St. Jude Children's Research Hospital | HPV Cancer Prevention Program

2025 HPV AWARENESS DAY SEMINAR SERIES

Closing the HPV Vaccination Gap and Preventing HPV Cancers from Boys to Men

March 6, 2025

stjude.org/hpv • #EndHPVCancers

Organizer

Madeline McNee, MPH
Program Coordinator,
St. Jude HPV Cancer Prevention Program

Welcome to the HPV Awareness Day Seminar Series

- Today's meeting will be recorded. The link to view the recording and PDF of materials will be shared with all who have registered. In addition, the recording link will be posted publicly in the future.
- During the moderated discussion, please use the Q&A feature to pose questions to panelists.
- If you have any issues during today's meeting, please use the chat or email PreventHPV@stjude.org.

Learning Objectives

By the end of the seminar, participants will be able to:

- Review and discuss HPV cancers affecting men, and the importance of HPV vaccination as a method of prevention.
- Discuss ongoing efforts to encourage men to get vaccinated against HPV.
- Discuss relevant programs and research related to HPV vaccination and HPV cancers among men.

David Winterflood

MODERATOR

Director

NOMAN is an Island: Race to End HPV

Presenters

Jason Mendelsohn
Oral Cancer Survivor
Founder, SupermanHPV

Staci Sudenga, PhD
Assistant Professor of Medicine, Vanderbilt University Medical Center

Ashish Deshmukh, PhD
Professor, Public Health Sciences, Hollings Cancer Center

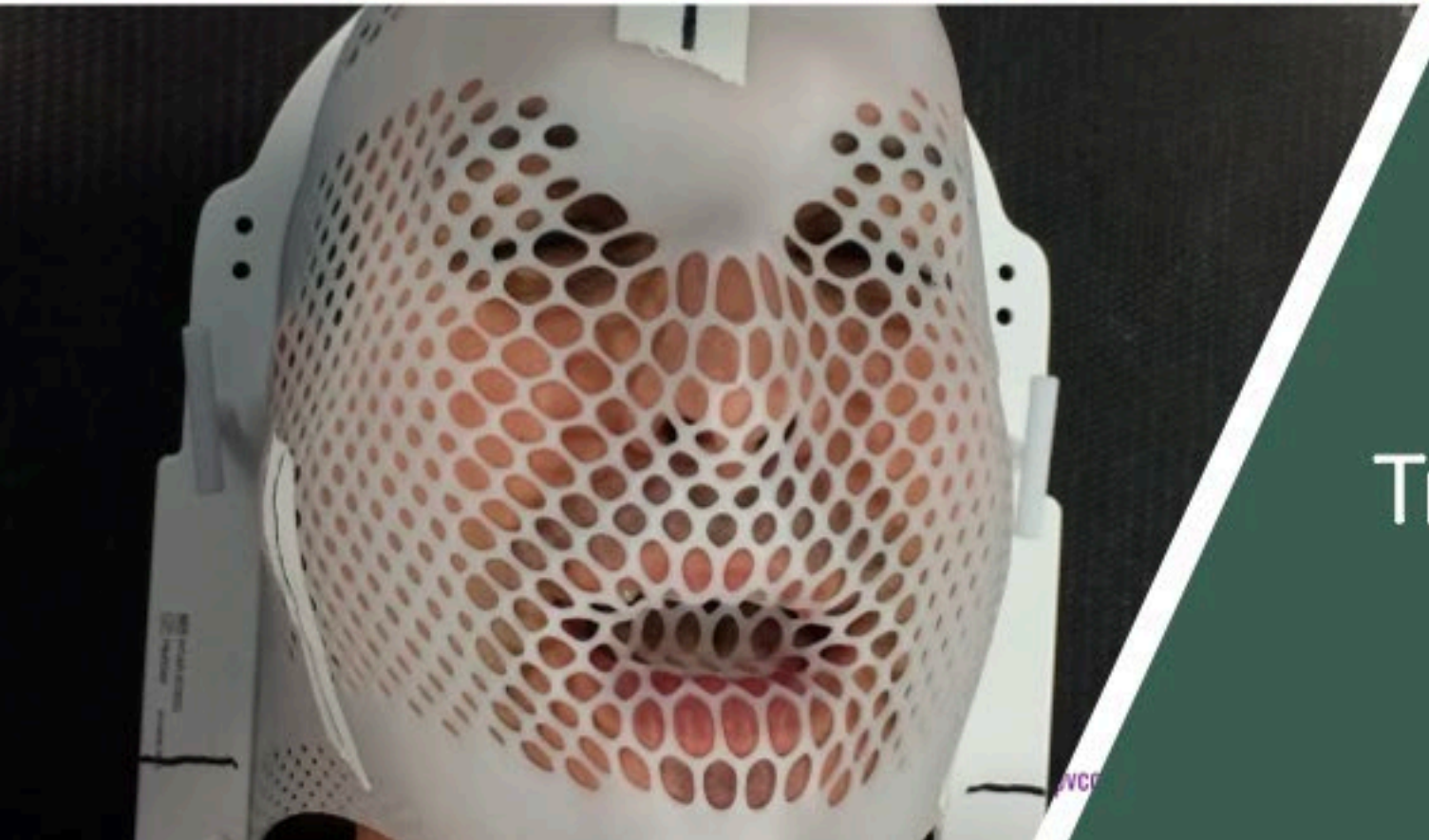
Carlton Allen, MS
Program Manager for Prevention, Cancer Prevention & Research Institute of Texas

Jason Mendelsohn

SPEAKER

Founder, SupermanHPV

Oral Cancer Survivor



The Hell of Treatment & Helping Others Survive It

Staci Sudenga, PhD

SPEAKER

Assistant Professor of Medicine

Vanderbilt University Medical Center

Closing the HPV Vaccination Gap and Preventing HPV Cancers from Boys to Men

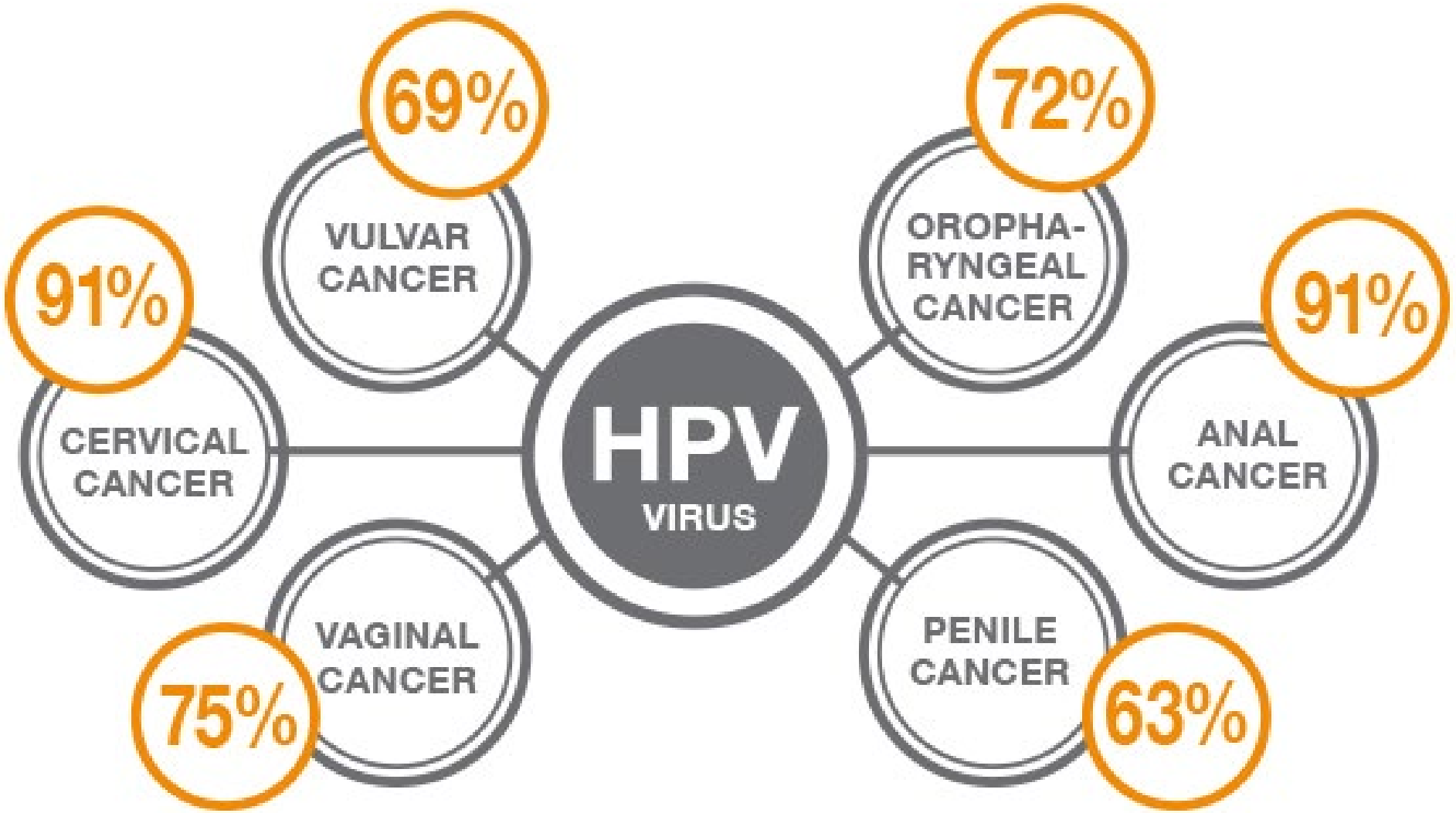
Staci L. Sudenga, Ph.D., M.P.H.

Assistant Professor of Medicine

Division of Epidemiology

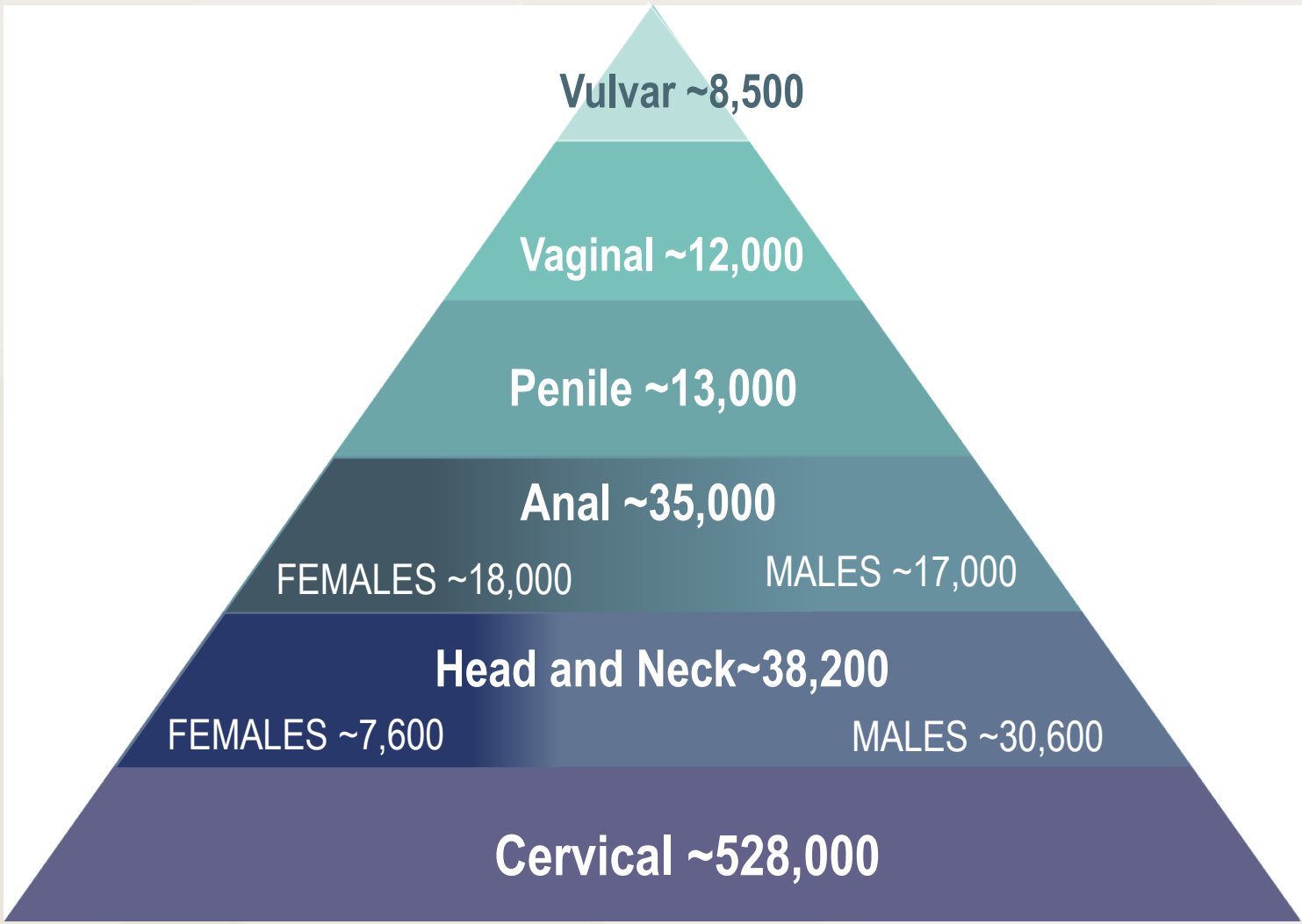
VANDERBILT UNIVERSITY MEDICAL CENTER

HPV CAUSES SIX TYPES OF CANCER



Annual HPV-Related Cancers Worldwide

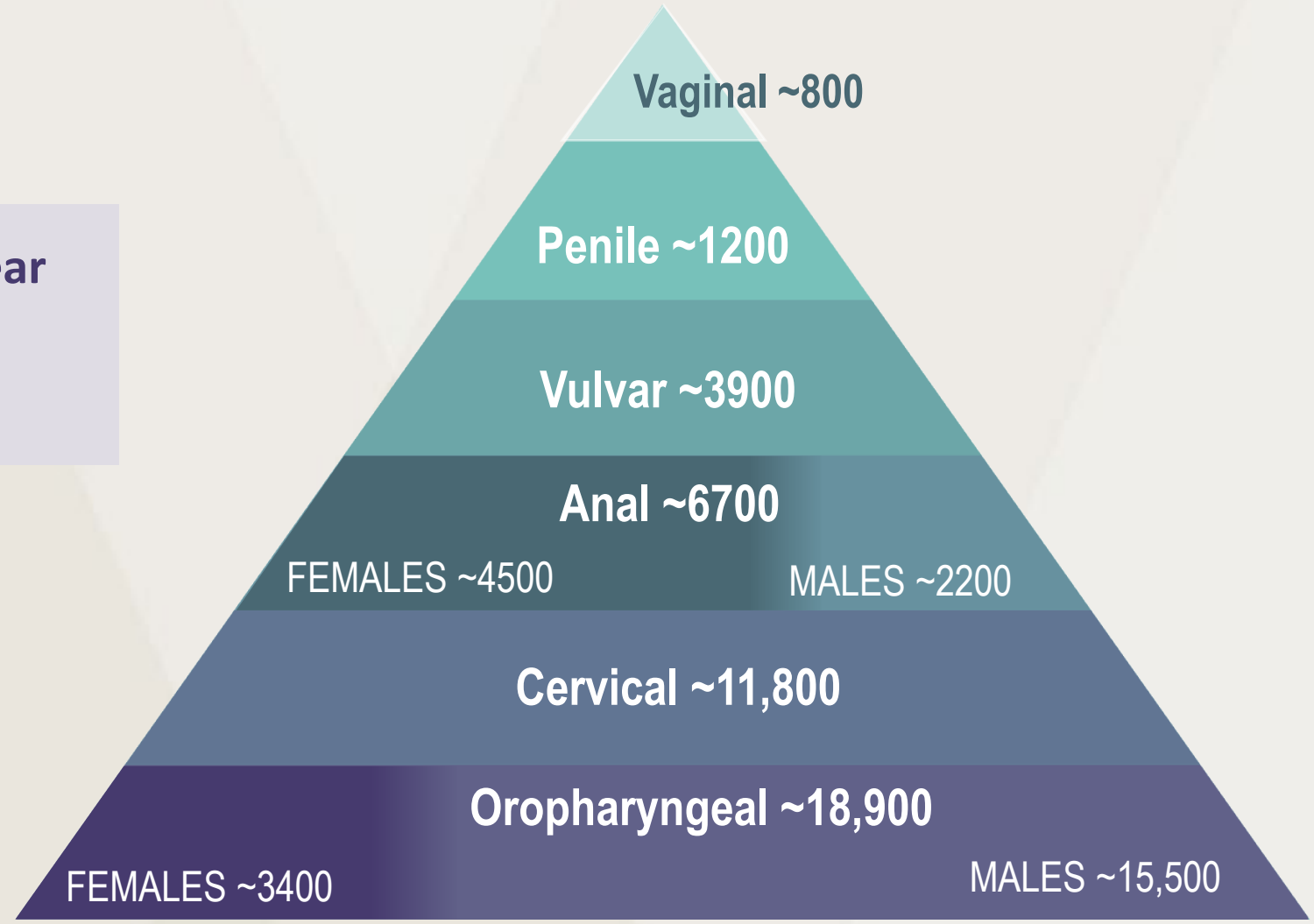
- ~106,700 non-cervical HPV-related cancers each year are diagnosed each year
- Incidence of many of these cancers is increasing



Serrano et al, *Best Practice & Research Clinical Obstetrics and Gynaecology*, 2018; Plummer et al, *Lancet Glob Health*, 2016

HPV-Related Cancers Among Men and Women in the US

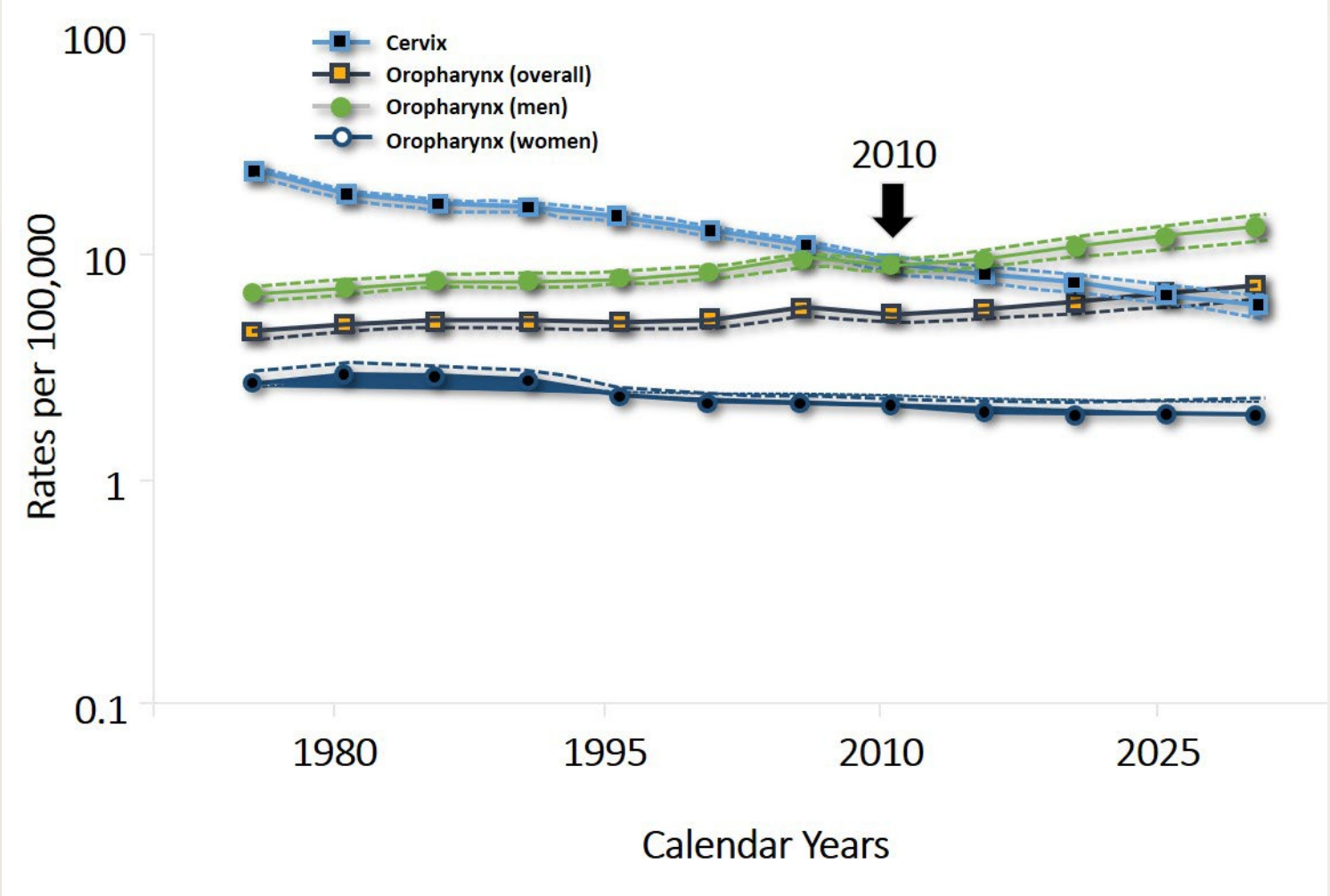
- ~18,900 oropharyngeal cases each year
- Incidence ~5x higher in males than females



Van Dyne et al, *MMWR* 2018 Aug 24;67(33):918-924

The HPV disease burden in the United States has shifted to males

Observed and Projected Incidence Rates for Oropharyngeal Cancers and Cervical Cancer



Chaturvedi AK et al. *J Clin Oncol*. 2011;29:4294–4301.

