



# Cervical Cancer Screening Updates

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AMERICAN CANCER SOCIETY, HILTON SAN GABRIEL, CA**

# Disclosures

The following CME planners and faculty do not have relevant financial relationships with ineligible companies in the past 24 months:

- \* Leilanie Mercurio, L.A. Care Provider Continuing Education (PCE) Program Manager, CME Planner.
- \* Bridget Freeley, Associate Director, State Partnerships, American Cancer Society, CME Planner.
- \* Susan Park, MD, MPH, UCLA Assistant Clinical Professor practicing Gynecology Oncology at Harbor-UCLA Medical Center, CME Faculty.

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# Learning Objectives



LinkedIn

1. Review current guidelines for cervical cancer screening.
2. Identify at least three (3) symptoms of cervical cancer.
3. Distinguish the different HPV tests (primary, cotest, reflex and genotyping).
4. Identify patients eligible for HPV vaccination.
5. List at least three (3) effective interventions to reduce disparities in cervical cancer screening.

# Outline

- ▶ Cervical cancer epidemiology
- ▶ Treatment
- ▶ Prevention strategies
  - ▶ HPV vaccination
  - ▶ Cervical cancer Screening
- ▶ Future Directions



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# Key statistics to consider

**4000**

Number of women who die of cervical cancer in the US each year

**88%**

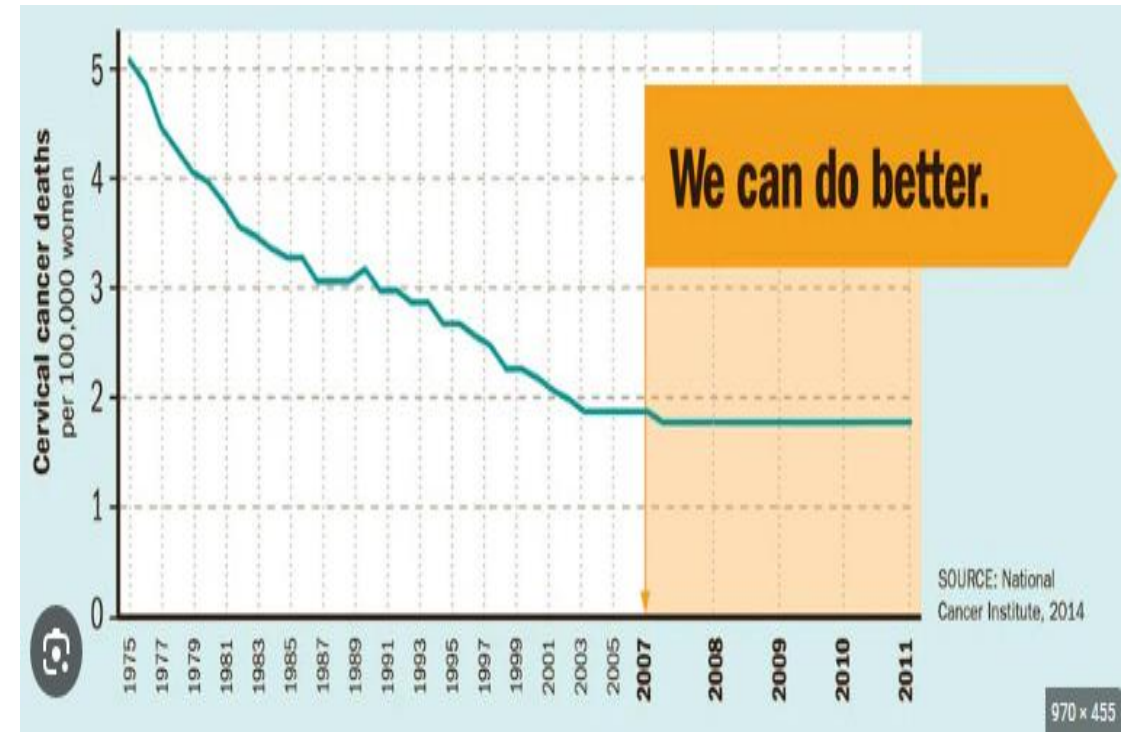
Percentage reduction in HPV infections due to vaccination

**23%**

Percentage of women overdue for cervical cancer screening

# Cervical Cancer in the U.S.

- ▶ Third most common gyn cancer in U.S.
  - ▶ 14,000 new cases/year in the U.S
  - ▶ **4,000** death/year
  - ▶ Histologic subtypes
    - ▶ squamous (70%)
    - ▶ adenocarcinoma (25%)
    - ▶ Adenosquamous
    - ▶ clear cell (<5%)



