

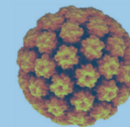
HPV PREVENTION AND CONTROL BOARD MEETING BOGOTA, COLOMBIA, 15TH – 16TH NOVEMBER 2018

“Prevention and control of HPV and HPV related cancers in Colombia
lessons learnt and the way forward”

REDUCTION IN HPV 16/18 PREVALENCE IN COLOMBIAN YOUNG WOMEN AFTER FIVE YEARS OF HPV VACCINE INTRODUCTION.

Alba Lucia Combita, Viviana Reyes, Devi Puerto, Cristina Lozano, Raúl Murillo, Nubia Muñoz, Gustavo Hernández, Carolina Wiesner.

HPV vaccine in Colombia



2012- August.

- In Colombia, HPV vaccine was introduced as part of the National Immunization Program, as primary strategy for the prevention of cervical cancer and genital warts
- Girls from fourth primary school: 9-14 years old
- With a vaccination schedule of 0 / 2 / 6 months

2012- December

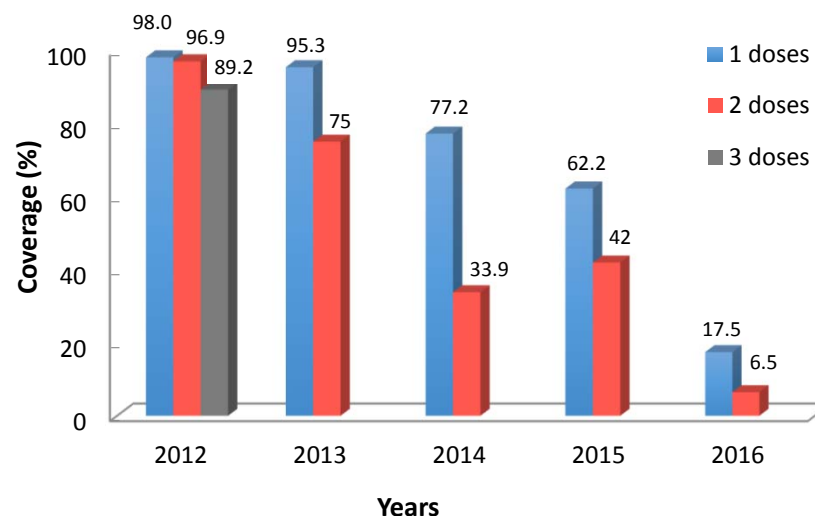
- The National Committee on Immunization Practices modified the original schedule
- to an alternative one at 0 / 6 / 60 months

2013

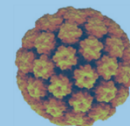
- Initiate *Catch up vaccination* from 14 to 17 years old. School or not

WHO. 2008

**Coverage of HPV vaccination
Colombia, 2012-2016.**



Monitoring: Outcome of HPV vaccine



WHO. 2008

Short term

- (5-10 years)
- Reduction Incidence and Prevalence of HPV infections in sexually active adolescents

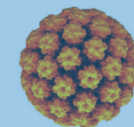
Medium Term

- (10-15 years)
- Reduction Incidence and prevalence of pre-neoplastic lesions
- Prevalence of viral genotypes in pre-neoplastic lesions

Long Term

- (> 20 years)
- Reduction Incidence of cervical cancer
- Prevalence of viral types in invasive cancer

Objective

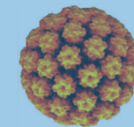


HPV infection are often acquired shortly after the first sexual intercourse reaching the highest prevalence in women aged ≤ 25 years

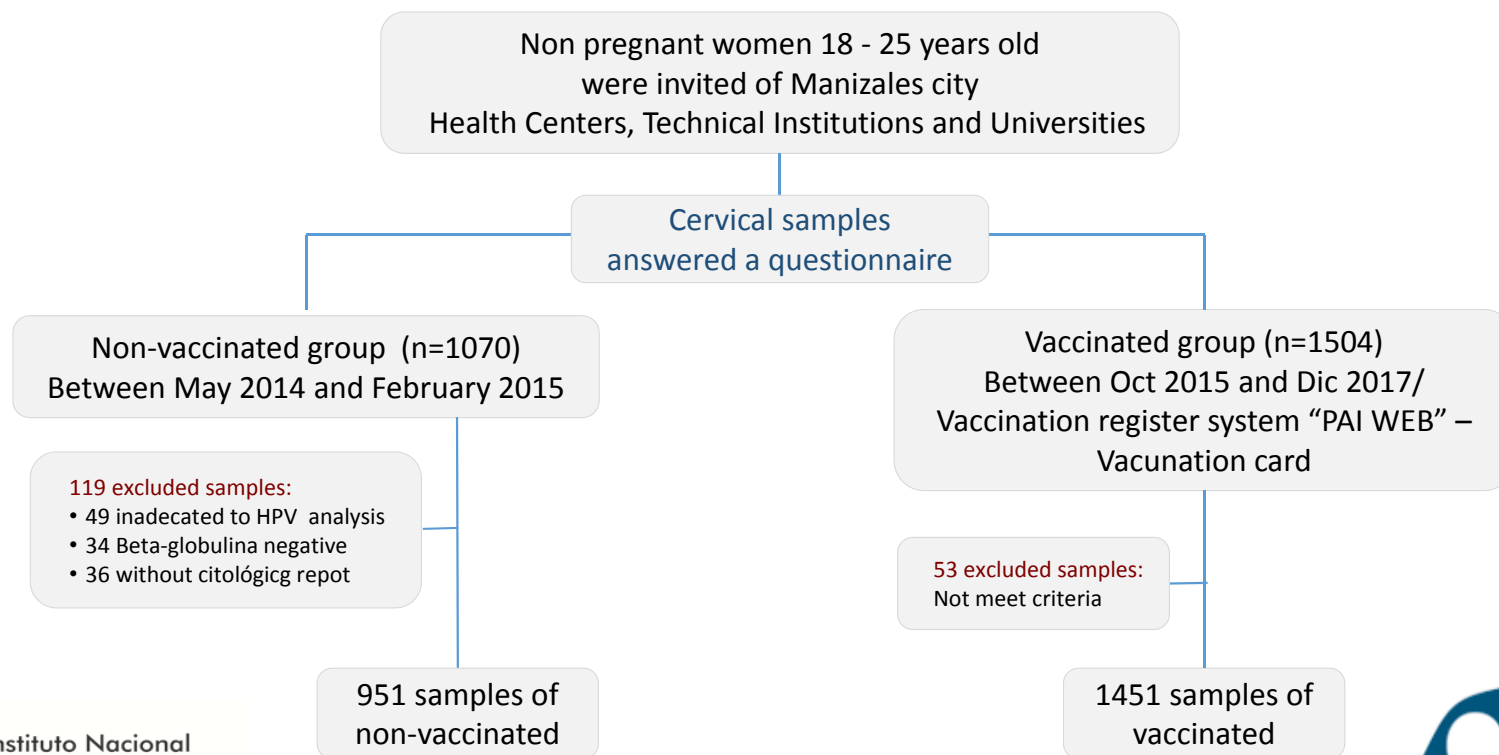
HPV detection in this population has been proposed as an alternative to monitor the impact of HPV vaccination programs

