

HPV- in Österreich: Ein update

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Offenlegung

- Klinische Studien für HPV Impfstoffe (Merck/MSD)
 - Advisory Board
- Epidemiologische HPV Studien (GSK)
- Vorträge für MSD, GSK, Roche Diagnostics

Cancer Prevention, Screening Averted Several Million More Deaths Than Treatment Over 45 Years

Samantha Anderer

[Article Information](#)

JAMA. 2025;333(5):367. doi:10.1001/jama.2024.26879

An estimated **5.9 million** breast, cervical, colorectal, lung, and prostate **cancer deaths** were **avoided** from 1975 to 2020 due to prevention, screening, and treatment efforts, but **prevention and screening** alone were responsible for averting about **4.8 million**—4 out of 5—of those deaths.

HPV Impfprogramm Österreich

Seit 7/2024

- 4./5. Schulstufe Mädchen und Buben
- **9.-30. Geburtstag kostenlos ab 1.7.2024**
 - Befristet bis 31.12.2025- danach wieder bis 21!
- Catch-up Impfungen
 - Niederlassung (**Registrierung als Impfarzt!**)
 - Öffentliche Gesundheitsämter
- **2 Dosen: Abstand 6-12 Monate!!!**
 - Ab 30. Geburtstag 3 Dosen

**Nur noch
bis
31.12.2025**

Immunogenicity of 2 Doses of 9vHPV Vaccine in 15-45-year-old Postpartum Women Compared with 3 Doses in Historical Controls¹

Anti-HPV 2 vs 3 doses

Women were included in analysis if they were seronegative for the specific HPV type at baseline

HPV Type	2 Doses Postpartum Women, aged 15-45		3 Doses Historical Controls, aged 16-26	GMT Ratio (90% CI) of 2 vs 3 Doses
	Baseline GMT (90% CI) mMU/mL	1m after last dose GMT (90% CI) mMU/mL	1m after last dose GMT (90% CI) mMU/mL	
6	17.0 (15.2-19.1)	2207.9 (1929.7-2526.1)	770.9 (698.0-851.5)	2.86 (2.33-3.52)
11	8.1 (7.5-8.8)	1494.9 (1323.7-1688.3)	580.6 (525.9-641.0)	2.57 (2.12-3.13)
16^a	9.7 (8.6-10.9)	7213.1 (6245.0-8331.4)	3154.0 (2860.2-3478.0)	2.29 (2.03-2.58)
18	35.7 (33.3-38.3)	1615.7 (1396.7-1869.2)	761.5 (684.6-847.0)	2.12 (1.70-2.65)
31	14.0 (13.1-15.1)	1094.9 (966.1-1240.9)	572.1 (515.9-634.4)	1.91 (1.57-2.34)
33	11.2 (10.6-11.8)	798.0 (702.2-906.9)	348.1 (317.1-382.1)	2.29 (1.89-2.78)
45	8.3 (7.8-8.7)	327.2 (289.9-369.3)	213.6 (191.6-238.1)	1.53 (1.25-1.88)
52	9.7 (9.2-10.3)	585.7 (526.0-652.0)	354.2 (331.2-378.8)	1.65 (1.42-1.93)
58	9.0 (8.4-9.6)	817.6 (714.4-935.6)	491.1 (446.6-540.0)	1.66 (1.36-2.04)

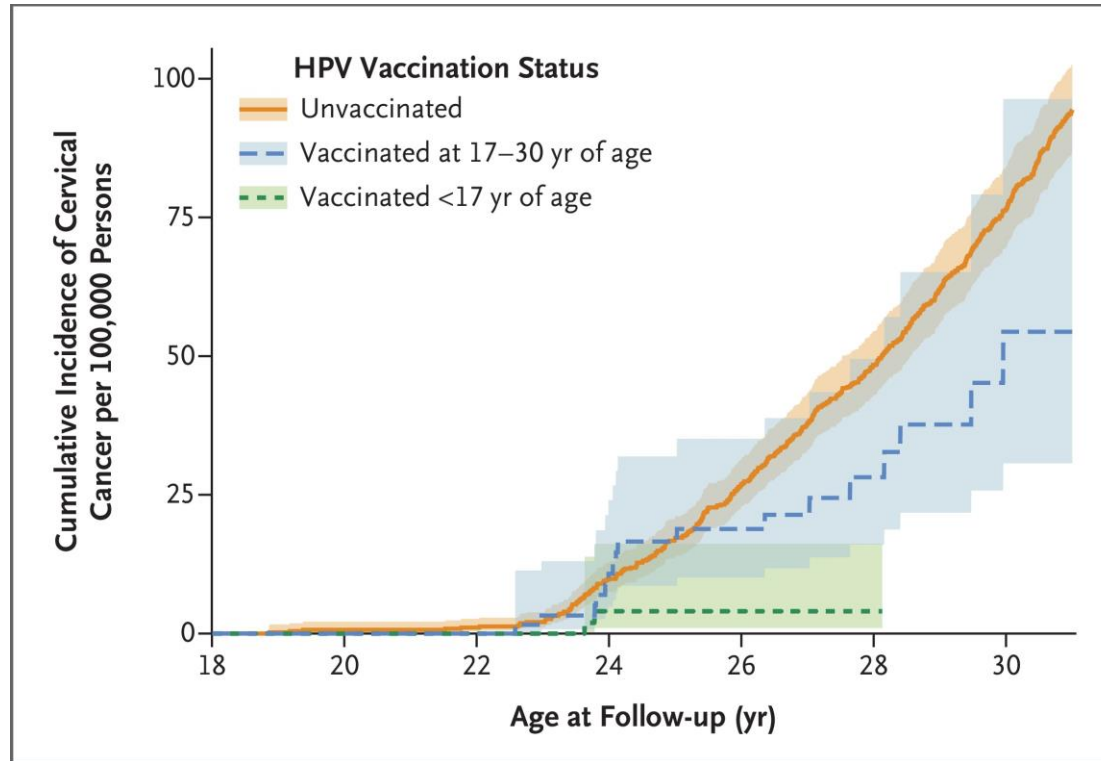
HPV16 GMT ratio higher for 2 vs 3 doses (2.29; 2.03-2.58)