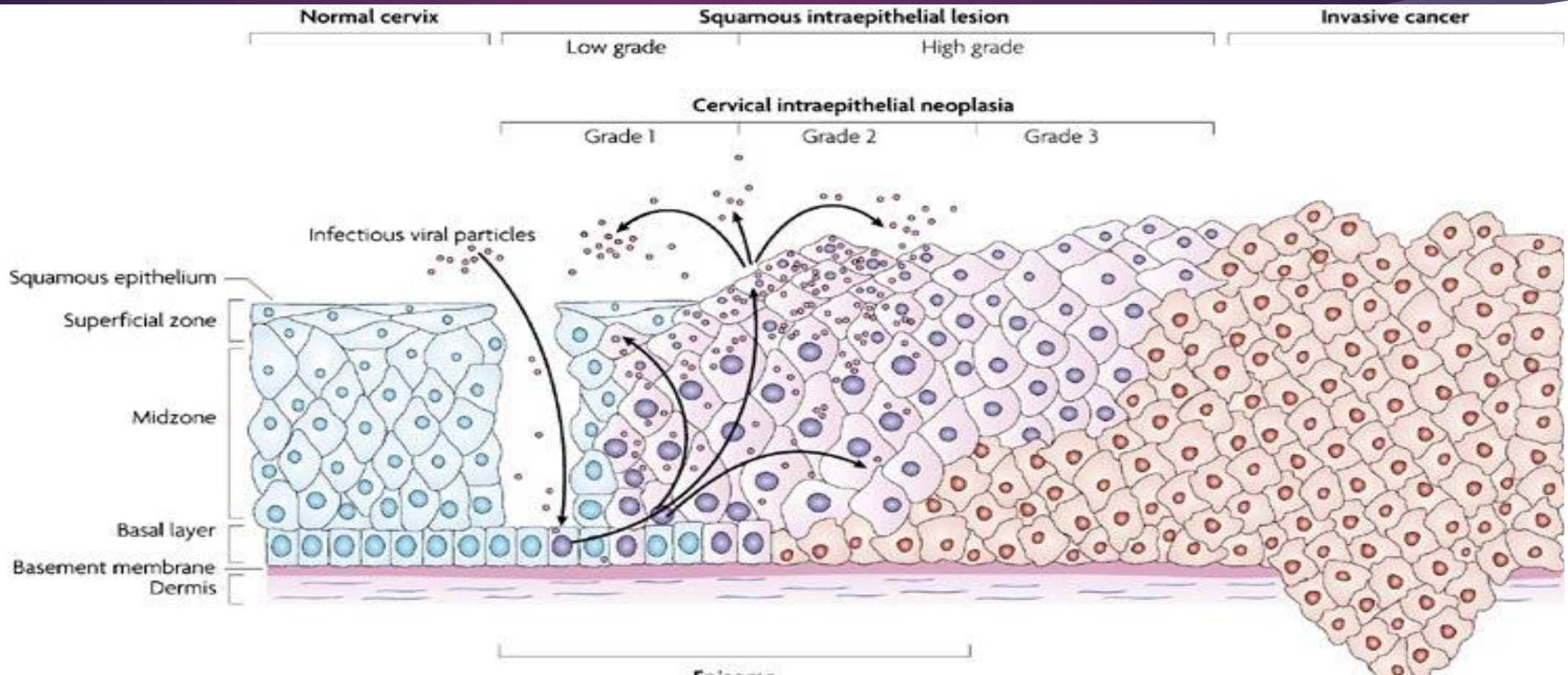
# Human Papilloma Virus (HPV)



