines 118-146
		(*b*) Describe any methods used to examine subgroups and interactions R/ Interaction was not evaluated because a descriptive cross-sectional analysis was performed
		(*c*) Explain how missing data were addressed R/ Isolates with missing data were not included in the analysis. Debugged SIREVA database directly provided and validated by team's countries were analysed.
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed R/ NA *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy R/ The study is based in passive voluntary lab-based surveillance. Sampling is not implemented in any country
		(*e*) Describe any sensitivity analyses R/ No sensitivity analysis performed. Statistical reports the 95% confidence intervals of the estimations
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed R/ Reported the total number of isolates (12,269) in line 150. Each table reports absolute numbers according with subgroup analysis
		(b) Give reasons for non-participation at each stage R/ All included sampled were analysed for all stages
		(c) Consider use of a flow diagram R/ No needed
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders R/ Analysis is mainly done according to countries Table 1 shows disaggregation
		(b) Indicate number of participants with missing data for each variable of interest R/ NA
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount) R/ NA
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time R/ NA
		Case-control study—Report numbers in each exposure category, or summary measures of exposure R/ NA
		Cross-sectional study—Report numbers of outcome events or summary measures R/ Absolute numbers, proportions and ARR are reported. Tables in the main text and the appendix allow to recalculate all measures.
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included R/ CI 95% or p-value were reported when possible
		(*b*) Report category boundaries when continuous variables were categorized

		R/ only age was a continuous variable reported as categorical data
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period R/ Relative Risk were not estimated
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses R/ Additional analysis, such as join-point regression, is reported in the appendix
Discussion		
Key results	18	Summarise key results with reference to study objectives R/ Done in lines 240-252
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias R/ Limitations reported in lines 326-336
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence R/ Shortcomings are discussed in lines 326-328
Generalisability	21	Discuss the generalisability (external validity) of the study results R/ The data from individual countries was analysed
Other information		
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based R/ The authors declare in the abstract no funding.

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.