HPV and related cancers among people living with HIV and key populations

EACS guidelines vs. Implementation of HPV vaccination among PLWH

Konstantinos Protopapas, MD
Internal Medicine, ID/HIV specialist
ATTIKON University Hospital, Athens, Greece
Member of EACS Standard of Care Scientific Committee

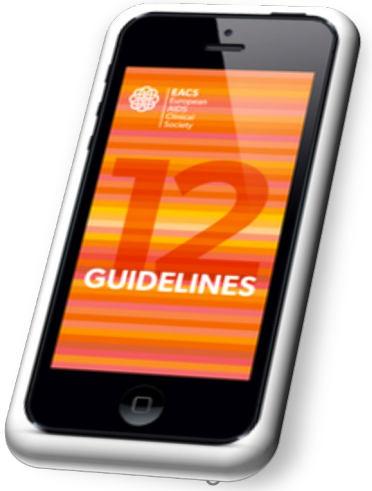
Conflict of interest disclosures

- Received honoraria from ViiV/GSK and Gilead
- Received conference sponsorship from Gilead, MSD and Mylan

What do the EACS guidelines suggest?

Infection	Vaccination rationale	Comment
Human Papilloma Virus (HPV)	Shared risk with HIV of contracting infection. Higher rate of cervical and anal cancer	Vaccinate with 3 doses between ages 9 and 45 (health insurance coverage differs by country according to age, sex, sexual orientation). Use 9-valent vaccine if available. Persons treated for high grade dysplasia could benefit from a full course vaccination for secondary prevention

- 9-45 yo
- 3 doses
- 9-valent
- as secondary prevention



EACS Guidelines, v12.0, Oct 2023

Open Access Review

Efficacy and Durability of Immune Response after Receipt of HPV Vaccines in People Living with HIV

Strategy	Benefits	Limitations	Feasibility
Use of 2vHPV (adjuvanted) vs. 4vHPV/9vHPV	• AS04 adjuvant in 2vHPV stimulates TLR in antigen presenting cells, leading to enhanced humoral and cellular responses • Studies in immunocompetent participants and PLH have evidenced higher GMTs, especially against HPV-18 after vaccination with 2vHPV [29,50,65,66] • Possibility of cross-protection against HPV-types not included in the vaccine [29]	• No significant differences in VE have been evidenced across vaccine platforms for immunocompetent participants [2] • To our knowledge, there are no RCTs comparing VE of the two formulations in PLH • No direct protection against HPV-6 and HPV-11, types associated with genital warts and respiratory papillomatosis • No RCTs up to date comparing the immunogenicity of 9vHPV vs. 2vHPV in PLH	• No major obstacles to implementation • Possibility of using a mixed-dose schedule
Use of 9vHPV vs. 2vHPV/4vHPV	• 9vHPV has a higher antigen content than 4vHPV and has led to slightly higher GMTs for HPV-18 in immunocompetent participants [77] • Direct protection against a higher number of HPV types	• No significant differences in VE or durability (for HPV-16 and HPV-18) have been evidenced across vaccine platforms for immunocompetent participants [2] • Studies assessing 9vHPV in PLH are currently underway, limiting information on immunogenicity and VE	• 9vHPV is currently the only vaccine distributed in many countries • Higher cost per vaccine may hinder implementation in LMICs with higher HIV burden
Additional vaccine dose (4-dose regimens)	• Study in CLH has shown an anamnestic response 7 days after vaccination with 4th dose (at week 96) [53]	• Same study showed no significant differences in seropositivity or antibody decline rates for HPV-16 and HPV-18 [53] • There are no RCTs comparing the VE of 3- vs. 4-dose schedules in PLH • Studies in immunocompetent participants have shown similar VEs to regimens with reduced number of doses [34,35,36]	• Higher cost of additional dose may hinder implementation in LMICs, with a higher HIV burden
Delaying vaccination until immune reconstitution	• PLH with CD4 counts below 200 cells/mm^3 and detectable VL have lower seropositivity rates and GMTs compared to well-controlled PLH [31,57,58]	• Conflicting results regarding influence of CD4/CD8 counts as well as HIV VL on vaccine response in subjects with a reconstituted immune status despite HIV infection [26,28] • Missed opportunity of vaccination	• EACS 2022 [33] and BHIVA 2015 [25] guidelines suggest waiting until immune reconstitution

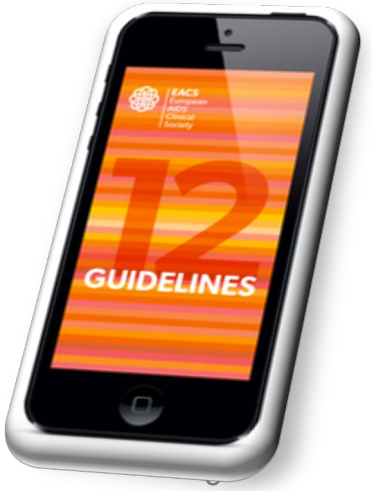
C. Losada et al. Vaccines2023

What do the EACS guidelines suggest?

Vaccination

- Vaccinate according to national guidelines for healthy population, preferably after having achieved suppressed viraemia and immune reconstitution (CD4 count ≥200 cells/μL or ≥15%)
- Consider repeating vaccinations performed at CD4 count <200 cells μL (or <15%) or unsuppressed viraemia once adequate immune reconstitution is achieved (HIV VL undetectable and CD4 count ≥200 cells/μL or ≥15%
- As vaccine responses may be significantly lower in persons with HIV (i.e. lower seroconversion rates, faster titre decline), do not use rapid schedules (e.g. rabies, tick-borne encephalitis, HAV/HBV) and consider antibody titres to assess their effectiveness if vaccinated at CD4 count <200 cells/μL (<15%) or unsuppressed viremia (e.g. rabies, tick-borne encephalitis, HAV, meningococci). Be attentive to observe boosters and all post-exposure measures (particularly after potential rabies exposure)