GMTs noninferior or higher for 2 vs 3-doses for all 9 types

US open-label, nonrandomized, noninferiority trial of a **2-dose (0 and 6 months)** regimen of 9vHPV vaccine among postpartum women (aged 15-45 years, **n=174**) compared with a historical control group consisting of girls and young women aged 16 to 26 years, who received a **3-dose regimen (0, 1-2, and 6 months)**. Serological testing done by **competitive Luminex immunoassay**. 9vHPV = 9 valent human papillomavirus; CI = confidence interval; GMT = geometric mean titer; mMU/mL = milliMerck units per milliliter.

1. Moss CF, et al. *JAMA Network Open*. 2024;7(1):e2352996. <https://pubmed.ncbi.nlm.nih.gov/38285445/>. **Disclaimer: 2 Dosis-Schema bei Gardasil 9 laut EMA-Zulassung nur von 9-14 Jahren zugelassen**

Cumulative Incidence of Invasive Cervical Cancer According to HPV Vaccination Status.





Lei J et al. N Engl J Med 2020;383:1340-1348



The NEW ENGLAND
JOURNAL of MEDICINE

Invasive cervical cancer incidence following bivalent human papillomavirus vaccination: a population-based observational study of age at immunization, dose, and deprivation

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Invasives Zervixkarzinom - Schottland

Table 3. Estimates of cervical cancer incidence and adjusted vaccine effectiveness, by the combined factor of vaccine status and age at vaccination

Combined vaccine status ^a and age at vaccination, y	Denominator	Cases of disease, No. weighted (unweighted)	Person-years of follow-up, weighted (unweighted)	Incidence rate per 100 000 people (95% CI)	Adjusted vaccine effectiveness (95% CI) ^b	P
Unvaccinated	294 221	195.7 (210)	2 337 136.3 (2 739 122.6)	8.4 (7.2 to 9.6)	— ^c	—
Incomplete 12-13	411	0.0 (0)	1847.9 (1968.9)	0.0 (0.0 to 199.6)	— ^c	—
Complete 12-13	29 144	0 (0)	134 299.8 (140 081.7)	0.0 (0.0 to 2.7)	100 ^d (66.9 to 100)	—
Incomplete >14	14 234	6.8 (8)	103 627.4 (110 146.3)	6.5 (2.6 to 13.6)	40.0 (-22.8 to 70.7)	.16
Complete ≥14	109 835	20.4 (21)	754 122.3 (796 571.6)	2.7 (1.7 to 4.2)	73.8 (58.9 to 83.4)	<.001