Stranger Things, Netflix

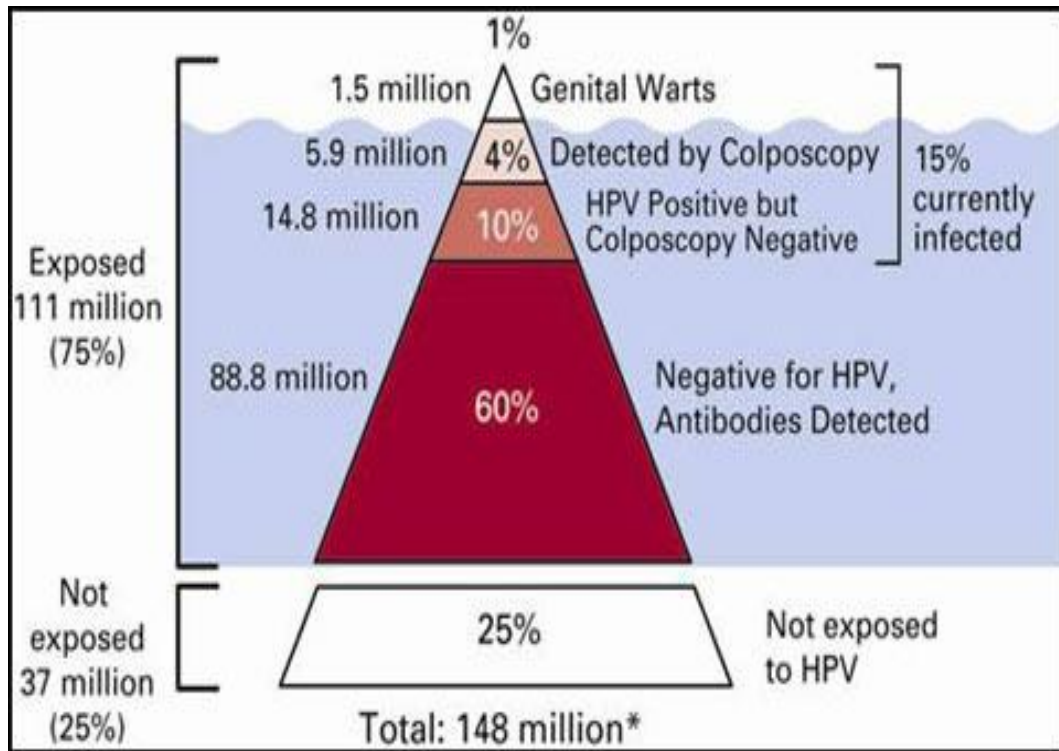
- Genital HPV is the most common STI in US
  - Incidence: 8-14 million persons infected each year
  - Prevalence: 80 million
  - Most are asymptomatic
- Over 150 HPV types identified, over 40 affect genital area
  - **Low risk:** 6/11 - cause genital warts, respiratory papillomatosis
  - **High risk:** oncogenic - **16,18**, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 69, 73, and 82.