EACS Guidelines, v12.0, Oct 2023



Possible barriers

- Cost
- Not being fully reimbursed
- Not in the national guidelines
- Fear of side effects
- General attitude against vaccination
- Health care providers don’t encourage vaccination
- Guidelines not being properly disseminated among health care providers
- Lack of knowledge/awareness among people who would benefit from HPV vaccine
- Shortage of vaccines, stockouts

EUROGUIDELINES IN CENTRAL AND EASTERN EUROPE NETWORK GROUP

Management Of Sexually Transmitted Infections in Central And Eastern Europe: Route To Improvement

D. Gökengin[1], M. Mert[1], A. Harxhi[2], K. Protopapas[3], V. Saveski[4], A. Cicic[5], J. Begovac[6], L. Sojac[7], C. Oprea[8], R. Matulionyte[9], Z. Bartovská[10], S. Antoniak[11], V. Krasniqi[12], V. Zvirbulis[13], V. Padovese[14], I. Alexiev[15], O. Turcanu[16], J. Kowalska[17] **ECEE Working Group:**Aaron Schembri, Velida Mulabdic, Ivana Gmizic, Tatevik Balavan, Milena Stevanoviki, Natalia Bolokadze, Botond Lakatos, Antoniia Verhaz, Kerstin Aimla

1 Ege University Faculty of Medicine, Department of Infectious Diseases and Clinical Microbiology, Izmir, Turkey, 2 Medical University of Tirana, Infectious Disease Department, Tirana, Albania, 3 University Hospital "ATTIKON", National and Kapodistrian University of Athens, 4th Department of Internal Medicine, Athens, Greece, 5 University Clinic for Infectious Diseases and Febrile Conditions, Skopje, North Macedonia, The Republic of, 6 Institute for Public Health of Montenegro, Montenegro, Montenegro, 7 University Hospital for Infectious Diseases, Zagreb, Croatia, 8 Dan Setlacec, Carol Davila University of Medicine and Pharmacy, Victor Babes Hospital, Infectious and Tropical Diseases, Bucharest, Romania, 9 Vilnius University Hospital, Department of Infectious Diseases and Dermatovenerology, Vilnius, Lithuania, 10 First Faculty of Medicine, Charles University and Military University Hospital, Department of Infectious Diseases, Prague, Czech Republic, 11 Shamoi Faculty Institute for Epidemiology and Infectious Diseases of The National Academy of Medical Sciences of Ukraine, Epidemiology, 2nd Infectious Diseases, Kyiv, Ukraine, 12 Infectious Diseases, University Clinical Center Pristina, Pristina, Kosovo, 13 Pauls Stradins Clinical University Hospital, Riga, Latvia, 14 Genitourinary Clinic, Mater Dei Hospital, Malta, Malta, 15 National Center of Infectious and Parasitic Diseases, Sofia, Bulgaria, 16 Clinical Municipal Hospital "Sfanta Fatalii" Chisinau, Chisinău, Moldova, Republica a', 17 Medical University of Warsaw, Warsaw, Poland

Purpose: Sexually transmitted infections (STIs) are a major global public health problem with a recent increasing trend in Europe. However, data from Central and Eastern Europe (CEE) is lacking. This study aims to analyze the current healthcare practices for STIs in the region.

Method: Twenty-five countries in CEE were invited to respond to a survey including 26 questions on the management of STIs, existing issues with the current healthcare system in terms of STIs, and how to address them.

Results: Twenty-four participants from 24 countries responded; 12 were European Union (EU) members, and 12 were non-EU.
Any medical doctor would be able to diagnose STIs in 58,3% and 41,7% in EU and non-EU countries (p:0,683) and to treat STIs in 33,3% in both EU and non-EU countries. (p:1) A patient needs to be referred by a physician for STI diagnosis and treatment in a significantly high number of non-EU countries(66,66%) vs EU countries (8,3%) (p:0,009).
Nine-valent HPV vaccine is available in 20 countries and not available in 4 countries (all non-EU); no HPV vaccine is available in Kosova. HPV vaccine is included in the national vaccination program for all children in 10 (83.33%) EU and 2 (16.66%) non-EU countries. Only in Greece HPV vaccine is included in the national vaccination program for all children, all women, men who have sex with men and people living with HIV. Free access to condoms is available in all EU and 9 (75%) non-EU countries. STI screening by lay providers is available only in 13 (54.16%) countries (7 EU, 6 non-EU). The ratio of countries with a national strategy in STIs management was 9 (75%) in EU and 4 (33.33%) in non-EU (p:0,04). Hepatitis A vaccine is available in 11 (91,66%) EU and 6 (50%) non-EU countries (p:0,06).). Mpox vaccine is available in 8 (66,66%) EU and 1 (8,33%) non-EU countries (p:0,009). STI management fully reimbursed by the public health system in 6 (50%) EU, 7 (58,33%) non-EU countries.

Conclusion: In the vast majority of CEE countries national strategies for STI management is either lacking or inadequate. There are also significant gaps in screening for, treatment, prevention and vaccination for STIs in many CEE countries, the majority being non-EU, low- to moderate-income. Developing strong and sustainable programs that provide equal access to all high-risk populations is critical in the response to the growing number of STIs.

Populations for which STI screening is mandatory

	EU n (%)	Non-EU n (%)	P
Blood and organ donors	11 (91.66%)	12 (%100)	..
Registered sex workers	1 (8.3%)	3 (%25)	0.59
Unregistered sex workers	0	1/12 (8.3%)	..
Men who have sex with men	0	2 (%16,6)	0.47
People who inject drugs	0	2 (%16,6)	0.47
Pregnant women	9 (%75)	5 (%41,66)	0.21

STIs notifiable by law

	EU n (%)	Non-EU n (%)	P
Gonorrhoea	12 (100%)	10 (83.33%)	0.47
Chlamydia	11 (91.66%)	6 (50.0%)	0.06
LGV	8 (66.66%)	3 (25.0%)	0.1
Syphilis	12 (100%)	12 (100)	1
Hepatitis B	10 (83.33%)	10 (83.33%)	1
Hepatitis C	10 (83.33%)	10 (83.33%)	1
HIV	12 (100)	11 (91.66%)	..

