

Cas clinique Vaccination HPV

Pr Amandine Gagneux-Brunon

27/03/2024

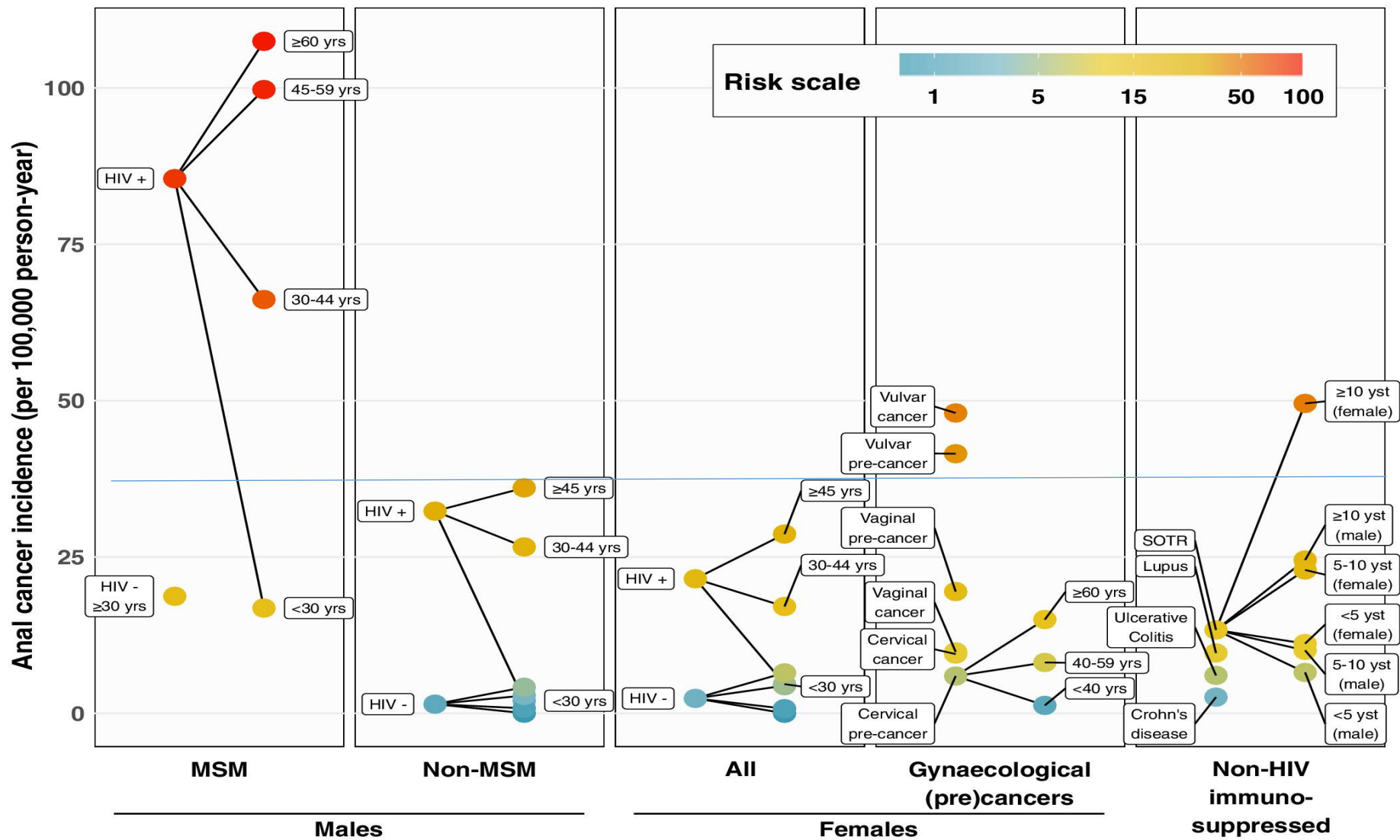


Cas clinique

Vous suivez dans le cadre d'une infection à VIH chronique bien contrôlée, Mr M. 44 ans, il s'agit d'un patient HSH, divorcé et père de 3 enfants : une fille de 19 ans, et de deux garçons de 15 et 12 ans.

Vous l'aviez adressé en consultation proctologique pour le dépistage du cancer du canal anal.

A meta-analysis of anal cancer incidence by risk group: Toward a unified anal cancer risk scale

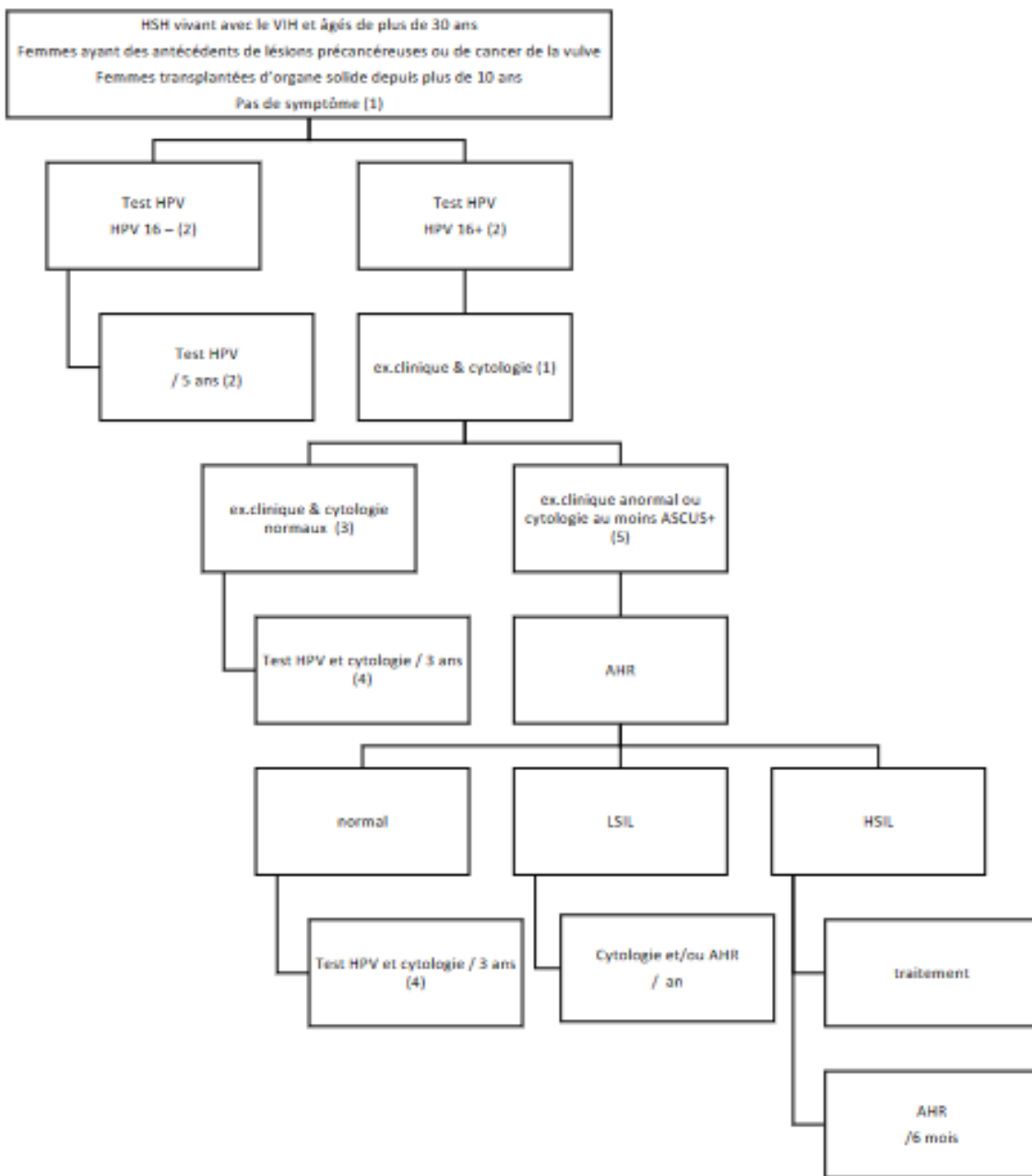




SNFCP
Société Nationale Française de
Colo-Proctologie

Recommandations pour la Pratique Clinique
LESIONS PRECANCEREUSES ANALES LIEES AUX PAPILLOMAVIRUS
HUMAINS : DEPISTAGE ET PRISE EN CHARGE

2022



MICROBIOLOGIE**RECHERCHE DE PAPILLOMAVIRUS***Nature du prélèvement : Ecouvillon rectal**Mode de prélèvement : par un professionnel de Santé***Papillomavirus à haut risque oncogène**

Résultat : papillomavirus génotype 18, **
*Anyplex II HPV HR Detection Seegene***

INTERPRETATION

Présence de papillomavirus oncogènes. **

Précisions techniques :

Amplification du génome des papillomavirus humains par PCR en temps réel et génotypage simultané de 14 HPV par sonde moléculaire :

HPV haut risque : 14 16 18 26 31 33 35 39 45 51 52 53 56 58 59 66 68 69 73 82 - Réactif Anyplex II HPV HR Seegene

CYTOLOGIE SUR BROSSAGE ANAL**Renseignements cliniques : HIV.**

Après traitement du prélèvement selon la méthode ThinPrep, l'étalement sur lame est coloré par la méthode de Papanicolaou. Le matériel recueilli est de bonne qualité. A côté de cellules malpighiennes normales, on observe des éléments cellulaires présentant des anomalies caractéristiques d'une infection virale par le papillomavirus humain (HPV). Le fond est propre sans inflammation ni nécrose.