# HPV Infection and Carcinogenesis



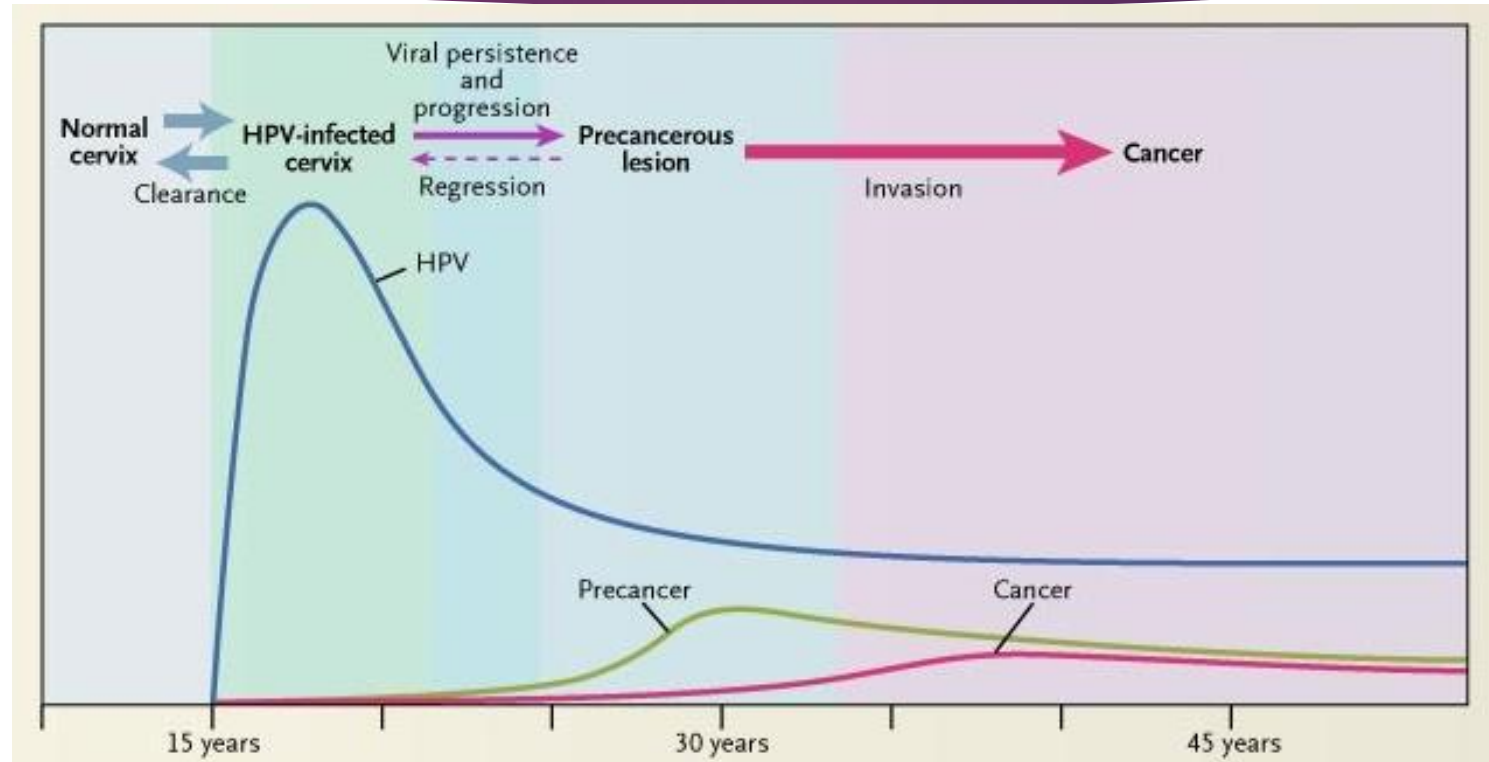


# Effect of HPV in the United States



- 74% of infections occur among those aged 15-24
  - Usually occurs shortly after sexual debut – 38.9% by 24 months of first intercourse (Revzina 2005)
- Majority of HPV infections are transient and cause no clinical problems
  - Median time to seroconversion is 8 months
  - 70% of new HPV infections clear within 1 year
  - 90% clear within 2 years
  - **Persistent** infection is most important risk factor for cervical ca (HPV 16 is most virulent) – progression to cancer is usually decades

# Natural History of HPV and Cervical Cancer



Schiffman and Castle, NEJM 2005

# Additional Risk Factors for HPV Disease

## Physiologic Risk Factors

- ▶ Persistent high risk HPV infection
- ▶ Increasing Age
- ▶ DES exposure
- ▶ Nutritional factors
- ▶ Immunosuppression/HIV infection
- ▶ Other STIs
- ▶ **SMOKING (50% increase!)**

## Psycho-Social Risk Factors

- ▶ Low income
- ▶ Lack of insurance
- ▶ Poor health literacy
- ▶ Cultural beliefs
- ▶ Access
- ▶ Language barriers
- ▶ Discomfort with exam
- ▶ Pandemic driven closures