Available antibiotics for the treatment of STIs

	EU	NON-EU
Metronidazole	12/12 (100%)	12/12 (100%)
Tinidazole	8/12 (66.66%)	5/12 (41.66%)
Ceftriaxone	12/12 (100%)	12/12 (100%)
Cefixime	7/12 (58.33%)	11/12 (91.66%)
Ciprofloxacine	10/12 (83.33%)	12/12 (100%)
Levofloxacine	10/12 (83.33%)	9/12 (75.0%)
Moxifloxacine	11/12 (91.66%)	9/12 (75.0%)
Benzathine Penicillin	11/12 (91.66%)	8/12 (66.66%)
Procaine Penicillin	10/12 (83.33%)	6/12 (50.0%)
Crystalline Penicillin	7/12 (58.33%)	4/12 (33.33%)
Tetracycline/ Doxycycline	12/12 (100%)	12/12 (100%)
Spectinomycin	1/12 (8.3%)*	1/12 (8.3%)**
Pristinomycin	0	0
Azithromycin	12/12 (100%)	12/12 (100%)

	BARRIERS FOR BETTER MANAGEMENT OF STIS	
EU	1. Fear of stigma and discrimination	83.33%
	2. STIs not prioritized by the government	66.66%
	3. Lack of preventive programs	66.66%
	4. Lack of STI clinics	66.66%
	5. Lack of awareness of the population	58.33%
Non-EU	1. Fear of stigma and discrimination	83.33%
	2. Lack of awareness of the population	83.33%
	3. Lack of STI clinics	66.66%
	4. Lack of preventive programs	58.33%
	5. Lack of free-of-charge diagnosis and treatment	58.33%

Five urgent actions to scale-up STI management in your country

EU	Non-EU
1. Providing access to free diagnosis and treatment	1. Establishing dedicated STI clinics
2. Establishing dedicated STI clinics	2. Providing access to free diagnosis and treatment
3. Education for healthcare providers to increase awareness and reduce stigma.	3. Increasing prevention practices such as vaccination and Prep
4. More effective surveillance by improving reporting	4. Improving awareness among key populations
5. Development of national strategies regarding STIs	5. Improving availability and accessibility of diagnostic tools for STIs

Specific clinics and guidelines for STIs and integrated screening programs for key populations

	EU n (%)	Non-EU n(%)	p
STI clinics	6 (50.0%)	5 (41.6%)	1
Guidelines for STIs	7 (58.3%)	7 (58.3%)	1
Integrated (HIV and STI) screening program for key populations	5 (41.6)	8 (66.6%)	0.413

D. Gokenkin et al, EACS Conference 2023, Warsaw Poland

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Nine-valent HPV vaccine is available in 20 countries and not available in 4 countries (all non-EU); no HPV vaccine is available in Kosova. **HPV vaccine is included in the national vaccination program for all children in 10 (83.33%) EU and 2 (16.66%) non-EU countries.** Only in Greece HPV vaccine is included in the national vaccination program for all children, all women, men who have sex with men and people living with HIV.

D. Gokenkin et al, EACS Conference 2023, Warsaw Poland

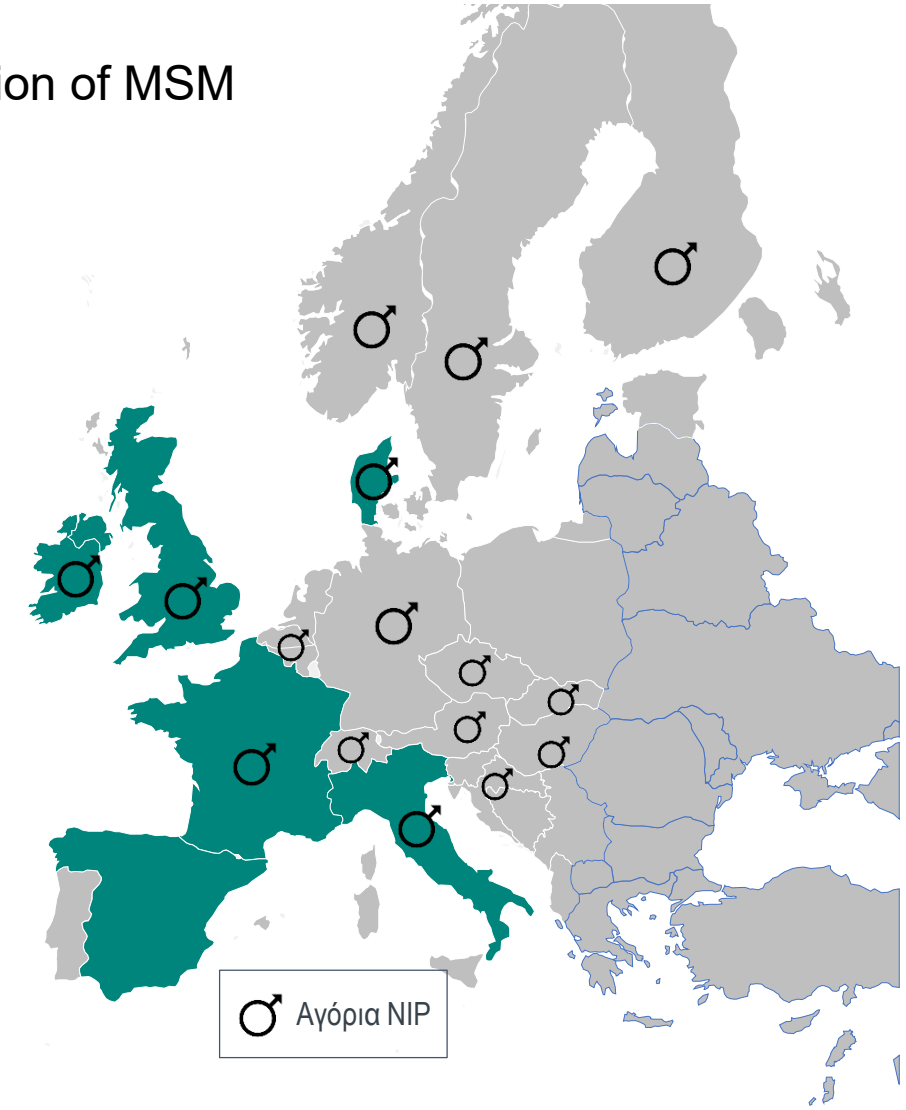
HPV Vaccination Recommendations and Reimbursement for MSM