CONCLUSION

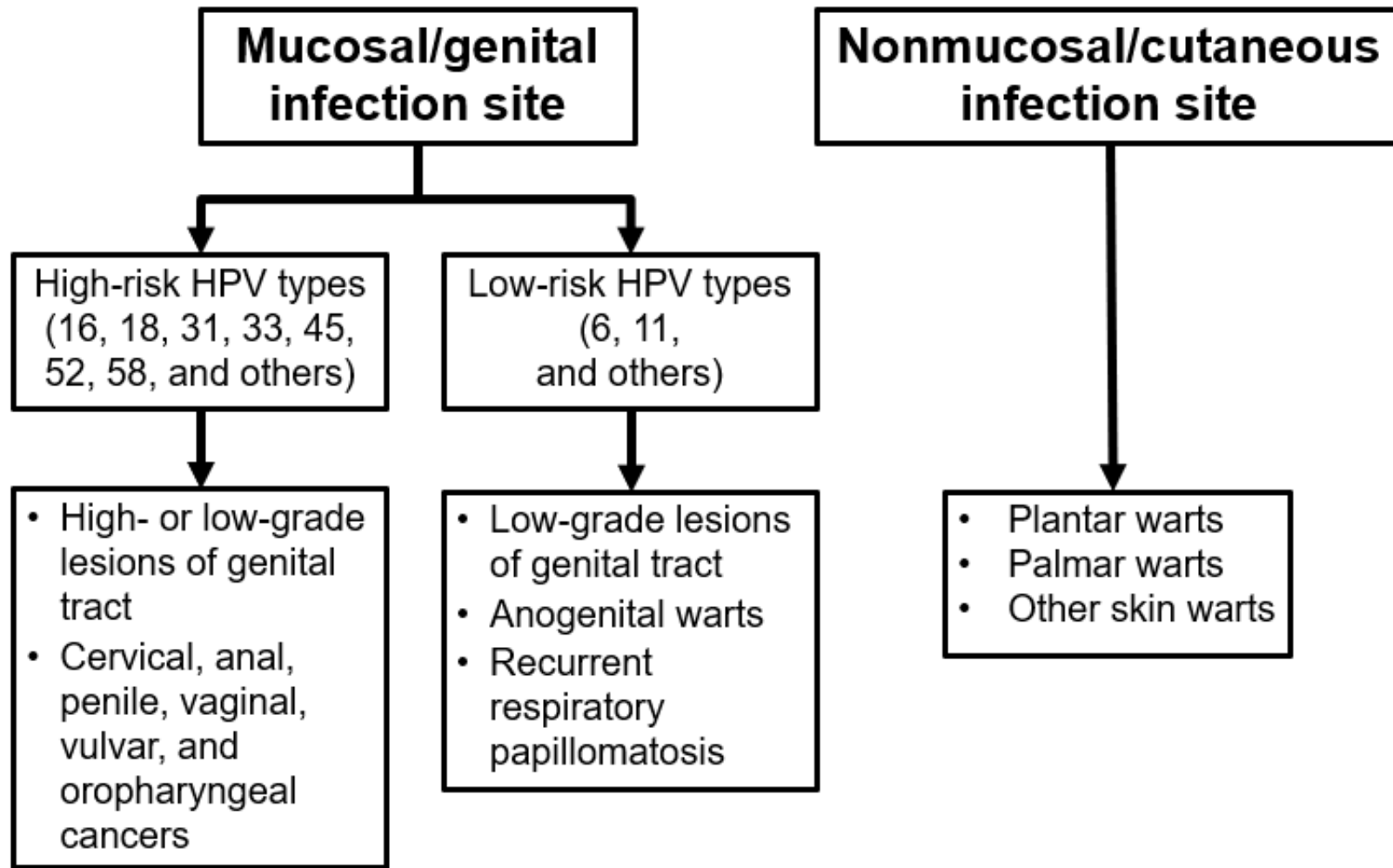
**Présence d'altérations cellulaires associées au papillomavirus humain (HPV) sans signes de dysplasie.
 Absence de cellules carcinomateuses sur ce prélèvement.**

Monsieur TOLOSSI VIVIEN

Professeur M. COTTIER



Signature électronique



Chez l'homme, une incidence des infections liées à HPV non influencée par l'âge.

Incidence and clearance of oral human papillomavirus infection in men: the HIM cohort study



Aimée R Kreimer,¹ Christine M Pierce Campbell,² Hui-Yi Lin,³ William Fulp,⁴ Mary R Papenfuss,⁵ Martha Abrahamson,⁶ Allan Hildesheim,⁷ Luisa L Villa,⁸ Jorge J Salmerón,⁹ Eduardo Lazzcano-Ponce,¹⁰ Anna R Giuliano¹¹

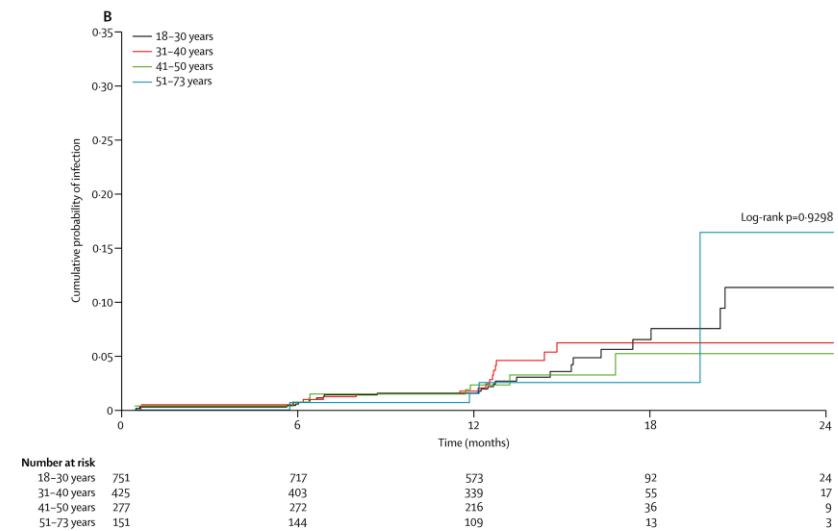
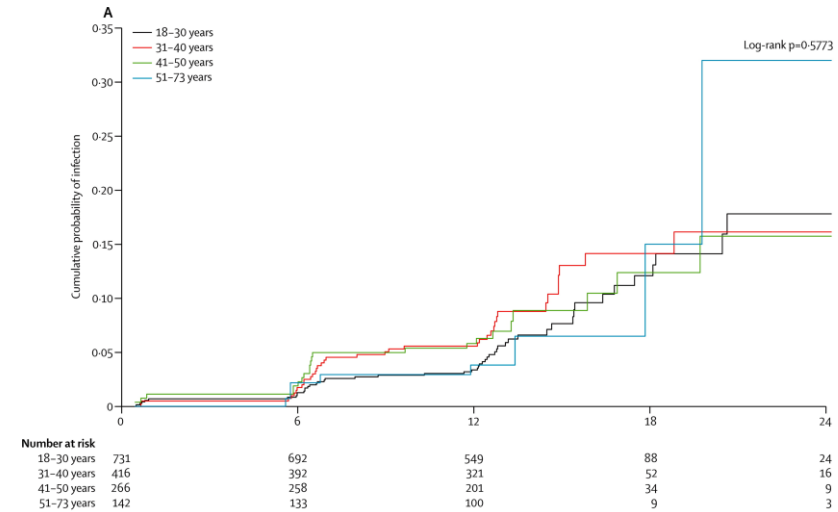
Summary

Background Oral human papillomavirus (HPV) infection causes a subset of oropharyngeal cancers. These cancers disproportionately affect men, are increasing in incidence, and have no proven prevention methods. We aimed to establish the natural history of oral HPV infection in men.

Lancet 2013; 382: 877-87
Published Online
July 2, 2013

Cohorte de 1626 hommes de 18 à 74 ans suivis 12 mois, incidence des infections orales à HPV 4,4 %, et 1,7 % à HPV oncogènes

Pas de différence nette de l'incidence en fonction de l'âge



Il vous demande s'il ne pourrait pas se faire vacciner contre HPV ?

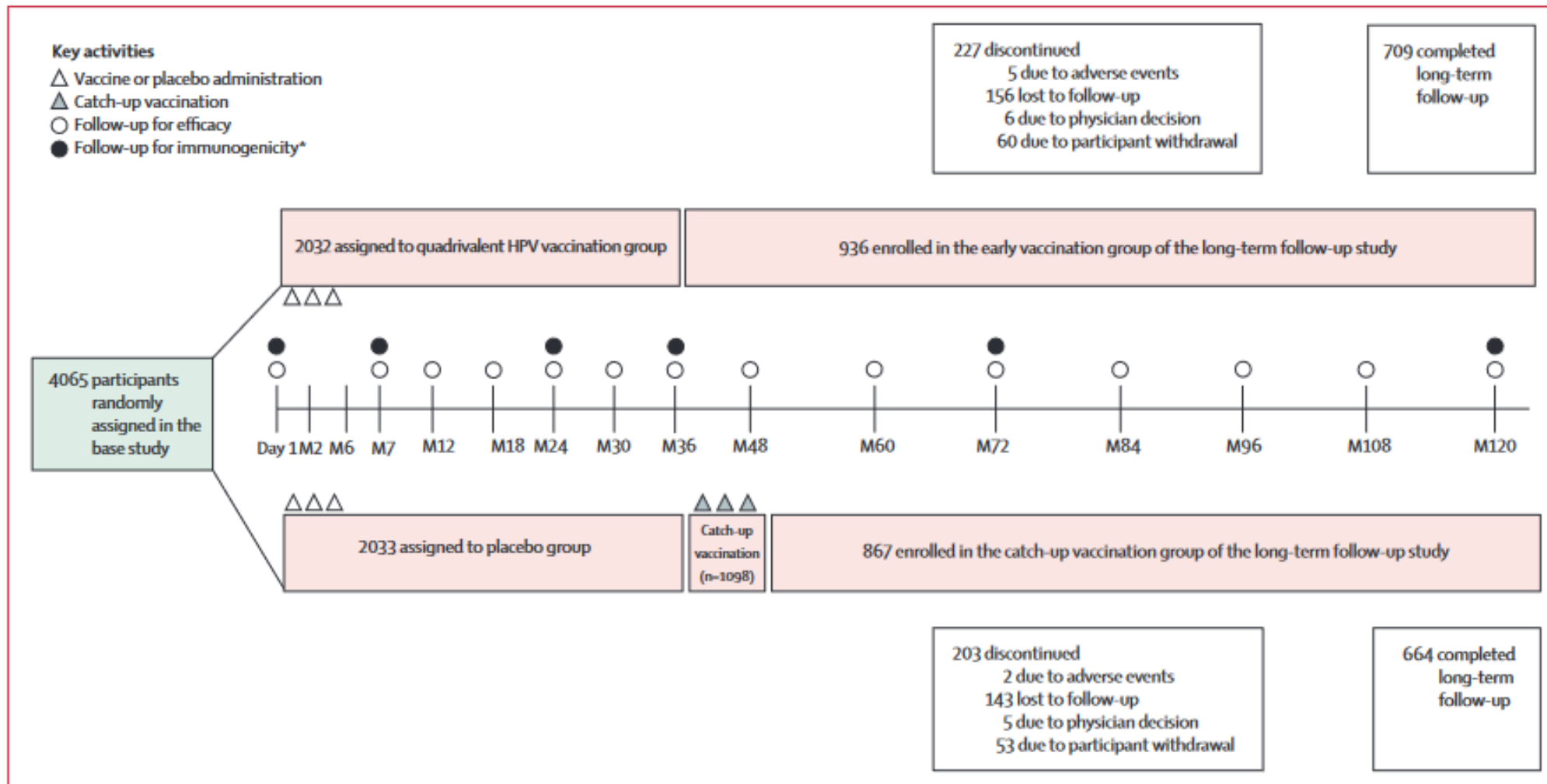
1. Est-il à risque d'infections à HPV?
2. La vaccination contre HPV est-elle efficace chez les hommes ?
3. La vaccination est-elle efficace en prévention secondaire chez l'homme?