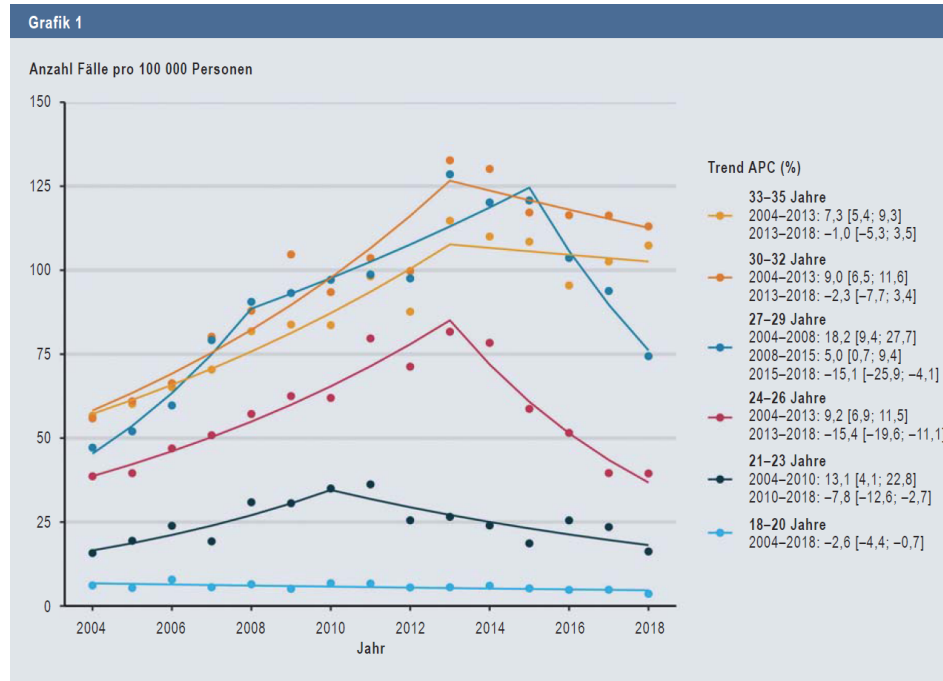
^a Vaccination status: Unvaccinated (no doses given), Incomplete (1 dose or 2 doses 1 month apart: n = 5219, 1 dose; n = 9426, 2 doses), and Complete (2 doses at least 5 months apart or 3 doses: n = 131, 2 dose; n = 138 848, 3 doses). No cancers were diagnosed in those immunized with 2 doses at 5 or 6 months apart. Eight cancers were diagnosed in those immunized with 1 or 2 doses. There are 21 cancers in those receiving 3 doses of vaccine, all in those immunized at 14-18 years of age. CI = confidence interval.

^b Vaccine effectiveness is adjusted for Scottish Index of Multiple Deprivation.

^c For incomplete doses in the group of 12-13 year olds, there were too few individuals in the denominator to provide any reasonable estimate of vaccine effectiveness and its confidence intervals.

^d No cases therefore had vaccine effectiveness of 100%, and no reliable confidence intervals could be obtained from Cox proportional hazards estimates. Estimates of 95% confidence intervals and P values were obtained using an exact Poisson approximation of the weighted rate ratio, where the numerator was 0 events in 134 299.8 person-years of follow-up and the denominator was 196 events in 2 337 136.3 person-years of follow-up.

Erste Hinweise auf einen möglichen Effekt der HPV-Impfung auf die Krebs in Deutschland

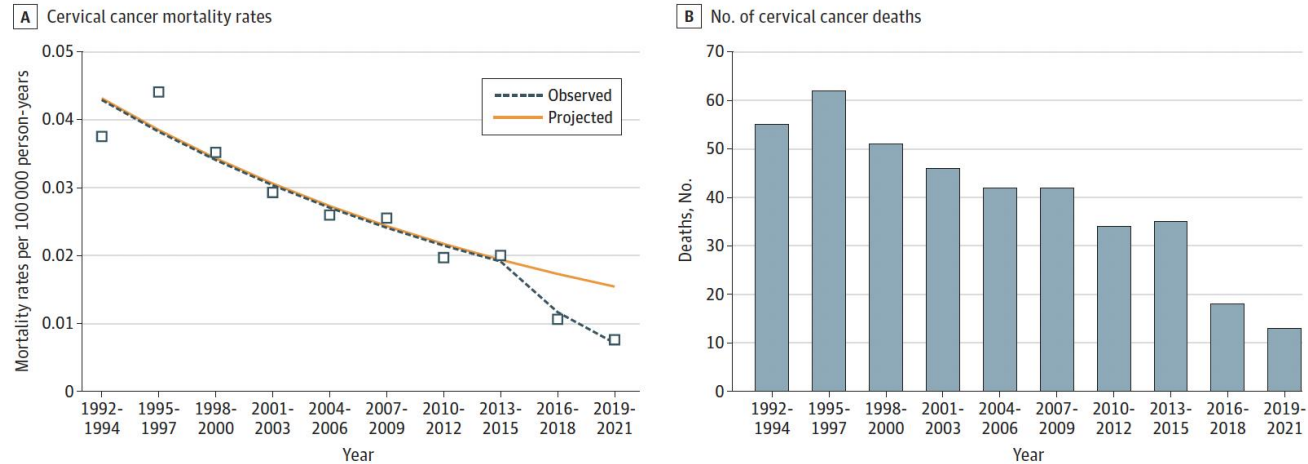


Altersgruppenspezifische Inzidenzraten der HPV-assoziierten Zervixkarzinome nach Altersgruppen im Zeittrend (beobachtete und modellierte Werte, „annual percent changes“ in Prozent [Trend APC] und 95%-Konfidenzintervalle)
 Fälle pro 100 000 in jeweiliger 3-Jahres-Altersgruppe
 Lesebeispiel: Die altersspezifische Inzidenzrate der jeweils 24- bis 26-Jährigen steigt von 2004–2013 jährlich um 9,2 %.
 APC, „annual percent changes“