Some countriew currently have specific recommendations for vaccination of MSM

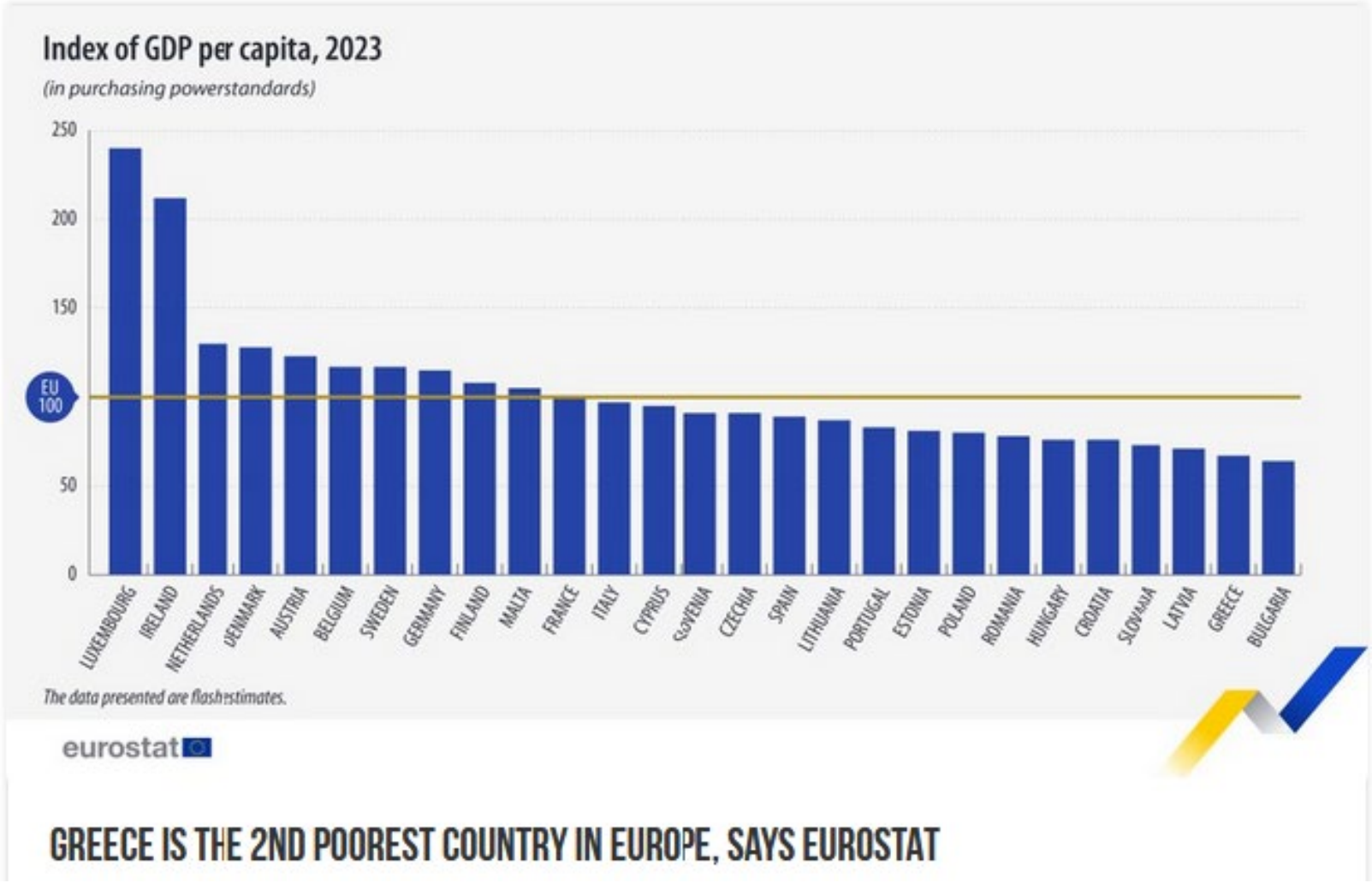
Recommendations

Italy : Any age
Spain : Up to the age of 26 (depending on the region)
France : Up to the age of 26
Ireland : Up to the age of 45
Canada: Up to the age of 27
Denmark : Catch up vaccination for 18-25
United Kingdom: Up to the age of 45
Greece: Up to the age of 26 → **45**

The Greek example



ICNHS Immunization Recommendations, NIAC Ireland, Immunization Guidelines: Italy, French Ministry of Health, Danish Ministry of Health, HPV Vaccination, Human papillomavirus vaccine: Canadian Immunization Guide



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ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΥΠΟΥΡΓΕΙΟ ΥΓΕΙΑΣ
ΓΕΝΙΚΗ Δ/ΝΣΗ ΔΗΜΟΣΙΑΣ ΥΓΕΙΑΣ & ΠΟΙΟΤΗΤΑΣ ΖΩΗΣ
Δ/ΝΣΗ ΔΗΜΟΣΙΑΣ ΥΓΕΙΑΣ & ΥΓΙΕΙΝΗΣ ΠΕΡΙΒΑΛΛΟΝΤΟΣ
ΤΜΗΜΑ Α΄

Ταχ. Διεύθυνση: Δριστοτέλους 19
Ταχ. Κώδικας: 101 87
Τηλέφωνα: 213 216 1348, 1139
Email: ddy@moh.gov.gr
ddy_a@moh.gov.gr

Δάφνη, 7/2/2024
Αριθ. Πρωτ.: 11αμ/Γ.Π.οικ.16223

ΠΡΟΣ:
ΟΙΣ ΠΙΝΑΚΑΣ ΔΙΑΝΟΜΗΣ

ΕΓΚΥΚΛΙΟΣ

ΘΕΜΑ: «Εθνικό Πρόγραμμα Εμβολιασμών Ενηλίκων 2024. Χρονοδιάγραμμα και Συστάσεις».