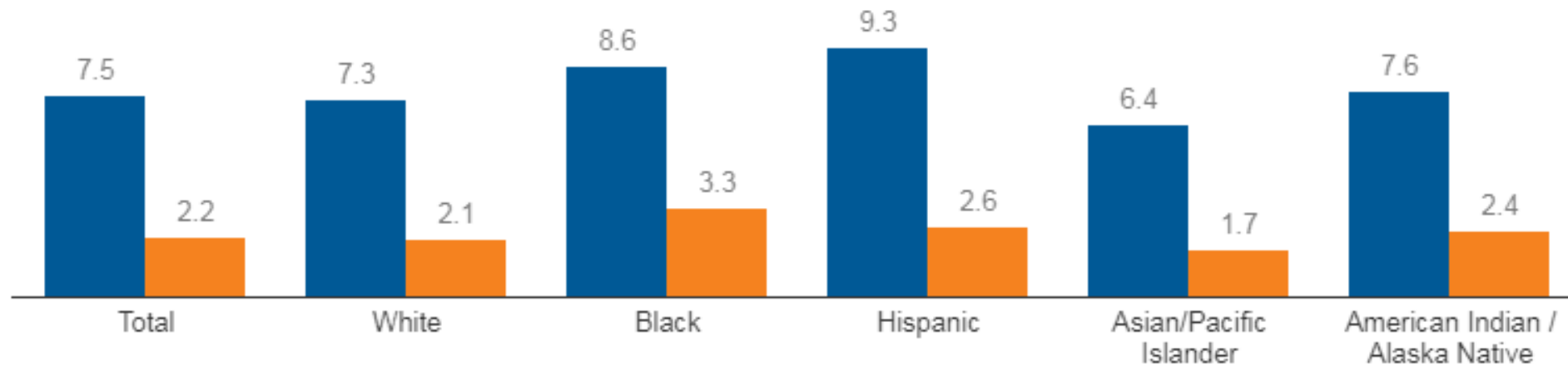
# Racial Disparities in Cervical Cancer

Figure 1

## Racial and Ethnic Disparities in Cervical Cancer

Cervical Cancer Incidence and Mortality Rates by Race/Ethnicity, 2014-2018

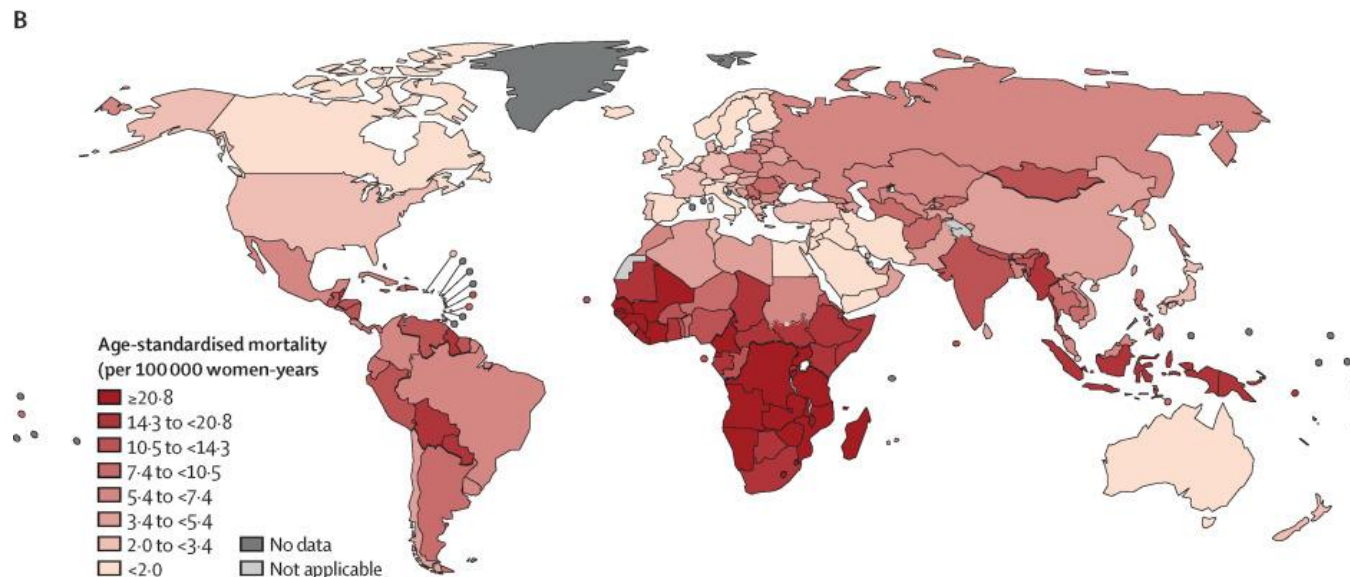
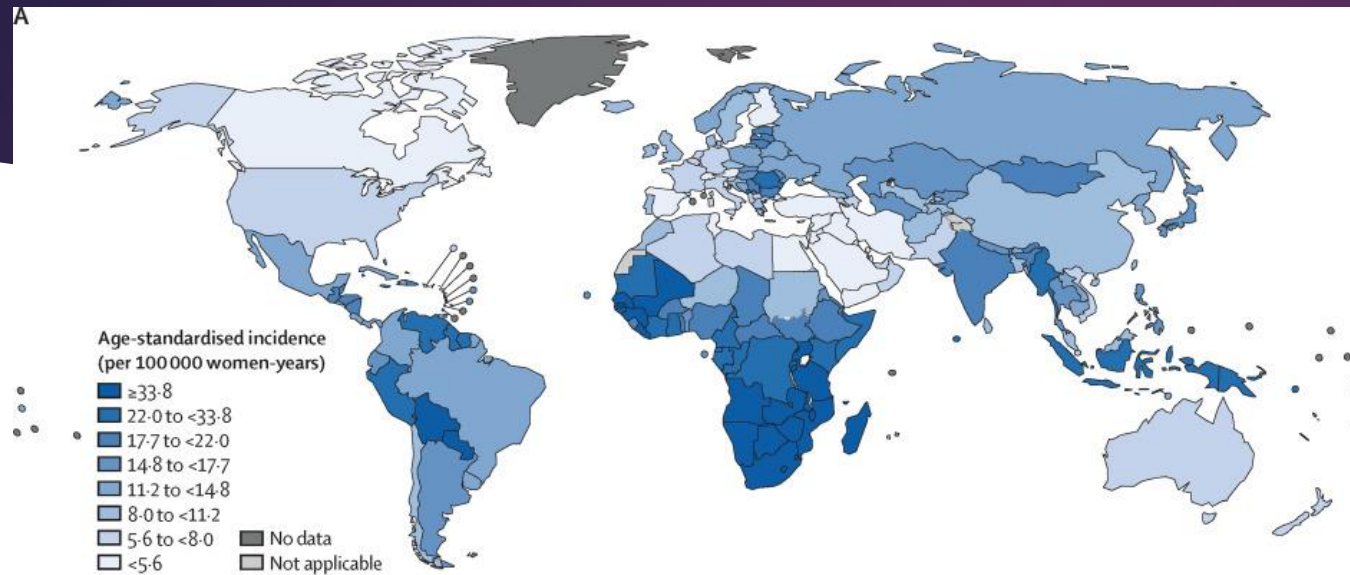
■ Incidence ■ Mortality



NOTE: Data are age-adjusted rates per 100,000 women.