Dtsch Arztebl Int 2024; 121: 415-21;
 DOI: 10.3238/arztebl.m2024.0062

Zervixkarzinom Mortalität <25a USA

Figure. Trends in Cervical Cancer Mortality Rates^a and Number of Cervical Cancer Deaths Among US Women Aged Younger Than 25 Years, 1992-2021



Squares represent observed cervical cancer mortality rates per 100 000 women. Dashed line represents the cervical cancer modeled trends. Solid line represents the cervical cancer projected trends. Projected trends were estimated based on the trends from 1992-1994 to 2013-2015 continuing to 2019-2021. Data retrieved from the National Center for Health Statistics database.

^aMortality rates were calculated as the number of deaths per 100 000 person-years and age-adjusted to the 2000 US population.

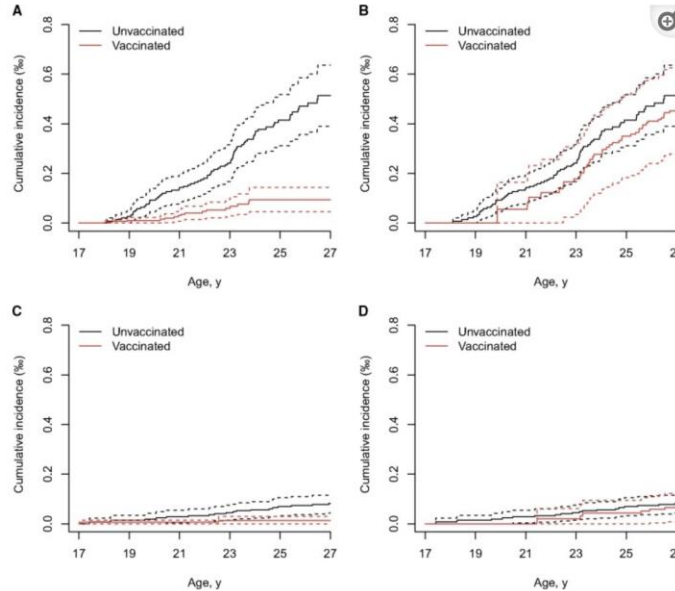
The effect of bivalent HPV vaccination against invasive cervical cancer and CIN₃⁺ in the Netherlands: a national linkage study

- 103,059 women
 - 47,130 were fully vaccinated,
 - 5,098 were partially vaccinated, and
 - 50,831 were unvaccinated.
- The vaccine effectiveness against cancer
 - in fully vaccinated women was 91.5%
 - in partially vaccinated women was 48.1%

DOI: [10.1101/2025.02.27.25322519](https://doi.org/10.1101/2025.02.27.25322519)
Middleton, EUROGIN 2025

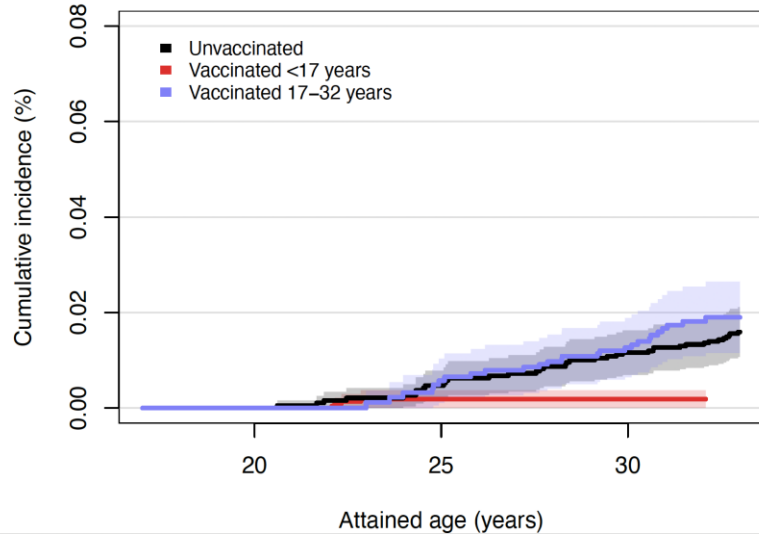
Denmark – Incidence of Vulvar and Vaginal HSIL – Vaccination Status

Figure 1.