TABLE 1. Multivariable Logistic Regression Models to Assess Risk Factors for Having at Least 1 HR-HPV Genotype or at Least 1 Genotype Targeted by the 9-Valent Vaccine in 1352 MSM Living With HIV

Characteristics	Category	Risk of Having ≥ 1 HR-HPV Genotype		Risk of Having ≥ 1 Genotype Targeted by 9-Valent Vaccine	
		Adjusted Odds Ratio (95% CI)	<i>P</i>	Adjusted Odds Ratio (95% CI)	<i>P</i>
Age (yr)	≤ 30 vs >45 y.o.	2.714 (1.484 to 4.961)	0.001	1.868 (1.141 to 3.060)	0.013
	$>30-45$ vs >45 y.o.	1.820 (1.310 to 2.528)	0.0004	1.489 (1.117 to 1.986)	0.007
History of gonorrhea	Yes vs no	2.118 (1.100 to 4.078)	0.025	1.785 (1.056 to 3.018)	0.031
History of syphilis	Yes vs no	1.286 (0.949 to 1.743)	0.105	1.186 (0.906 to 1.552)	0.214
HCV	Yes vs No	0.915 (0.557 to 1.503)	0.726	0.888 (0.571 to 1.380)	0.597
	Unknown vs No	4.697 (0.588 to 37.515)	0.145	1.478 (0.439 to 4.978)	0.528
HBV	Yes vs No	1.416 (0.691 to 2.902)	0.342	1.176 (0.638 to 2.168)	0.603
	Unknown vs No	0.654 (0.391 to 1.094)	0.106	0.603 (0.380 to 0.956)	0.032
Calendar year	Per 1 more recent year	0.988 (0.882 to 1.107)	0.841	0.912 (0.825 to 1.009)	0.073
Nadir CD4 ⁺	Per 100 cells/ μ L higher	1.056 (0.980 to 1.138)	0.153	1.101 (1.029 to 1.178)	0.005
CD4 ⁺	Per 100 cells/ μ L higher	0.958 (0.909 to 1.011)	0.118	0.958 (0.909 to 1.011)	0.118
HIV-RNA	Undetectable vs residual viremia	0.936 (0.645 to 1.358)	0.728	0.968 (0.701 to 1.337)	0.845
	≥ 50 copies/mL vs residual viremia	0.881 (0.482 to 1.609)	0.680	1.180 (0.687 to 2.025)	0.549
CD4 ⁺ /CD8 ⁺ ratio	Per 0.2 unit higher	0.971 (0.906 to 1.041)	0.407	0.976 (0.915 to 1.040)	0.449

y.o., years old.

Efficacité de la vaccination chez les hommes à long terme



Efficacité de la vaccination chez les hommes à long terme

	Early vaccination group (n=936)			Catch-up vaccination group (n=867)			Early vaccination vs catch-up vaccination risk reduction estimate (95% CI)*
	Participants	Person-years follow-up	Incidence per 10 000 person-years (95% CI)	Participants	Person-years follow-up	Incidence per 10 000 person-years (95% CI)	
External genital warts related to HPV6 or 11							
Per-protocol population							
Base study	2/640	1518.9	13.2 (1.6–47.6)	20/623	1456.5	137.3 (83.9–212.1)	90.4% (62.3 to 98.4)
Long-term follow-up study	0/639	4225.4	0.0 (0.0–8.7)	..	..	..	..
mITT population							
Base study	6/763	2203.9	27.2 (10.0–59.3)	31/725	2072.2	149.6 (101.6–212.3)	81.8% (55.9 to 92.6)
Long-term follow-up study	0/763	5054.1	0.0 (0.0–7.3)	0/567	2737.2	0.0 (0.0–13.5)	..
External genital lesions† related to HPV6, 11, 16, or 18							
Per-protocol population							
Base study	2/731	1728.4	11.6 (1.4–41.8)	23/704	1638.1	140.4 (89.0–210.7)	91.8% (69.4 to 98.6)
Long-term follow-up study	0/730	4798.4	0.0 (0.0–7.7)	..	..	..	..
mITT population							
Base study	8/848	2444.5	32.7 (14.1–64.5)	35/791	2256.4	155.1 (108.0–215.7)	78.9% (53.9 to 91.2)
Long-term follow-up study	0/848	5603.0	0.0 (0.0–6.6)	0/740	3608.5	0.0 (0.0–10.2)	..
AIN and anal cancer related to HPV6, 11, 16, or 18 (MSM only)							
Per-protocol population							
Base study	4/88	176.6	226.5 (61.7–580.0)	20/109	220.7	906.2 (553.5–1399.5)	75.0% (27.7 to 92.2)
Long-term follow-up study	1/84‡	487.0	20.5 (0.5–114.4)	..	..	..	..
mITT population							
Base study	5/105	265.7	188.2 (61.1–439.2)	27/119	304.7	886.0 (583.9–1289.1)	78.8% (46.3 to 92.2)
Long-term follow-up study	1/101‡	579.7	17.2 (0.4–96.1)	5/96	493.7	101.3 (32.9–236.3)	83.0% (-26.8 to 99.3)

Vaccination entre 16 et 23 ans ou 16 et 26 ans chez les HSH

Goldstone
LID 2021

The Efficacy of the Quadrivalent Human Papillomavirus Vaccine in Girls and Women Living With Human Immunodeficiency Virus

Elisabeth McClymont,¹ Marelle Lee,¹ Janet Raboud,^{2,3} François Coutlée,⁴ Sharon Walmsley,^{2,5} Nancy Lipsky,⁶ Mona Louffy,⁷ Sylvie Trottier,⁸ Fiona Smaill,⁹ Marina B. Klein,¹⁰ Marianne Harris,¹¹ Jeffrey Cohen,¹² Mark H. Yudin,^{7,13} Wendy Wobeser,¹⁴ and Deborah Money¹; for the CTN 236 HPV in HIV Study Team

Critères de jugement:

- Infection persistante à un génotype vaccinal
- CIN 2
- Condylomes

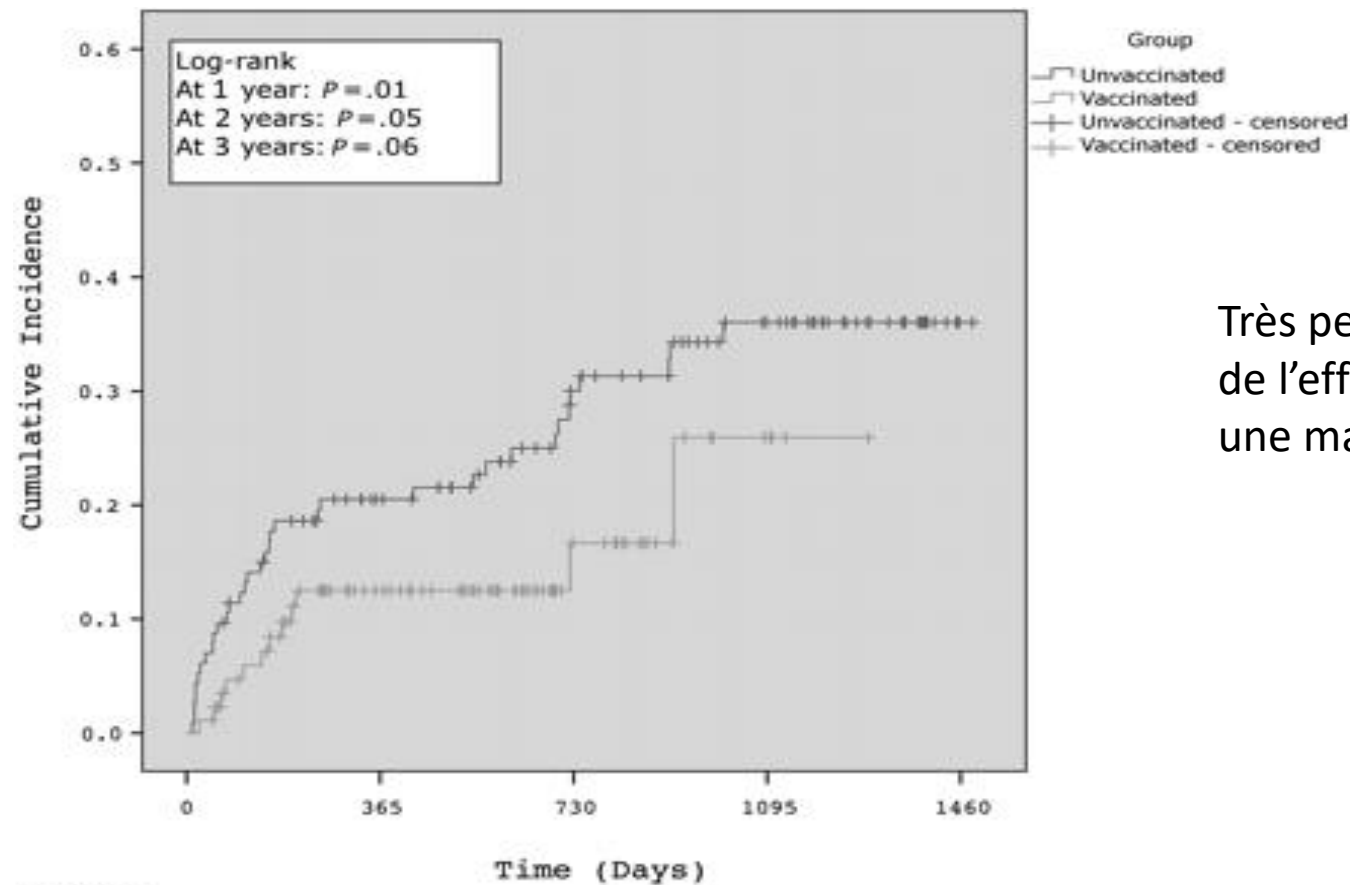
Table 4. Comparison of Composite Endpoint Rates in Women Living With Human Immunodeficiency Virus (HIV) Versus Women Without HIV

