Supplementary table 3: Univariable and multivariable determinants of recurrent HGAIN 12 months after last vaccination in the intention-to-treat analysis following a best-case scenario

	Total	No recurrent HGAIN	Recurrent HGAIN	Univariable logistic regression			Multivariable logistic regression		
	N (%)ᵃ	n (%)ᵃ	n (%)ᵃ	OR	95% CI	p-value	aOR	95% CI	p-value
a. Forced variables									
Vaccination group									
Placebo	62 (49.2%)	26 (41.9%)	36 (58.1%)	REF		0.38	REF		
qHPV	64 (50.8%)	22 (34.4%)	42 (65.5%)	1.38	(0.67–2.84)		1.18	(0.37–3.77)	0.78
qHPV vs. non-academic				0.54	(0.12–2.38)	0.42	0.40	(0.08–2.00)	0.26
qHPV vs. vaccination 6-12 months after HGAIN treatment				1.81	(0.35–9.29)	0.48	1.95	(0.35–11.00)	0.45
qHPV vs. partial remission				1.14	(0.23–5.55)	0.87	1.92	(0.33–11.08)	0.47
b. Socio-demographic characteristics									
Age per 10 years, mean (±SD)	4.9 (0.9±)	4.9 (0.9±)	4.9 (1.0±)	0.99	(0.68–1.45)	0.97			
Age categories, years@									
<44 years	40 (31.8%)	13 (32.5%)	27 (67.5%)	REF		0.66			
45-54 years	48 (38.1%)	20 (41.7%)	28 (58.3%)	0.67	(0.28–1.62)				
≥55 years	38 (30.2%)	15 (39.5%)	23 (60.5%)	0.74	(0.29–1.87)				
Smoking status									
Never	52 (41.3%)	18 (34.6%)	34 (60.4%)	REF		0.21			
Current	33 (26.2%)	10 (30.3%)	23 (69.7%)	1.22	(0.48–3.11)				
Previous	41 (32.5%)	20 (48.8%)	21 (51.2%)	0.56	(0.24–1.28)				
c. HIV related characteristics									
Years living with HIV, per 10 years, median [IQR]	12 [6-17]	13 [6.5-19]	11.5 [6-16]	0.97	(0.93–1.03)	0.31			
On cART									
No	2 (1.6%)	1 (50.0%)	1 (50.0%)	REF		0.73			
Yes	124 (98.4%)	47 (37.9%)	77 (62.1%)	1.64	(0.10–26.82)				

Time on cART, per 10 years, median [IQR]	9.5 [4-15]	9 [4-16]	10 [5-15]	1.00	(0.94–1.06)	0.98			
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]	1.02	(0.82–1.28)	0.86			
Nadir CD4 count, categories[@,#]									
<181	49 (39.2%)	19 (38.8%)	30 (61.2%	REF		0.91			
181-310	37 (29.6%)	15 (40.5%)	22 (59.5%)	0.93	(0.39–2.22)				
≥311	39 (31.2%)	14 (35.9%)	25 (64.1%)	1.13	(0.47–2.70)				
Years since nadir CD4 count, years, median [IQR]	9 [4-15]	8.5 [4-15.5]	9 [5-15]	1.01	(0.95–1.07)	0.86			
Current CD4 count per 100 cells/µl, median [IQR]	7 [5.6-8.8]	6.2 [5-8.1]	7.5 [6-8.9]	**1.25**	**(1.04–1.51)**	**0.02**	1.24	(1.01–1.52)	0.04
CD4 count, categories[@]									
<601	45 (35.7%)	24 (53.3%)	21 (46.7%)	REF		**0.03**			
601-800	40 (31.8%)	12 (30.0%)	28 (70.0%)	2.67	(1.09–6.52)				
≥801	41 (32.5%)	12 (29.3%)	29 (70.7%)	2.76	(1.13–6.74)				
Plasma HIV-RNA load									
Undetectable (<40 copies/ml)	120 (95.2%)	47 (39.2%)	73 (60.8%)	REF		0.24			
Detectable	6 (4.8%)	1 (16.7%)	5 (83.3%)	3.22	(0.36–28.42)				
d. STI history									
Any STI									
No	8 (6.4%)	2 (25.0%)	6 (75.0%)	REF		0.42			
Yes	118 (93.7%)	46 (39.0%)	72 (61.0%)	0.52	(0.10–2.70)				
e. Last intra-anal HGAIN treatment									
Cryotherapy	12 (9.5%)	6 (50.0%)	6 (50.0%)	&					
Electrocautery	101 (80.2%)	38 (37.6%)	63 (62.4%)						
TCA	4 (3.2%)	1 (25.0%)	3 (75.0%)						
Imiquimod cream	1 (0.8%)	1 (100.0%)	0 (0.0%)						
Other	8 (6.4%)	2 (25.0%)	6 (75.0%)						
f. Genital condylomata[$]									

No	120 (96.8%)	47 (39.2%)	73 (60.8%)	REF		0.56
Yes	4 (3.2%)	1 (25.0%)	3 (75.0%)	1.93	(0.20–19.12)	
g. Anal condylomata						
Any						
No	83 (65.9%)	34 (41.0%)	49 (59.0%)	REF		0.35
Yes	43 (34.1%)	14 (32.6%)	29 (67.4%)	1.44	(0.66–3.12)	
Intra-anal						
No	89 (70.6%)	37 (41.6%)	52 (58.4%)	REF		0.21
Yes	37 (29.4%)	11 (29.7%)	26 (70.3%)	1.68	(0.74–3.82)	
Peri-anal						
No	116 (92.1%)	44 (37.9%)	72 (62.1%)	REF		0.90
Yes	10 (7.9%)	4 (40.0%)	6 (60.0%)	0.92	(0.24–3.43)	
h. LGAIN						
Any						
No	55 (43.7%)	19 (34.6%)	36 (65.5%)	REF		0.47
Yes	71 (56.4%)	29 (40.9%)	42 (59.2%)	0.76	(0.37–1.59)	
Intra-anal						
No	60 (47.6%)	22 (36.7%)	38 (63.3%)	REF		0.75
Yes	66 (52.4%)	26 (39.4%)	40 (60.6%)	0.89	(0.43–1.83)	
Peri-anal						
No	119 (94.4%)	45 (37.8%)	74 (62.2%)	REF		0.79
Yes	7 (5.6%)	3 (42.9%)	4 (57.1%)	0.81	(0.17–3.79)	

Data are n (%), median [IQR], mean (±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, mililiter; µl, 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