Cumulative incidence of vulvar high-grade squamous intraepithelial lesion (HSIL+) and vaginal HSIL+ by vaccination status and age at first dose. (A) Vulva HSIL+ in women vaccinated age 16 years or younger. (B) Vulva HSIL+ in women vaccinated 17-26 years. (C) Vaginal HSIL+ in women vaccinated age 16 years or younger. (D) Vaginal HSIL+ in women vaccinated 17-26 years. The shaded areas represent 95% confidence intervals.

Dehlendorff
JNCI 2021



JOURNAL ARTICLE ACCEPTED MANUSCRIPT

HPV vaccination and anal high-grade precancerous lesions and cancer: a real-world effectiveness study

Get access >

Louise Baandrup, PhD ✉, Thomas Maltesen, PhD, Christian Dehlendorff, PhD, Susanne K Kjaer, DMSc

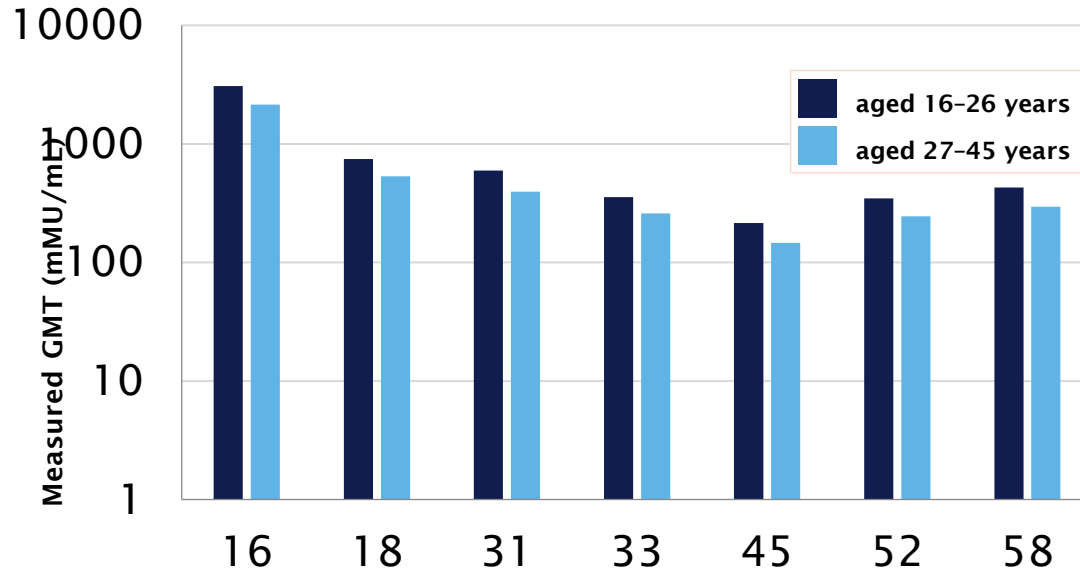
JNCI: Journal of the National Cancer Institute, djad189, <https://doi.org/10.1093/jnci/djad189>

Published: 18 September 2023 Article history ▾

“ Cite ✎ Permissions ↻ Share ▾

Non-Inferiority of GMTs for Anti-HPV16/18/31/33/45/52/58 at Month 7: Women 27–45 versus 16–26 Years of Age

Non-inferiority criterion
was met for all 7
oncogenic HPV types
(all $p < 0.001$)



GMT ratio:
aged 27–45 years
/ aged 16–26 years
(95% CI)

0.70	0.71	0.66	0.73	0.68	0.71	0.69
(0.63, 0.77)	(0.64, 0.80)	(0.60, 0.74)	(0.67, 0.80)	(0.60, 0.76)	(0.64, 0.78)	(0.63, 0.76)