Σχετικά:

1. *Τα άρθρα 22 και 24 του π.δ.121/2017 (Α΄148) «Οργανισμός Υπουργείου Υγείας», όπως ισχύει.*
2. *Οι διατάξεις του ν. 4675/2020 (Α΄54) «Πρόληψη, προστασία και προαγωγή της υγείας -ανάπτυξη των υπηρεσιών δημόσιας υγείας και άλλες διατάξεις».*
3. *Η υπ' αρ. Απόφαση ΕΑΑΔΗΣΥ 80157/2018 (Β΄4828) των αναπληρωτών Υπουργών Οικονομικών και Υγείας, όπως τροποποιήθηκε και ισχύει (Εθνικός Κανονισμός Παροχών Υγείας).*
4. *Η υπ' αριθ. Α16/Γ.Π.40270/18-9-2020 (ΑΔΑ: ΨΚΟΑ465ΧΘ-6Ο4) Απόφαση Υπουργού «Συγκρότηση και ορισμός μελών στην Εθνική Επιτροπή Εμβολιασμών», όπως τροποποιήθηκε και ισχύει.*
5. *Η υπ' αριθ. Α16/Γ.Π.οικ.74192/29-11-2021 Απόφαση του Γενικού Γραμματέα Δημόσιας Υγείας με θέμα «Συνέχιση λειτουργίας των Επιτροπών Δημόσιας Υγείας του άρθρου 11 του ν.4675/2020 (ΦΕΚ Α΄54) στο πλαίσιο της Επιτροπής Συντεταγμένων Δημόσιας Υγείας (ΕΣΔΥ)».*
6. *Το προτεινόμενο χρονοδιάγραμμα εμβολιασμών ενηλίκων για το έτος 2024 (Παράρτημα Πρακτικού 2ης και 3ης Συνεδρίασης της Εθνικής Επιτροπής Εμβολιασμών, 22/1/2024 και 5/2/2024).*
7. *Τα από 21/2/2024 και 12/2/2024 Ενημερωτικά Σημειώματα της Διεύθυνσης Δημόσιας Υγείας και Υγιεινής Περιβάλλοντος*

Σε συνέχεια του ως άνω (6) σχετικού, κοινοποιείται το Εθνικό Πρόγραμμα Εμβολιασμών Ενηλίκων για το έτος 2024, όπως αυτό συστήνεται από την Εθνική Επιτροπή Εμβολιασμών και αποτυπώνεται με τις σχετικές επεξηγήσεις στους κάτωθι αναφερόμενους πίνακες, που αποτελούν αναπόσπαστο παραρτήμα της παρούσης Εγκυκλίου και είναι οι εξής:

Πίνακας 1. Εθνικό Πρόγραμμα Εμβολιασμών Ενηλίκων, ανά ηλικιακή ομάδα, 2024.

Πίνακας 2. Εθνικό Πρόγραμμα Εμβολιασμών Ενηλίκων, ανά νόσο ή άλλη ένδειξη, 2024.

Πίνακας 3. Ενδείξεις εμβολιασμού για τον τέτανο ατόμων με τραύμα.

Πίνακας 4. Συστάσεις εμβολιασμών σε ενήλικες με Μεταμόσχευση.

1

Greek National Vaccination Program

Πίνακας 1. Εθνικό Πρόγραμμα Εμβολιασμών Ενηλίκων, ανά ηλικιακή ομάδα, 2024

Ηλικία ▶ / Εμβόλιο ▼	18 έως 26 ετών	27 έως 59 ετών	60 έως 64 ετών	65 έως 75 ετών	άνω των 75 ετών
[1] Γρίπης	1 δόση ετησίως (QIVe, QIVc)*		1 δόση ετησίως (QIVe, QIVc)*	1 δόση ετησίως (ενισχυμένα 4-δύναμα αδρανοποιημένα εμβόλια QIV-HD, aQIV ή QIVe, QIVc)*	
[2] Τετάνου, Διφθερίτιδας, Κοκκύτη (Td ή Tdap ή Tdap-IPV)	Αναμνηστική δόση 18 με 25 ετών με Tdap ή Tdap-IPV και στη συνέχεια Td ή Tdap κάθε 10 χρόνια				
[3] Ιλαράς, Παρωτίτιδας, Ερυθράς (MMR)	1-2 δόσεις ανάλογα με το ιστορικό εμβολιασμών (γεννηθέντες μετά το 1970)				
[4] Ανεμευλογιάς (VAR)	2 δόσεις (γεννηθέντες μετά το 1990)	2 δόσεις			
[5] Έρπητα ζωστήρα	2 δόσεις RZV σε ανοσοκατασταλμένα άτομα		1 δόση ZVL μεταξύ 60 και 75 ετών βλέπε σχόλιο 2 δόσεις RZV		
[6] Ιού ανθρωπίνων θηλωμάτων (HPV)	2 ή 3 δόσεις** 18 με 45 ετών				
[7] Πνευμονιόκοκκου (PCV20)	1 δόση PCV20			1 δόση PCV20	
[8] Ηπατίτιδας Α (HepA)	2 δόσεις				
[9] Ηπατίτιδας Β (HepB)	3 ή 4 δόσεις βλέπε σχόλιο				
[10] Μηνιγγιτιδόκοκκου ορομάδων A,C,W135,Y συζευγμένο (MenACWY)	1, 2 ή 3 δόσεις βλέπε σχόλιο				
[11] Μηνιγγιτιδόκοκκου ορομάδας Β πρωτεϊνικό (MenB-4C ή MenB-fHbp)	2-3 δόσεις βλέπε σχόλιο				
[12] Αιμόφιλου ινφλουέντζας τύπου b συζευγμένο(Hib)	1-3 δόσεις ανάλογα με τις ενδείξεις βλέπε σχόλιο				

Συνιστώνται για ενήλικες που πληρούν το ηλικιακό κριτήριο είτε δεν έχουν αποδεικτικό προηγούμενου εμβολιασμού ή νόσησης

Συνιστώνται για ενήλικες με συνοδές ιατρικές καταστάσεις (**ομάδες αυξημένου κινδύνου**) ή άλλες ενδείξεις