SOURCE: National Cancer Institute. [SEER Stat Fact Sheets: Cervix Uteri Cancer](#). Accessed May 2021. • PNG

# The Other Global Pandemic



**2022 worldwide** (WHO Key facts)

4<sup>th</sup> most common cancer

660,000 new cases

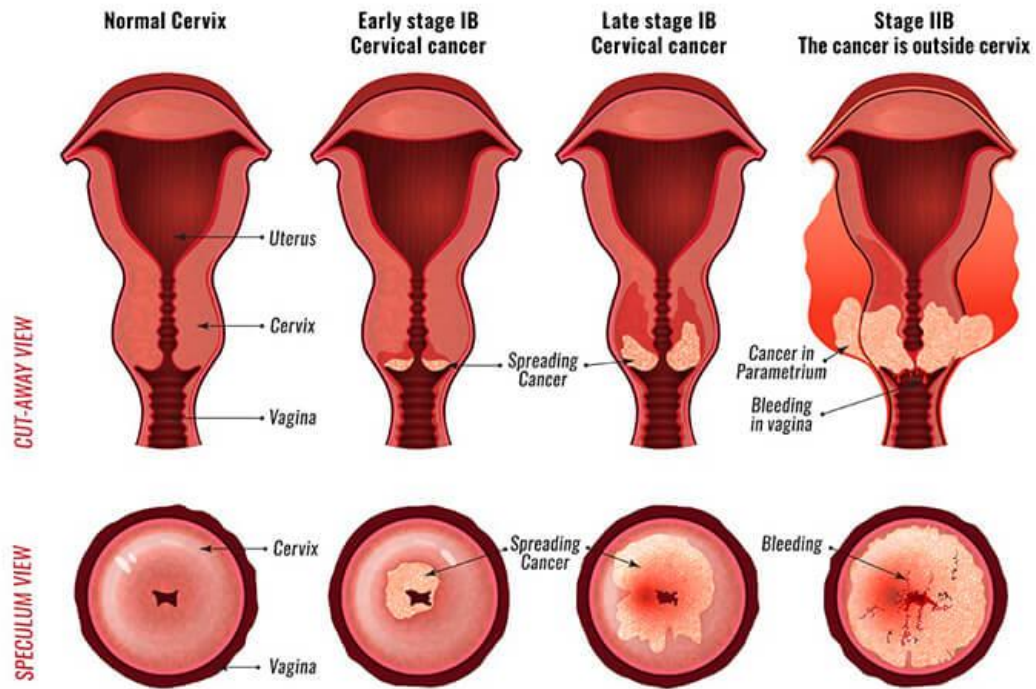
350,000 deaths

**United States**

14,000 cases

4000 deaths

# Early Stage Disease

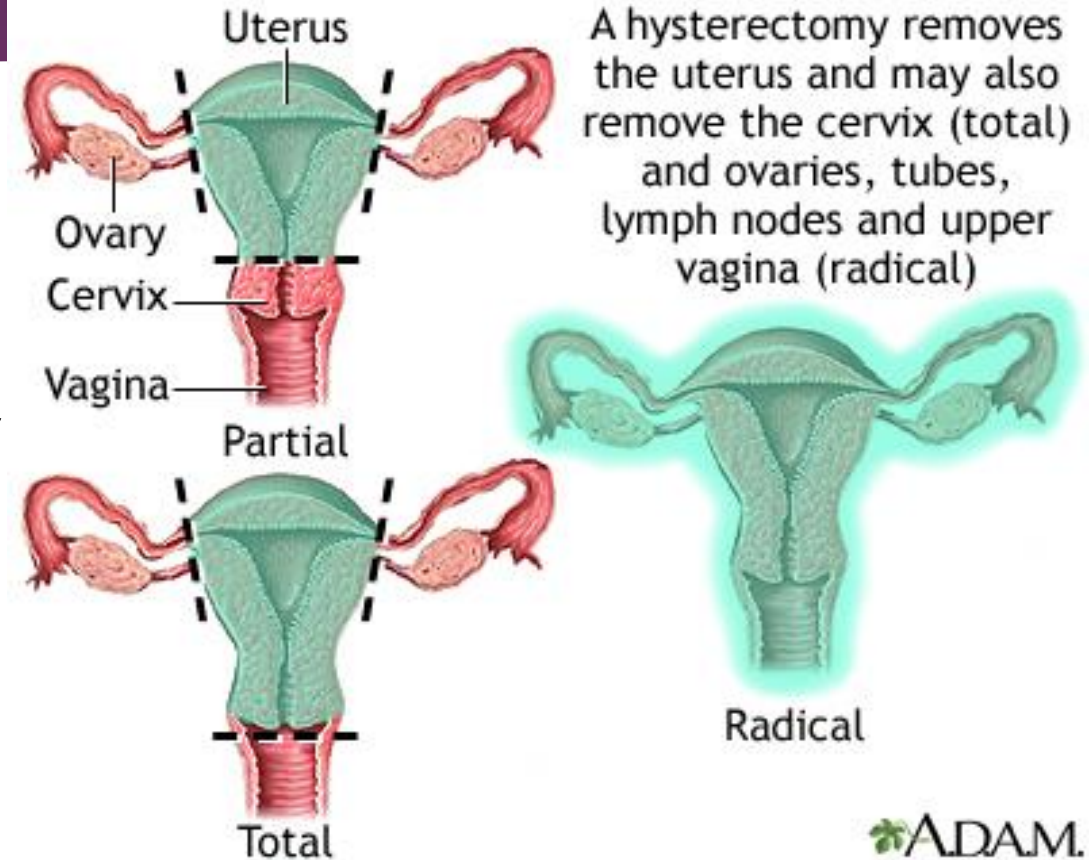


American Pregnancy Association

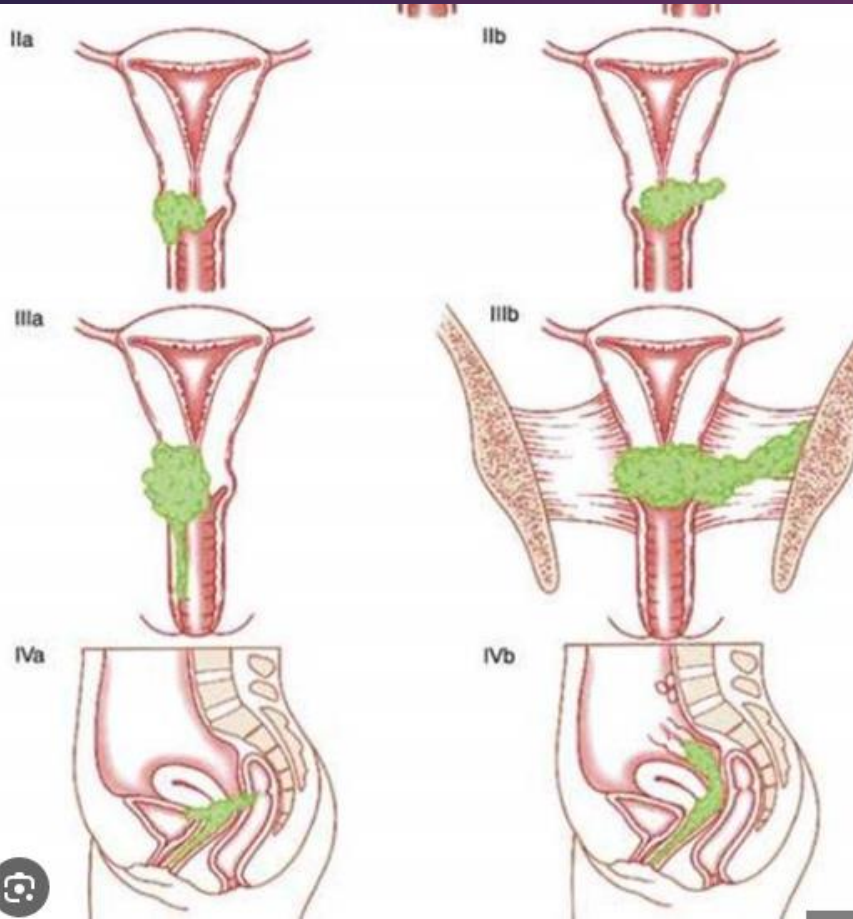
Stage	Description	5 year survival
Stage I	Confirmed to cervix	80-93%
1A1 1A2	Measured stromal invasion of <3.0 mm in depth Measured stromal invasion of ≥3.0 mm and <5.0 mm	
IB1 1B2 1B3	≥5mm stroma and <2cm greatest dimension ≥2cm and <4cm greatest dimension ≥4cm greatest dimension	
Stage II	Invades beyond uterus, not to pelvic wall to lower third of vagina	58-63%
IIA IIA1 IIA2	Without parametrial invasion <4.0 cm in greatest dimension ≥4.0 cm in greatest dimension	