Genital HPV

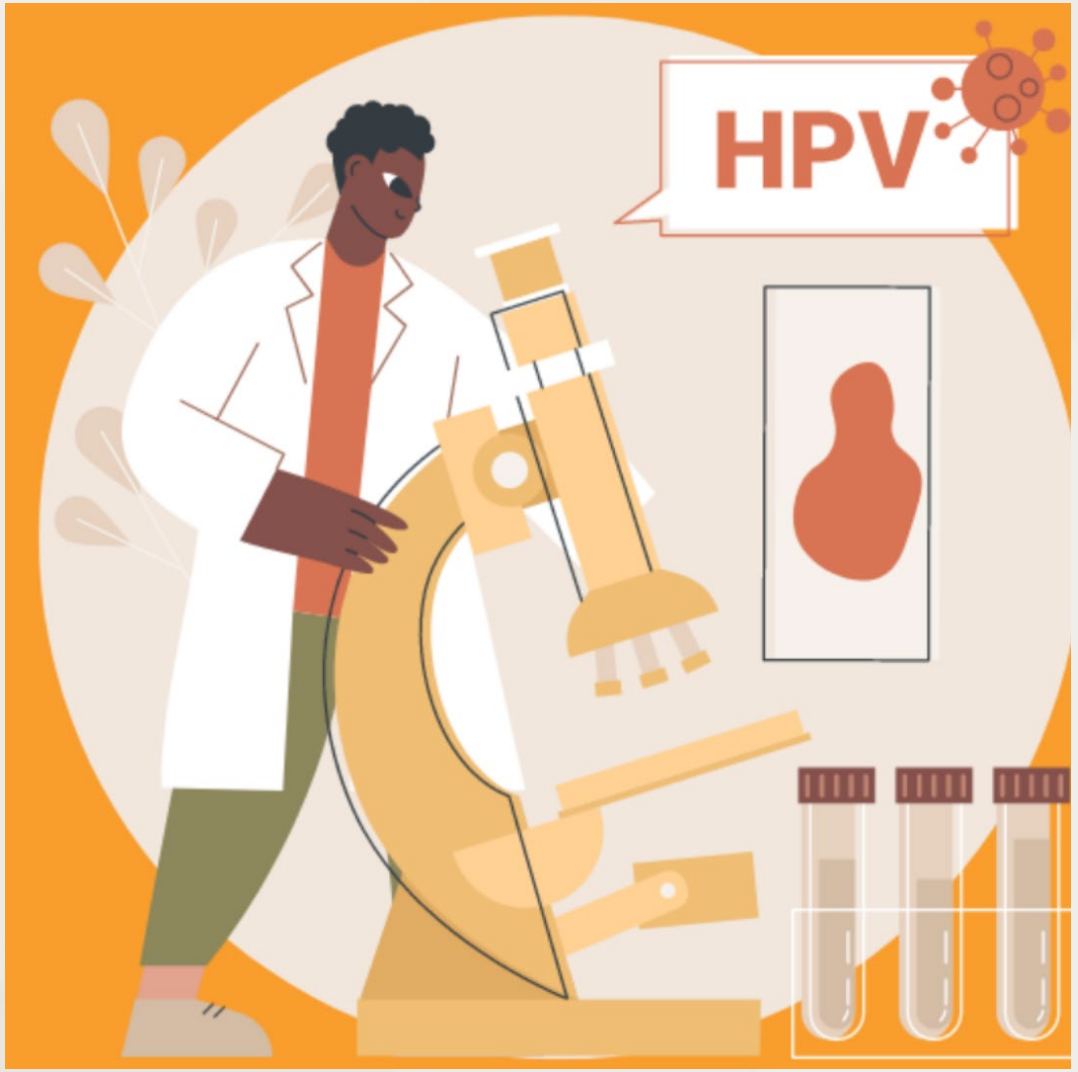
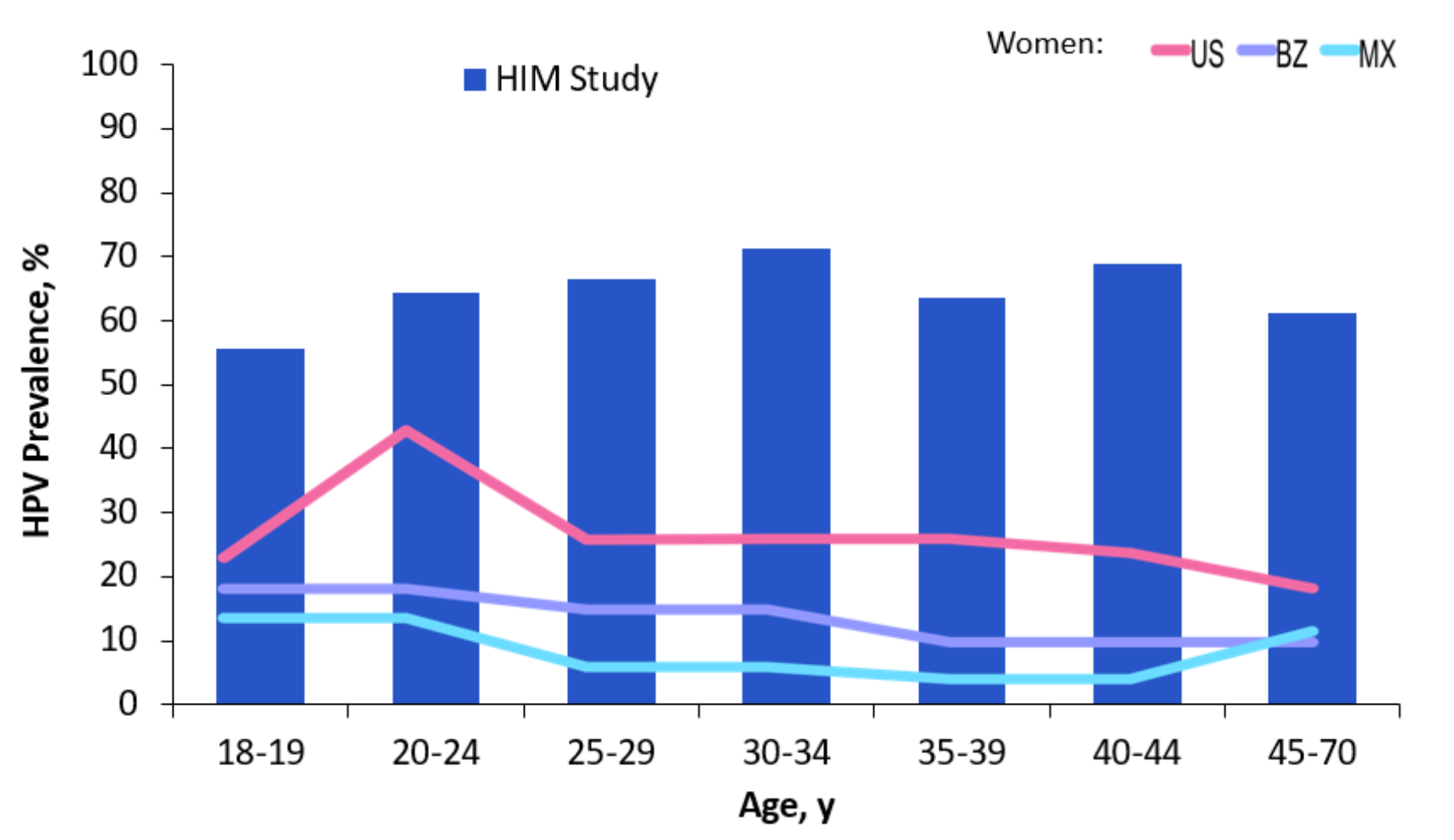


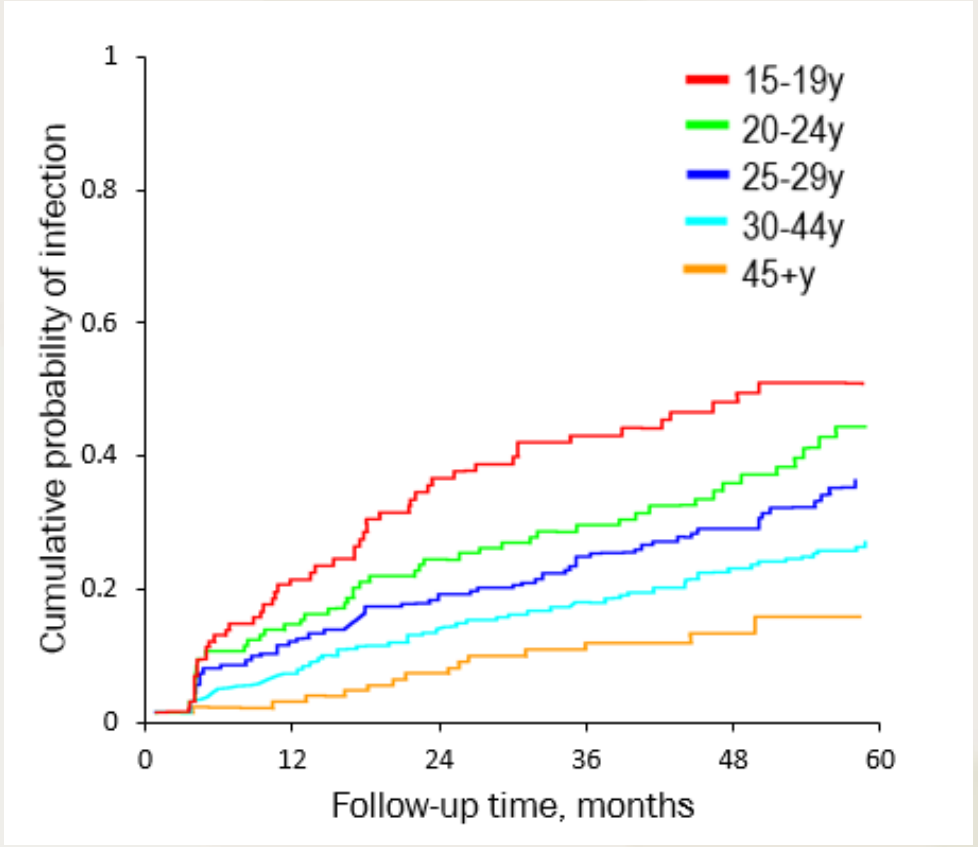
Image from American Sexual Health Association

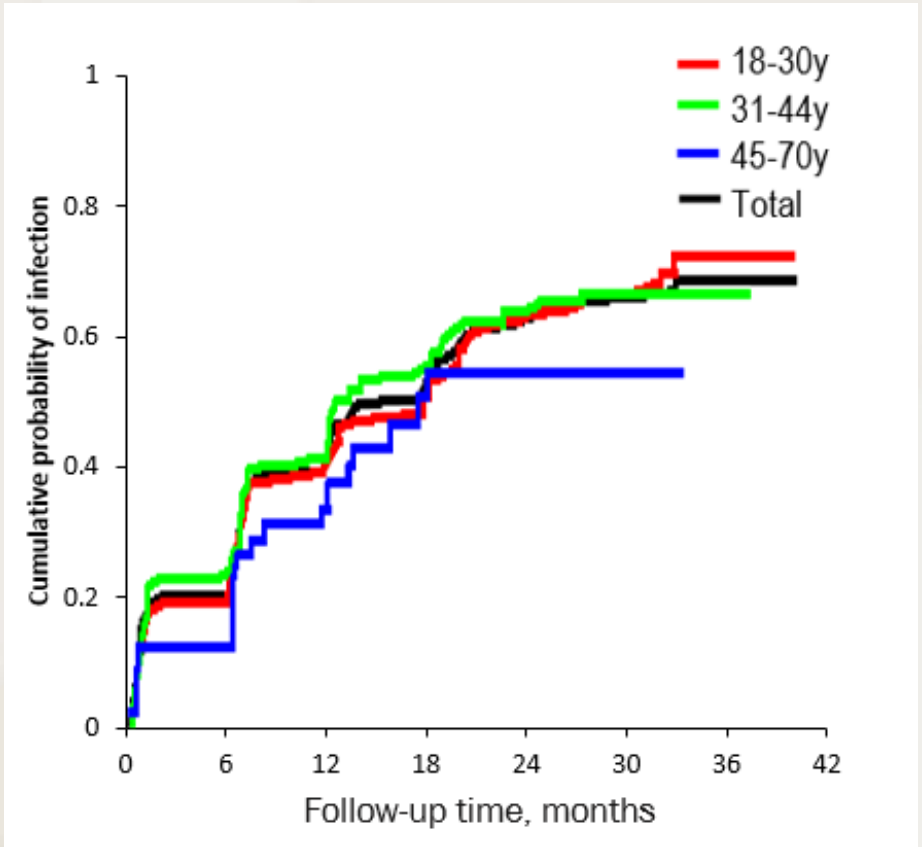
Genital HPV Prevalence is Higher in Men than Women and Does Not Vary with Age



Giuliano AR et al., *CEBP* 2008;17:2036–43; Dunne E et al., *JAMA* 2007;297:813-819; WHO/ICO Information Centre on HPV and Cervical Cancer.

Genital HPV Incidence Lowest in Older Women but Does NOT Vary with Age in Men

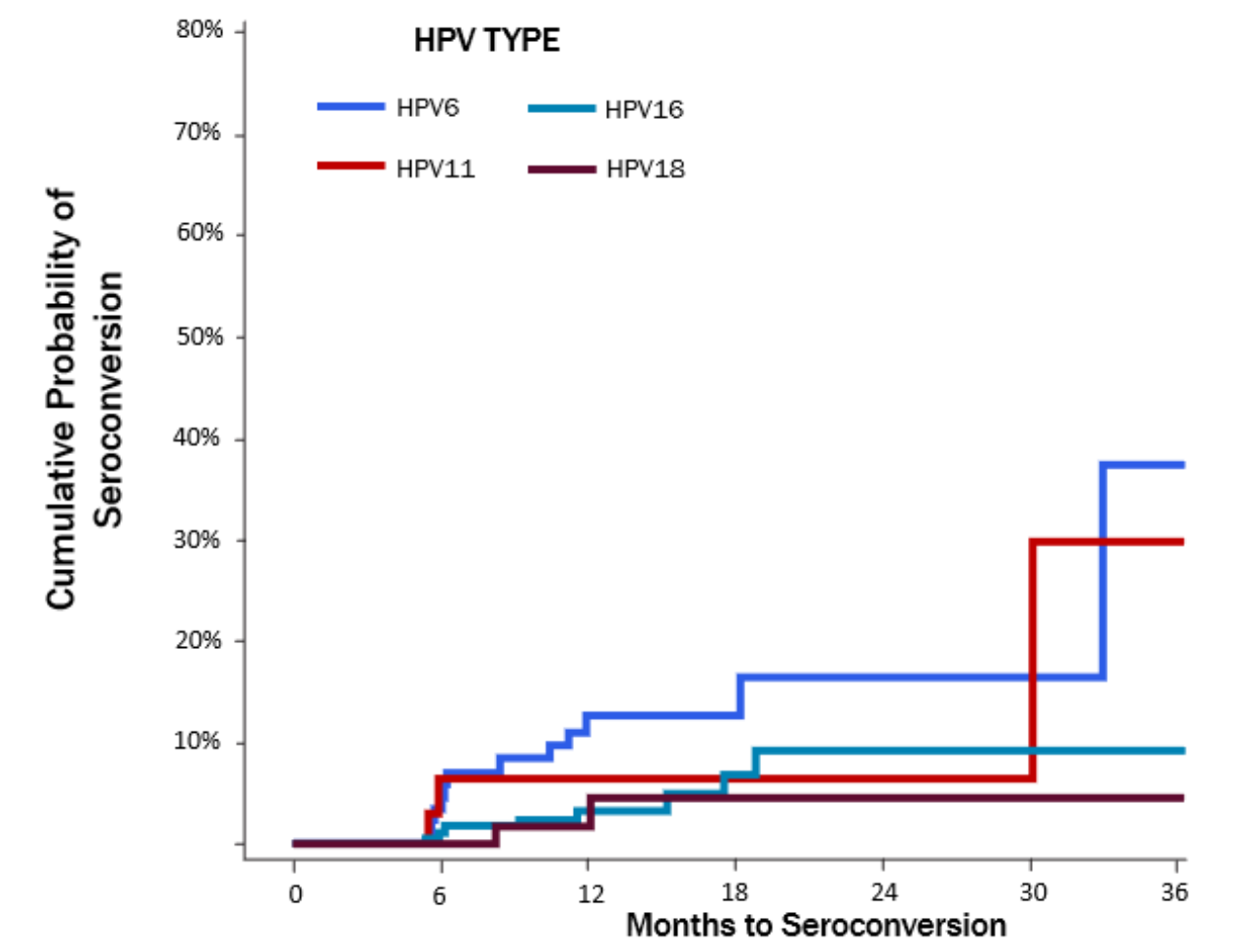




Any HPV

Giuliano AR et al., *Lancet* 2011; Muñoz N et al., *JID* 2004.

Men Have Low Rate of Seroconversion Following Genital HPV Infection



	% Seroconversion	
Type	**Males**	**Females**
HPV6	19.3%	68.8%
HPV11	8.6%	
HPV16	3.6%	59.5%
HPV18	3.4%	54.1%

Giuliano et al., *PVR* 2015; Carter JJ et al., *J Infect Dis* 2000

Antibodies to Natural Infection Do Not Protect Against New Infections in Men, except for HPV18

	Seropositive n / N	Seronegative n / N	Crude HR (95% CI)
6-month persistent infection			
HPV 6	7 / 283	100 / 3105	0.80 (0.37-1.72)
HPV 11	2 / 513	37 / 3132	0.33 (0.08-1.35)
HPV 16	21 / 420	120 / 2912	1.25 (0.79-1.99)
HPV 18	**2 / 391**	**74 / 3202**	**0.22 (0.05-0.91)**

n: number of infections; N: number of men

Seropositivity is not associated with decreased anal or oral HPV 16 incidence

Pamnani SJ et al., *Cancer Res* 2016;76:6066-75

High Rates of HPV Infection Progression to Genital Warts in Men

HPV Type	Genital Warts		PeIN	
	Proportion of infections that progress,%	Median Time to EGL	Proportion of infections that progress, %	Median Time to EGL
6	**26.4**	**7.8**	0.8	3.4
11	**23.6**	**4.1**	1.4	1.2
16	1.1	7.4	**1.6**	**19.0**
18	0.7	5.7	0.0	NE

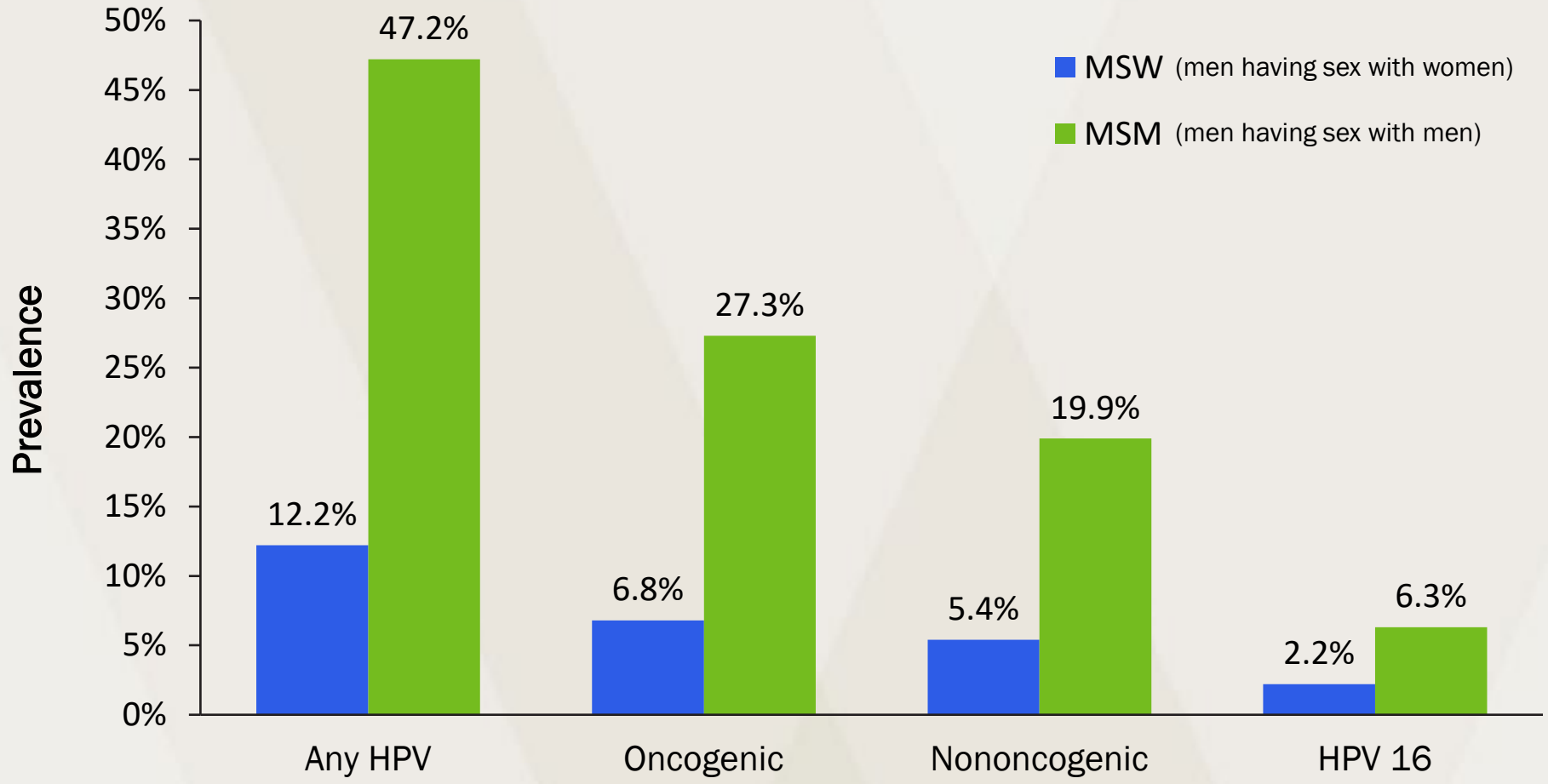
HPV progression to genital wart and PeIN do not vary by age – men ages 18-74 years

Sudenga S et al *Eur J Urol*, 2016. 69(1):166-73.

Anal HPV

Image from American Sexual Health Association

Anal Canal HPV Prevalence in Men by Sexual Behavior



Nyitray AG et al., *J Infect Dis*. 2011;203:49–57.