Δε συνιστώνται

* Βλέπε κείμενο για επεξήγηση συντομογραφιών

** Συνιστώνται σε ηλικίες μεταξύ 18 και 45 ετών, ανεξαρτήτως φύλου, σε συγκεκριμένες ομάδες αυξημένου κινδύνο

Human papillomavirus (HPV) vaccine

HPV9 (6, 11, 16, 18, 31, 33, 45, 52, 58) vaccine is available in Greece.
HPV9 is recommended for unvaccinated women and men, aged 18-45 in the following special groups of increased risk:

- o Primary or secondary immunosuppression
- o **HIV infection.**
- o Malignant neoplasms.
- o Transplantation.
- o Autoimmune diseases.
- o Receiving immunosuppressive treatment.
- o Women who are unvaccinated and have undergone or are about to undergo cone resection (CIN2+).
- o **Men who have sex with men (MSM)**

It is recommended to carry out two doses with an interval of 6 months (formula 0, 6) for all groups with the following exceptions: people with HIV infection and people with immunosuppression or receiving immunosuppressive treatment in which it is recommended to carry out three doses (form 0.1–2, 6 months)

Main points

- HPV transmission from women to men is higher than from men to women.
- Indirect herd protection in males depends on maintaining high vaccination coverage in females.
- MSM are not likely to benefit from herd protection by vaccinating only females.
- Vaccination regardless of gender provides immediate protection for men.

"Vaccinating men reduces virus circulation from unvaccinated cohorts and therefore accelerates the benefits for women, through a process known as herd protection. The effect of vaccination with lower coverage can be directly improved by vaccination regardless of sex."1 -ESGO-EFC

"At the population level, HPV vaccination of boys provides direct protection against HPV disease, indirect herd protection in girls, and ensures that vulnerable groups that do not benefit from these herd effects, such as MSM and immigrants, are protected who are outside the herd."2 -HIQA

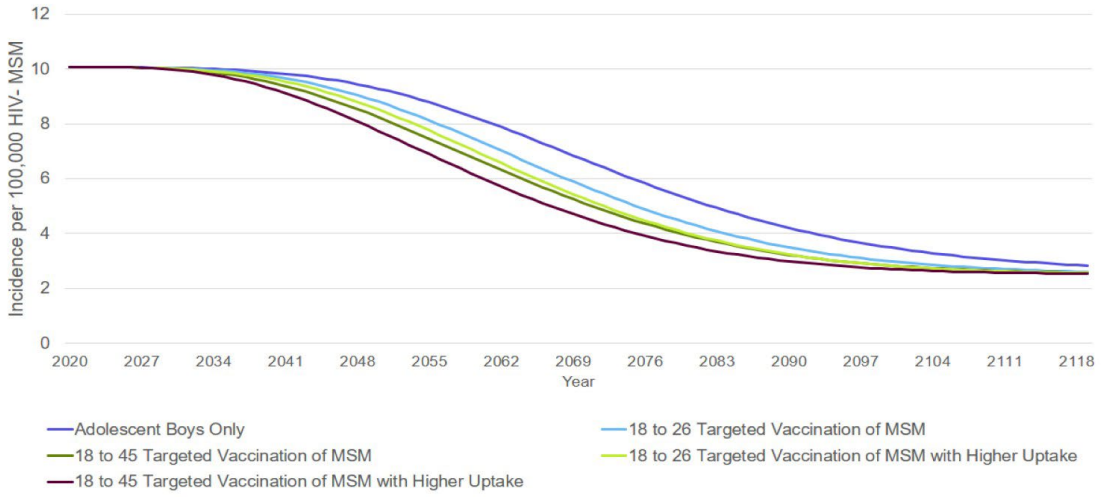
MSM=Men who have sex with men

1. European Society of Gynaecologic Oncology & European Federation for Colposcopy Position Paper on HPV Vaccination. Joura EA, et al. *Eur J Cancer.* 2019;116:21–26. 2. Health Information and Quality Authority, Ireland. Report on National Immunizastion Schedule to include HPV vaccination of Boys, 2018.

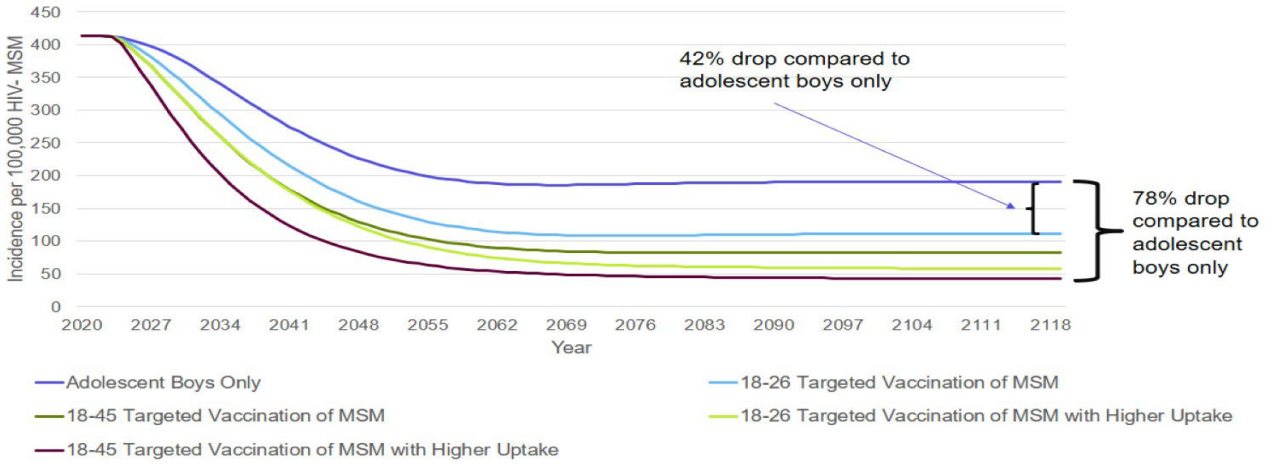
Modeling health impact and cost-effectiveness of HPV vaccination in HIV+ and HIV- MSM in Germany