	Muñoz et al (2009)			Muñoz et al (2009)			Present Study		Vaccinated WLWH vs Vaccinated HIV-	Vaccinated WLWH vs Placebo HIV-	
	Vaccinated HIV-negative			Placebo HIV-negative			Vaccinated WLWH		Rate Ratio (95% CI)	Rate Ratio (95% CI)	
	n	Cases of Composite Endpoint	Rate (per 100 Person-Years)	N	Cases of Composite Endpoint	Rate (per 100 Person-Years)	n	Cases of Composite Endpoint	Rate (per 100 Person-Years)	Rate Ratio (95% CI)	Rate Ratio (95% CI)
PPE	1615	4	0.1 (0.02–0.03)	1607	41	1.5 (1.1–2.0)	137	3	1.2 (0.2–3.4)	11.7 (2.6–52.1)	0.8 (0.2–2.5)
NRT	1841	20	0.5 (0.3–0.8)	1833	77	2.0 (1.6–2.5)	163	6	2.0 (0.7–4.5)	4.1 (1.6–10.2)	1.0 (0.4–2.3)
ITT	1886	108	2.7 (2.2–3.3)	1883	154	3.9 (3.3–4.6)	167	9	3.0 (1.4–5.7)	1.1 (0.6–2.2)	0.8 (0.4–1.5)

Abbreviations: CI, confidence interval; HIV, human immunodeficiency virus; ITT, intention-to-treat; NRT, naive to relevant type; PPE, per-protocol efficacy; WLWH, women living with HIV.

Moindre efficacité chez les filles HIV + (Parmi les 8 échecs vaccinaux, 4 avaient un Nadir de CD4 <50, et 2 une CV détectable lors de la vaccination)

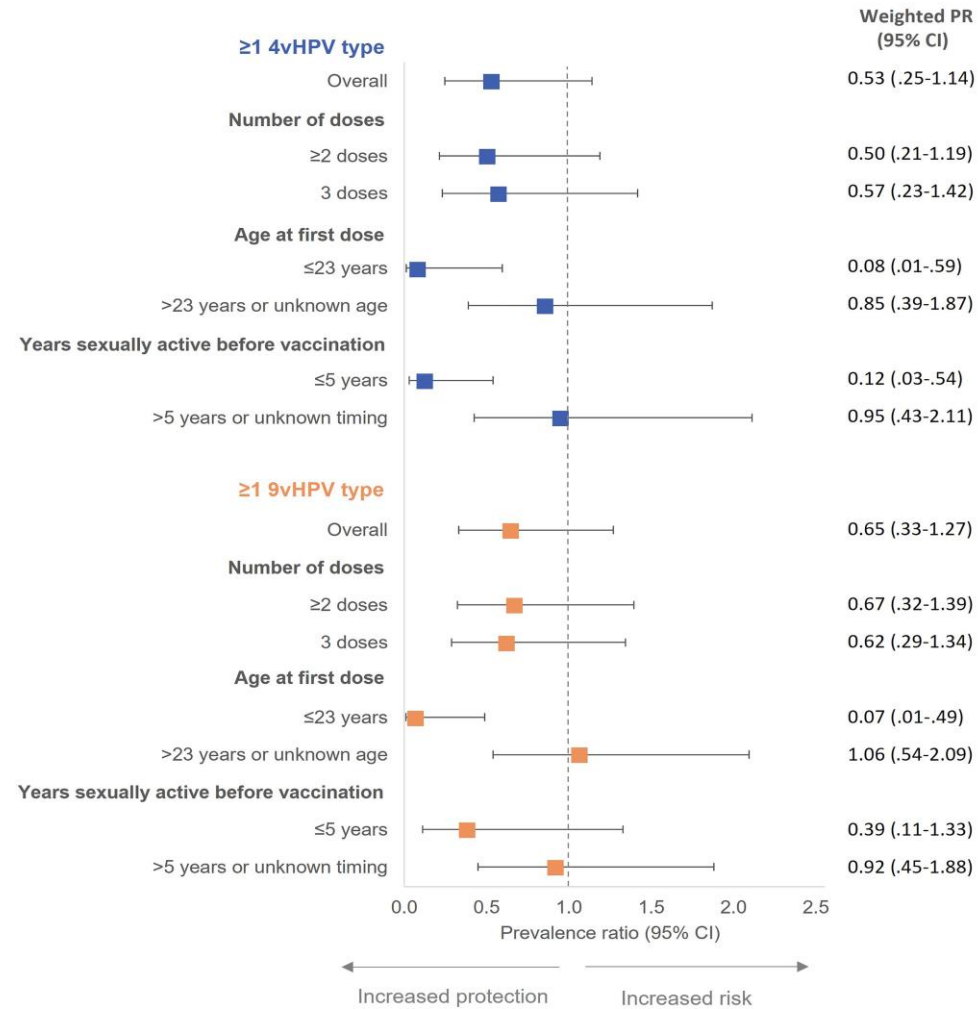
Effet de la vaccination après des lésions épithéliales de haut grade



	0	365	730	1095
VACCINATED				
No. of cases	0	10	11	12
No. remaining	88	51	19	4
UNVACCINATED				
No. of cases	0	23	31	35
No. remaining	114	78	54	34

Très peu de données chez l'homme de l'efficacité de la vaccination après une maladie liée à HPV

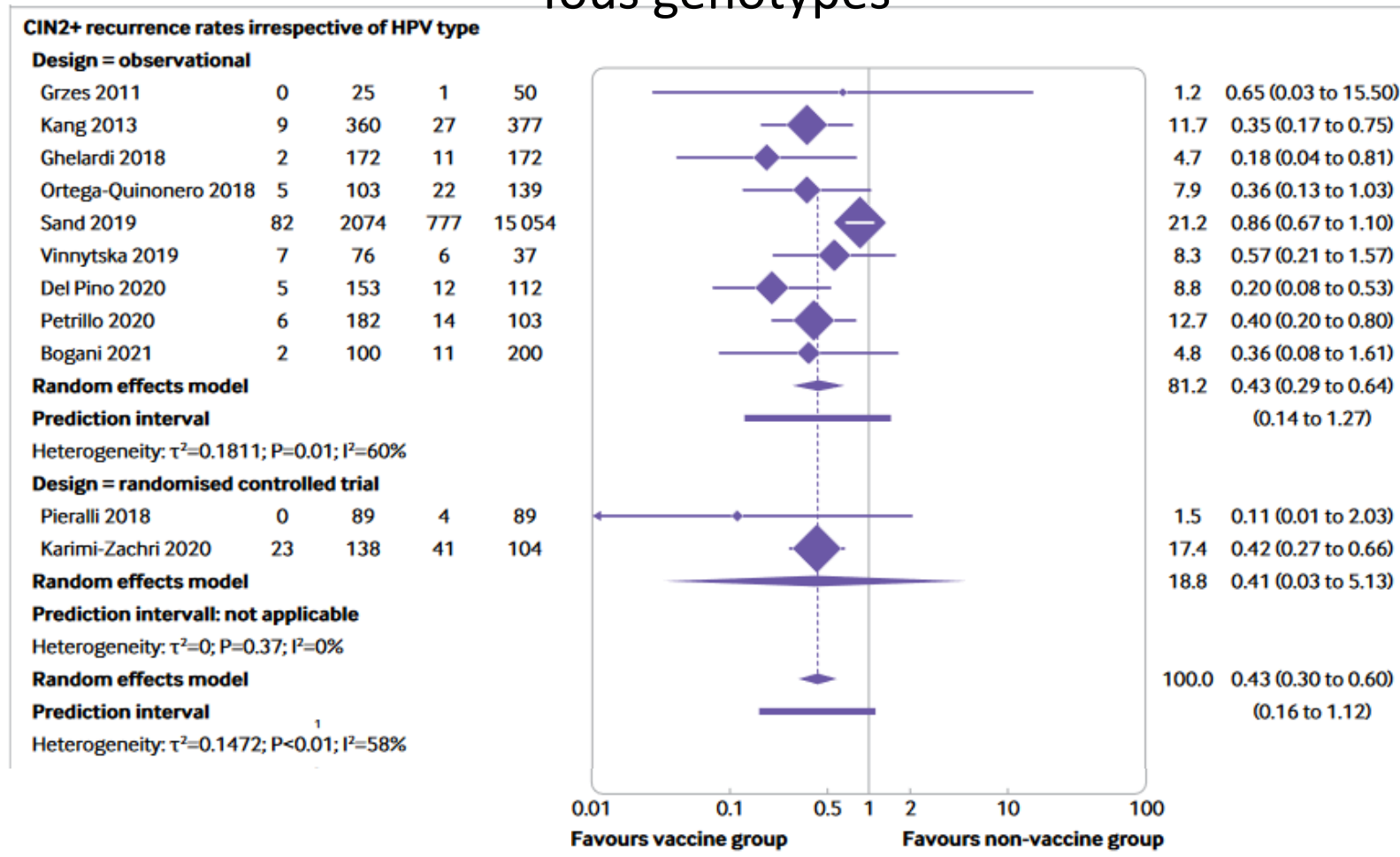
Efficacité de la vaccination HPV sur les infections persistantes chez l'homme