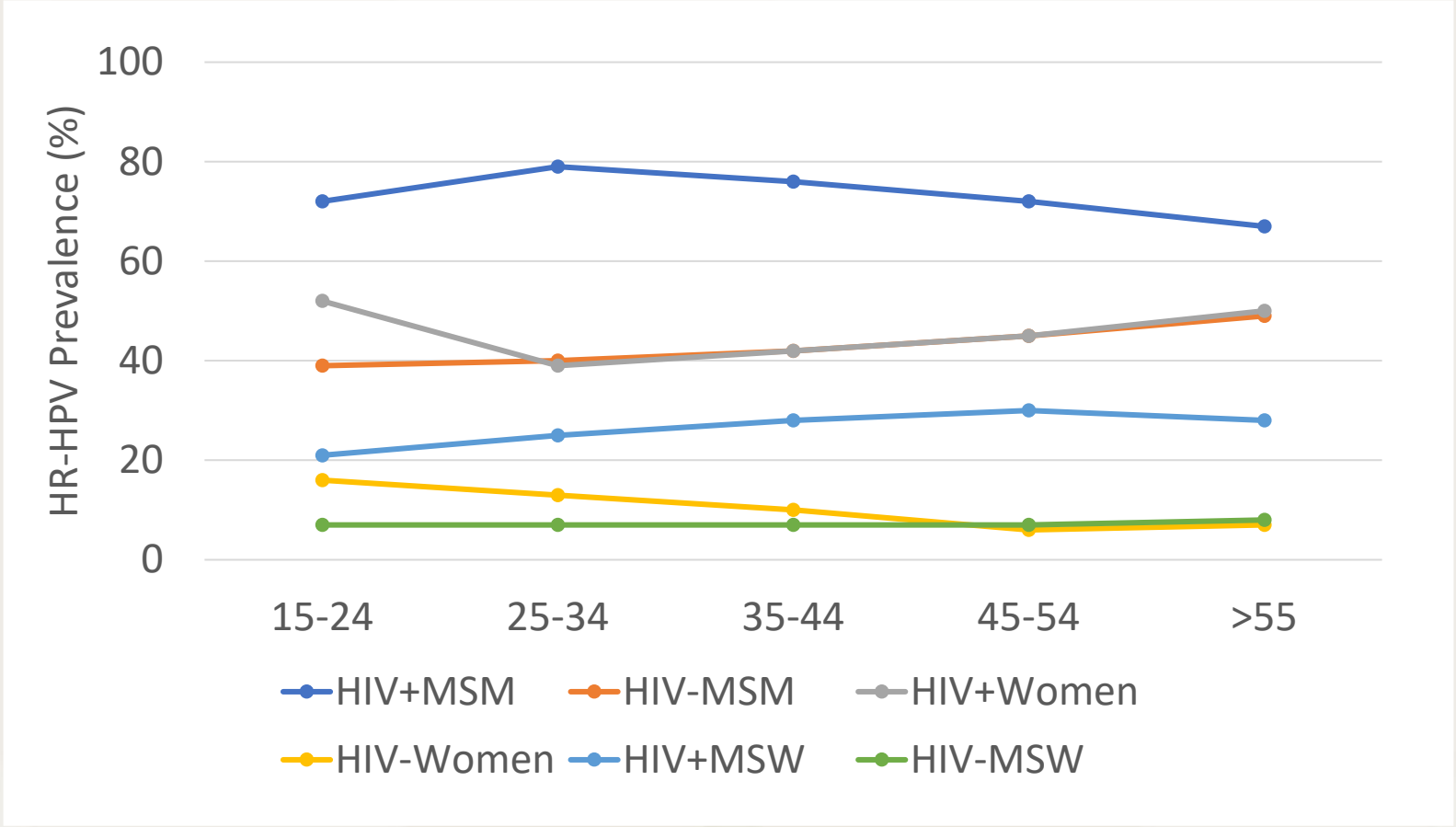
Risk of Sequential Acquisition of Anal HPV Infection Following Genital HPV Infection among MSW

HPV Type	Crude HR (95% CI)	Adjusted HR [a] (95% CI)	Adjusted [b] HR (95% CI)
Any	2.2 (1.1, 4.4)	2.3 (1.1, 4.7)	2.5 (1.2, 5.3)
Low risk	5.4 (1.2, 24.2)	5.2 (1.2, 23.2)	7.8 (1.4, 43.2)
High Risk	**2.9 (1.4, 6.0)**	**3.1 (1.4, 6.8)**	**3.3 (1.5, 7.3)**
HPV 6	4.6 (0.9, 22.8)	4.7 (0.9, 23.6)	6.2 (1.0, 37.3)
HPV 11	NE	NE	NE
HPV 16	**4.6 (1.4, 15.2)**	**4.5 (1.3, 14.9)**	**6.4 (1.9, 21.7)**
HPV 18	NE	NE	NE

Due to small numbers, bivariate analyses were conducted. Adjustments were for the following as time-varying covariates
a. alcohol use; b. lifetime number of female sex partners

Pamnani SJ et al., *J Infect Dis*. 2016 Oct 15;214(8):1180-7

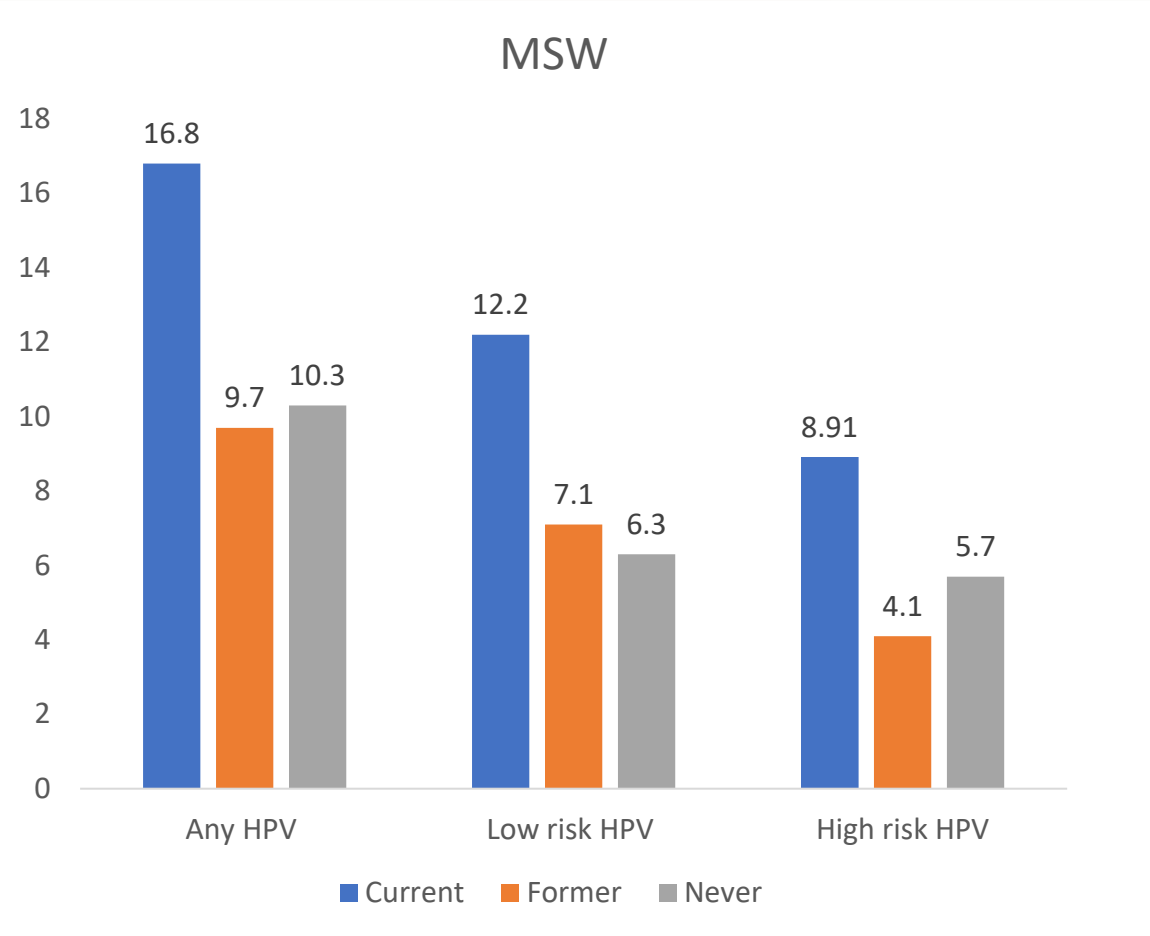
Age-specific prevalence of anal high-risk HPV among men and women with and without HIV

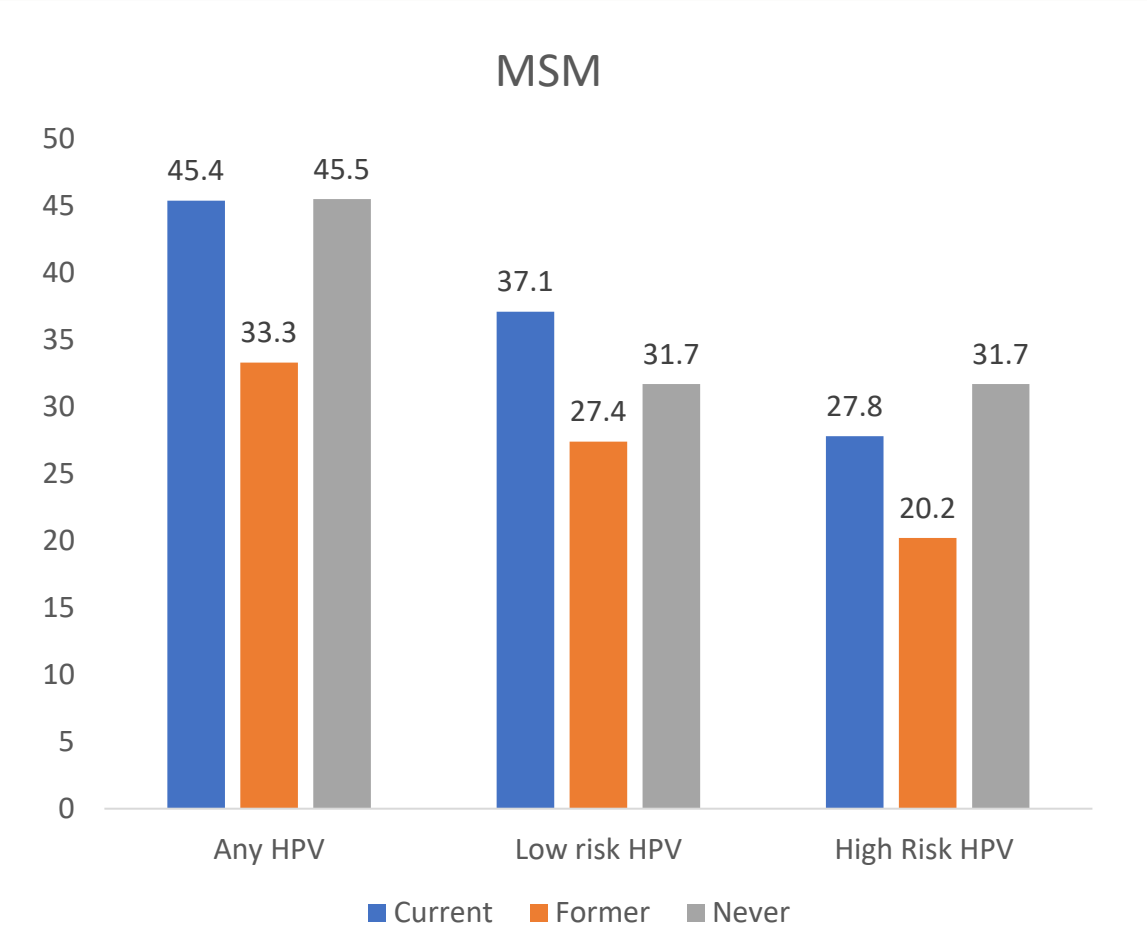


MSM: men who have sex with men; MSW: men who have sex with women

Wei. 2022. JID

Anal HPV Prevalence by Sexual Orientation and Smoking





MSM: men who have sex with men; MSW: men who have sex with women

Oral HPV

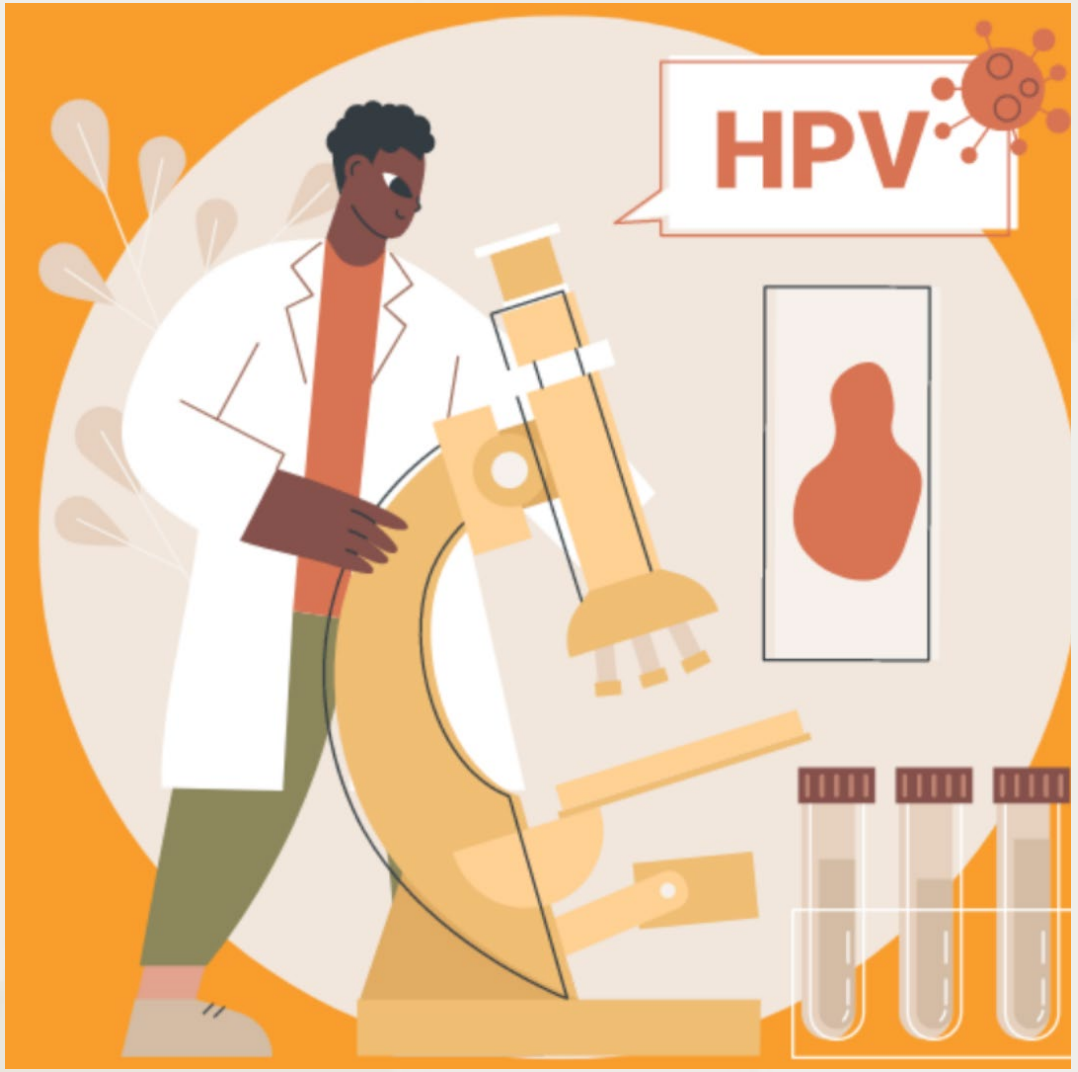
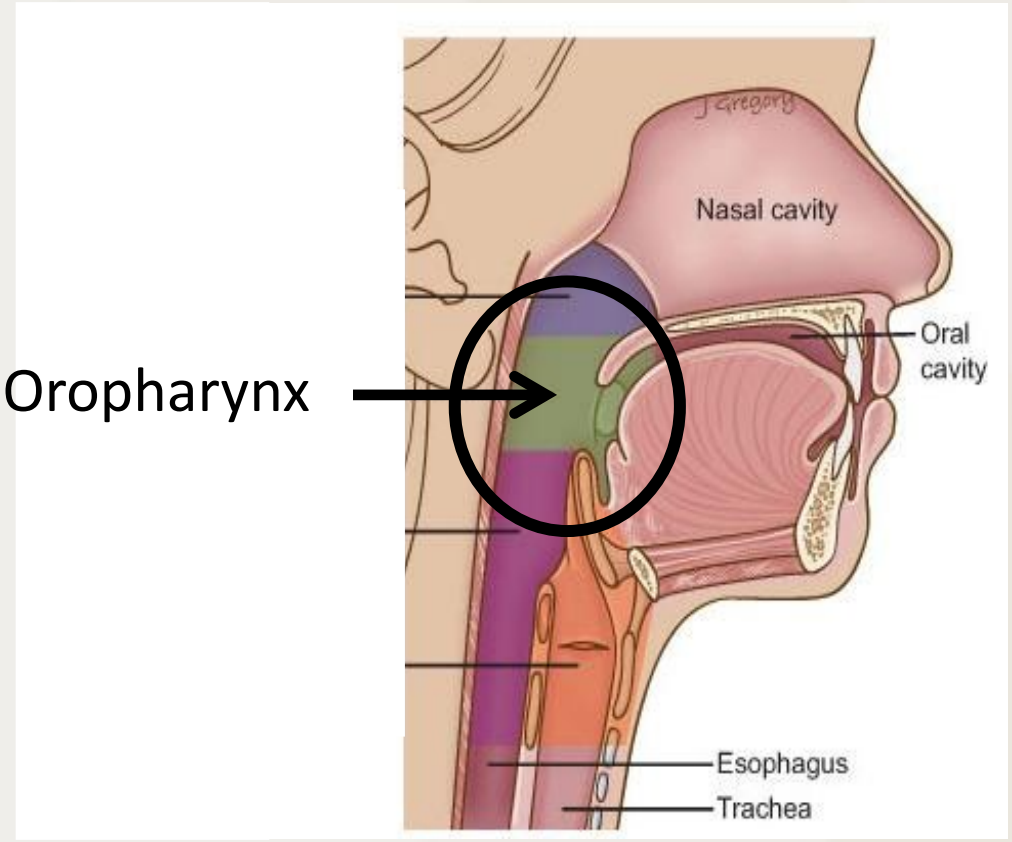
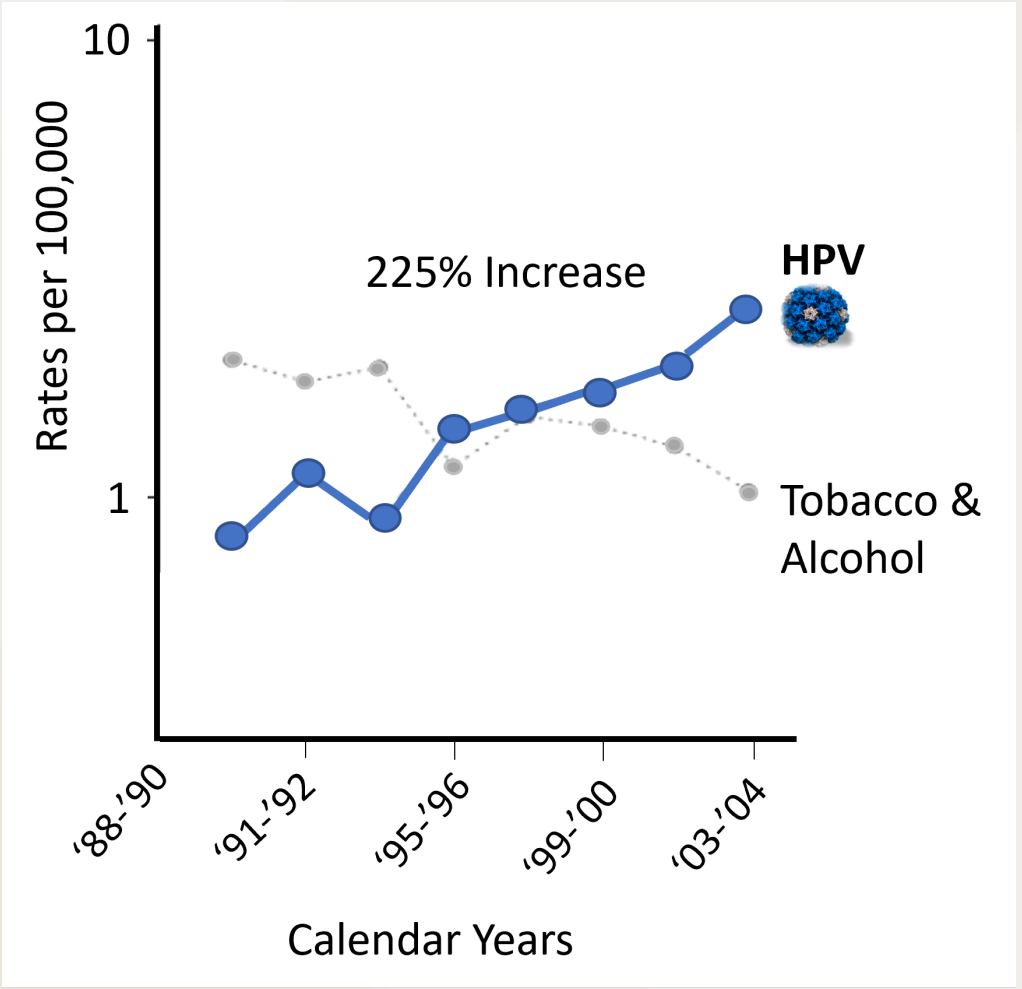


Image from American Sexual Health Association

Increasing rates of OPC in US





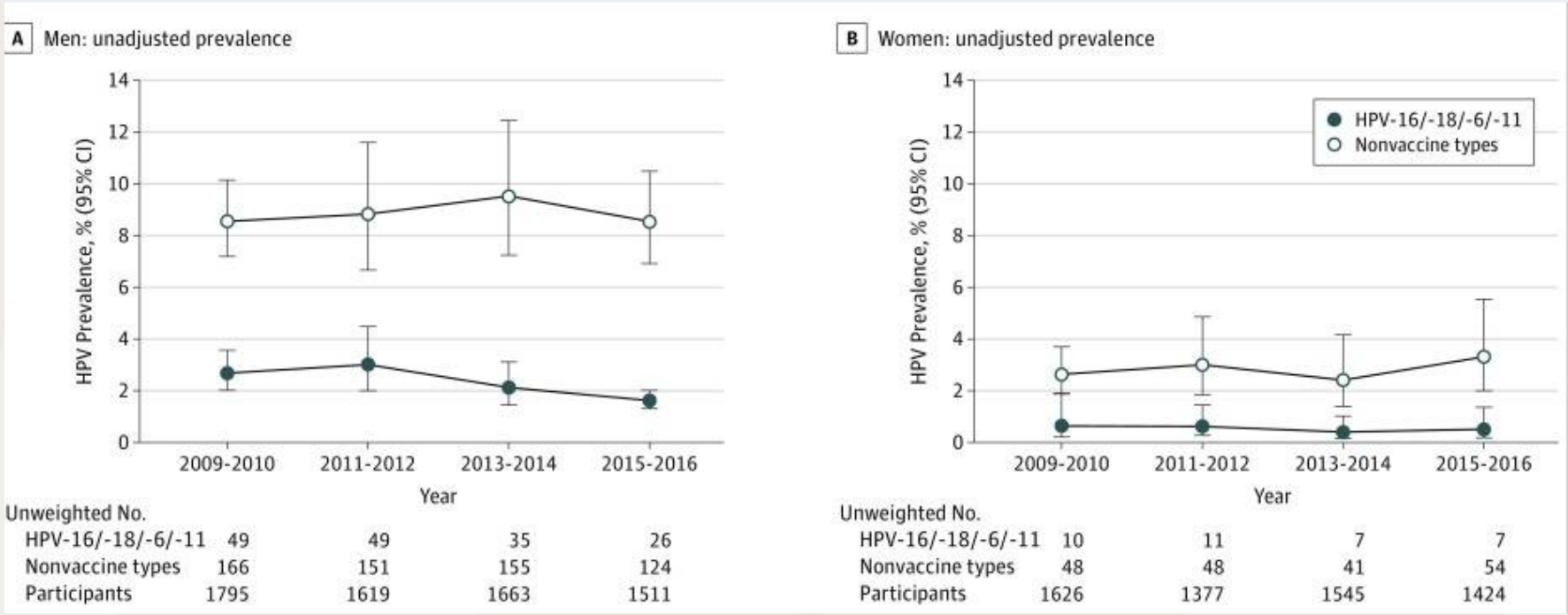
Adapted from: Chaturvedi et al, J Clin Onc, 2011

No Difference in Oral Oncogenic HPV Incidence by Age Group

Age group (Years)	Incidence per 1000 Person-Months (95% CI)
18-24	2.9 (2.4 – 3.5)
25-32	2.2 (1.8 – 2.7)
33-41	2.2 (1.8 – 2.7)
42+	2.5 (2.1 – 3.1)

Mandishora et al, *Nature* Microbiology, 2024

Prevalence of Oral HPV Infection in Unvaccinated Men and Women in the United States, 2009-2016