To evaluated the effectiveness of HPV vaccination program
comparing the specific HPV type prevalence between vaccinated and non-vaccinated women aged 18 - 25 years old from a single Colombian City.

Methodology



Desing study: Cross sectional study that compare HPV prevalence from a sentinel surveillance site.

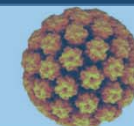




Sociodemographic characteristics of young women by Vaccination Status

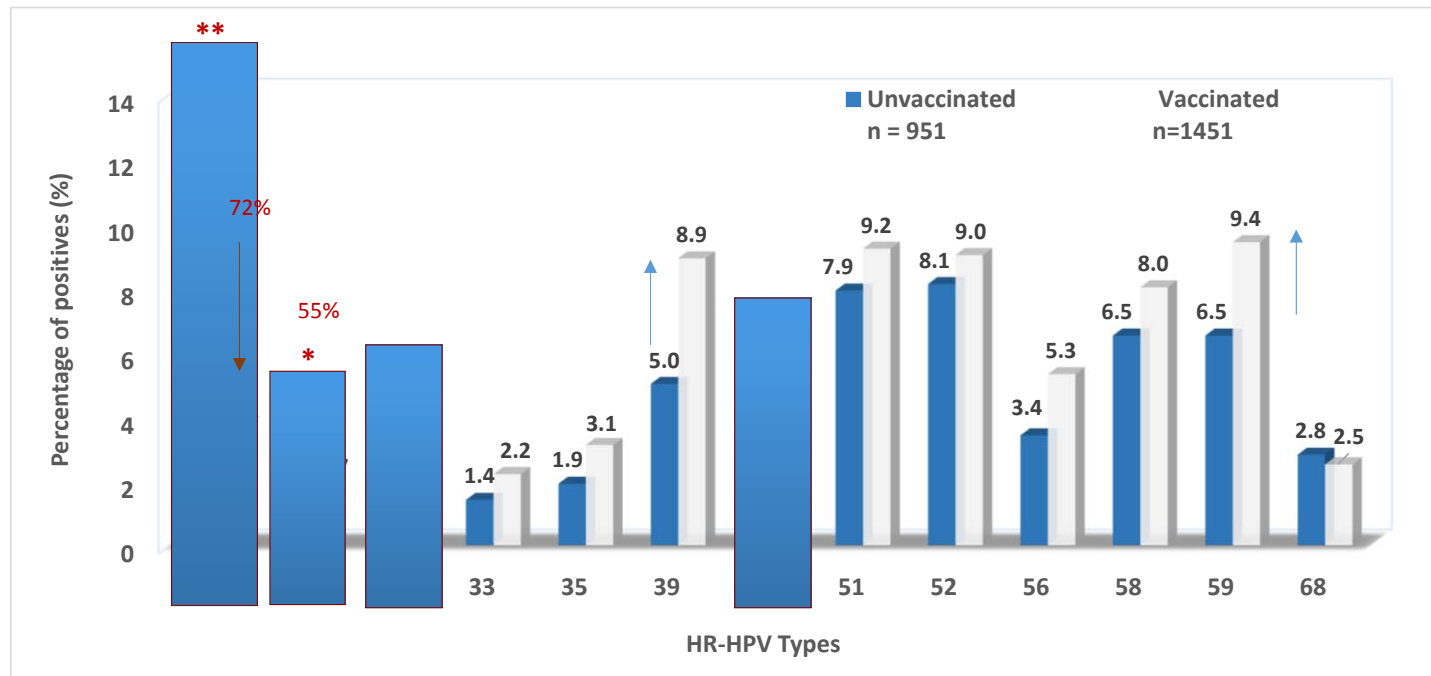
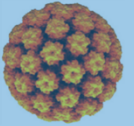
	Unvaccinated n = 951 (%)	Vaccinated n = 1451 (%)	P Value	Vaccination Rate *OR(95% CI)	* No Adjusted
Age	951	1451			
18	75 (7,9)	451 (31,1)			
19	150 (15,8)	305 (21)			
20	161 (16,9)	259 (17,8)			
21	131 (13,8)	190 (13,1)			
22	135 (14,2)	89 (6,1)			
23	122 (12,8)	56 (3,9)			
24	111 (11,7)	47 (3,2)			
25	66 (6,9)	54 (3,7)			
Median Age (p25;75)	21 (20;23)	19 (18;21)			
Residing area	920	1451			
Urban	877 (95,3)	1429 (98,5)	0,00	3,18 (1,89 - 5,36)	
Rural	43 (4,7)	22 (1,5)	0,00	0,31 (0,19 - 0,53)	
Socioeconomic	920 (96,7)	1451 100			
1	277 (30,19)	263 (18,1)	0,00	0,51 (0,42 - 0,62)	
2	338 (36,7)	456 (31,4)	0,01	0,79 (0,66 - 0,94)	
3	251 (27,3)	509 (35,1)	0,00	1,44 (1,20 - 1,73)	
4	40 (4,3)	131 (9,0)	0,00	2,18 (1,52 - 3,14)	
5	10 (1,1)	59 (4,1)	0,00	3,86 (1,96 - 7,58)	
6	4 (0,4)	33 (2,3)	0,00	5,33 (1,88 - 15,09)	
Civil status	951	1451			
Single	648 (68,1)	1292 (89,0)	0,00	3,80 (3,07 - 4,71)	
Married	32 (3,4)	25 (1,7)	0,01	0,50 (0,30 - 0,86)	
Divorcee	7 (0,7)	1 (0,1)	0,01	0,09 (0,01 - 0,76)	
Free Union	263 (27,7)	132 (9,1)	0,00	0,26 (0,21 - 0,33)	
Widow	1 (0,1)	1 (0,1)	0,76	0,66 (0,04 - 10,49)	
Scholarship	938	1451			
Primary	2 (0,2)	7 (0,5)	0,29	2,27 (0,47 - 10,99)	
High school	106 (11,3)	206 (14,2)	0,04	1,30 (1,01 - 1,67)	
Technique	421 (44,9)	536 (37,0)	0,00	0,72 (0,61 - 0,85)	
University	246 (26,2)	700 (48,2)	0,00	2,62 (2,19 - 3,13)	
Postgraduate	163 (17,4)	2 (0,1)	0,00	0,01 (0,00 - 0,03)	
Smoking habit	950	1451			
Yes	240 (25,3)	119 (8,2)	0,00	0,26 (0,21 - 0,34)	
No	710 (74,7)	1332 (91,8)		3,78 (2,98 - 4,80)	