Vaccination HPV après traitement de lésions CIN2 et plus

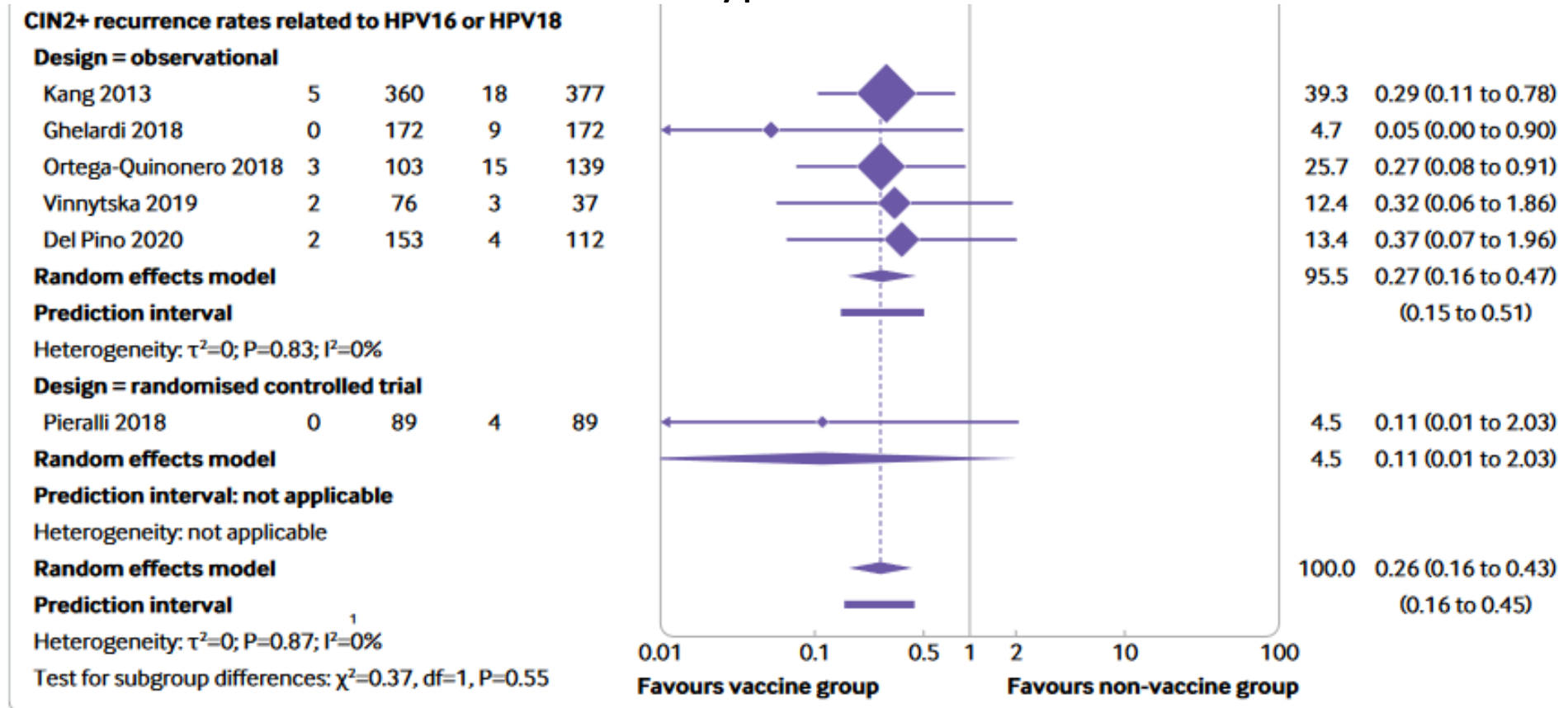
Méta-analyse de 18 études

Tous génotypes



Vaccination HPV après traitement de lésions CIN2 et plus

Génotypes 16 et 18



Kechagias et al. BMJ 2022

“Evidence was lacking on the benefit of HPV vaccination for recurrence of vulvar, vaginal, or anal intraepithelial lesions, genital warts, or for incident or persistent HPV infections, although the data were scarce with small numbers of studies and participants.”

Sa fille de 19 ans n'a reçu qu'une dose de vaccin HPV à l'âge de 12 ans, depuis, elle ne veut plus être vaccinée.



Vaccine efficacy against persistent human papillomavirus (HPV) 16/18 infection at 10 years after one, two, and three doses of quadrivalent HPV vaccine in girls in India: a multicentre, prospective, cohort study



Partha Basu*, Sylla G Malvi, Smita Joshi, Neerja Bhatla, Richard Muwonge, Eric Lucas, Yogesh Verma, Pulikkottil O Esmay, Usha Rani Reddy Poli, Anand Shah, Eric Zomawia, Sharmila Pimple, Kasturi Jayant, Sanjay Hingmire, Aruna Chiwate, Uma Divate, Shachi Vashist, Gauravi Mishra, Radhika Jadhav, Maqsood Siddiqi, Subha Sankaran, Priya Ramesh Prabhu, Thiraviam Pillai Rameshwari Ammal Kannan, Rintu Varghese, Surendra S Shastri, Devasena Anantharaman, Tarik Gheit, Massimo Tommasino, Catherine Sauvaget, M Radhakrishna Pillai, Rengaswamy Sankaranarayanan

Lancet Oncology Publié en ligne 08/11/2021

	1 dose	2 doses	3 doses
Infection			
16,18	63,5 %	67,7 %	66,4 %
16,18, 6, 11	54,1 %	59 %	54,7 %
31,33,45	43,5 %	54 %	54,6 %
Tous génotypes	30,2 %	34,5 %	30,2 %
Infection persistante			
16,18	95,4 %	93,1 %	93,3 %
16,18, 6, 11	93,4 %	93,7 %	90,3 %
31,33,45	8,8 %	8,4 %	38,8 %
Tous génotypes	35,4 %	36,7 %	39,3 %

Vaccin quadrivalent

Les différences d'efficacité ne sont pas significatives

Il est donc essentiel d'initier une vaccination

Durability of single-dose HPV vaccination in young Kenyan women: randomized controlled trial 3-year results

Received: 28 April 2023

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Published online: 4 December 2023

Check for updates

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2275 Femmes âgées de 15 à 20 ans
Vaccin bivalent, nonavalent
Contrôle: vaccin contre le méningocoque

Table 3 | Participants experiencing adverse events (ITT)

	Randomized group			
	Nonavalent HPV	Bivalent HPV	Control	All
Enrolled, <i>n</i>	758	760	757	2,275
Any SAE, <i>n</i> (%)	59 (7.8%)	72 (9.5%)	70 (9.2%)	201 (8.8%)
Any pregnancy-related, <i>n</i> (%)	44 (5.8%)	45 (5.9%)	33 (4.4%)	122 (5.4%)
Any infection/inflammation, <i>n</i> (%)	13 (1.7%)	26 (3.4%)	32 (4.2%)	71 (3.1%)
Any injury, <i>n</i> (%)	0 (0%)	3 (0.4%)	4 (0.5%)	7 (0.3%)
Any mental health, <i>n</i> (%)	3 (0.4%)	4 (0.5%)	5 (0.7%)	12 (0.5%)

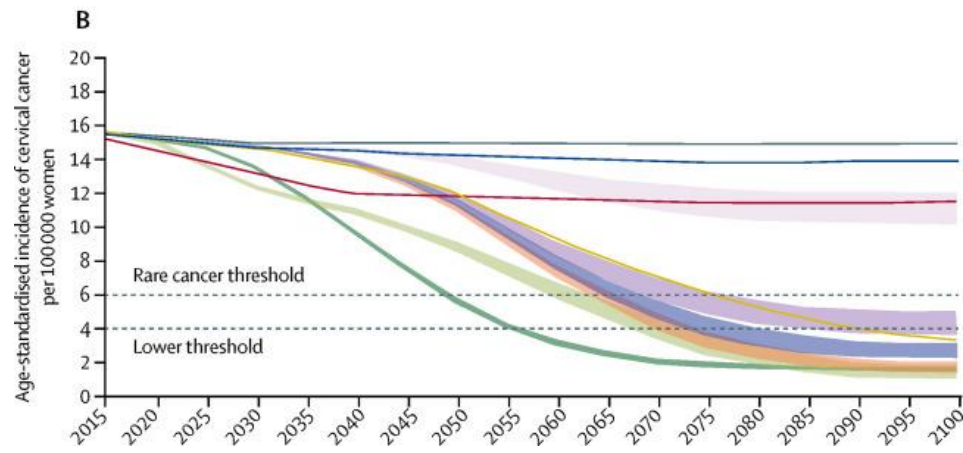
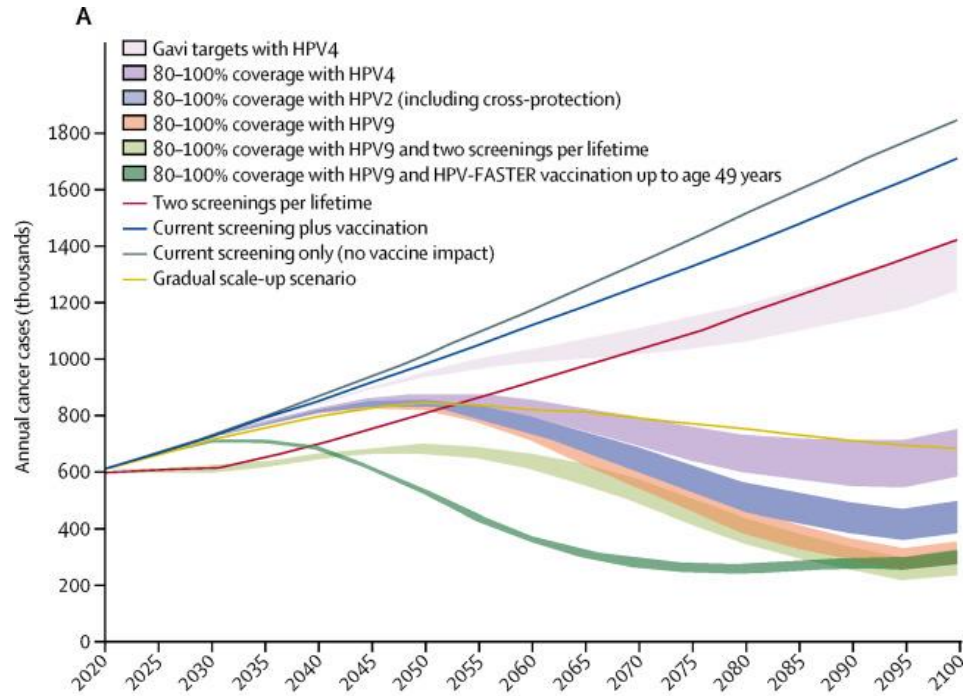
Participants may have more than one event across categories.