Chaturvedi. 2019. JAMA

Screening and vaccination for HPV-related cancers among males

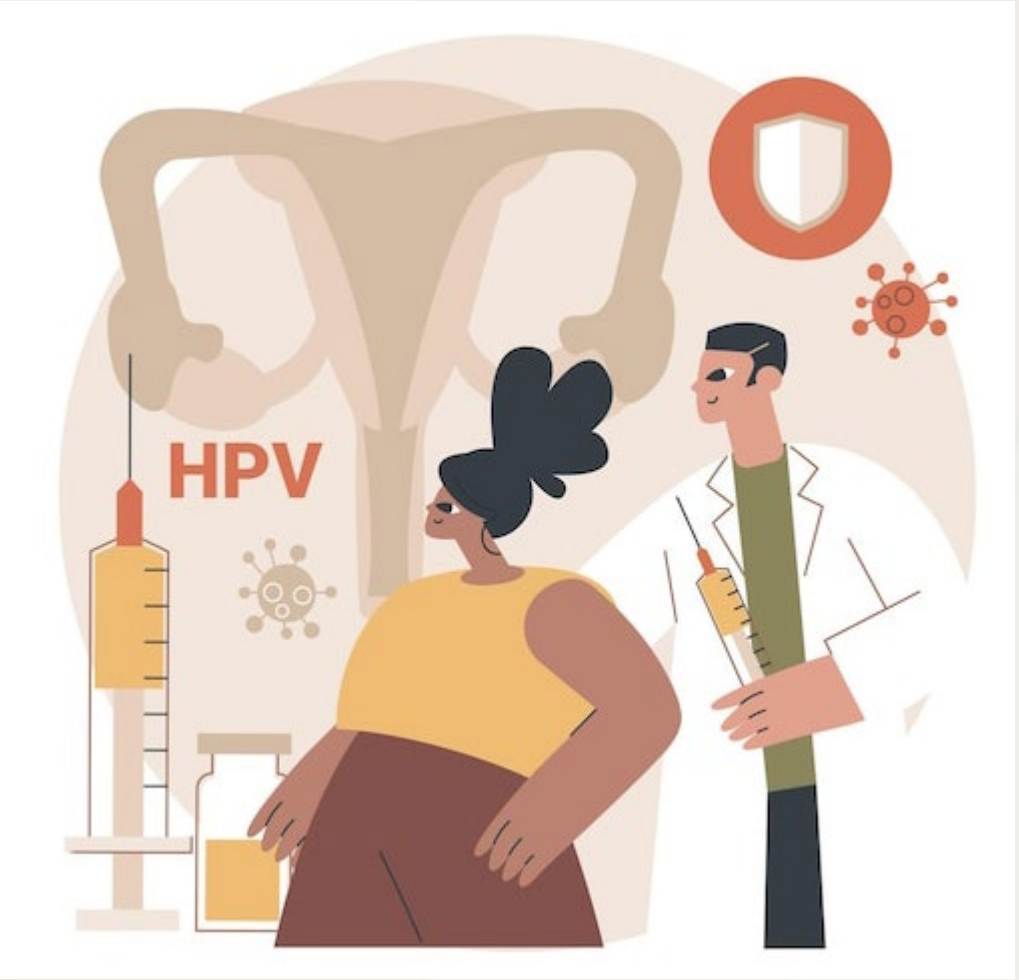
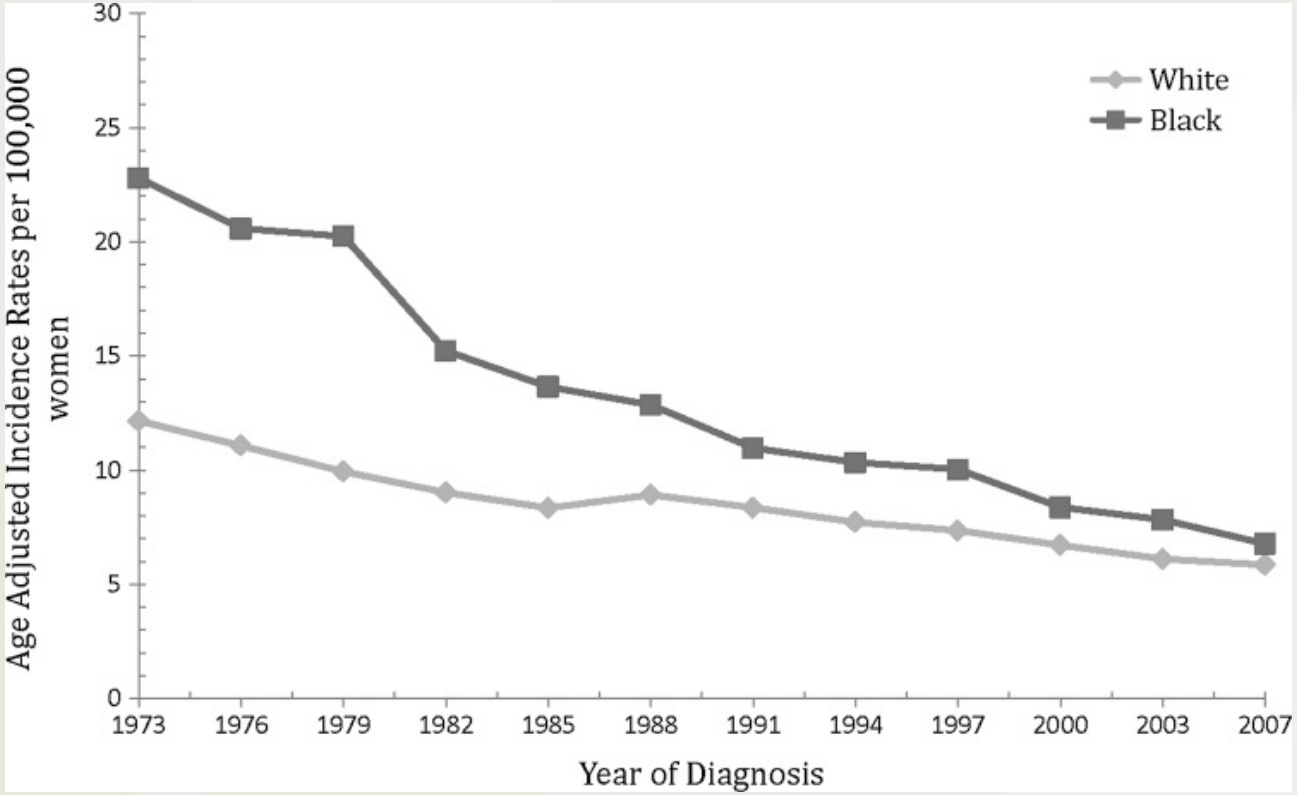


Image from American Sexual Health Association

Screening for HPV-associated Cancers

Cervical: screening using cytology, HPV-genotyping, visual inspection with acetic acid (VIA)

Routine Screening and removal of precancerous cells has reduced Cervical Cancer rate by 80% since the 1940s

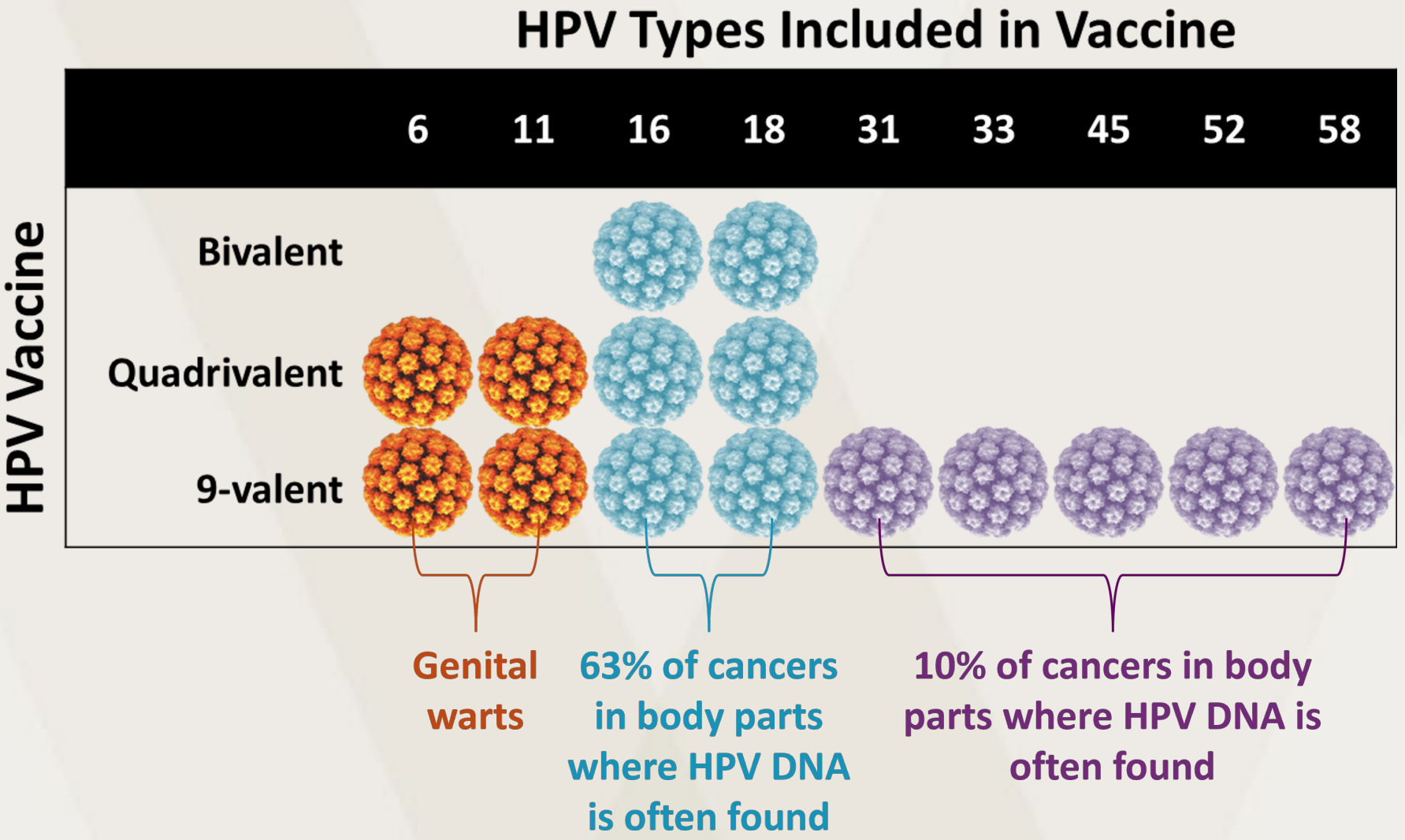


Vulvar, vaginal, anal*, penile, and oropharyngeal…

There are currently **no** national recommended screening guidelines for these cancers

*anal cancer screening occurs in high-risk populations only

HPV Vaccine Comparison



Adapted from Petrosky et al. MMWR. 2015.

Male Vaccination Confers Long-Term Protection (7+ yrs.) Against External Genital Lesions and AIN

		Participants	Person-Years Follow-up	Incidence per 10,000 PY (95% CI)
External genital lesions related to HPV 6, 11, 16, or 18				
Per-Protocol population	Base study	2/731	1728.4	11.6 (1.4 – 41.8)
	Long-term follow-up	0/730	4798.4	0.0 (0.0 – 7.7)
MiTT population	Base study	8/848	2444.5	32.7 (14.1 – 64.5)
	Long-term follow-up	0/848	5603.0	0.0 (0.0 – 6.6)

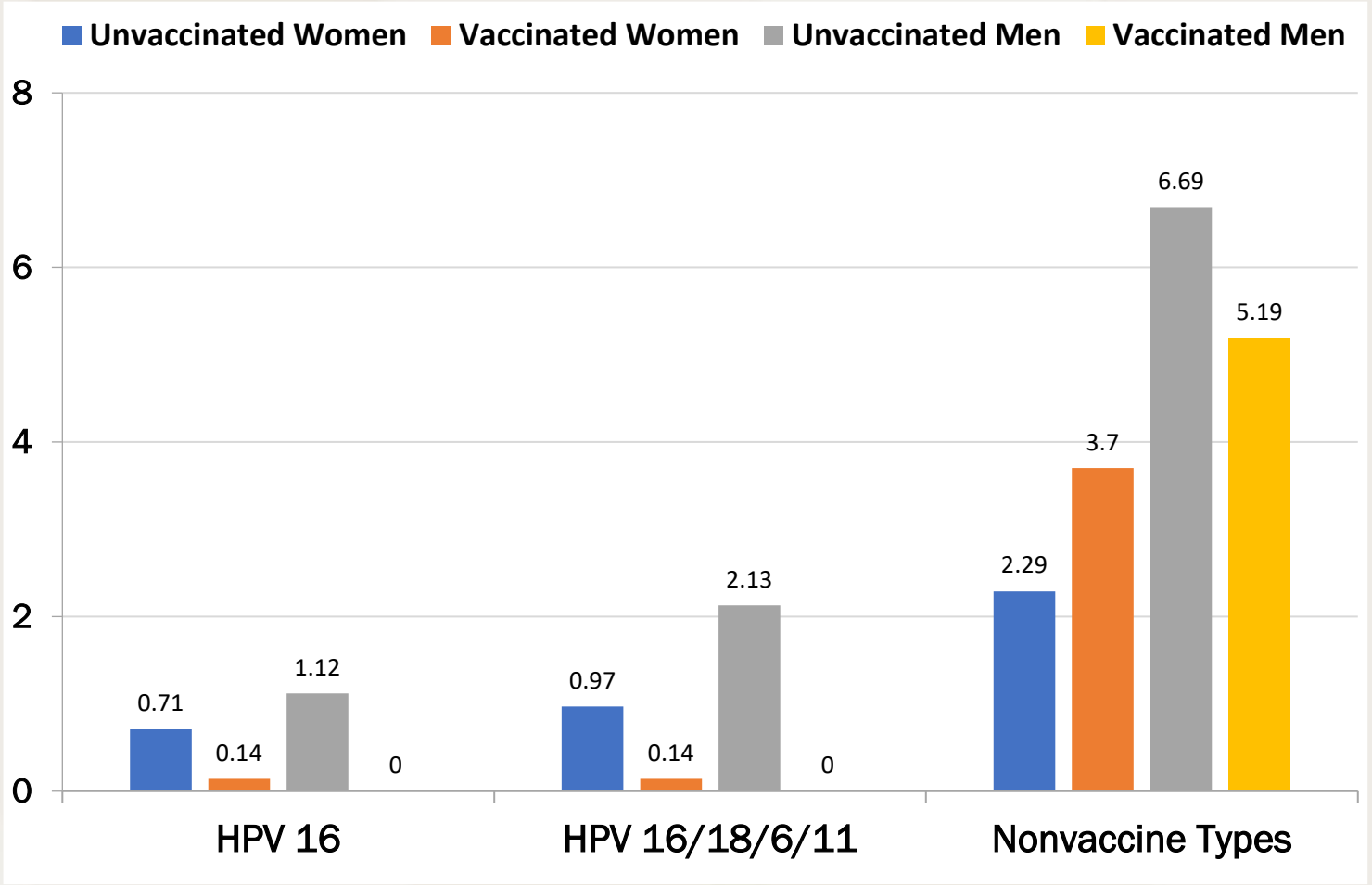
Goldstone S, et al. *Lancet Infect Dis*. 2022; 22:413-425

4vHPV Vaccine High Efficacy Against Related External Genital Lesions (EGL) in Males

Endpoint	qVaccine (n = 1,397) Cases	qVaccine (n = 1,397) Inc. per 100 PY	Placebo (n = 1,408) Cases	Placebo (n = 1,408) Inc. per 100 PY	% Efficacy	95% CI
Genital Warts	3*	0.1	28	1.0	89.4	65.5, 97.9
PIN 1	0	0.0	2	0.1	--	--
PIN 2/3	0	0.0	1	0.0	--	--
Penile/perineal/perianal cancer	0	0.0	0	0.0	--	--

Giuliano AR, et al. *N Engl J Med* 2011

Oral HPV Decline Among Males and Females Ages 18-33 Years Post-Vaccination, USA



Declines even with only ~18% of US population ages 18-33 years vaccinated

Outside of Bahrain, Canada, Hong Kong, Kuwait, Mauritius, Philippines, Qatar, Taiwan, Thailand, UAE and the US currently no HPV vaccines are approved for the prevention of oropharyngeal cancer and other head and neck cancers.

Chaturvedi et al, *JCO* 2018

FDA Approves Gardasil 9 for Prevention of Oropharyngeal, Head & Neck Cancers Caused by HPV

June 15, 2020

By Hannah Slater

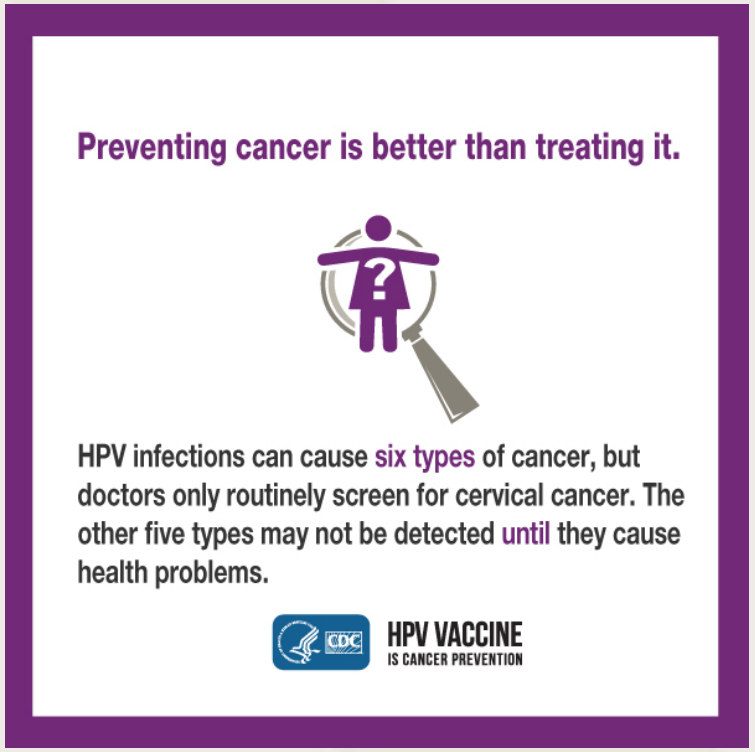
Article

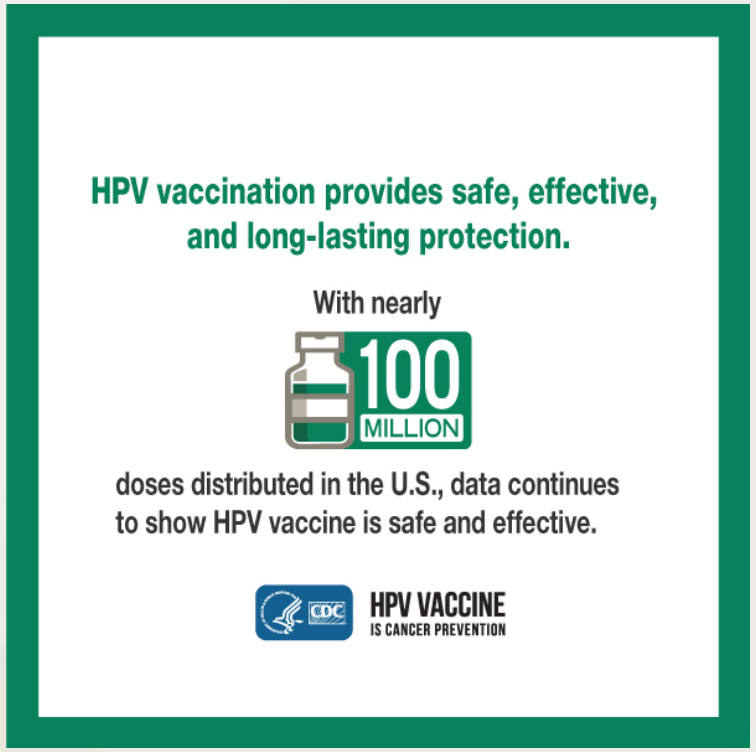
The FDA approved an expanded indication for the HPV 9-valent vaccine, recombinant for the prevention of oropharyngeal and other head and neck cancers caused by HPV types 16, 18, 31, 33, 45, 52, and 58.

Conclusions

- HPV can cause infections at multiple anatomic sites in men: genitals, anal canal, and oral cavity
- Men remain susceptible to HPV throughout their lifetime
- HPV infection and disease incidence is high in men and remains high through mid-adult years
- Men rarely develop immunity following natural HPV infection, regardless of age
- Antibodies acquired from natural HPV infection do not protect against subsequent infection or disease

Vaccination is the only reliable method to ensure protection against HPV in men


Preventing cancer is better than treating it.
HPV infections can cause six types of cancer, but doctors only routinely screen for cervical cancer. The other five types may not be detected until they cause health problems.
CDC
HPV VACCINE
IS CANCER PREVENTION


HPV vaccination provides safe, effective, and long-lasting protection.
With nearly
100
MILLION
doses distributed in the U.S., data continues to show HPV vaccine is safe and effective.
CDC
HPV VACCINE
IS CANCER PREVENTION

THANK YOU!