Sexual characteristics of young women Vaccination Status



	Unvaccinated n = 951 (%)		Vaccinated n = 1451 (%)		P Value	Vaccination Rate *OR (95% CI)		* No adjusted
Age Sexual Debut	951		1451					
<14	79	(8,3)	112	(7,7)	0,60	0,92	(0,68 - 1,25)	
14-17	683	(71,8)	1047	(72,2)	0,86	1,02	(0,85 - 1,22)	
18 +	189	(19,9)	292	(20,1)	0,88	1,02	(0,83 - 1,25)	
Sex Partners	939		1451					
1	226	(24,1)	341	(23,5)	0,75	0,97	(0,80 - 1,18)	
2-4	609	(64,9)	795	(54,8)	0,00	0,66	(0,55 - 0,78)	
> 4	104	(11,1)	315	(21,7)	0,00	2,23	(1,75 - 2,83)	
Contraceptive Method	951		1451					
None	710	(77,9)	793	(54,7)	0,00	0,34	(0,28 - 0,41)	
1 - 2	84	(9,2)	480	(33,1)	0,00	4,87	(3,79 - 6,25)	
3 - 5	94	(10,3)	127	(8,8)	0,20	0,83	(0,63 - 1,10)	
>5	23	(2,5)	51	(3,5)	0,18	1,41	(0,85 - 2,32)	
Pregnancies	951		1451					
0	486	(51,1)	1222	(84,2)	0,00	5,11	(4,22 - 6,17)	
1	329	(34,6)	199	(13,7)	0,00	0,30	(0,25 - 0,37)	
2	96	(10,1)	22	(1,5)	0,00	0,14	(0,09 - 0,22)	
3 +	40	(4,2)	8	(0,6)	0,00	0,13	(0,06 - 0,27)	
Contraceptive Method	951		1451					
No use	0	(0,0)	210	(14,5)	0,00	0,59	(0,57 - 0,61)	
Hormonal	680	(78,8)	1066	(73,5)	0,00	0,75	(0,61 - 0,91)	
Intrauterine device	69	(8,0)	36	(2,5)	0,00	0,29	(0,19 - 0,44)	
Tubal Ligation	23	(2,7)	22	(1,5)	0,05	0,56	(0,31 - 1,02)	
Condom	91	(10,5)	117	(8,1)	0,04	0,74	(0,56 - 0,99)	
Condom use	915		1451					
Yes	338	(35,5)	153	(10,5)	0,00	0,74	(0,56 - 0,99)	
No	577	(60,7)	1298	(89,5)				
Sexual transmitted infection	951		1451					
Yes	100	(10,5)	85	(5,9)	0,00	0,53	(0,39 - 0,72)	
No	851	(89,5)	1366	(94,1)				