Table 2 | Incidence of persistent HPV and vaccine efficacy

	a									
	Nonavalent HPV		Bivalent HPV		Control		Nonvalent versus control		Bivalent versus control	
	Events/ participants	Incidence of persistent HPV 16/18 per 100 woman-years (95% CI)	Events/ participants	Incidence of persistent HPV 16/18 per 100 woman-years (95% CI)	Events/ participants	Incidence of persistent HPV 16/18 per 100 woman-years (95% CI)	VE (95% CI)	<i>P</i> value	VE (95% CI)	<i>P</i> value
mITT Primary	1/496	0.08 (0–0.44)	2/489	0.16 (0.02–0.58)	72/473	6.70 (5.24–8.44)	98.8% (91.3–99.8%)	<0.0001	97.5% (90.0–99.4%)	<0.0001
mITT sensitivity	1/569	0.07 (0–0.39)	3/561	0.21 (0.04–0.62)	84/543	6.87 (5.48–8.51)	99.0% (92.5–99.9%)	<0.0001	96.8% (90.0–99.0%)	<0.0001
Extended sensitivity	0/429	0 (0–0.38)	0/404	0 (0–0.40)	44/380	5.52 (4.01–7.42)	100.0%* (NC)	<0.0001	100.0%* (NC)	<0.0001

Concernant ses deux garçons, il a entendu parler de la vaccination au collège, mais se demande si c'est bien nécessaire.

Élimination des cancers HPV induits



Avec un taux de couverture vaccinale de 80 % chez les filles et les garçons, disparition des cancers HPV induits d'ici 2090.

Par exemple en Australie , élimination possible d'ici 20 ans compte-tenu de la couverture vaccinale.

Sims *et al.* Lancet Oncology 2019

Population-level impact and herd effects following the introduction of human papillomavirus vaccination programmes: updated systematic review and meta-analysis

Mélanie Drolet, Elodie Bénard, Norma Pérez, Marc Brisson, on behalf of the HPV Vaccination Impact Study Group

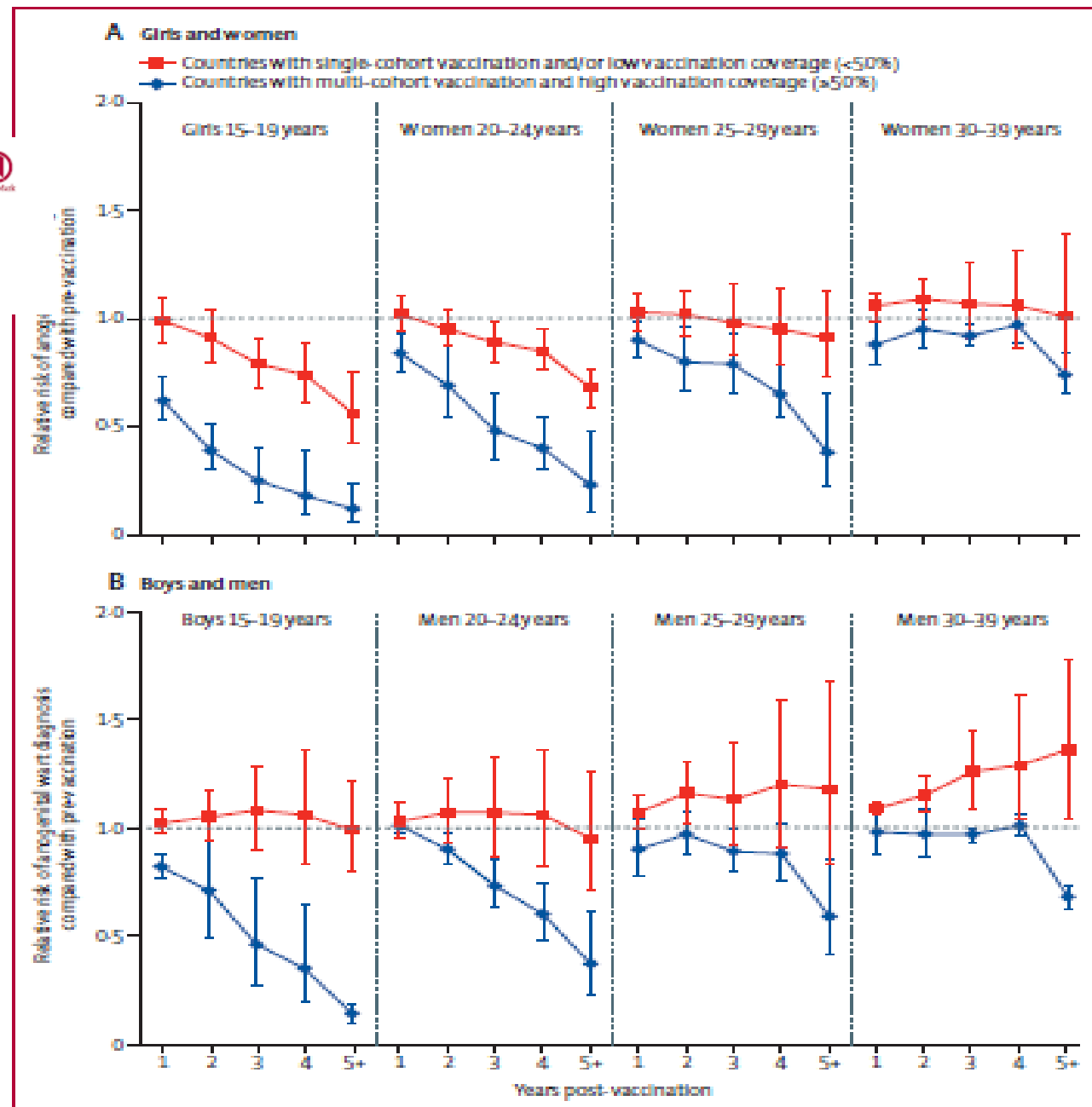


Figure 4: Changes in anogenital wart diagnoses during the 8 years after the introduction of girls-only human papillomavirus vaccination in countries using the quadrivalent vaccine

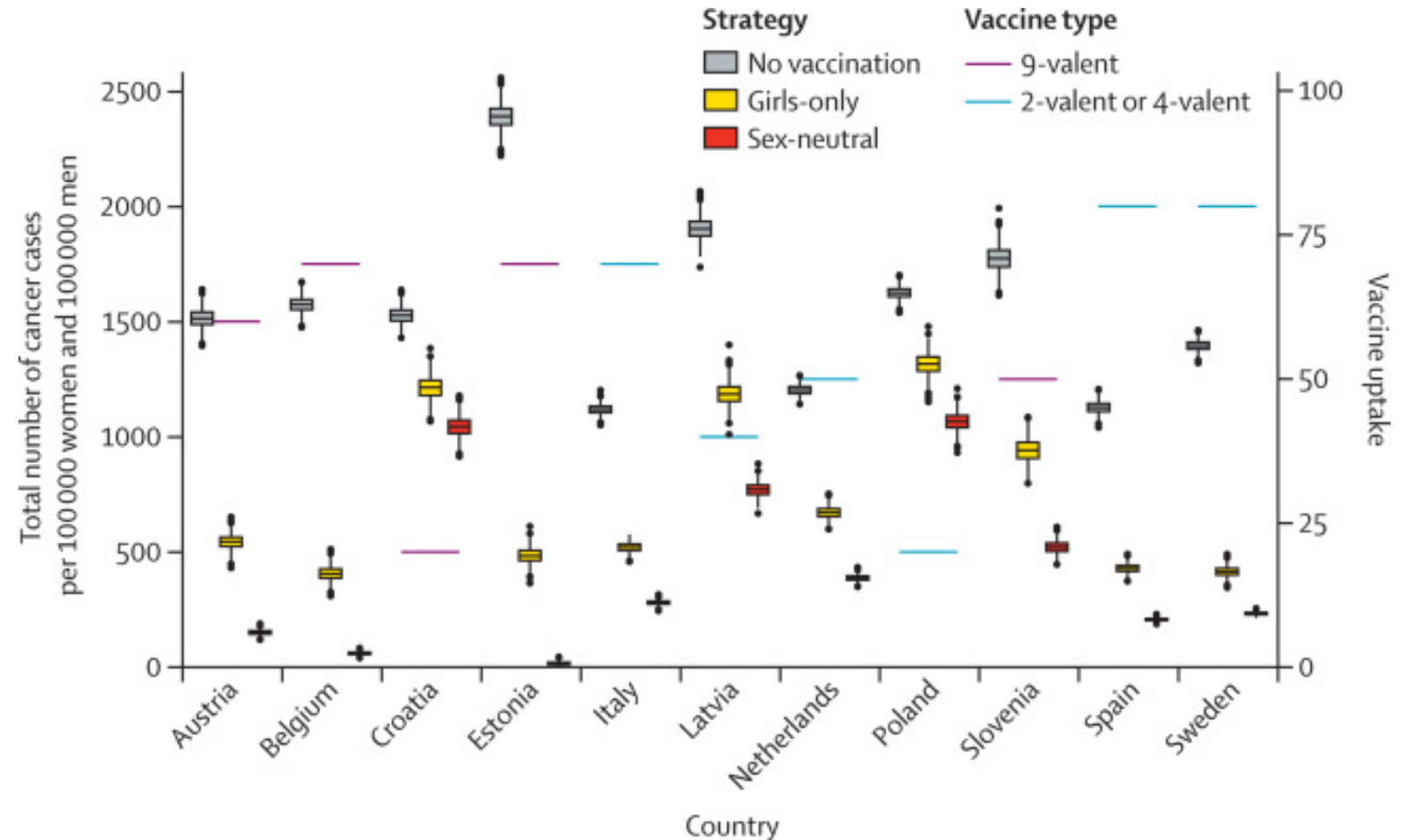
The cost-effectiveness profile of sex-neutral HPV immunisation in European tender-based settings: a model-based assessment

Venetia Qendri, Johannes A Bogaards, Jacopo Baussano, Fulvio Lazzarato, Simopekka Vänskä, Johannes Berkhof

Lancet Public Health 2020;
5: e592-603

Paramètres du modèle:

- Efficacité de 98 % sur l'infection aux génotypes vaccinaux
- Couverture vaccinale dans chacun des pays (hypothèse CV filles= CV garçons)
- Données épidémiologiques de chacun des pays



Il se demande si ce n'est pas un peu tôt.