15

Joura, Vaccine 2021

HPV Impfung in Europe - geschlechtsneutral



Disclaimer

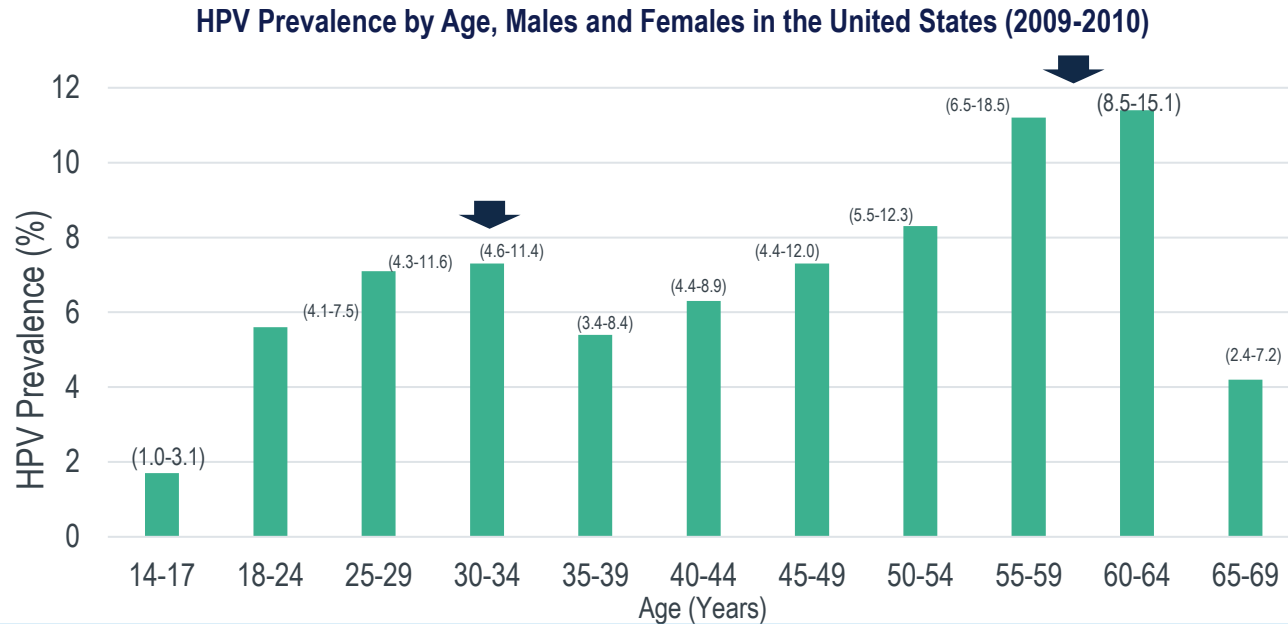
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World Health Organization
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Source: WHO [Microsoft Power BI](#)
Accessed October 26

Oral HPV Infection Prevalence: Bimodal Peaks in Males and Females 14-69 Years of Age^a



- Oral HPV infection followed a bimodal pattern with respect to age, with peak prevalence occurring among individuals aged 30-34 and 60-64 years.
- Men had a significantly higher prevalence than women for overall oral HPV infection (10.1% vs 3.6%, $P < .001$; unadjusted PR, 2.80, 95% CI, 2.02–3.88) and for oral HPV-16 infection (1.6% vs 0.3%, $P < .001$; PR, 5.41, 95% CI, 2.12–13.83).

^a Cross-sectional study of 5579 men and women aged 14 to 69 years examined in mobile examination centers during the NHANES 2009-2010 in the United States. DNA purified from oral exfoliated cells was evaluated by polymerase chain reaction and type-specific hybridization. Data is based on detection of any of 37 HPV types.

ASCO 2024

56% Reduktion bei Kopf/Hals Tumoren (Männer)

Abstract



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Authors

Jefferson DeKloe, Zachary David Urdang, Ubaldo E. Martinez Outschoorn, Joseph M. Curry

Organizations

Department of Otolaryngology, Thomas Jefferson University, Philadelphia, PA, Departments of Otolaryngology and Clinical/Experimental Pharmacology - Thomas Jefferson University, Philadelphia, PA, Jefferson Kimmel Cancer Center, Philadelphia, PA

Outcome	HPV		No HPV Vaccine: Patients with Outcome	No HPV Vaccine: Total Patients	Odds Ratio (Vaccinated vs. Unvaccinated)	P-value
	HPV Vaccinated: Patients with Outcome	Vaccinated:Total Patients				
Male Patients						
Head and Neck Cancers	21	760,467	48	760,054	0.44 (0.26-0.73)	0.0016
Anal Cancer	Suppressed (n≤10)	760,540	Suppressed (n≤10)	760,539	-	-
Penile Cancer	Suppressed (n≤10)	760,540	Suppressed (n≤10)	760,539	-	-
All HPV-related Cancers	26	760,435	57	760,036	0.46 (0.29-0.72)	0.0010

Optimale Zeitpunkte

- **9-11a optimaler Zeitpunkt**
 - Schule – Pädiater:innen – Allgemeinmediziner:innen
 - sollte bundesweit einheitlich sein
- Catchup: 12-30a
 - Allgemeinmediziner:innen
 - **Frauenärzte:innen: Kontrazeptionswunsch (Partnerberatung)**
 - **„Prepare for pregnancy“**
 - Stellungskommission : Männer 17-18a
 - Gesundheitsämter (zB. www.impfservice-wien.at)
- Frauen mit Konisation bis 45a
 - Unmittelbar vor oder nach OP

9vHPV nach Konisation

HUMAN VACCINES & IMMUNOTHERAPEUTICS
2024, VOL. 20, NO. 1, 2343552
<https://doi.org/10.1080/21645515.2024.2343552>



RESEARCH ARTICLE

OPEN ACCESS

Reduced risk of CIN2+ recurrence in women immunized with a 9-valent HPV vaccine post-excision: Retrospective cohort study