Substantial reduction in HPV related disease

Results: Anal Cancer Incidence in HIV- MSM



Results: Anogenital Warts Incidence in HIV- MSM



- **The benefit among HIV+ MSM , is significant, with approximately a third of averted cases being seen in 5-6% of the MSM population**
- **Addition of MSM up to 45 is cost -effective**

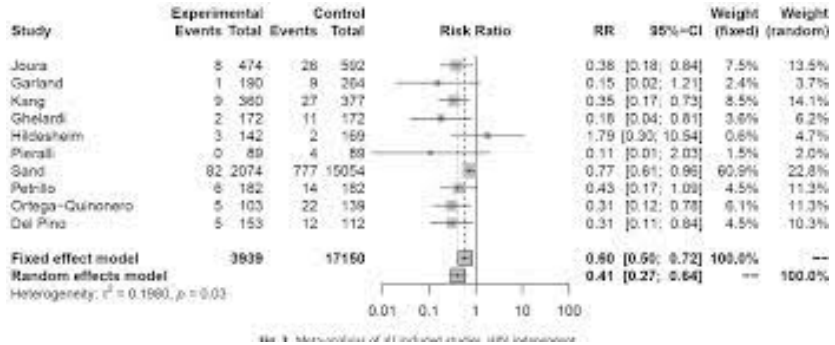
*Study funded by MSD

C. Wahner et al. P. 3805 EUROGIN 2022, Dusseldorf

Prophylactic HPV vaccination after conization: A systematic review and meta-analysis

Included studies (n.a. = not available).

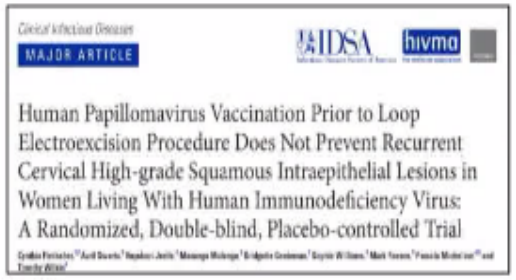
Reference	Endpoint	Vaccine type	No. of recurrent CIN cases		Risk reduction (%) [95% CI] or study results as reported	Study population	Study design
			Vaccinated cohort 2/4v vaccine n/N (%)	Control group n/N (%)			
Joura et al.	**CIN2+ (HPV-type independent)**	Quadri-valent	**8/474 (1.7)**	**26/592 (4.4)**	**64.9 [20.1–86.3]**	Age 15–26 years Vaccination before surgery	Post-hoc-analysis (FUTURE I and II) Follow-up 2.5 years (median) retrospectively
	CIN2+ (HPV 16, 18)	Quadri-valent	1/474 (0.2)	3/592 (0.51)	61.3 [−382.4 to 99.3]		
Garland et al.	**CIN2+ (HPV-type independent)**	Bivalent	**1/190 (0.53)**	**9/264 (3.41)**	**88.2 [14.8–99.7]**	Age 15–25 years Vaccination before surgery	Post-hoc analysis PATRICIA prospective randomization
	CIN 2+ (HPV 16, 18)	Bivalent	0/190 (0)	4/265 (1.51)	100 (-63.1–100)		Follow-up 4 years
Kang et al.	**CIN2+ (HPV-type independent)**	Quadri-valent	**9/360 (2.5)**	**27/377 (7.2)**	**65.1 (p < 0.05)**	Age 20–45 years Vaccination after surgery	Retrospective Follow-up 3.5 years (median)
	CIN2+ (HPV16, 18)	Quadri-valent	5/197 (2.5)	18/211 (8.5)	70.2 (p < 0.01)		
Ghelardi et al.	**CIN2+ (HPV-type independent)**	Quadri-valent	**2/172 (1.2)**	**11/172 (6.4)**	**81.2 [34.3–95.7]**	Age 18–45 years Vaccination after surgery	Prospective, non-randomized Follow-up 36 years (median)
Hildesheim et al.	**CIN2+ (HPV-type independent)**	Bivalent	**3/142 (2.11)**	**2/169 (1.18)**	**"N**o significant effect"	Age 18–25 years Vaccination after surgery	Randomized double blind clinical trial of 7466 Costa Rican women (NCI)
	CIN 2+ (HPV 16,18)	Bivalent	**3/142 (2.11)**	**1/169 (0.59)**	**n.a.**		Follow-up 57 mo. (HPV +), 27 mo. (LEEP)
Pieralli et al.	**CIN 2+ (HPV-type independent)**	Quadri-valent	**0/89 (0)**	**4/89 (4.49)**	**n.a. for CIN 2+**	Age < 45 years Vaccination after surgery	Prospective, randomized Not blinded Follow-up 3 years
	LSIL	Quadri-valent	3/89 (3.37)	8/89 (8.99)	3.4% vs. 13.5% Recurrence (p = 0.0147) NNT 10		
Sand et al.	**CIN 2+ (HPV type independent)**	Bi-/Quadri-valent	**82/2074 (3.95)** 14/399 (3.51) (before LEEP) 68/1675 (4.06) (after LEEP)	**777/15054 (5.16)**	HR 0.86 [0.67–1.09]	Age 17–51 years Vaccination before (0–3 months) or after (0–12 months) surgery	Prospective, cohort study (nationwide registry)
Petrillo et al.	**CIN 2+ (HPV independent)**	Bi-/Quadri-valent	**6/182 (3.29)**	**14/182 (7.69)**	**3.3% vacc vs. 13.6% non-vacc = HR 0.24**	Age 32–47 Vaccination after (0–1 month) after surgery	Retrospective Follow-up 2 years
	CIN 1+	Bi-/Quadri-valent	13/182 (7.14)	17/103 (16.50)	7.1% vacc vs. 16.5% non-vacc = HR 0.43		
Ortega-Quinonero et al.	**CIN 2+ (HPV independent)**	Bi-/Quadri-valent	**5/103 (4.85)**	**22/139 (15.83)**	**4.8% vacc vs. 15.8% non vacc = HR 0.3**	Age 18–65 Vaccination before or after (0–1 month) surgery	Retrospective Follow-up 2 years
	CIN 2 + (HPV 16,18)	Bi-/Quadri-valent	3/51 (5.88)	15/69 (21.74)	5.8% vacc vs. 21.7% non vacc = HR 0.27		
Del Pino et al.	**CIN 2+ (HPV independent)**	Bi-/Quadri-valent	**5/153 (3.27)**	**12/112 (10.71)**	**3.3% vacc vs. 10.7% non vacc = HR 0.31**	Age 26–64 Vaccination after (0–12 months) surgery	Prospective Follow up 22.4 months median



Conclusion: Meta-analysis showed a significant risk reduction of developing recurrent cervical intraepithelial neoplasia after surgical excision and HPV vaccination compared to surgical excision only.