Ashish Deshmukh, PhD

SPEAKER

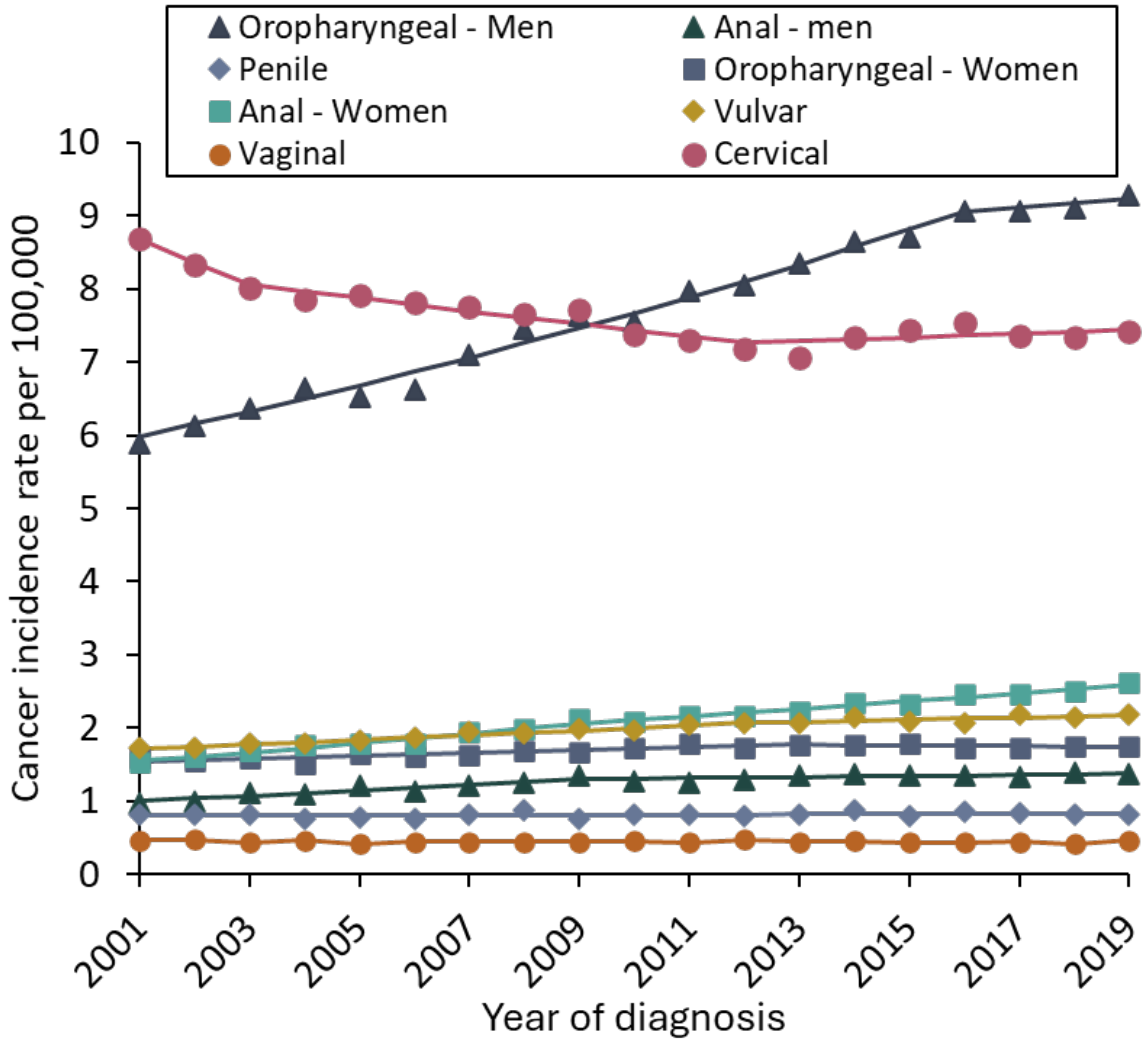
Professor

Public Health Sciences, SmartState Distinguished Endowed Chair in Cancer Equity, Co-leader, Cancer Prevention and Control Program, Hollings Cancer Center

Closing the HPV Vaccination Gap and Preventing HPV Cancers from Boys to Men

Ashish A. Deshmukh, PhD, MPH
Professor, Public Health Sciences
Co-leader, Cancer Prevention and Control Program, Hollings Cancer Center
SmartState Distinguished Endowed Chair in Cancer Equity
Medical University of South Carolina

Continued rise in cancers caused by HPV

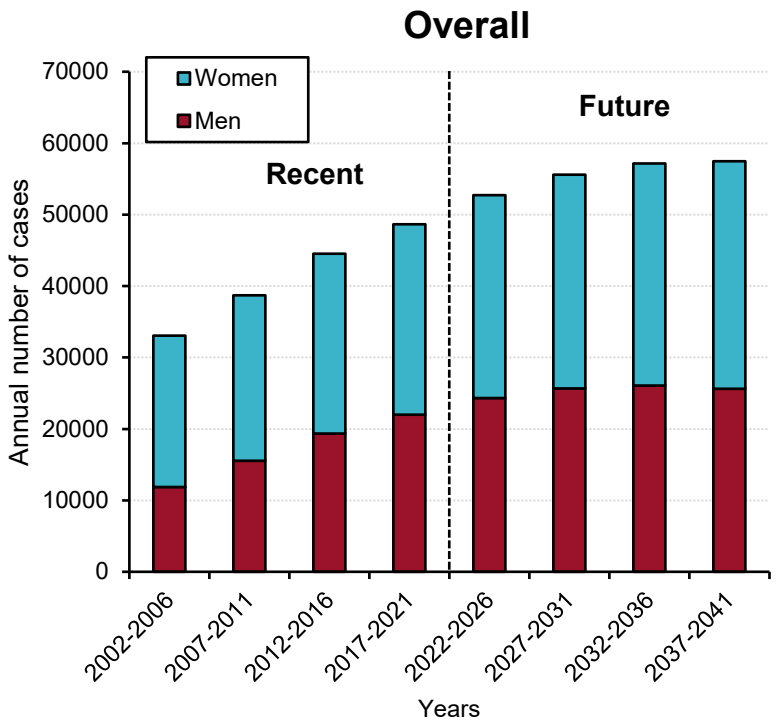


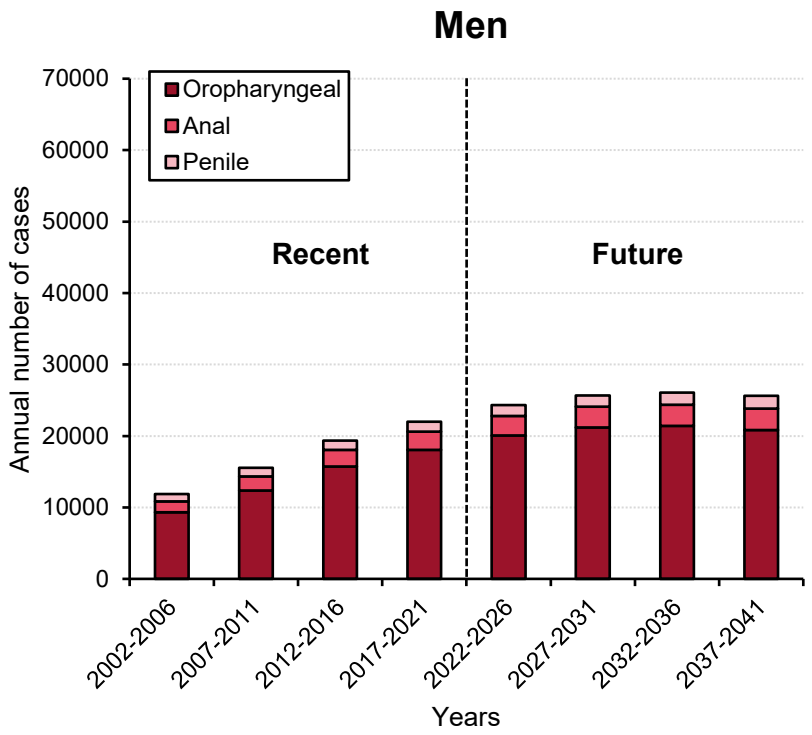
HPV-associated cancer trends

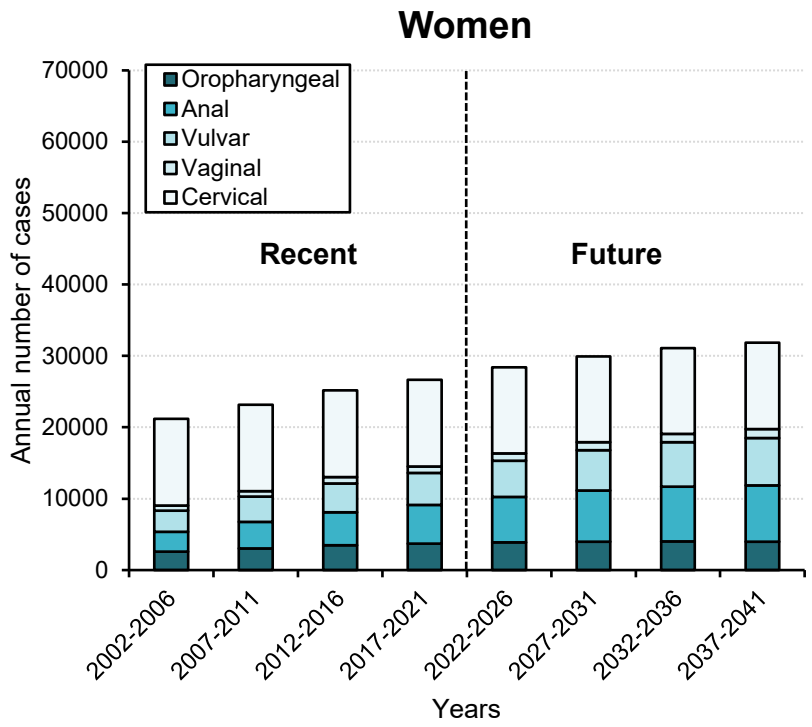
- Cervical Cancer (recently stabilized)
- Vaginal Cancer (rise)
- Vulvar Cancer (rise)
- Oropharyngeal Cancer (rise)
- Anal Cancer (rise)
- Penile Cancer (rise)

Deshmukh et al JNCI 2021; Deshmukh et al JNCI 2020

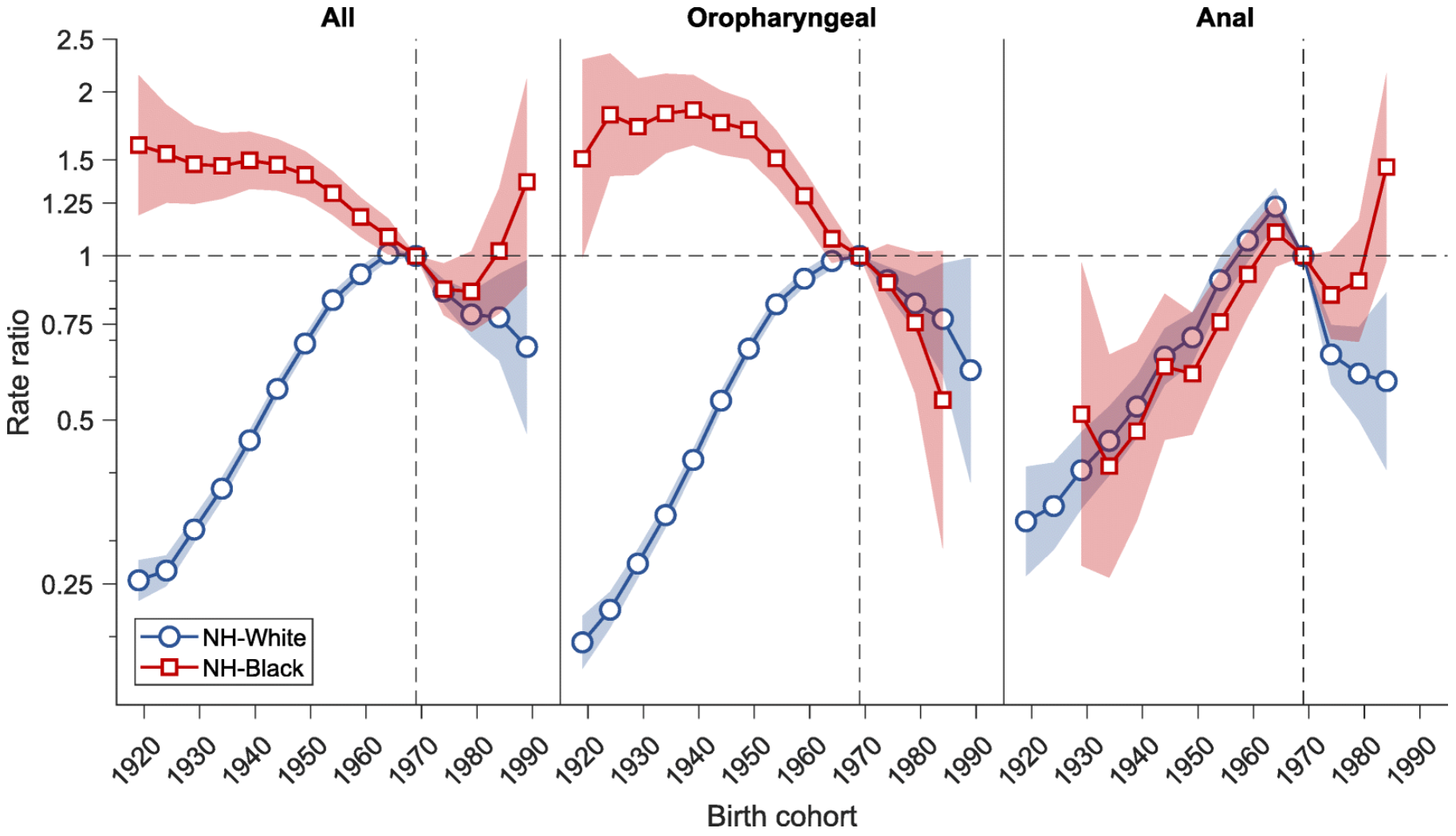
HPV-associated cancer burden is expected to rise in the coming years







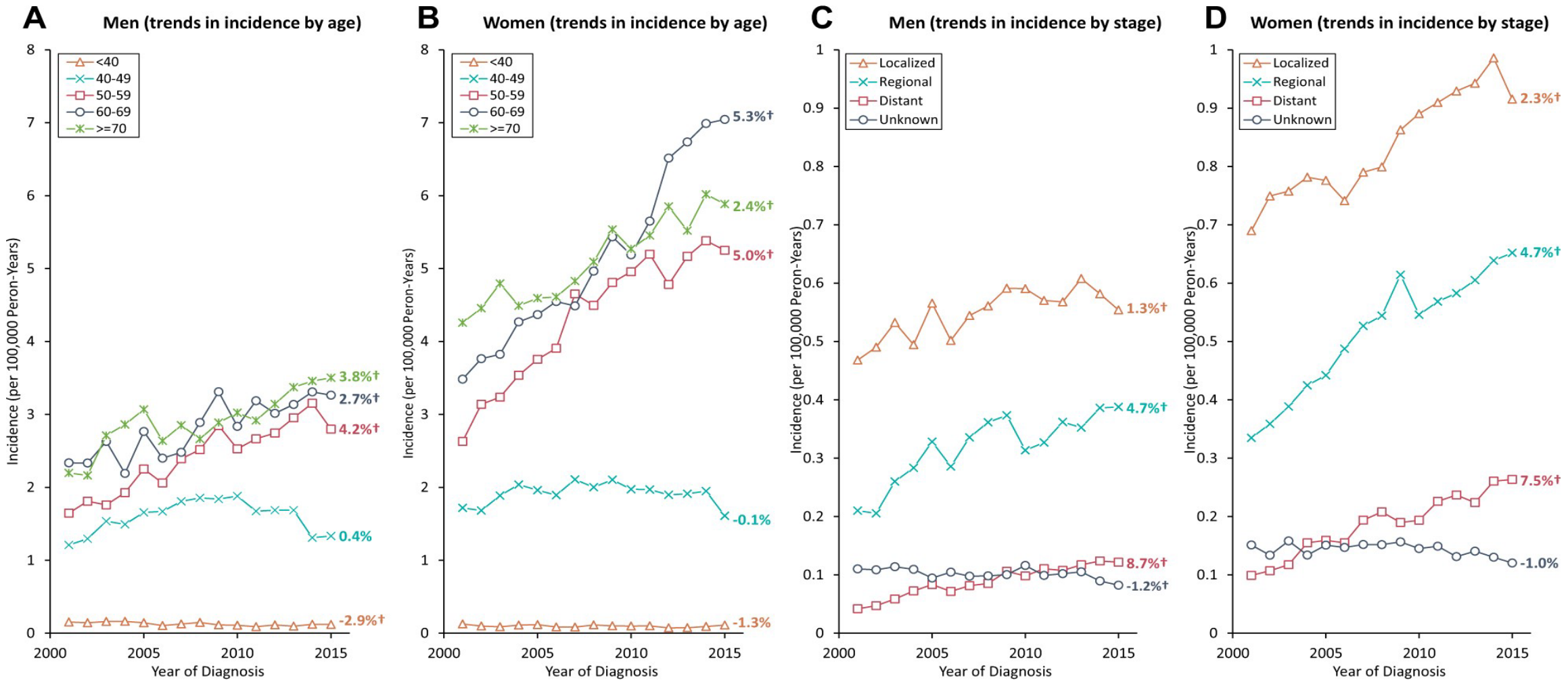
HPV-associated cancers among US men: risk among recent birth cohorts



MUSC Medical University of South Carolina | Hollings Cancer Center
An NCI-Designated Cancer Center

Damgacioglu H, …, Deshmukh AA. ***JGIM***. 2021

Anal cancer: Rising incidence among men and women



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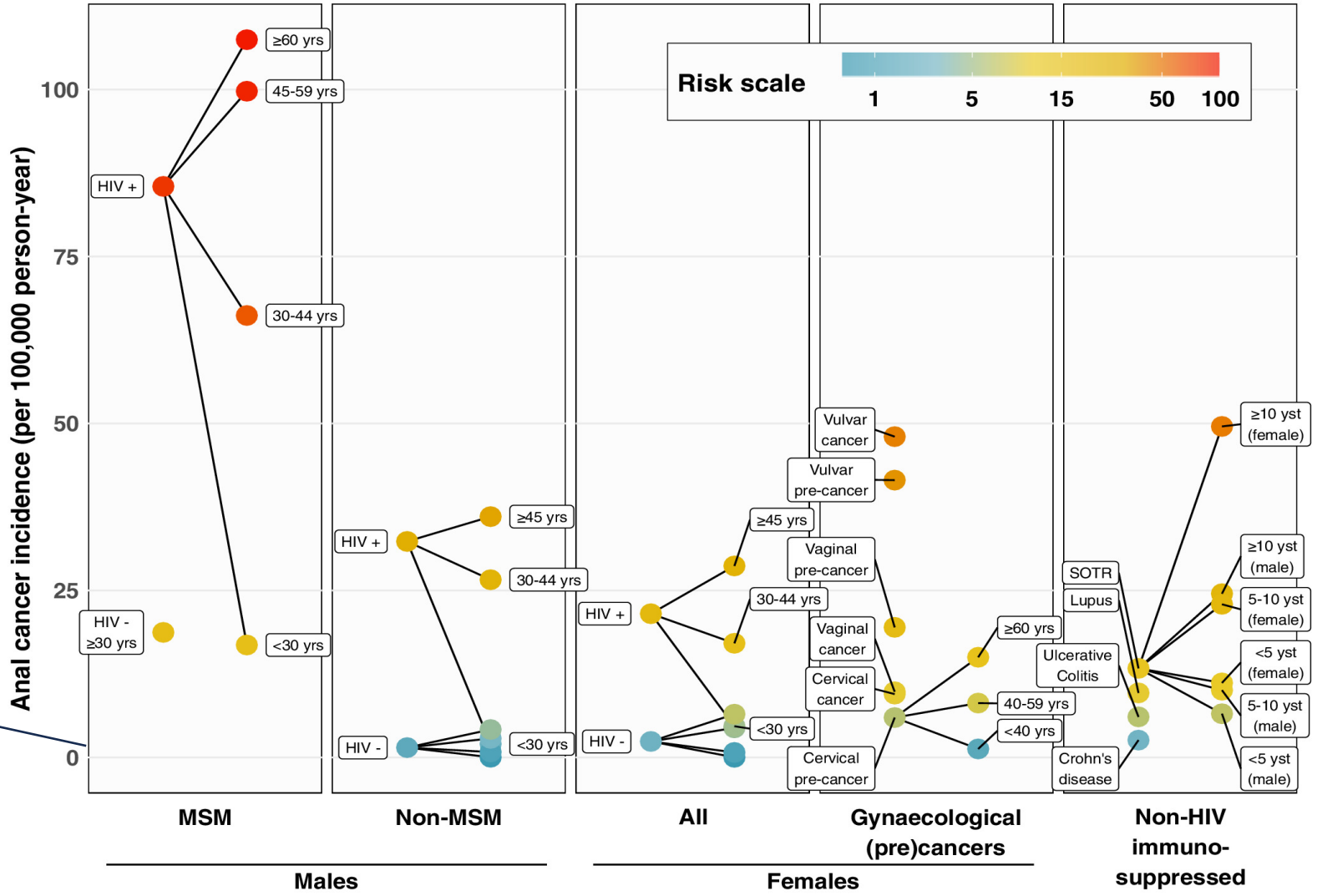
Deshmukh AA, …, Sigel K. ***JNCI***. 2020

Anal cancer: Concentration of risk among key high-risk groups

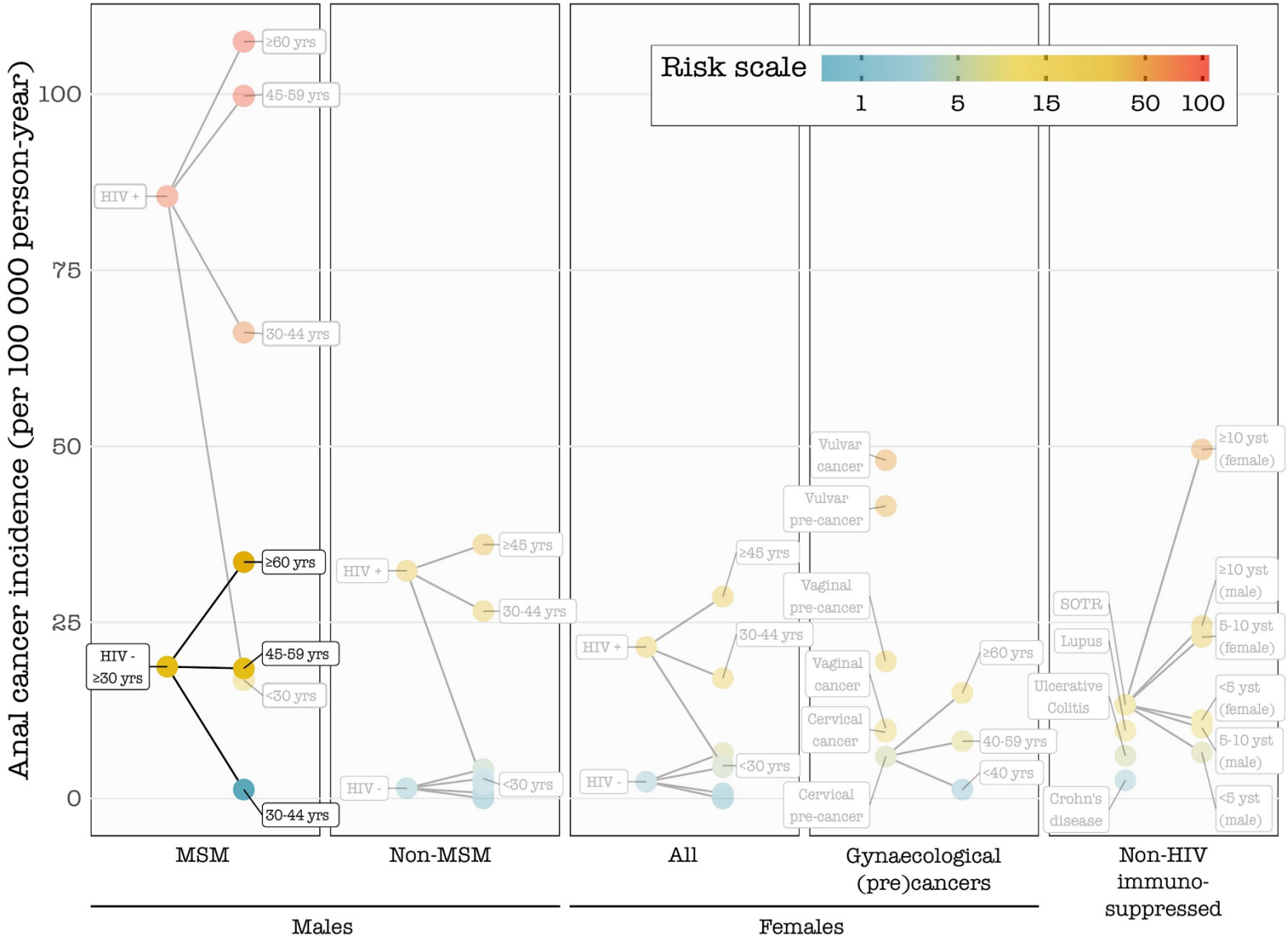


General Pop:
1.7 per 100,000

MUSC Medical University of South Carolina | Hollings Cancer Center
An NCI-Designated Cancer Center