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ABSTRACT

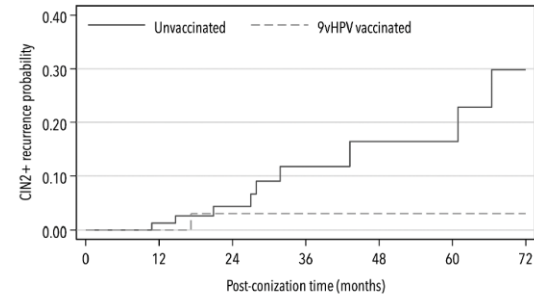
The main aim of our study was to investigate the specific contribution of a 9-valent human papillomavirus vaccine (9vHPV) to the recurrence risk of cervical intraepithelial neoplasia grade 2 or worse (CIN2+) in women vaccinated post-excision. Therefore, we conducted a retrospective monocentric cohort study in women aged 22–49 years undergoing conization between 2014 and 2023. The 9vHPV-vaccinated women were matched to unvaccinated women for age and follow-up duration in a 1:2 ratio to eliminate allocation bias. The risk of CIN2+ recurrence was estimated by the incidence rate ratio using Poisson regression with adjustment for comorbidities, smoking status, nulliparity, CIN grade, positive cone margin, and HPV genotypes. The CIN2+ recurrence rates in 147 women enrolled in the analysis were 18 and 2 cases per 100,000 person-days for unvaccinated and vaccinated women, respectively, during a mean follow-up period of 30 months (± 22 months). A reduction in CIN2+ recurrences by 90% (95% confidence interval: 12–99%) was documented in 9vHPV-vaccinated participants compared to women undergoing only surgical excision. Moreover, vaccinated women with a positive cone margin showed a 42% (though non-significant) reduction in relapse ($p = .661$). Full post-conization vaccination with the 9vHPV contributed to an additional reduction in the risk of CIN2+ recurrence. This finding is consistent with current knowledge and suggests a high adjuvant effect of the 9vHPV vaccine.

ARTICLE HISTORY

Received 5 February 2024
Revised 25 March 2024
Accepted 12 April 2024

KEYWORDS

Human papillomavirus; cervical intraepithelial neoplasia; conization; vaccination; recurrence reduction



	0	12	24	36	48	60	72
Number at risk							
Unvaccinated	98	82	50	28	16	14	8
9vHPV vaccinated	49	41	25	14	8	7	4

Figure 2. Probability of CIN2+ recurrence in 9vHPV-vaccinated and unvaccinated women relative to time since conization. 9vHPV – 9-valent vaccine against human papillomavirus infection.

Österreichischer Impfplan 2024/25

Weitere Empfehlungen für HPV Impfung

- Nachgewiesene HPV-Infektion, Genitalwarzen oder HPV-assoziierte Dysplasien
- Immunsuppression (HIV, TX, Chemotherapie, etc.).
 - idealerweise vor Beginn der Immunsuppression
 - nach abgeschlossener Therapie
- Autoimmunerkrankungen
- Expositionsrisiko
 - sexuelle Aktivität/wechselnde Sexualpartner,
 - bekannte Infektion bei Sexualpartner
 - Missbrauch

Positionspapier zur primären HPV Testung 2015

Österreichische Gesellschaft für Gynäkologie und Geburtshilfe
Arbeitsgemeinschaft für Gynäkologische Onkologie der OEGGG



HPV Task Force der OEGGG - Positionspapier

Braune G, Fiedler T, Hefler L, Joura E, Kölbl H, Marth C, Reinthaller A, Tammussino K, Zeimet A

Die zytologische Vorsorge („Pap Test“) hat in Österreich die Inzidenz des Zervixkarzinoms um zwei Drittel reduziert. Aufgrund der eingeschränkten Sensitivität sind weitere Verbesserungen mit der zytologischen Vorsorgeuntersuchung nur schwer zu erzielen. (Mayrand 2007). Um eine weitere Reduktion des invasiven Zervixkarzioms zu erreichen empfiehlt die WHO zwei Strategien: Ein HPV Impfprogramm und die primäre HPV Testung. (WHO Guidelines 2014)