« Qui dit que le vaccin sera encore efficace, le jour où ils rencontreront HPV? »



Sustainability of neutralising antibodies induced by bivalent or quadrivalent HPV vaccines and correlation with efficacy: a combined follow-up analysis of data from two randomised, double-blind, multicentre, phase 3 trials

Filipe Colaço Mariz, Penelope Gray, Noemi Bender, Tiina Eriksson, Hanna Kann, Dan Apter, Jorma Paavonen, Emma Pajunen, Kristina M Prager, Peter Sehr, Heljä-Marja Surcel, Tim Waterboer, Martin Müller, Michael Pawlita, Matti Lehtinen

LID Juin 2021

HPV16

2-4 years	3.74 (1.95-7.18)
5-7 years	4.87 (3.38-7.01)
8-10 years	5.87 (4.45-7.73)
11-12 years	6.08 (4.30-8.59)
5-12 years	5.67 (4.71-6.82)

HPV18

2-4 years	12.4 (6.27-24.3)
5-7 years	13.1 (8.95-19.1)
8-10 years	11.5 (8.58-15.4)
11-12 years	13.1 (9.02-19.1)
5-12 years	12.4 (10.2-15.1)

Ratio d'anticorps entre bivalent et quadrivalent

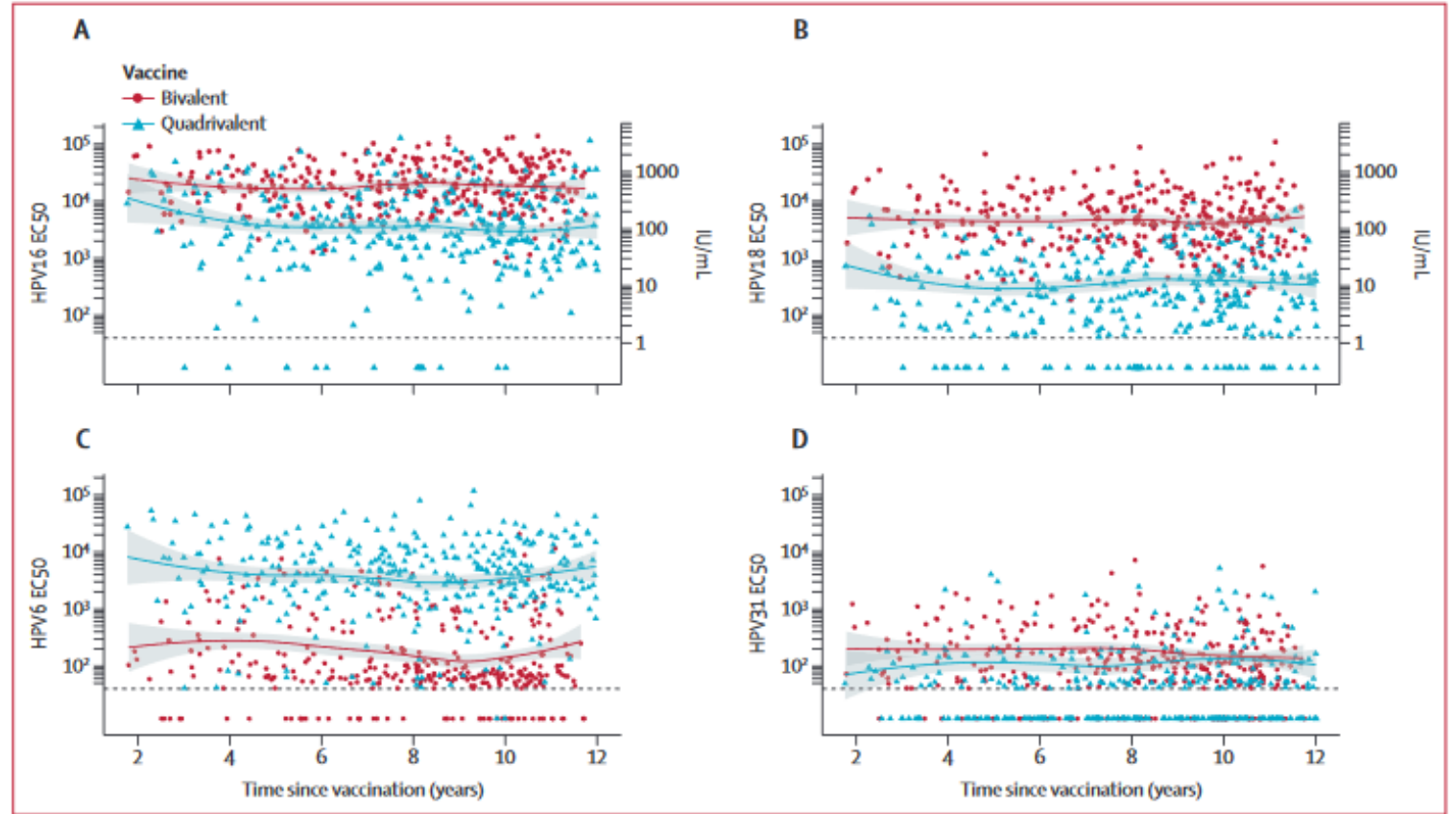


Figure 2: Locally estimated regression lines of EC50 values to HPV16 (A), HPV18 (B), HPV6 (C), and HPV31 (D) in the first pregnancy sub-cohort 2-12 years after vaccination

Individual neutralising antibody titres induced by the bivalent and quadrivalent vaccines. Black dashed lines indicate the high-throughput pseudovirion-based neutralisation assay cutoff value (EC50=40). For HPV16 (A) and HPV18 (B), corresponding IU/mLs of neutralising antibodies are also shown in the second y-axis. EC50=half maximal effective concentration. HPV=human papillomavirus.

Vacciner tôt?

Les adolescents vaccinés entre 9 et 14 ans produisent plus d'anticorps que les plus âgés

Table 2. Noninferiority Analysis of Antibody Geometric Mean Titers (GMTs) at 1 Month After Administration of the Last Dose of the 9-Valent Human Papillomavirus (HPV) Vaccine

	HPV Vaccine Administered at 0 and 6 mo in Girls Aged 9-14 y (n = 301)		HPV Vaccine Administered at 0 and 6 mo in Boys Aged 9-14 y (n = 301)		HPV Vaccine Administered at 0 and 12 mo in Girls and Boys Aged 9-14 y (n = 300)		HPV Vaccine Administered at 0, 2, and 6 mo in Adolescent Girls and Women Aged 16-26 y (n = 314)		Ratio of GMT (1-sided 97.5% CI) vs Adolescent Girls and Women With HPV Vaccine Administered at 0, 2, and 6 mo ^a		
	No.	GMT (95% CI), mMU/mL	No.	GMT (95% CI), mMU/mL	No.	GMT (95% CI), mMU/mL	No.	GMT (95% CI), mMU/mL	Girls (Vaccine at 0 and 6 mo)	Boys (Vaccine at 0 and 6 mo)	Girls and Boys (Vaccine at 0 and 12 mo)
HPV-6	258	1657.9 (1479.6-1857.6)	263	1557.4 (1391.5-1743.1)	257	2678.8 (2390.2-3002.1)	238	770.9 (684.8-867.9)	2.15 (1.83-∞)	2.02 (1.73-∞)	3.47 (2.93-∞)
HPV-11	258	1388.9 (1240.4-1555.3)	264	1423.9 (1273.2-1592.3)	257	2941.8 (2626.6-3294.9)	238	580.5 (516.0-653.0)	2.39 (2.03-∞)	2.45 (2.09-∞)	5.07 (4.32-∞)
HPV-16	272	8004.9 (7160.5-8948.8)	273	8474.8 (7582.4-9472.3)	264	14 329.3 (12 796.4-16 045.9)	249	3154.0 (2807.1-3543.7)	2.54 (2.14-∞)	2.69 (2.29-∞)	4.54 (3.84-∞)
HPV-18	272	1872.8 (1651.6-2123.6)	272	1860.9 (1641.1-2110.2)	266	2810.4 (2474.9-3191.3)	267	761.5 (670.8-864.5)	2.46 (2.05-∞)	2.44 (2.04-∞)	3.69 (3.06-∞)
HPV-31	272	1436.3 (1272.1-1621.8)	271	1498.2 (1326.5-1692.0)	268	2117.5 (1873.7-2393.1)	264	572.1 (505.8-647.2)	2.51 (2.10-∞)	2.62 (2.20-∞)	3.70 (3.08-∞)
HPV-33	273	1030.0 (920.4-1152.7)	271	1040.0 (928.9-1164.3)	269	2197.5 (1961.9-2461.3)	279	348.1 (311.5-389.1)	2.96 (2.50-∞)	2.99 (2.55-∞)	6.31 (5.36-∞)
HPV-45	274	357.6 (313.7-407.6)	273	352.3 (309.0-401.7)	268	417.7 (365.9-476.9)	280	213.6 (187.7-243.2)	1.67 (1.38-∞)	1.65 (1.37-∞)	1.96 (1.61-∞)
HPV-52	272	581.1 (521.9-647.1)	273	640.4 (575.2-713.0)	268	1123.4 (1008.1-1251.9)	271	364.2 (327.0-405.6)	1.60 (1.36-∞)	1.76 (1.51-∞)	3.08 (2.64-∞)
HPV-58	270	1251.2 (1119.6-1398.4)	270	1325.7 (1186.2-1481.6)	265	2444.6 (2185.2-2734.9)	261	491.1 (438.6-549.8)	2.55 (2.15-∞)	2.70 (2.30-∞)	4.98 (4.23-∞)

Abbreviation: mMU, milli-Merck units.