Clifford et al. *IJC.* 2022

Anal cancer: Concentration of risk among key high-risk groups

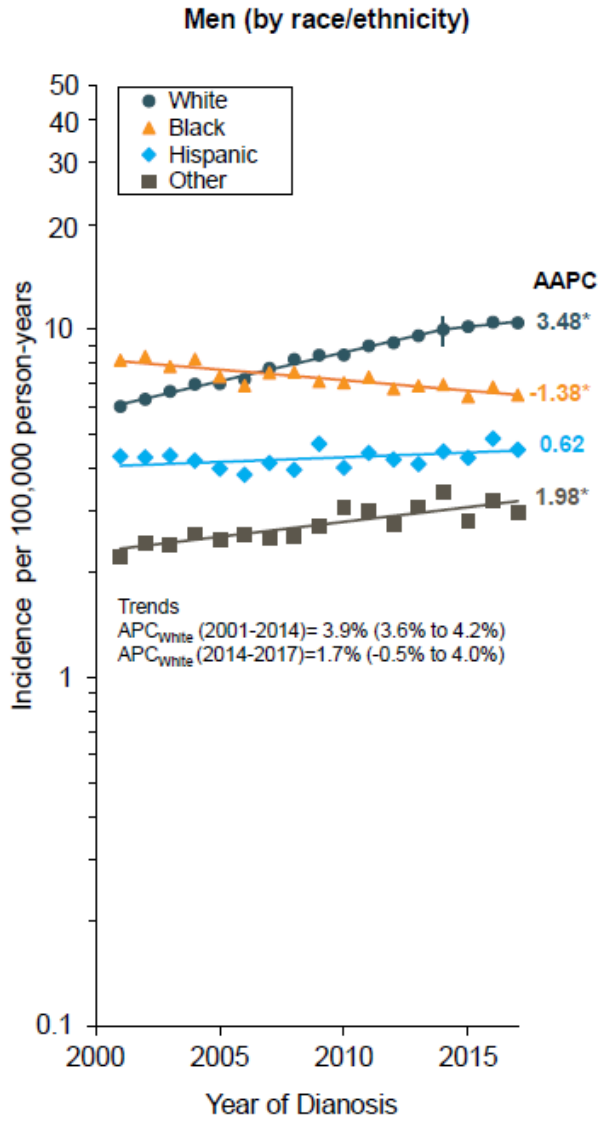


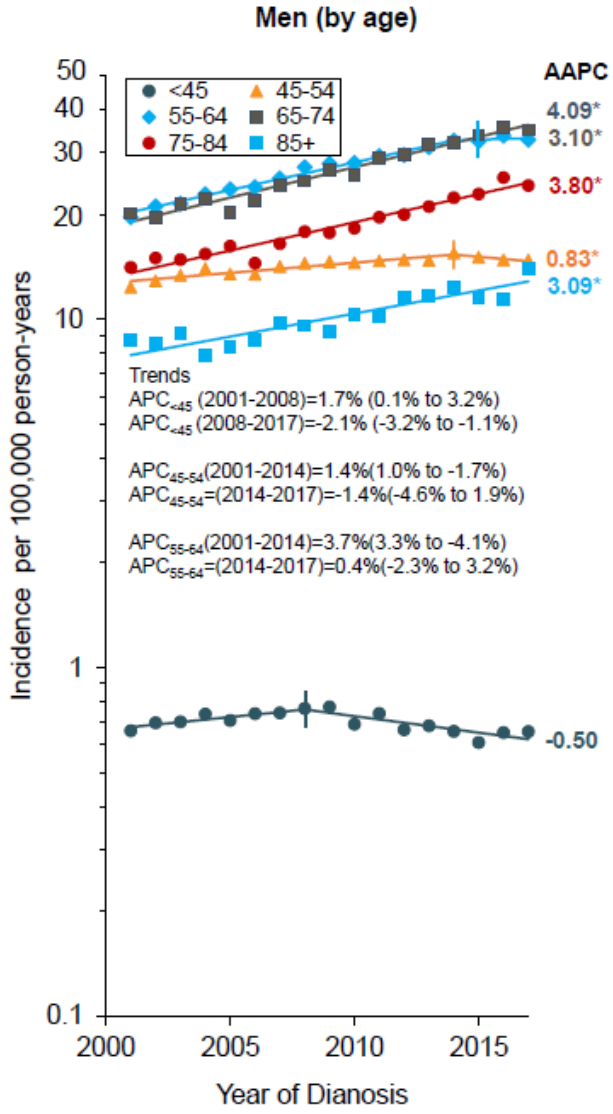
MUSC Medical University of South Carolina

Hollings Cancer Center
An NCI-Designated Cancer Center

Deshmukh AA, Damgacioglu H,…,Clifford et al. *CID.* 2023

Oropharyngeal cancer: Rising incidence among US men

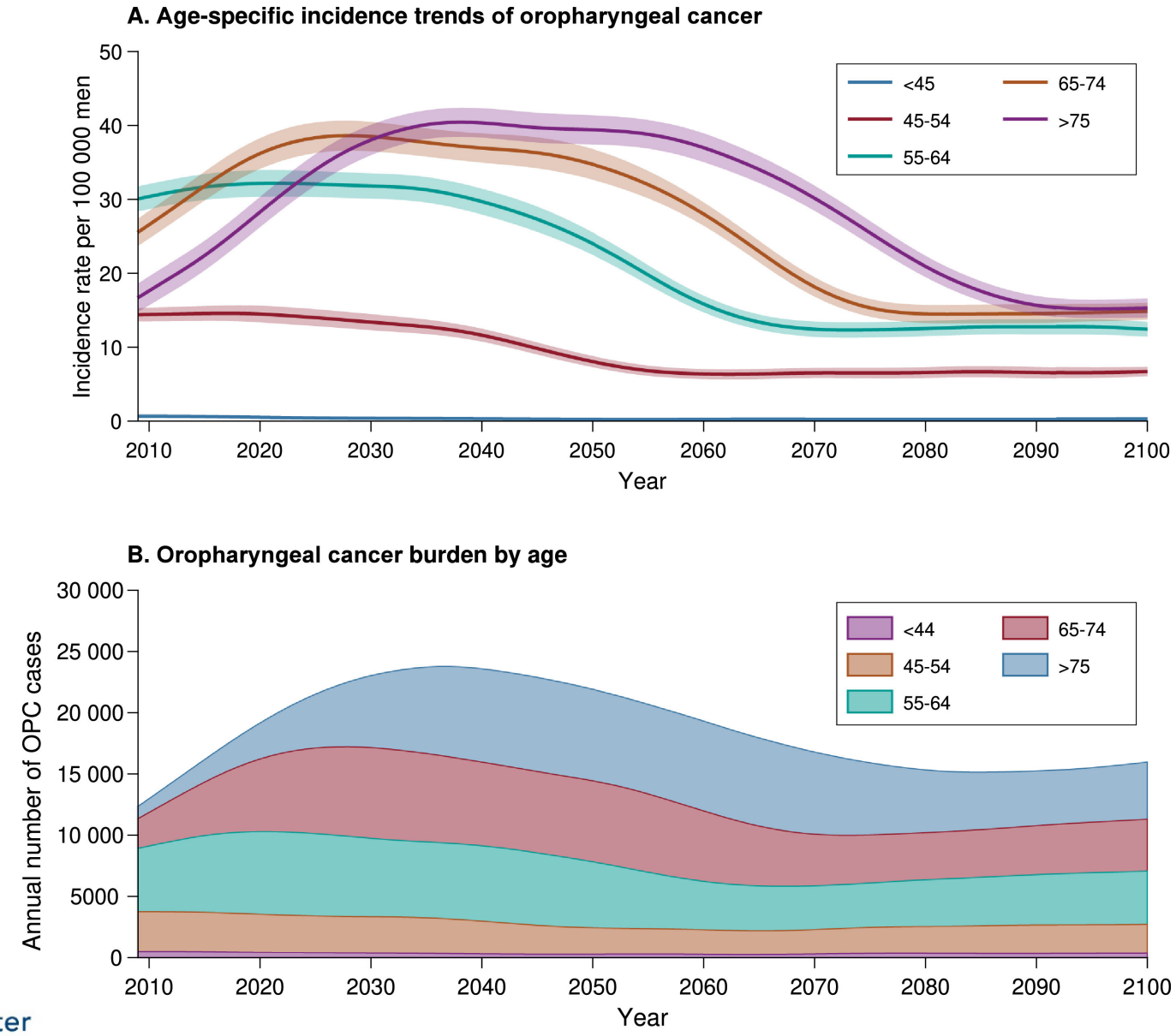




MUSC Medical University of South Carolina | Hollings Cancer Center
An NCI-Designated Cancer Center

Damgacioglu H, …, Deshmukh AA. ***JAMA Otolaryngology–Head & Neck Surgery.*** 2022

Oropharyngeal cancer: projecting future incidence and burden



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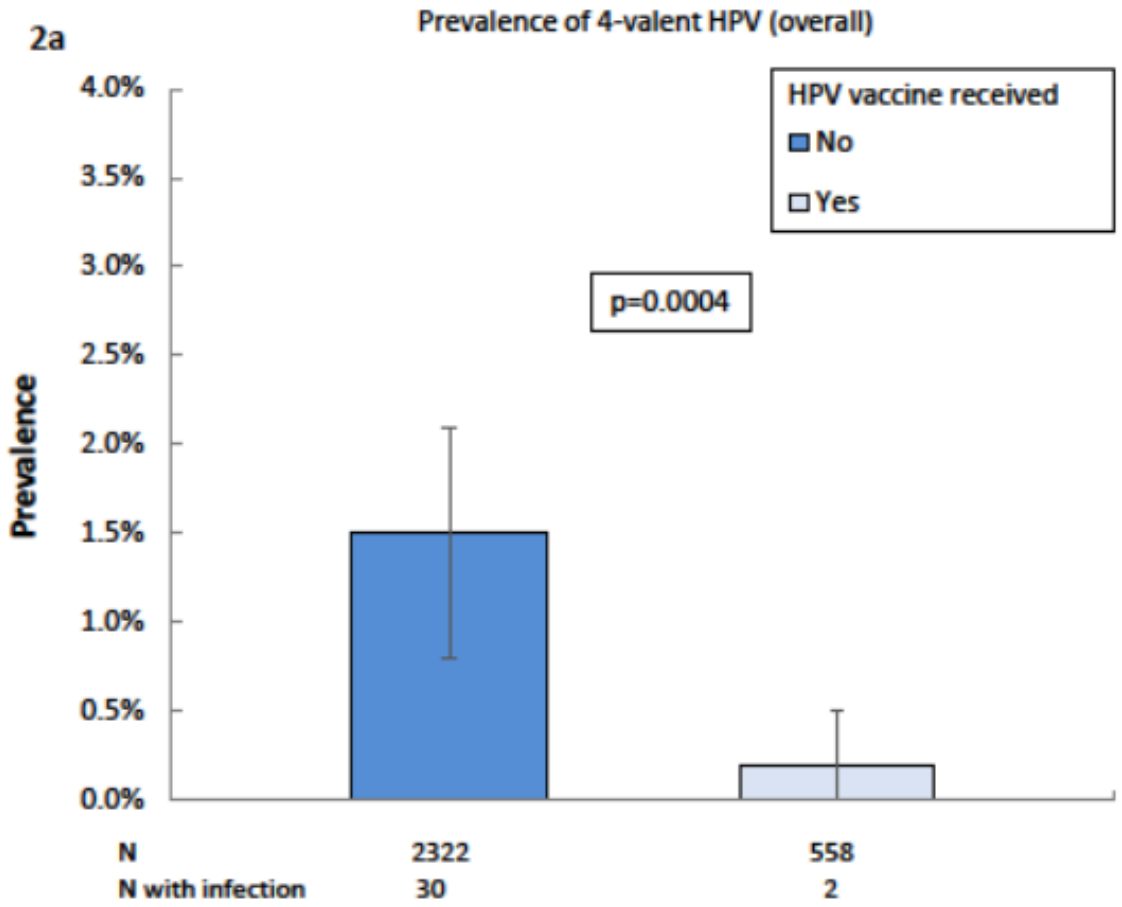
Damgacioglu H, …, Deshmukh AA. ***Lancet Regional Health—Americas.*** 2022

HPV vaccination prevents oral HPV infection



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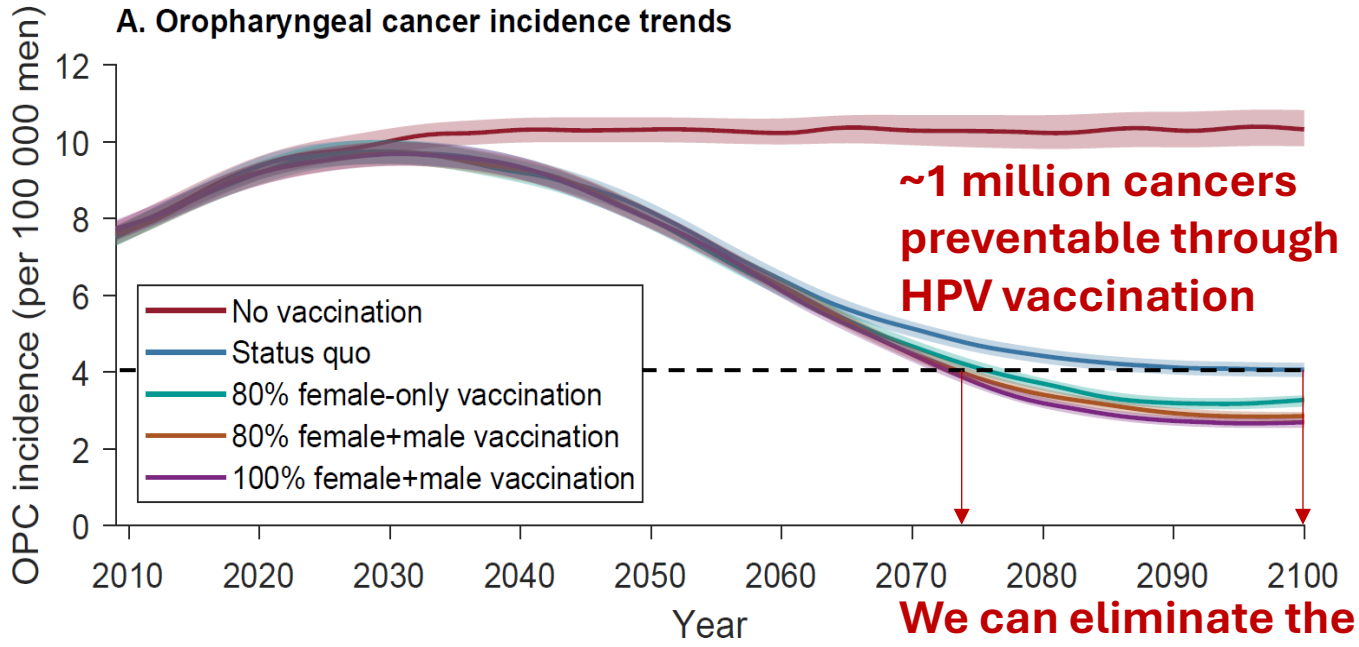
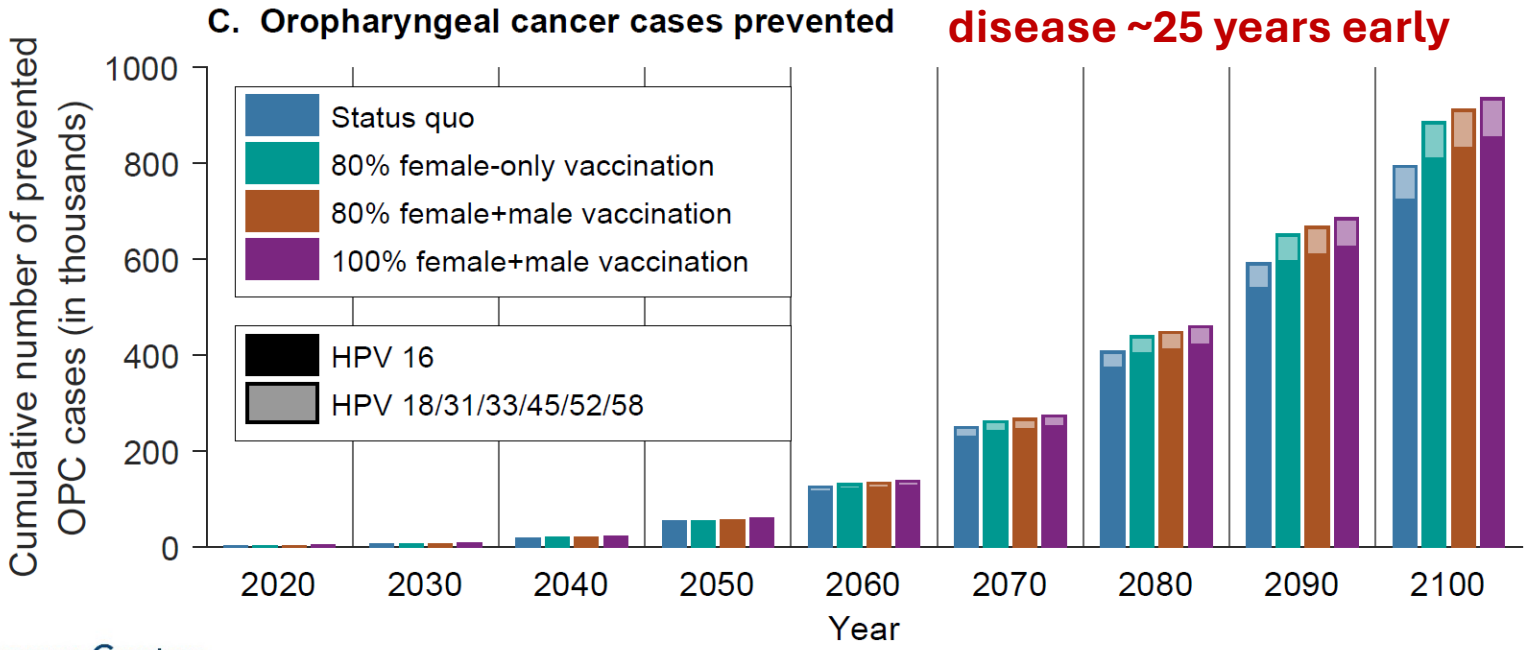
Sonawane K, …, Deshmukh AA. ***Annals of Internal Medicine.*** 2017



~1 million cancers preventable through HPV vaccination

Achieving Healthy People goal (80% coverage) will eliminate oropharyngeal cancer

We can eliminate the disease ~25 years early



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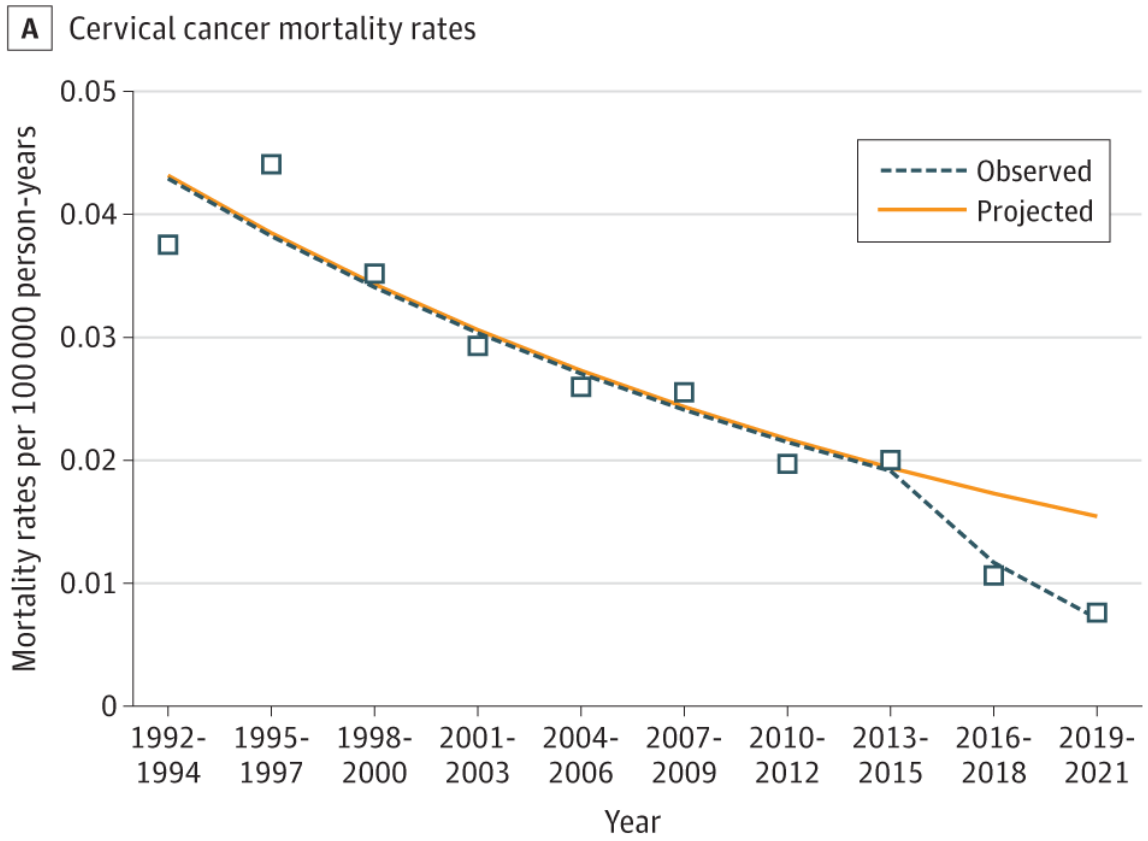
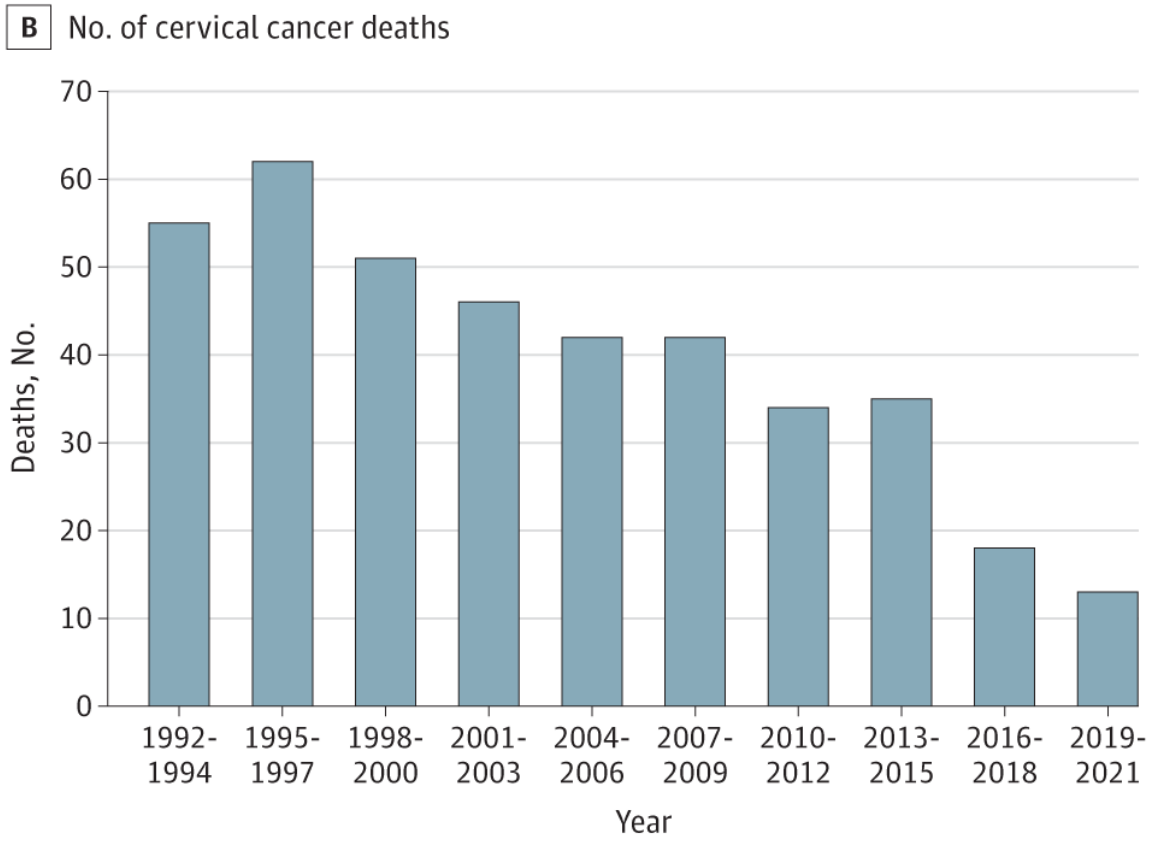
Damgacioglu H, …, Deshmukh AA. ***Lancet Regional Health—Americas.*** 2022