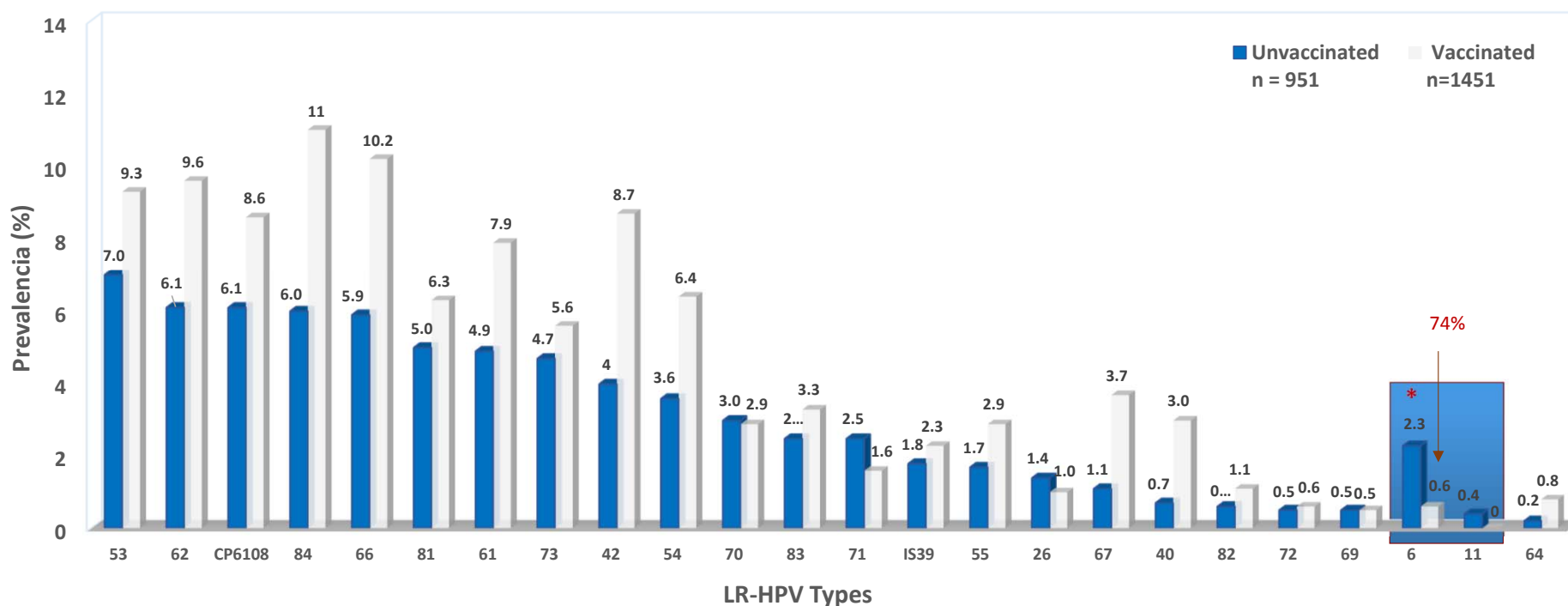
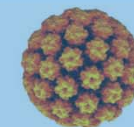
Prevalence of HR-HPV types



* P value <0,05 for 2 doses ** P value <0,05 for any doses

P values adjusted for confounding factors

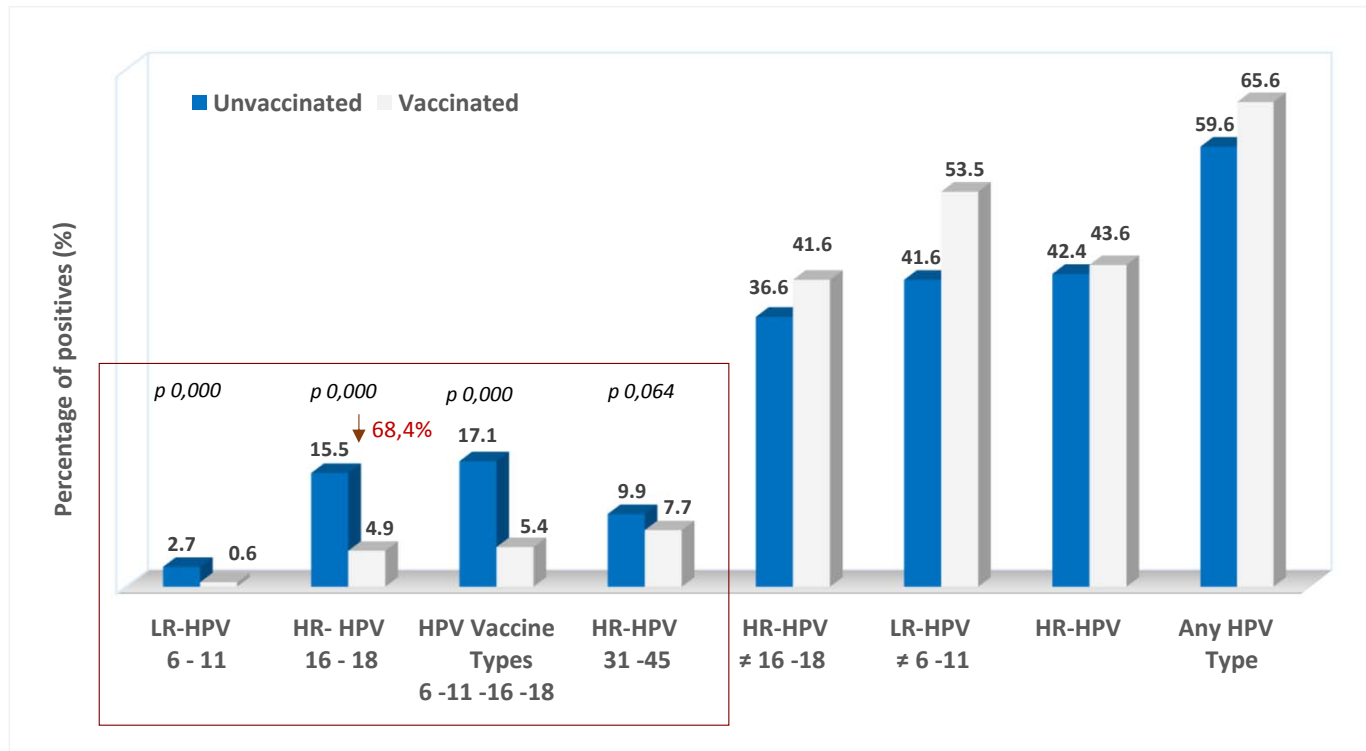
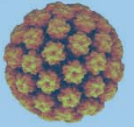
Prevalence of LR-HPV types