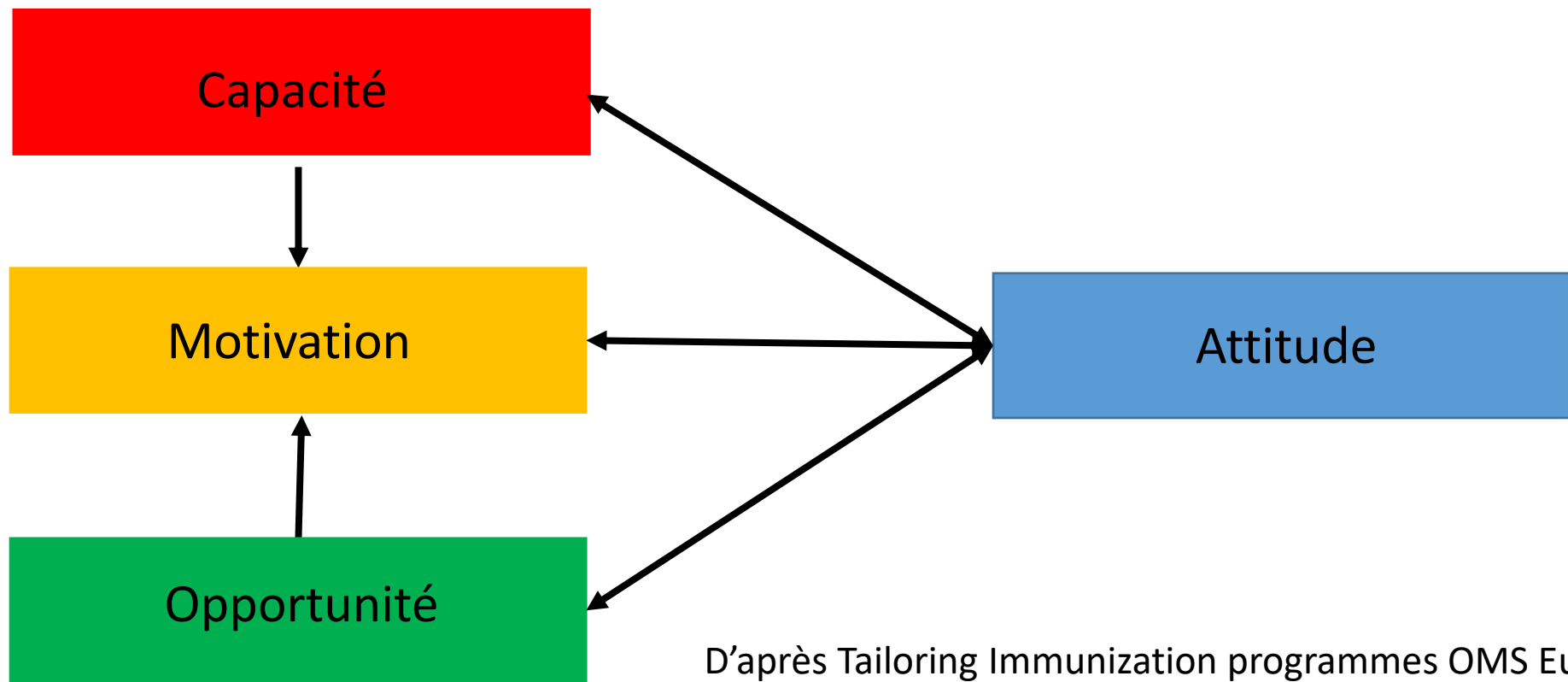
^a Although the protocol specified that noninferiority testing would use 2-sided 95% CIs, 1-sided 97.5% CIs are displayed in keeping with the standard method of presenting noninferiority studies. The lower bound of the

1-sided 97.5% CI and the lower bound of the 2-sided 95% CI are identical. The full 2-sided 95% CIs are presented in the Gardasil 9 US product information (<https://www.gardasil9.com/>) and also have been posted elsewhere (<https://clinicaltrials.gov/>).

Vous l'avez convaincu mais il aimerait savoir comment convaincre ces deux garçons.

Avoir un plan d'action

Modèle OMS: Capacité, Motivation, Opportunité (COM-B)



D'après Tailoring Immunization programmes OMS Europe

Quels messages transmettre aux adolescents ?



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Vaccine

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Optimising HPV vaccination communication to adolescents: A discrete choice experiment



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Reminder of the imaginary situation:

Your college offers a free vaccination by a doctor, for which you can sign up. Your parents are informed. The vaccine protects very well against a common infection caused by a virus. The virus is transmitted through close contact. The general practitioners in your area support this vaccination.

Scenario 1

- The vaccine can protect against a cancer which could occur in 20 years from now.
- The infection is transmitted during sexual intercourse.
- The vaccine safety has been monitored for more than 10 years worldwide. No serious side effect has been scientifically confirmed.
- By getting vaccinated, you can avoid transmitting the infection to other persons.
- Already one third of students of your school have registered to get vaccinated.

Your decision:

- I sign up myself I do not sign up myself

Quels messages transmettre aux ados ?

Table 3






Vaccination acceptance in the discrete choice experiment, overall and stratified by gender.

Vaccine acceptance	Overall RE (N = 1458)				Girls RE (N = 780)				Boys RE (N = 678)			
	Main Effect		With interactions		Main Effect		With interactions		Main Effect		With interactions	
	OR	95%-CI	OR	95%-CI	OR	95%-CI	OR	95%-CI	OR	95%-CI	OR	95%-CI
Attributes												
Disease												
Respiratory disease (ref)	1				1				1			
Cancer	1.29	[1.09,1.52]	1.28	[1.07,1.53]	1.39	[1.11,1.75]	1.36	[1.07,1.73]	1.14	[0.88,1.47]	1.14	[0.86,1.51]
Warts	0.91	[0.78,1.06]	0.97	[0.82,1.16]	1.01	[0.83,1.24]	1.10	[0.88,1.38]	0.80	[0.64,1.01]	0.83	[0.63,1.08]
Safety												
No side effect (ref)	1				1				1			
Scientific surveillance	0.86	[0.71,1.04]	0.94	[0.75,1.18]	0.78	[0.60,1.00]	0.85	[0.63,1.16]	0.97	[0.73,1.30]	1.05	[0.75,1.48]
Safety other countries	0.30	[0.24,0.36]	0.31	[0.25,0.38]	0.25	[0.20,0.33]	0.27	[0.20,0.36]	0.35	[0.26,0.47]	0.37	[0.27,0.51]
Benefit/risk	0.30	[0.24,0.36]	0.31	[0.25,0.39]	0.29	[0.22,0.38]	0.31	[0.23,0.41]	0.30	[0.22,0.41]	0.31	[0.23,0.43]
Indirect protection												
Protect only you (ref)	1				1				1			
Protect others	1.30	[1.11,1.52]	1.22	[0.90,1.66]	1.43	[1.16,1.75]	1.31	[0.88,1.95]	1.17	[0.92,1.48]	1.17	[0.72,1.90]
Elimination	1.40	[1.18,1.66]	1.84	[1.29,2.64]	1.57	[1.25,1.96]	2.06	[1.25,3.40]	1.19	[0.92,1.55]	1.59	[0.95,2.67]
Coverage												
Not enough (ref)	1				1				1			
Already one third	1.48	[1.23,1.78]	1.63	[1.18,2.25]	1.56	[1.22,2.00]	1.76	[1.15,2.69]	1.41	[1.06,1.88]	1.53	[0.93,2.54]
Most students	1.98	[1.64,2.38]	2.02	[1.50,2.72]	2.09	[1.62,2.68]	1.87	[1.25,2.78]	1.91	[1.44,2.52]	2.25	[1.43,3.53]
Other countries 80%	1.94	[1.61,2.35]	1.97	[1.44,2.68]	1.81	[1.41,2.33]	1.86	[1.24,2.80]	2.15	[1.60,2.89]	2.21	[1.36,3.61]
Indirect Protection *Coverage												
Protect others*Already one third			0.94	[0.56,1.57]			0.82	[0.42,1.60]			1.06	[0.47,2.37]
Protect others*Most students			1.05	[0.66,1.67]			1.42	[0.76,2.63]			0.75	[0.37,1.53]
Protect others*Other countries 80%			1.29	[0.81,2.06]			1.32	[0.71,2.44]			1.15	[0.56,2.38]
Elimination*Already one third			0.69	[0.40,1.18]			0.76	[0.37,1.57]			0.57	[0.26,1.29]
Elimination*Most students			0.79	[0.49,1.26]			0.86	[0.46,1.64]			0.72	[0.36,1.46]
Elimination*Other countries 80%			0.63	[0.39,1.01]			0.57	[0.30,1.09]			0.68	[0.33,1.38]

Quels outils utiliser ou développer?

Table 2 Summary of evidence for the effectiveness of interventions for HPV vaccination intention

Interventions	Intention		
	Children or adolescents	Parents	Young adults
Educational			
Printed Information	22-29	25-29	26-29
Printed information with message framing		25-29	29
Printed information plus		25-29	28
Technology-mediated presentation (iPad or video)	22-29	23-25	23-26-29
Technology-mediated presentation (stories)	25		24
Technology-mediated presentation plus	29		
Face-to-face presentation	22-25	25-29	29
Face-to-face presentation plus	22		26
Text-based information			23
Online information with message framing		25-29	29
Radio features		29	
Radio features with message framing			29

 'Plus' refers to a range of additional components
 Intervention leads to improvement in HPV vaccination intention.
 Intervention does not lead to an improvement in HPV vaccination intention.
 Intervention does not consistently lead to an improvement in HPV vaccination intention (some studies showing improvement and others not).
 Not reported.

HPV, human papillomavirus; Key. 'Plus' refers to a range of additional components.

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Which interventions improve HPV vaccination uptake and intention in children, adolescents and young adults? An umbrella review

Sex Transm Infect 2022;98:599–607

Quels outils utiliser ou développer ?

Interventions	Outcomes					
	Initiation (dose 1)		Completion (dose 3)		Uptake	
	CA and P	YA	CA and P	YA	CA and P	YA
Multiomponent						
Educational and promotional nudge	24 27		24 27			
Educational and reminders, incentives or both	23 24 27–30	24		24 25 29	27	21 23 24 26 29 30
Reminders and incentives			24 28			
Provider-orientated intervention and reminders, education or both	28 30		28 30		27 30	
Provider-orientated intervention and incentive	28 30		28			
Provider-orientated intervention and public health intervention	28 30		28 30			
Public health intervention, education and radio features					27	
Public health						
School-based vaccination clinics					30	

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Which interventions improve HPV vaccination uptake and intention in children, adolescents and young adults? An umbrella review

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“The evidence suggests that there is no single solution to increasing vaccination uptake and that different approaches may be better suited to certain populations.”

La vaccination en milieu scolaire ?



Le président de la République, Emmanuel Macron, en déplacement à Jarnac (Charente) pour annoncer la généralisation de la vaccination contre le papillomavirus, le 28 février 2023. (STEPHANE MAHE / AFP)

Merci de votre attention