We can eliminate deaths from HPV-associated cancers: Observed cervical cancer deaths





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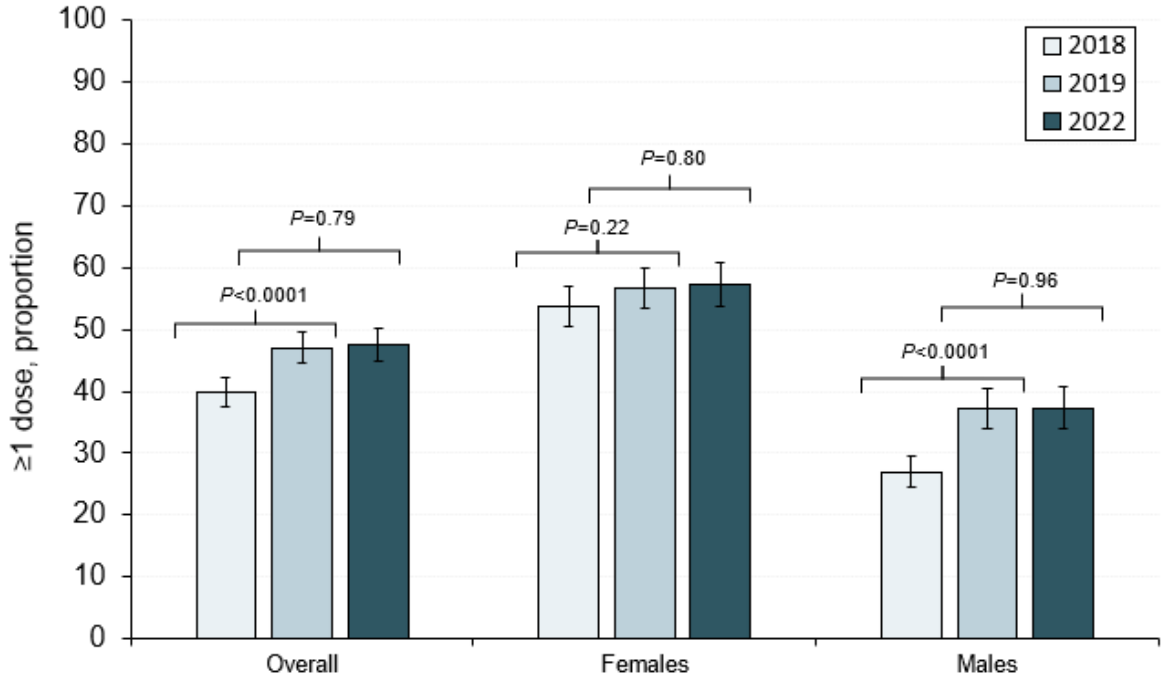
Dorali P, Damgacioglu H,..., Deshmukh AA. ***JAMA***. 2025

Recent stagnation/decline in HPV vaccination uptake

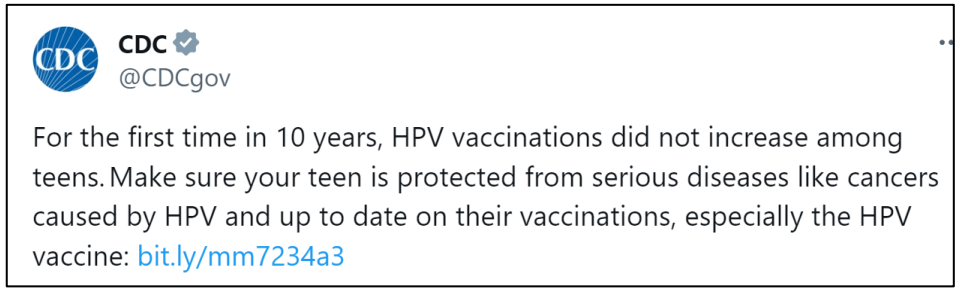
Vaccination uptake declined among contemporary birth cohorts

Characteristics	Vaccinated by 14 years	
	2007 Born	2008 Born
Non-Hispanic White	56.6 (54.0–59.2)	50.2 (46.9–53.6)§§§
At or above poverty level	58.9 (56.5–61.4)	53.0 (50.0–56.1)§§§
Privately insured	60.4 (57.3–63.5)	54.6 (50.8–58.5)§§§

§§§ Decline was statistically significant



No./Total No.			
2018			
Unweighted	938/2291	632/1162	306/1129
Weighted	13512903/33827984	8806541/16424959	4706362/17403025
2019			
Unweighted	1282/2710	801/1420	481/1290
Weighted	16157477/34411133	9779204/17269650	6378272/17141483
2022			
Unweighted	1053/2158	651/1119	402/1039
Weighted	15931291/33628124	9719907/16988389	6211384/16639735



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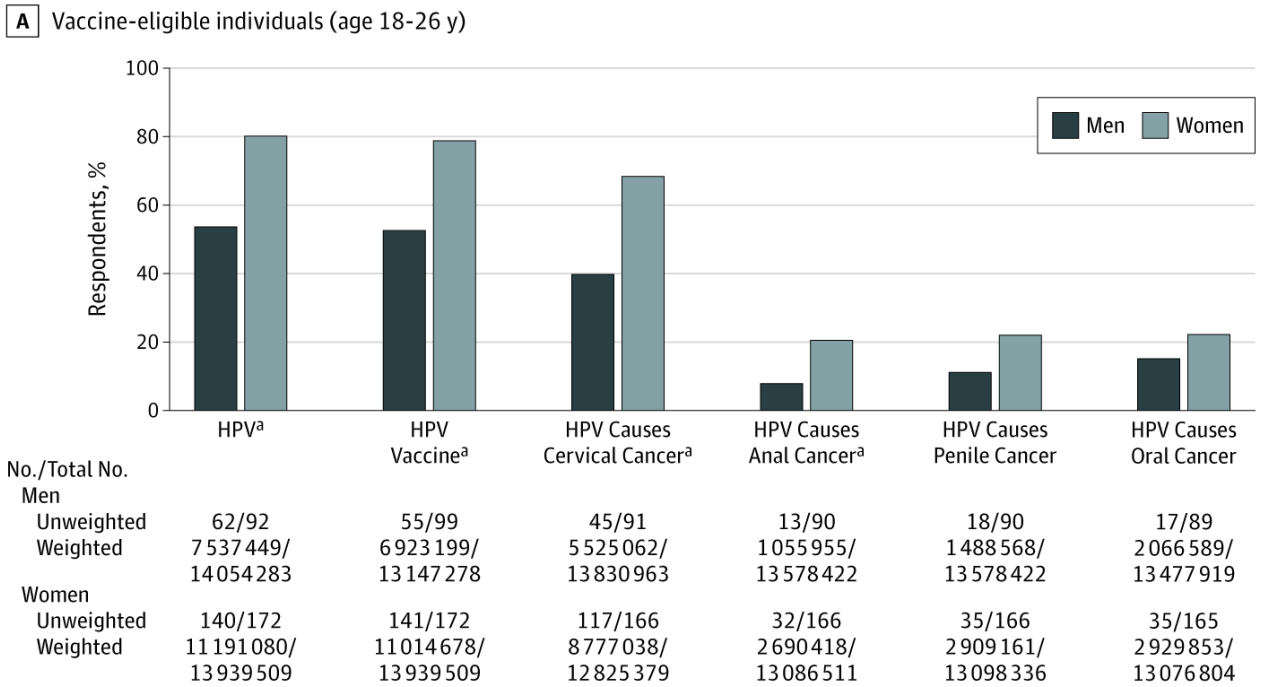
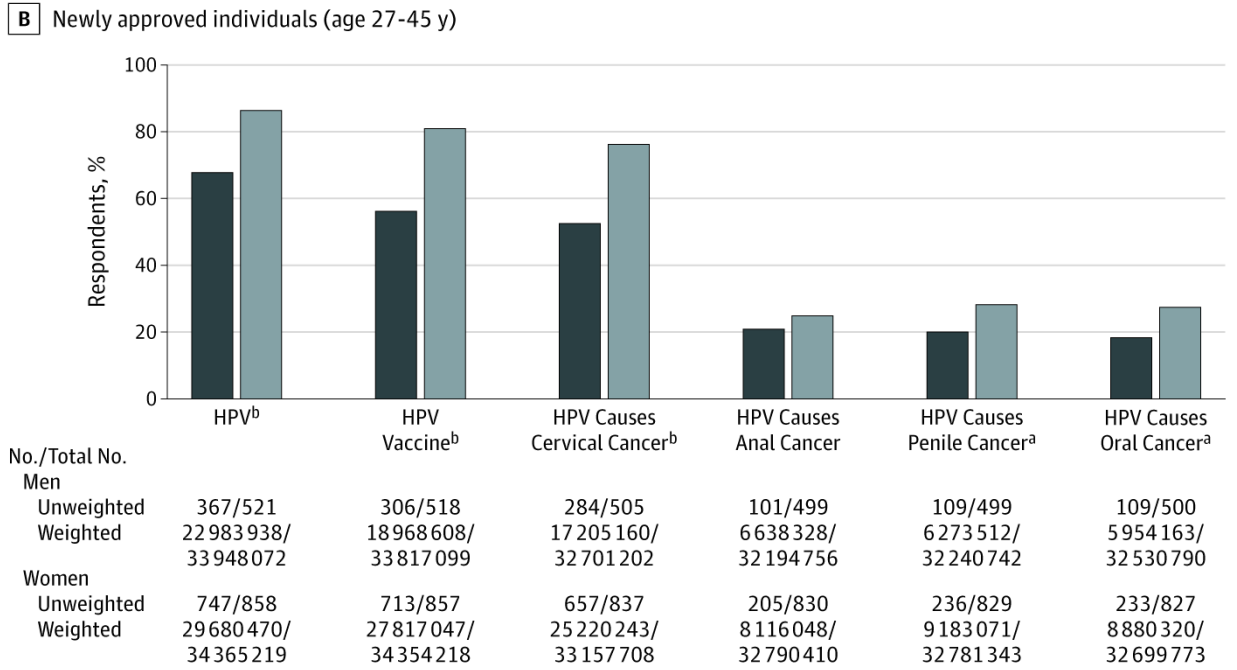
Sonawane K, …, Deshmukh AA. ***JAMA Network Open.*** 2024

What are the barriers?

Lack of public knowledge



No./Total No.	HPV[a]	HPV Vaccine[a]	HPV Causes Cervical Cancer[a]	HPV Causes Anal Cancer[a]	HPV Causes Penile Cancer	HPV Causes Oral Cancer
Men						
Unweighted	62/92	55/99	45/91	13/90	18/90	17/89
Weighted	7 537 449/ 14 054 283	6 923 199/ 13 147 278	5 525 062/ 13 830 963	1 055 955/ 13 578 422	1 488 568/ 13 578 422	2 066 589/ 13 477 919
Women						
Unweighted	140/172	141/172	117/166	32/166	35/166	35/165
Weighted	11 191 080/ 13 939 509	11 014 678/ 13 939 509	8 777 038/ 12 825 379	2 690 418/ 13 086 511	2 909 161/ 13 098 336	2 929 853/ 13 076 804



No./Total No.	HPV[b]	HPV Vaccine[b]	HPV Causes Cervical Cancer[b]	HPV Causes Anal Cancer	HPV Causes Penile Cancer[a]	HPV Causes Oral Cancer[a]
Men						
Unweighted	367/521	306/518	284/505	101/499	109/499	109/500
Weighted	22 983 938/ 33 948 072	18 968 608/ 33 817 099	17 205 160/ 32 701 202	6 638 328/ 32 194 756	6 273 512/ 32 240 742	5 954 163/ 32 530 790
Women						
Unweighted	747/858	713/857	657/837	205/830	236/829	233/827
Weighted	29 680 470/ 34 365 219	27 817 047/ 34 354 218	25 220 243/ 33 157 708	8 116 048/ 32 790 410	9 183 071/ 32 781 343	8 880 320/ 32 699 773

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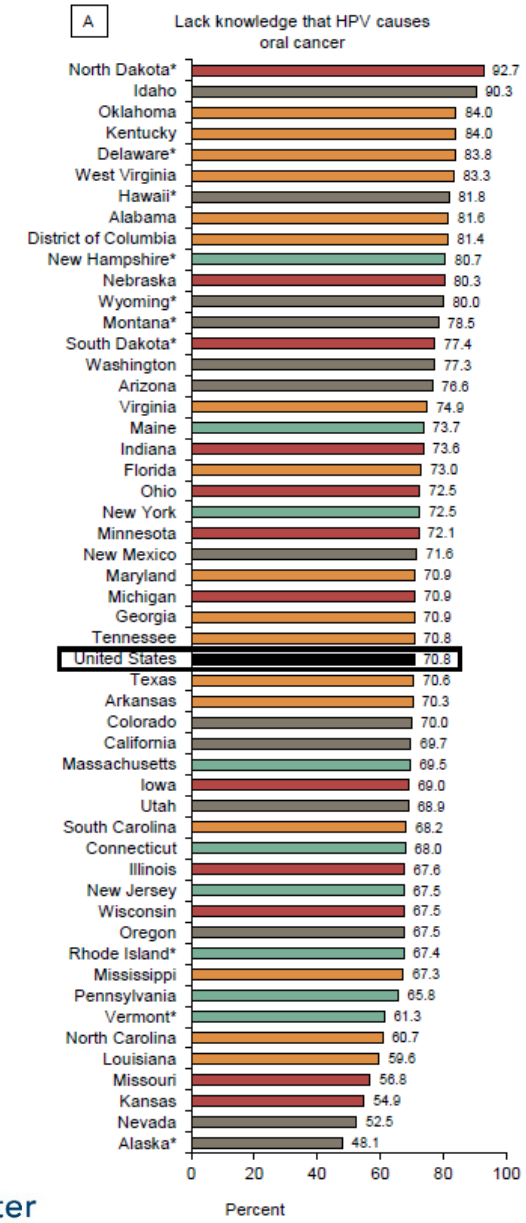
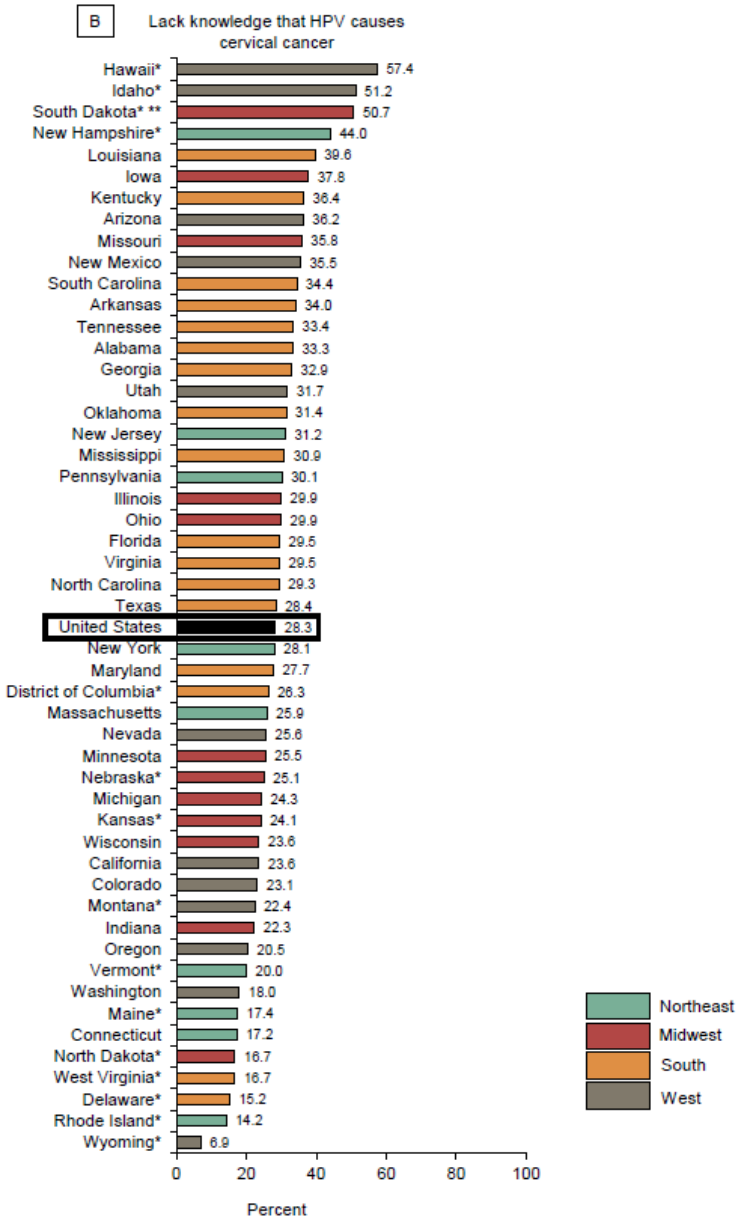
Suk R, …, Sonawane K*, Deshmukh AA*. ***JAMA Pediatrics***. 2017

What are the barriers?





Lack of public knowledge: More prevalent in states with low vaccination coverage

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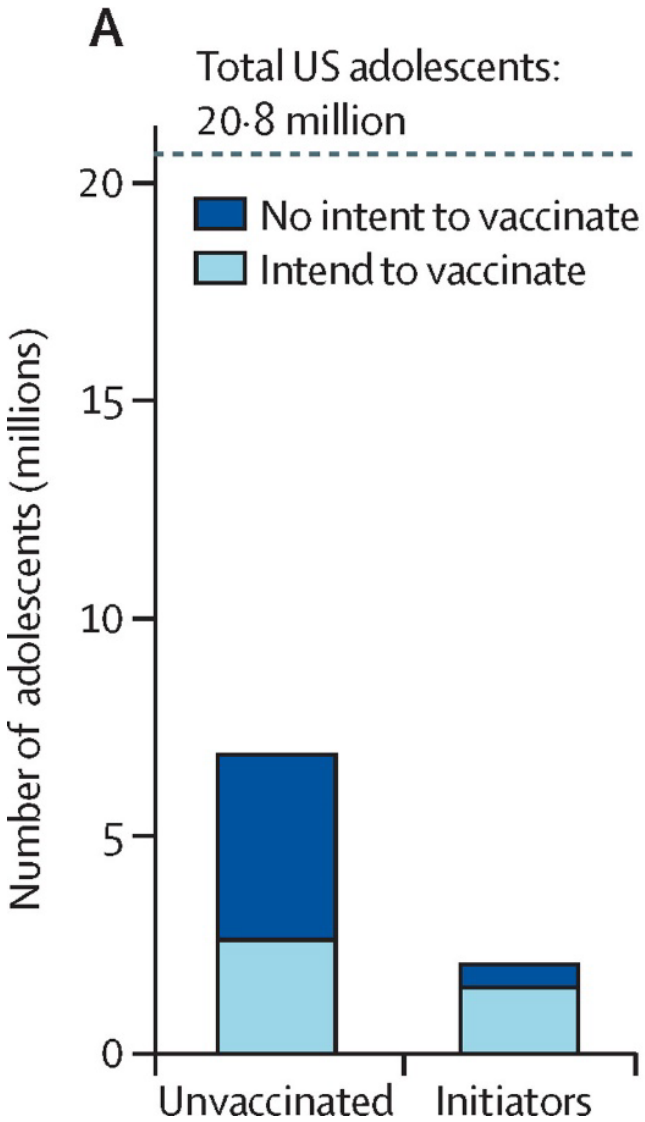
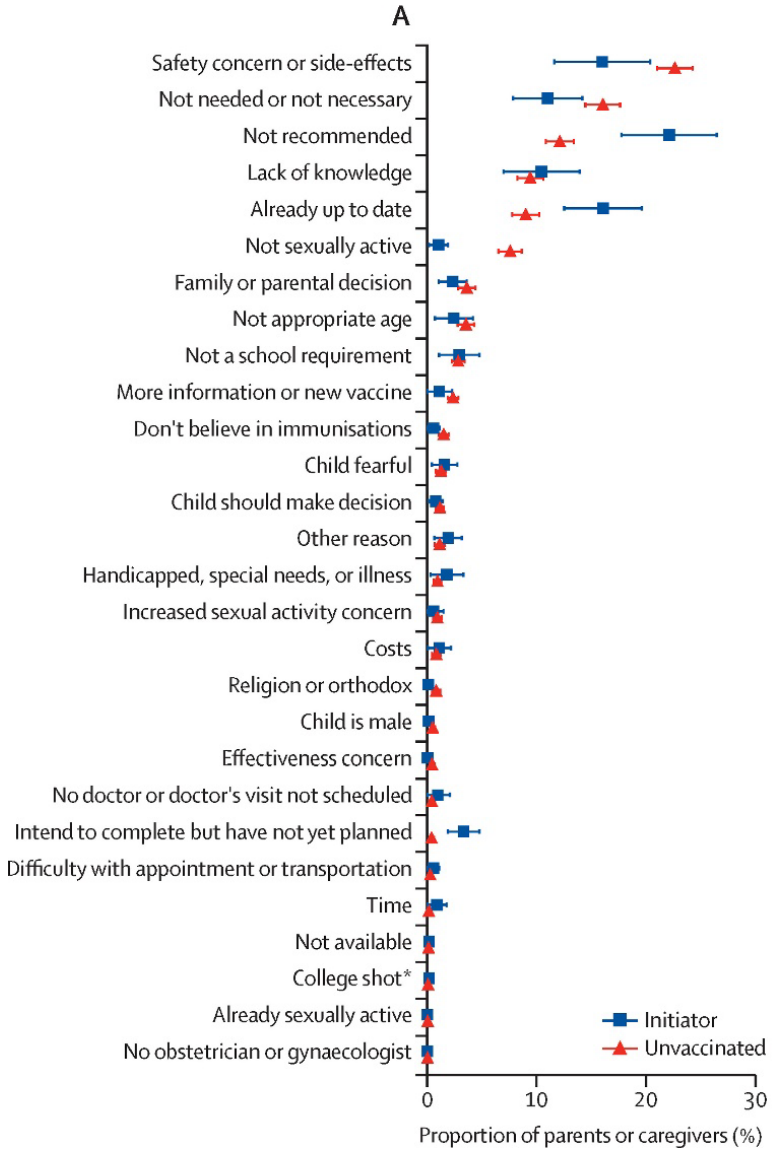
Garg A, …, Sonawane K**. Upcoming**

What are the barriers?