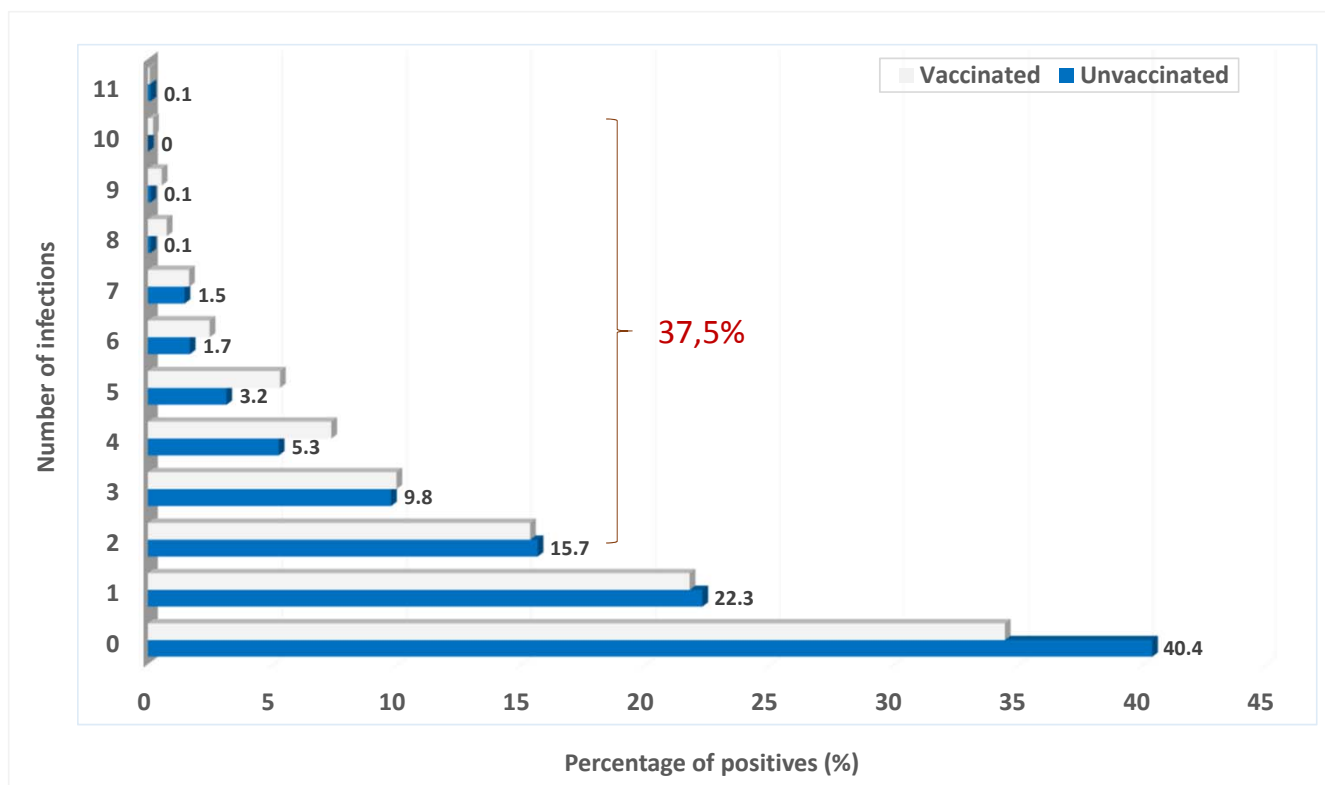
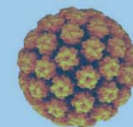
* P value <0,05 for 2 doses ** P value <0,05 for any doses