PAP vs HPV Test: Inzidenz von CX Karzinomen

Ronco et al. Lancet 2014

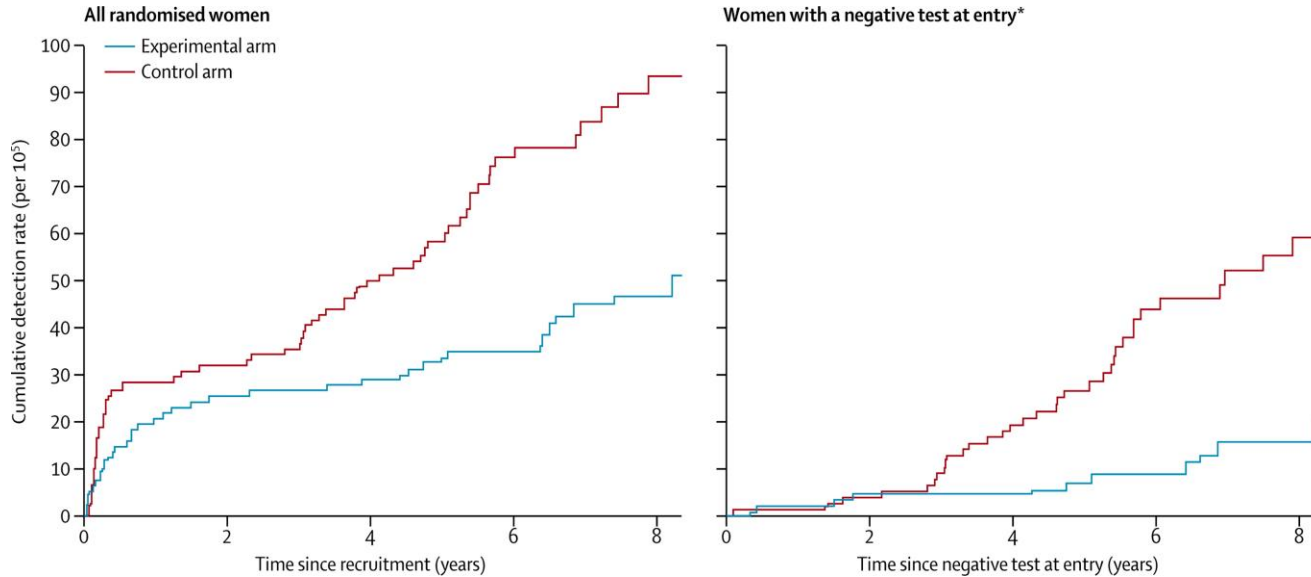
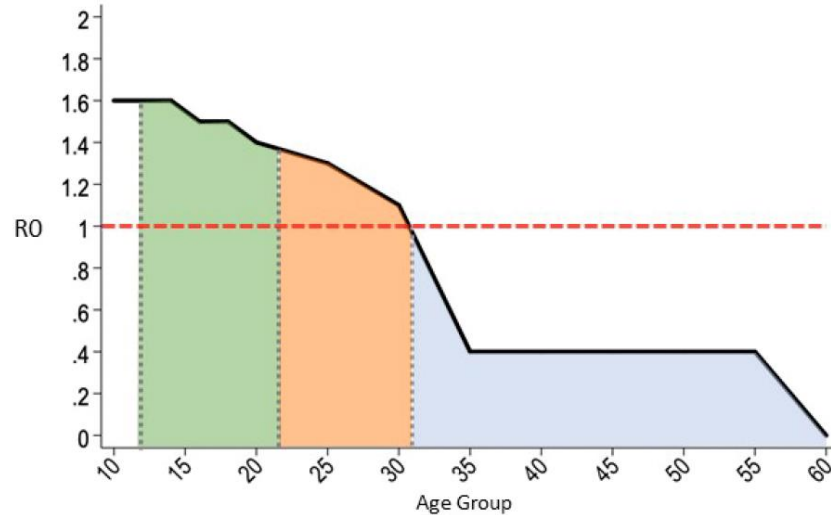






Figure 2 Cumulative detection of invasive cervical carcinoma *Observations are censored 2.5 years after CIN2 or CIN3 detection, if any.

The EVEN FASTER concept for cervical cancer elimination: Sweden



11-30a Impfen
>30 HPV Testen

-  Birth cohorts aged 11-21, vaccinated, not transmitting HPV infection.
-  Birth cohorts aged 22-30, unvaccinated, transmitting HPV infection. **Target of EVEN FASTER campaign.**
-  Birth cohorts aged 31 and older, unvaccinated, low transmission of HPV infection ($R_0 < 1$).
-  Basic Reproductive Number (R_0) below 1: low transmission of HPV infection, eventual elimination.

Take home:

- **Alle Menschen ab 9 HPV impfen**
 - Je früher desto besser
 - Es gibt KEINE obere Altersgrenze
 - Jede Arzt:in muss den Impfstatus überprüfen und bei Bedarf aufklären
- **Jeder sollte seinen Impfstatus kennen!**
- **Frauen ab 30 HPV testen**
 - Jede Frau ab 30 sollte ihren HPV Status kennen
 - Jede Frauenärzt:in muss den HPV Status ihrer Patientinnen kennen!

Nur noch
bis
31.12.2025
kostenlos
bis 30!

2 Stiche rechtzeitig verhindern 6 verschiedene Karzinome!
Bis 30 alle impfen- ab 30 Frauen HPV testen