Vaccine hesitancy is prevalent

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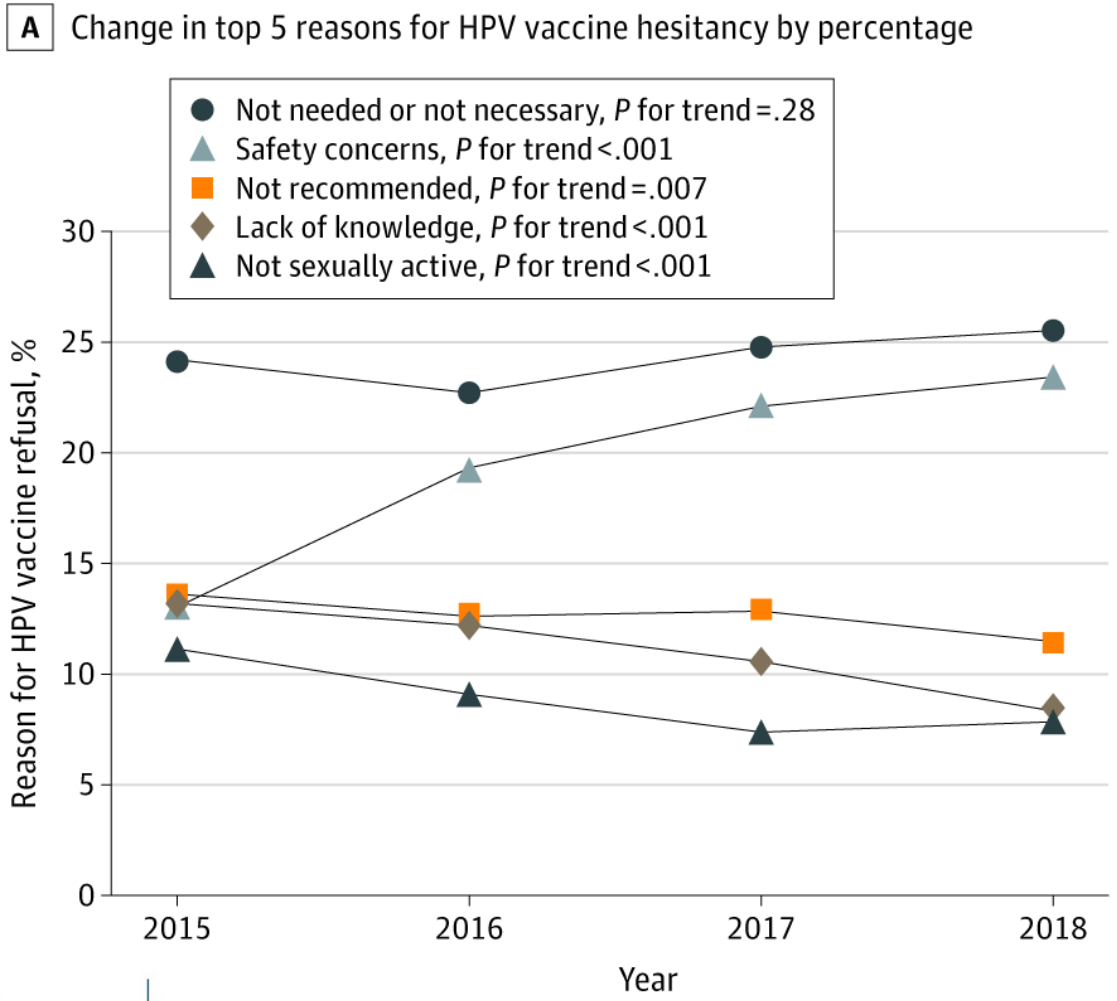
Sonawane K, …, Deshmukh AA. ***Lancet Public Health***. 2020

What are the barriers?

Vaccine hesitancy is prevalent and rising



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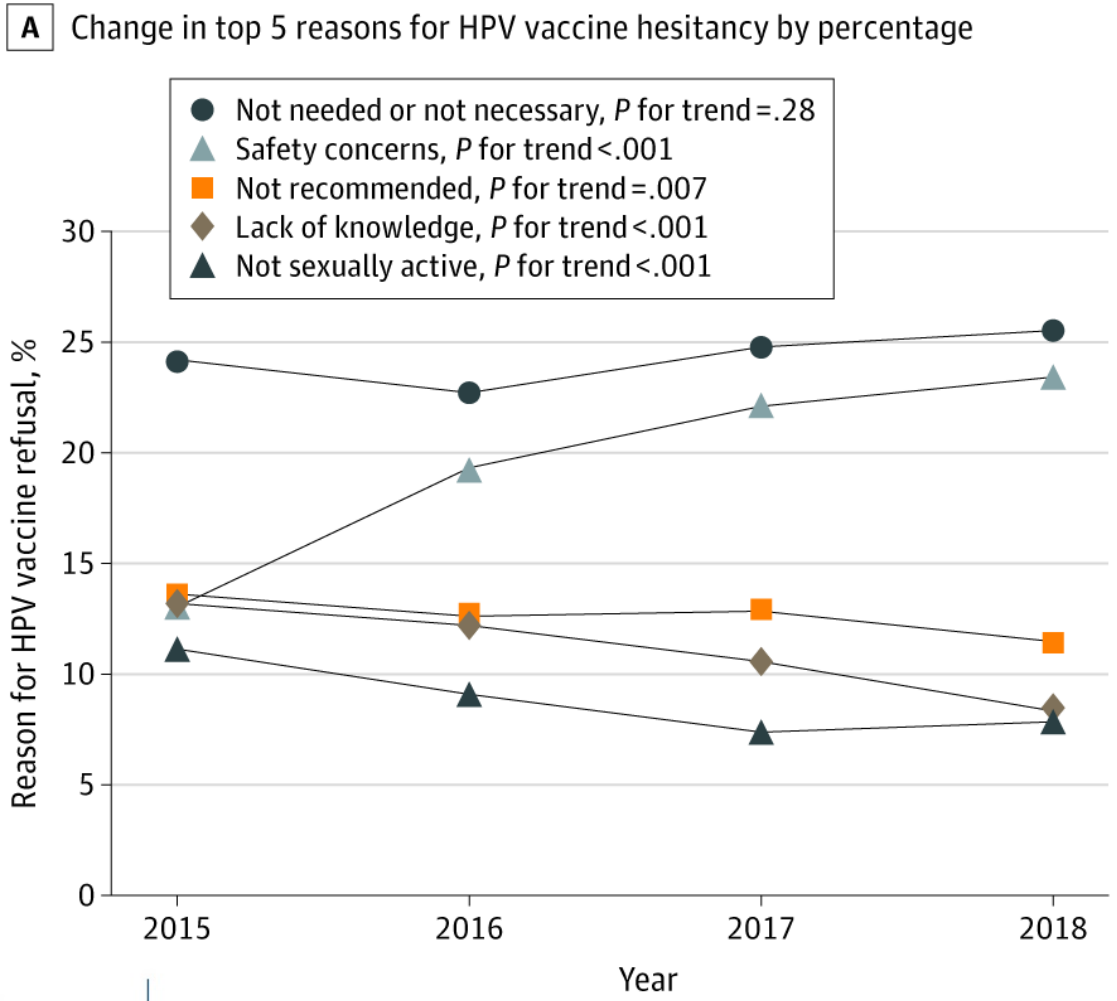
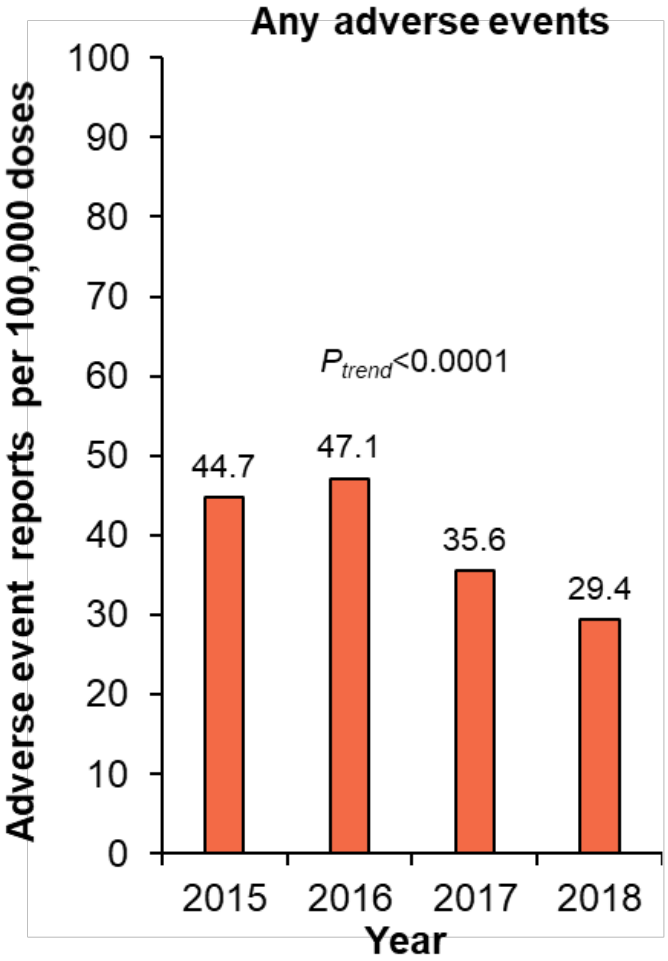
Sonawane K, …, Deshmukh AA. ***Lancet Public Health***. 2020

What are the barriers?





Vaccine hesitancy is prevalent and rising

Is the rise justifiable?

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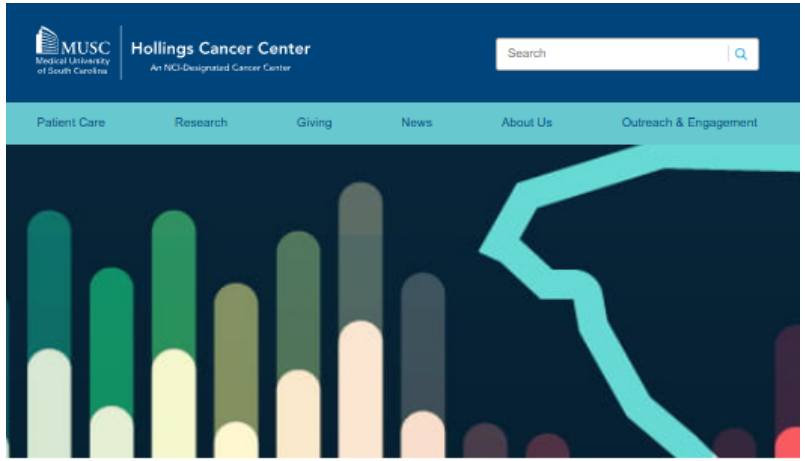
Sonawane K, …, Deshmukh AA. ***JAMA Network Open***. 2021

Locating communities that are falling behind



Hollings › Outreach & Engagement › Cancer Data Tool

South Carolina Cancer Surveillance for Population Health Research and Outreach Tool

The South Carolina Cancer Surveillance for Population Health Research and Outreach Tool (SC SPOT) provides cancer-relevant data for all 46 counties in the state. Our goal is to share usable, understandable, and accessible data in order to foster research collaboration, empower communities, and advance health equity.

Beyond visualization of cancer cases and deaths, we explore social determinants of health across South Carolina communities and illustrate the distribution of risk factors, health care access, and population sociodemographics.

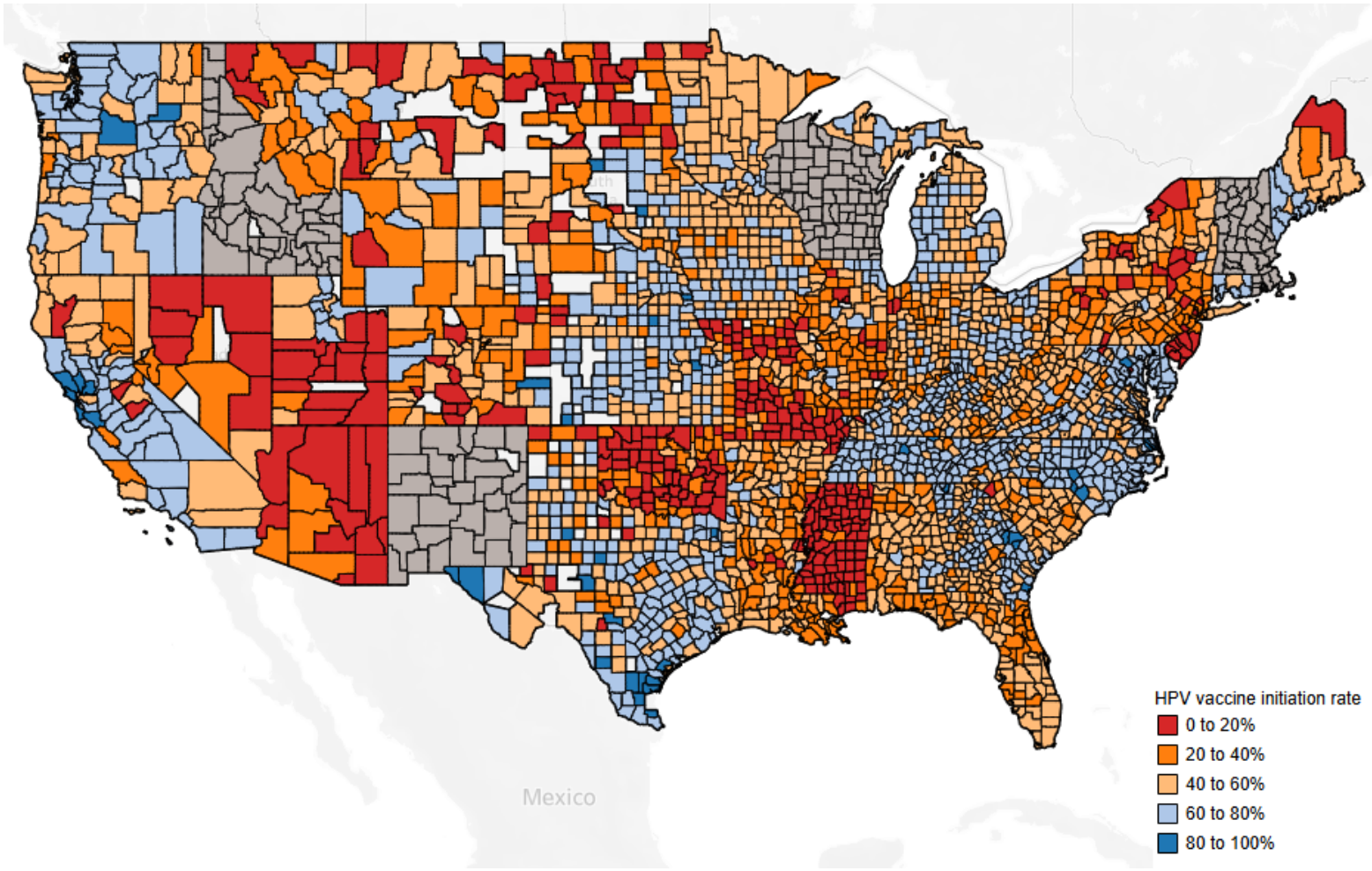
Join us on this journey of education, advocacy, and action as we work together towards improving cancer outcomes in South Carolina. For questions or feedback, please email us at sonawane@musc.edu. A detailed description of the methodology and data sources can be found in the SC SPOT methodology document.

SC SPOT was recognized at the 2023 Catchment Area Data Conference.

SC SPOT

This video provides an overview of the data available on the SC SPOT website and tips for navigating through the dashboards.

Explore interactive South Carolina cancer data dashboards



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Sonawane K, …, Deshmukh AA. **Upcoming**

Acknowledgements

MUSC Team

Kalyani Sonawane, PhD
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Haluk Damgacioglu, PhD
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Talia Wahl, MPH
Ashvita Garg, PhD
Poria Dorali, PhD
Ketki Borse, PhD
Ella Starr, MPH
Abigail Drake, MPH
Leslie Lenert, PhD
Gweneth Lazenby, MD
Eric Meissner, MD, PhD
Gerard Silvestri, MD
Elizabeth Hill, PhD
Bhishamjit Chera, MD
Brian Orr, MD
Souvik Seal, PhD

Collaborators

Keith Sigel, MD (Mt. Sinai)
Jagpreet Chhatwal, PhD (MGH-ITA)
Elizabeth Chiao, MD (MD Anderson)
Scott B. Cantor, PhD (MD Anderson)
Ana Patricia Ortiz, PhD (UPR)
Jane Montealegre, PhD, MPH (MD Anderson)
Alan G. Nyitray, PhD (MCW)
David R. Lairson (UTHealth)
Elizabeth Stier (BCM)
Yueh-Yun Lin (UTHealth)

Gary M. Clifford (IARC)
Joel Palefsky (UCSF)
Nicolas Wentzensen (NCI)
Meredith Shiels (NCI)
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Carlton Allen, MS

SPEAKER

Program Manager for Prevention

Cancer Prevention & Research Institute of Texas

CANCER PREVENTION & RESEARCH
INSTITUTE OF TEXAS

★ Closing the HPV Vaccine Gap: Preventing HPV Cancers in Boys and Men in Texas★

A Lone Star State Perspective

Carlton Allen, MS, CHW, MCHES®
Program Manager for Prevention
Cancer Prevention & Research Institute of Texas

Learning Objectives

Discuss the burden of HPV-related cancers in men and the role of the HPV vaccine in prevention in Texas.

Discuss strategies from the 2024 Texas Cancer Plan, which includes specific objectives to increase HPV vaccination rates in our state.

Highlight ongoing efforts in Texas to increase vaccination rates among males.

Burden

In Texas, the average age-adjusted incidence rate for all HPV-associated cancers is 12.4 per 100,000 people.

% of males aged 13-17 who initiate the HPV vaccination series – 63%

% of males aged 13-17 who are up-to-date with HPV vaccination series – 53.7%

Texas Cancer Registry (www.dshs.texas.gov/tcr) SEER*Stat Database, 1995-2020 Incidence, Texas statewide, 2022 Submission, cutoff 11/07/2022. Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, created February 2023.

Integration with the 2024 Texas Cancer Plan (TCP)

- Goals from the Texas Cancer Plan that align with HPV prevention:
  - Goal 5: Eliminate cervical cancer and other cancers associated with the human papillomavirus (HPV) in Texas by increasing HPV vaccinations.

- How does the Texas Cancer Plan support HPV vaccination as a cancer prevention strategy?

How We Can Use the Plan to Close the Gap

- Understand the Plan
- Engage and Collaborate
- Advocate for Key Initiatives
- Monitor and Adapt

Grantees in Action

All for Them

Program Reach and Impact by Gender

1) **Social marketing and education** for parents and teens (bilingual English/Spanish)
2) **Comprehensive school-based vaccination clinics**
3) **School nurse training** on HPV vaccination

Between 2017-2025, **implemented in over 90 middle and high schools across six Texas school districts.**

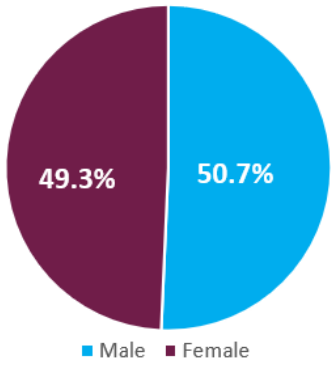


Figure 1. HPV vaccines administered (n=5,572) by gender
(subsample of students whose individual data were collected)

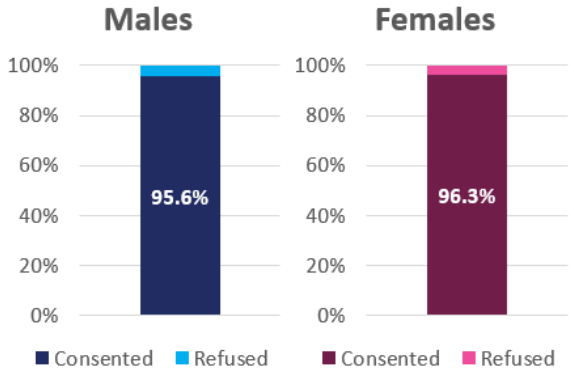


Figure 2. Parental HPV vaccine acceptance rates by gender
(of students who needed a dose of HPV vaccine)

GET ALL THE VACCINES
ALL FOR THEM
TODO ES PARA ELLOS
ASEGÚRELES TODAS LAS VACUNAS

UTHealth Houston
School of Public Health

www.allforthemvaccines.com

Now what???

So, what can we do to close the HPV vaccine gap

Keep making clear recommendation for HPV, along with other vaccinations in boys and children

Educate parents about the importance of HPV vaccination

Support policies that improve access to vaccines

★ Contact Me ★

Carlton Allen, MS, CHW, MCHES®
Program Manager for Prevention
Cmallen@cprit.texas.gov
512.626.2358

Facilitated Discussion

Jason Mendelsohn
Oral Cancer Survivor
Founder, SupermanHPV

Staci Sudenga, PhD
Assistant Professor of Medicine, Vanderbilt University Medical Center

Ashish Deshmukh, PhD
Professor, Public Health Sciences, Hollings Cancer Center

Carlton Allen, MS
Program Manager for Prevention, Cancer Prevention & Research Institute of Texas

Closing Remarks

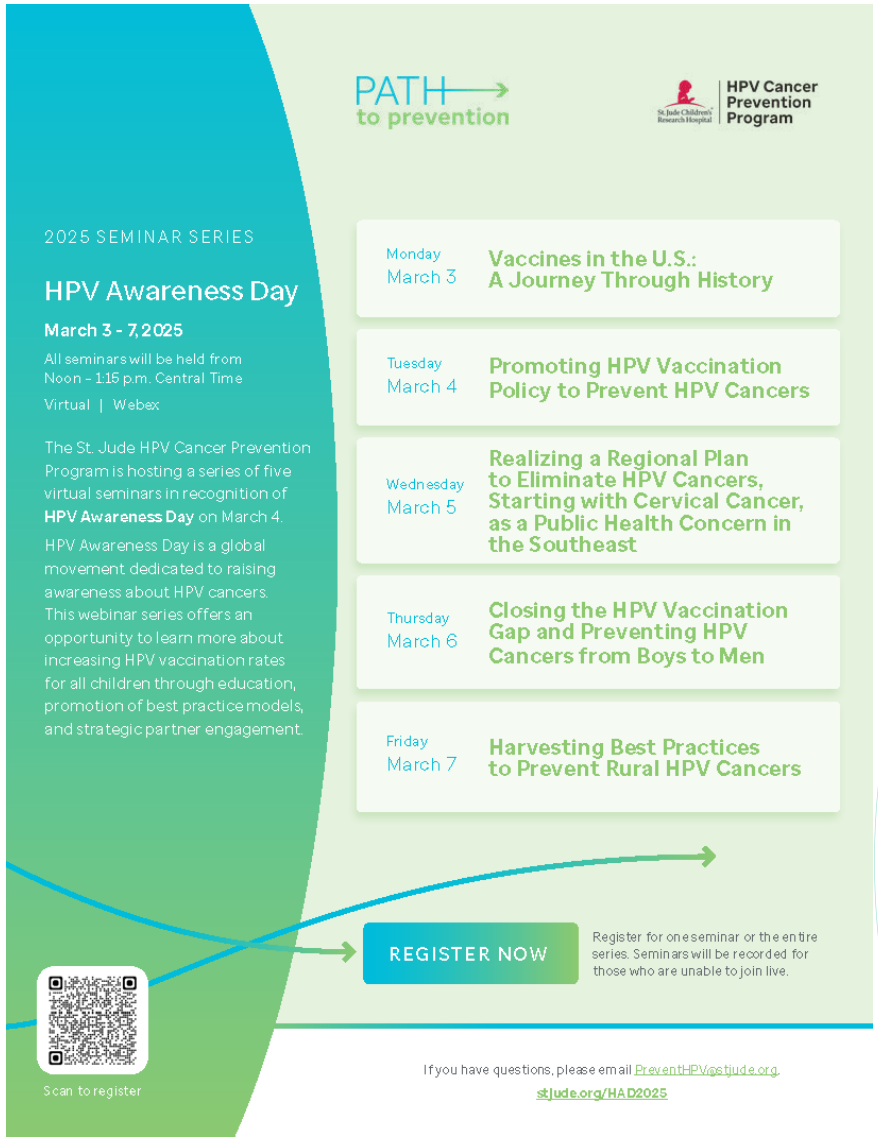
stjude.org/hpv • #EndHPVCancers

Seminar Evaluation, March 6

Thank you for joining us! Please take a moment to complete the evaluation for today's seminar.

Upcoming HPV Awareness Day Seminars

Register at stjude.org/HAD2025



One Less Worry Campaign 2025

Thank you for joining us today!

Email PreventHPV@stjude.org with any questions!