P values adjusted for confounding factors

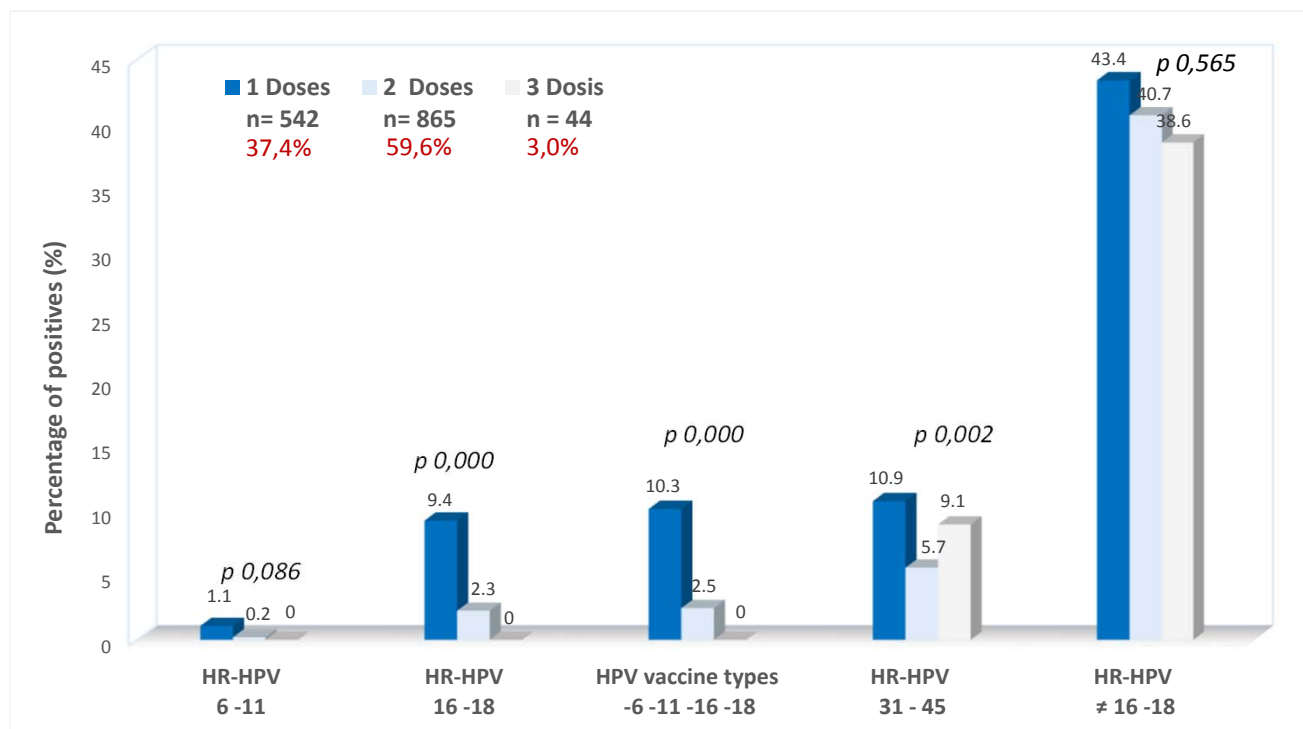
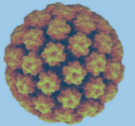
Prevalence of HPV vaccine types



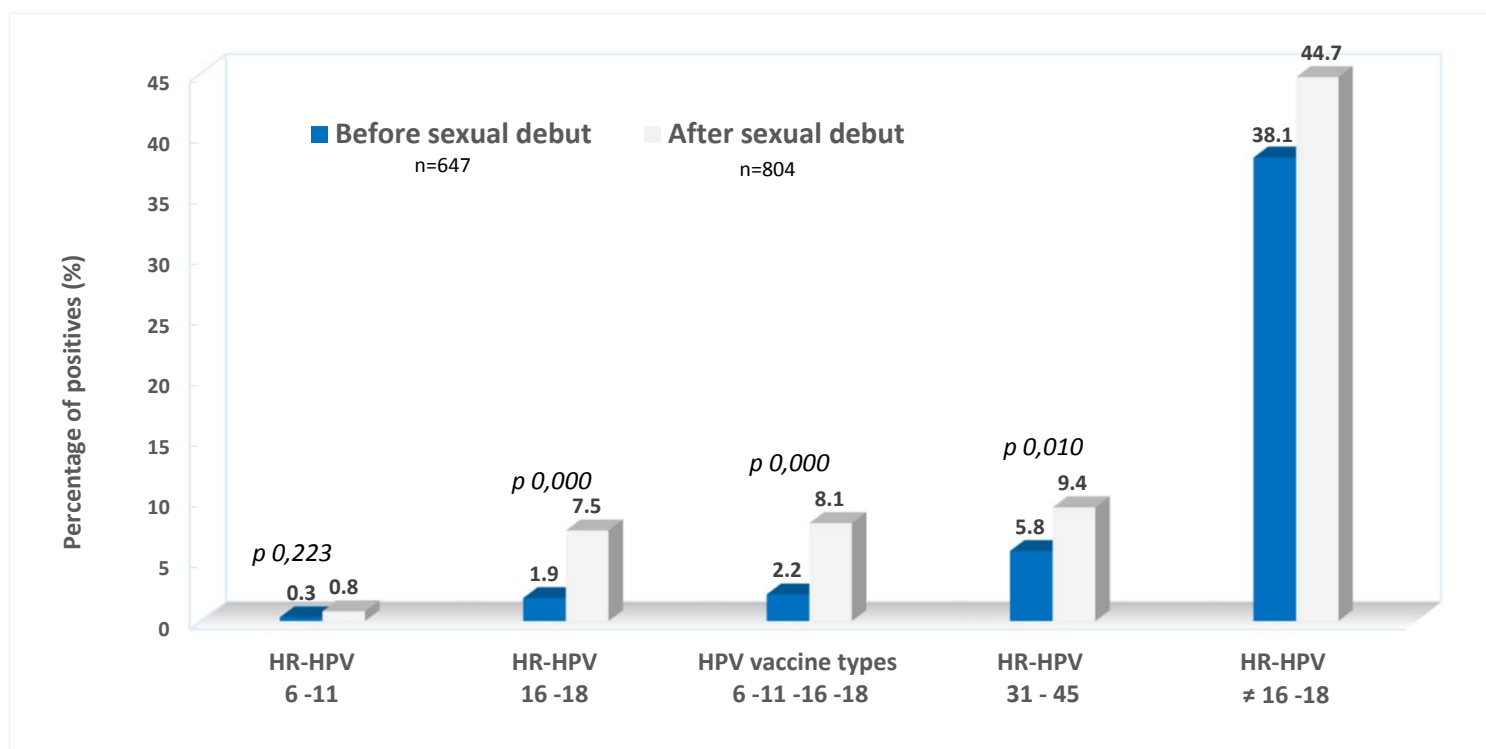
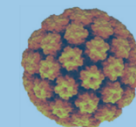
Prevalence of multiples HPV infections



