

Supplementary table 4. Univariable and multivariable determinants of recurrent HGAIN 12 months after last vaccination in the per-protocol analysis

	Total	No recurrent HGAIN	Recurrent HGAIN	Univariable logistic regression			Multivariable logistic regression		
	<i>N (%)</i> *	<i>n (%)</i> *	<i>n (%)</i> *	<i>OR</i>	<i>95% CI</i>	<i>p-value</i>	<i>aOR</i>	<i>95% CI</i>	<i>p-value</i>
a. Forced variables									
Vaccination group									
Placebo	60 (49.2%)	24 (40.0%)	36 (60.0%)	REF		0.38	REF		
qHPV	62 (50.8%)	20 (32.3%)	42 (67.7%)	1.40	(0.67–2.94)		1.08	(0.33–3.50)	0.90
qHPV vs. non-academic				0.54	(0.12–2.46)	0.43	0.35	(0.07–1.88)	0.22
qHPV vs. vaccination 6-12 months after HGAIN treatment				1.78	(0.34–9.31)	0.49	1.96	(0.34–11.25)	0.45
qHPV vs. partial remission				1.45	(0.28–7.47)	0.66	2.77	(0.44–17.35)	0.28
b. Socio-demographic characteristics									
Age per 10 years, mean (\pmSD)	4.9 (\pm 1.0)	5.0 (\pm 0.9)	4.9 (\pm 1.0)	0.96	(0.65–1.41)	0.82			
Age categories, years[@]									
<44 years	38 (31.2%)	11 (29.0%)	27 (71.1%)	REF		0.52			
45-54 years	47 (38.5%)	19 (40.4%)	28 (59.6%)	0.60	(0.24–1.49)				
\geq 55 years	37 (30.3%)	14 (37.8%)	23 (62.2%)	0.67	(0.25–1.76)				
Smoking status									
Never	51 (41.8%)	17 (33.3%)	34 (66.7%)	REF		0.25			
Current	32 (26.2%)	9 (28.1%)	23 (71.9%)	1.28	(0.49–3.36)				
Previous	39 (32.0%)	18 (46.2%)	21 (53.9%)	0.58	(0.25–1.38)				
c. HIV related characteristics									
Years living with HIV, per 10 years, median [IQR]	12 [6-17]	13 [7.5-19]	11.5 [6-16]	0.97	(0.92–1.02)	0.25			
On cART									
No	2 (1.6%)	1 (50.0%)	1 (50.0%)	REF		0.69			
Yes	120 (98.4%)	43 (35.8%)	77 (64.2%)	1.79	(0.11–29.35)				

Time on cART, per 10 years, median [IQR]	10 [4-15]	10 [4-16]	10 [5-15]	1.00	(0.94–1.06)	0.92			
Nadir CD4 count per 100 cells/μl, median [IQR]	2.4 [1.5-3.5]	2.4 [1.7-3.3]	2.4 [1.4-3.5]	1.01	(0.81–1.27)	0.90			
Nadir CD4 count, categories^{@,#}									
<181	47 (38.8%)	17 (36.2%)	30 (63.8%)	REF		0.92			
181-310	36 (29.8%)	14 (38.9%)	22 (61.1%)	0.89	(0.36–2.18)				
≥311	38 (31.4%)	13 (34.2%)	25 (65.8%)	1.09	(0.44–2.67)				
Years since nadir CD4 count, years, median [IQR]	9 [4-15]	8.5 [4-15.5]	9 [5-15]	1.00	(0.95–1.07)	0.89			
Current CD4 count per 100 cells/μl, median [IQR]	6.9 [5.5-8.8]	6.0 [4.9-8.1]	7.5 [6-8.9]	1.28	(1.05–1.55)	0.01	1.28	(1.03–1.58)	0.02
CD4 count, categories[@]									
<601	44 (36.1%)	23 (52.3%)	21 (47.7%)	REF		0.02			
601-800	38 (31.2%)	10 (26.3%)	28 (73.7%)	3.07	(1.21–7.80)				
≥801	40 (32.8%)	11 (27.5%)	29 (72.5%)	2.89	(1.16–7.19)				
Plasma HIV-RNA load									
Undetectable (<40 copies/ml)	116 (95.1%)	43 (37.1%)	73 (62.9%)	REF		0.28			
Detectable	6 (4.9%)	1 (16.7%)	5 (83.3%)	2.95	(0.33–26.05)				
d. STI history									
Any STI									
No	8 (6.6%)	2 (25.0%)	6 (75.0%)	REF		0.49			
Yes	114 (93.4%)	42 (36.8%)	72 (63.2%)	0.57	(0.11–2.96)				
e. Last intra-anal HGAIN treatment									
Cryotherapy	12 (9.8%)	6 (50.0%)	6 (50.0%)	&					
Electrocautery	97 (79.5%)	34 (35.1%)	63 (65.0%)						
TCA	4 (3.3%)	1 (25.0%)	3 (75.0%)						
Imiquimod cream	1 (0.8%)	1 (100.0%)	0 (0.0%)						
Other	8 (6.6%)	2 (25.0%)	6 (75.0%)						
f. Genital condylomata[§]									

No	116 (96.7%)	43 (37.1%)	73 (62.9%)	REF		0.61
Yes	4 (3.3%)	1 (25.0%)	3 (75.0%)	1.77	(0.18–17.53)	
<i>g. Anal condylomata</i>						
Any						
No	79 (64.8%)	30 (38.0%)	49 (62.0%)	REF		0.55
Yes	43 (35.3%)	14 (32.6%)	29 (67.4%)	1.27	(0.58–2.78)	
Intra-anal						
No	85 (69.7%)	33 (38.8%)	52 (61.2%)	REF		0.33
Yes	37 (30.3%)	11 (29.7%)	26 (70.3%)	1.50	(0.65–3.44)	
Peri-anal						
No	112 (91.8%)	40 (35.7%)	72 (64.3%)	REF		0.79
Yes	10 (8.2%)	4 (40.0%)	6 (60.0%)	0.83	(0.22–3.13)	
<i>h. LGAIN</i>						
Any						
No	53 (43.4%)	17 (32.1%)	36 (67.9%)	REF		0.42
Yes	69 (56.6%)	27 (39.1%)	42 (60.9%)	0.73	(0.35–1.56)	
Intra-anal						
No	58 (47.5%)	20 (34.5%)	38 (65.5%)	REF		0.73
Yes	64 (52.5%)	24 (37.5%)	40 (62.5%)	0.88	(0.42–1.84)	
Peri-anal						
No	115 (94.3%)	41 (35.7%)	74 (64.4%)	REF		0.70
Yes	7 (5.7%)	3 (42.9%)	4 (57.1%)	0.74	(0.16–3.46)	

Data are n (%), median [IQR], mean (\pm SD). Abbreviations: AIN, anal intraepithelial neoplasia; aOR, adjusted odds ratio; cART, combination antiretroviral therapy; CI, confidence interval; IQR, interquartile range; LGAIN, low-grade anal intraepithelial neoplasia; HIV, human immunodeficiency virus; HGAIN, high-grade anal intraepithelial neoplasia; ml, milliliter; μ l, microliter; OR, odds ratio; REF, reference; SD, standard deviation; STI, sexually transmitted infection; TCA, trichloroacetic acid; qHPV, quadrivalent human papillomavirus vaccine

* Unless otherwise indicated

@ In tertiles

1 missing

§ 2 missing

& Excluded from analysis due to 0 observations in one or multiple categories