M. Jentshke et al. Vaccine 2020

Secondary prophylaxis

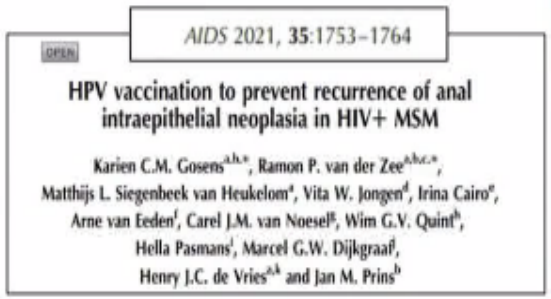

Clinical Infectious Diseases

MAJOR ARTICLE

IDSA hivma

Human Papillomavirus Vaccination Prior to Loop Electroexcision Procedure Does Not Prevent Recurrent Cervical High-grade Squamous Intraepithelial Lesions in Women Living With Human Immunodeficiency Virus: A Randomized, Double-blind, Placebo-controlled Trial

2021 South Africa
Randomized, double blinded, placebo-controlled
HPV4v, FU 1 years
n= 174, median age 39 years
CD4 489, nadir 116 /µL, HIVRNA <50 cp/ml in 93%
No decrease in recurrence rate
BUT no data on HPV genotypes


AIDS 2021, **35**:1753–1764

OPEN

HPV vaccination to prevent recurrence of anal intraepithelial neoplasia in HIV+ MSM

Karien C.M. Gosens[a,b,*], Ramon P. van der Zee[a,b,c,*], Matthijs L. Siegenbeek van Heukelom[a], Vita W. Jongen[d], Irina Cairo[e], Arne van Eeden[f], Carel J.M. van Noesel[g], Wim G.V. Quint[h], Hella Pasmans[i], Marcel G.W. Dijkgraaf[j], Henry J.C. de Vries[a,k] and Jan M. Prins[b]

2021 Netherlands NCT02087384
Randomized, double blinded, placebo-controlled
HPV4v, FU untill 12 months after vaccination
N=126, median age 49 years
CD4 700/µL, nadir 240 /µL
HIVRNA <50 cp/ml in 95%
No de
BUT 6

HPV Vaccination after Primary Treatment of HPV-Related Disease across Different Organ Sites: A Multidisciplinary Comprehensive Review and Meta-Analysis

Abstract Go to:

Objective: To assess evidence on the efficacy of adjuvant human papillomavirus (HPV) vaccination in patients treated for HPV-related disease across different susceptible organ sites. Methods: A systematic review was conducted to identify studies addressing the efficacy of adjuvant HPV vaccination on reducing the risk of recurrence of HPV-related preinvasive diseases. Results were reported as mean differences or pooled odds ratios (OR) with 95% confidence intervals (95% CI). Results: Sixteen studies were identified for the final analysis. Overall, 21,472 patients with cervical dysplasia were included: 4132 (19.2%) received the peri-operative HPV vaccine, while 17,340 (80.8%) underwent surgical treatment alone. The recurrences of CIN 1+ (OR 0.45, 95% CI 0.27 to 0.73; $p = 0.001$), CIN 2+ (OR 0.33, 95% CI 0.20 to 0.52; $p < 0.0001$), and CIN 3 (OR 0.28, 95% CI 0.13 to 0.59; $p = 0.0009$) were lower in the vaccinated than in unvaccinated group. Similarly, adjuvant vaccination reduced the risk of developing anal intraepithelial neoplasia ($p = 0.005$) and recurrent respiratory papillomatosis ($p = 0.004$). No differences in anogenital warts and vulvar intraepithelial neoplasia recurrence rate were observed comparing vaccinated and unvaccinated individuals.

Conclusions: Adjuvant HPV vaccination is associated with a reduced risk of CIN recurrence, although there are limited data regarding its role in other HPV-related diseases. Further research is warranted to shed more light on the role of HPV vaccination as adjuvant therapy after primary treatment.

European Cancer Organization: Recommendations on HPV Vaccination

- By **2025**, all European country cancer plans should include actions towards achieving **population-based and gender-neutral HPV vaccination**, if not already in place.
- By **2030**, **gender-neutral vaccination programmes** against HPV infection should be in place in all European countries.
- The target vaccination rate by 2030 in all European countries should be at least **90% of adolescents of both genders** completing the full course.
- Supplementary to gender-neutral vaccination programmes, consideration should be given to the needs of **high-risk groups, including men who have sex with men**, migrants and sex workers, that may otherwise fall outside of the age parameters of the universal vaccination programme.
- Consideration should be given to extending routine vaccination programmes to **older age groups on a gender-neutral basis**.

European Cancer Organization Recommendations on Vaccination. Accessed on January 23, 2023.

Possible barriers

- Cost
- Not being fully reimbursed
- Not in the national guidelines
- Fear of side effects
- General attitude against vaccination
- Health care providers don’t encourage vaccination
- Guidelines not being properly disseminated among health care providers
- Lack of knowledge/awareness among people who would benefit from HPV vaccine
- Shortage of vaccines, stockouts

If there was a vaccine to prevent cancer, would you get it for your kids?

For more information about the HPV vaccine, talk to your child's healthcare provider, local health department or pharmacist. **1-800-275-0659** | **www.immunize-utah.org**

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UTAH'S PUBLIC HEALTH DEPARTMENTS

HPV YOU ARE THE KEY TO CANCER PREVENTION