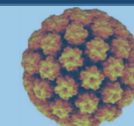
Prevalence of vaccine HPV types according to doses



Prevalence of vaccine HPV types according to onset of sexual activity at vaccination time

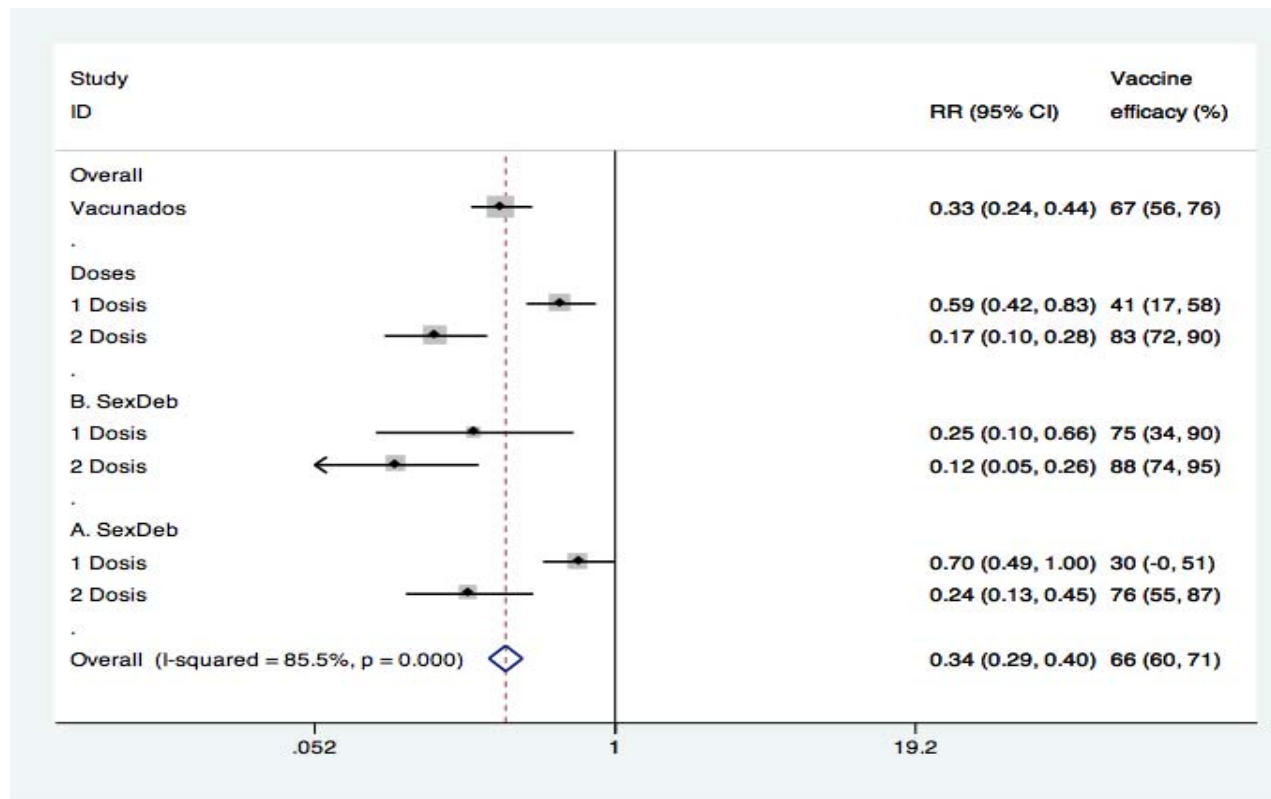
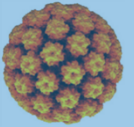


Prevalence of HPV 16 -18 among young women by HPV vaccination status and characteristics

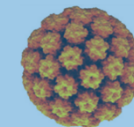


		Unvaccinated n %	Vaccinated n %	p Value	*OR (95% CI)	* Adjusted
HPV Vaccination			1451 60,4	0,000	0,31 (0,21 -0,46)	
Age	18	75 7,9%	451 31,1%	0,001	1,14 (1,06 -1,23)	
	19	150 15,8%	305 21,0%			
	20	161 16,9%	259 17,8%			
	21	131 13,8%	190 13,1%			
	22	135 14,2%	89 6,1%			
	23	122 12,8%	56 3,9%			
	24	111 11,7%	47 3,2%			
	25	66 6,9%	54 3,7%	0,049	2,07 (1,00 -4,26)	
Rural area residence	No	877 95,3%	1429 98,5%			
	Yes	43 4,7%	22 1,5%	0,075	3,71 (0,88 -15,70)	
Low socioeconomic stratum	No	336 35,3%	732 50,4%			
	Yes	615 64,7%	719 49,6%	0,023	5,31 (1,26 -22,39)	
Medium socioeconomic stratum	No	660 69,4%	811 55,9%			
	Yes	291 30,6%	640 44,1%	0,031	0,66 (0,45 -0,96)	
Marital status / Single	No	303 31,9%	159 11,0%			
	Yes	648 68,1%	1292 89,0%	0,644	1,10 (0,74 -1,63)	
Smoking habit	No	240 25,3%	119 8,2%			
	Yes	710 74,7%	1332 91,8%	0,692	1,12 (0,64 -1,96)	
Age sexual debut under 14 years	No	872 91,7%	1339 92,3%			
	Yes	79 8,3%	112 7,7%	0,915	1,02 (0,66 -1,59)	
sexual partners over 4	No	835 88,9%	1136 78,3%			
	Yes	104 11,1%	315 21,7%	0,016	0,64 (0,45 -0,92)	
No casual Sex Partners	No	201 22,1%	658 45,3%			
	Yes	710 77,9%	793 54,7%	0,228	0,80 (0,56 -1,15)	
Condom use	Yes	338 36,9%	153 10,5%			
	No	338 36,9%	153 10,5%	0,711	0,91 (0,53 -1,53)	
Sexual transmitted infection	No	851 89,5%	1366 94,1%			
	Yes	100 10,5%	85 5,9%	0,000	2,16 (1,52 -3,07)	
HPV Infection ≠ 16 -18	Negative	603 63,4%	847 58,4%			
	Positive	348 36,6%	604 41,6%	0,001	1,76 (1,26 -2,45)	
HPV infection ≠ 6 -11	Negative	555 58,4%	675 46,5%			
	Positive	396 41,6%	776 53,5%	0,002	1,98 (1,28 -3,06)	
HPV infection 31 y 45	Negative	857 90,1%	1339 92,3%			
	Positive	94 9,9%	112 7,7%	0,021	2,81 (1,17 -6,75)	
HPV infection 6	Negative	929 97,7%	1443 99,4%			
	Positive	22 2,3%	8 ,6%			

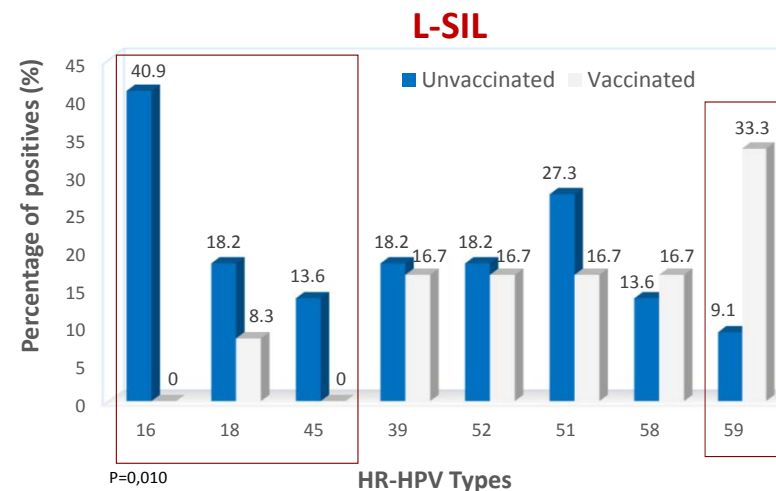
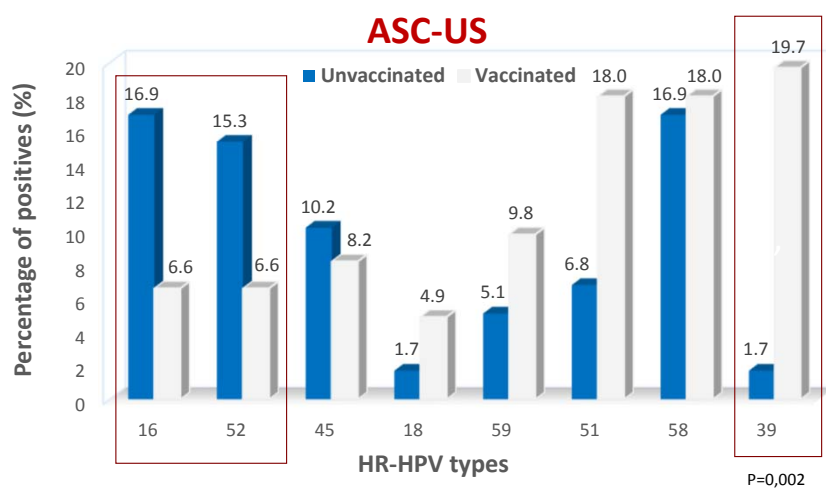
Vaccine Effectiveness on HPV 16 -18 Infection



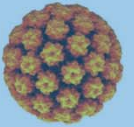
Prevalence of HPV according to cytological results



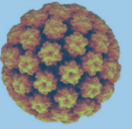
	Unvaccinated n=951 (%)		Vaccinated n=1451 (%)		p Value	*OR	95% CI	* No adjusted
Negative	832	87,5	1360	93,7	0,000	2,138	(1,605-2,846)	
ASC-US	59	6,2	61	4,2	0,028	0,663	(0,459-0,958)	
ASC-H	1	0,1	1	0,1	0,763	0,655	(0,041-10,487)	
L-SIL	22	2,3	12	0,8	0,003	0,352	(0,173-0,715)	
H-SIL	1	0,1	0	0,0	0,217	0,310	(0,377-0,416)	



Conclusions



- ✓ Five years after the introduction of Colombian HPV vaccination program, the vaccine effectiveness on target HPV types reached 88%, among women 18 – 25 years old and when schedule starts before sexual debut and includes at least 2 vaccine doses 6 months apart.
- ✓ Consistent decline in the prevalence of vaccine-related genotypes (~ 72%)
- ✓ Complete benefit of vaccination is obtained when women are vaccinated with a complete vaccination schedule before sexual debut.
- ✓ Lower HPV prevalence of HPV 31 and 45 were observed in vaccinated versus unvaccinated women (not statistically significant), suggesting that the vaccine might provide some degree of cross-protection against non-vaccine HPV types.
- ✓ A significant increase in some HR non-vaccine types (HPV 39, HPV 59) in vaccinated versus unvaccinated women. No evidence of type-replacement a few years after HPV vaccine introduction.



Eje Cafetero Colombia

Thanks . . .