# Surgical Management

- ▶ Treatment intent: CURATIVE
- ▶ Fertility Sparing
  - ▶ IA1: can do CKC or even LEEP vs simple trachelectomy
  - ▶ IA2-IB1 (<2cm lesion) – radical trachelectomy with staging; Conception rates 50-70%
- ▶ Hysterectomy +/- bilateral salpingo-oophorectomy



# Locally Advanced Disease

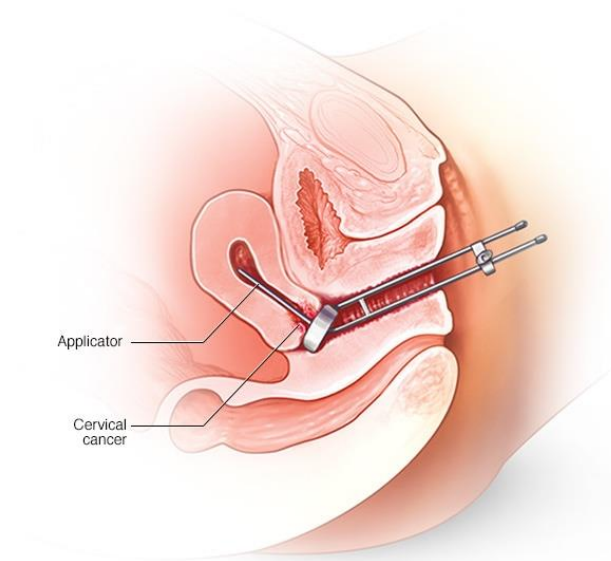


Stage	Description	5 year survival
Stage II	Invades beyond uterus, not to pelvic wall to lower third of vagina	58-63%
IIA IIA1 IIA2 IIB	Without parametrial invasion <4.0 cm in greatest dimension ≥4.0 cm in greatest dimension With parametrial invasion	
Stage III	Side wall extension, lower 1/3 vagina, hydronephrosis or involvement of pelvic/PA nodes.	32-35%
IIIA IIIB IIIC IIIC1 IIIC2	involves lower 1/3 of the vagina, no extension to the pelvic wall Ext to the pelvic wall and/or hydronephrosis or non-functioning kidney Involves pelvic/PA LN (r&p notations) Pelvic LN PA LN	
Stage IV	Extends beyond true pelvis	15-19%
IVA	Spread to adjacent organs (Ex. Bladder, rectum)	



# Chemo-radiation

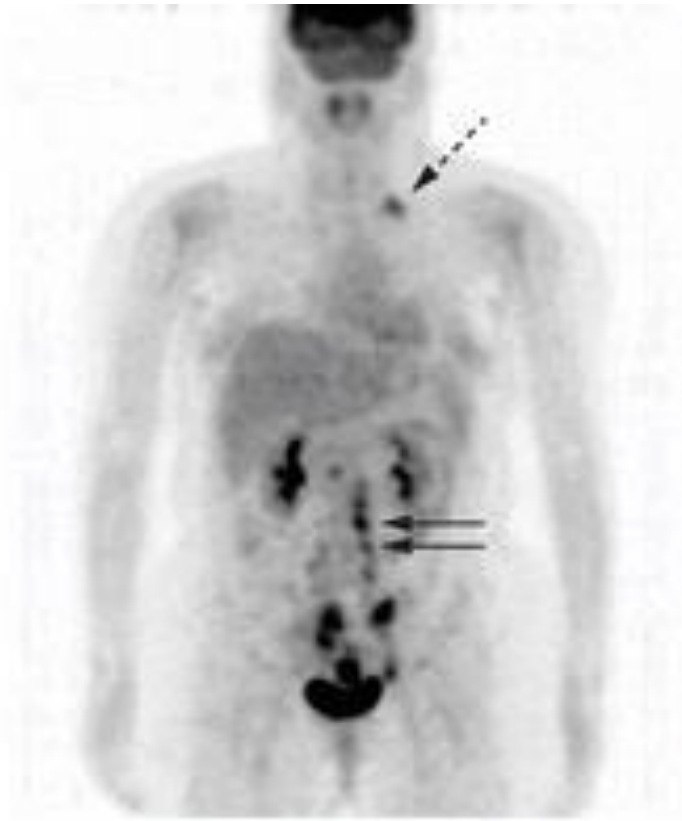
- ▶ Treatment intent: Curative
- ▶ Primary chemo-radiation
  - ▶ External Beam Radiation
  - ▶ Brachytherapy
  - ▶ Cisplatin chemosensitization



Wikipedia

Mayo clinic

# Metastatic Disease



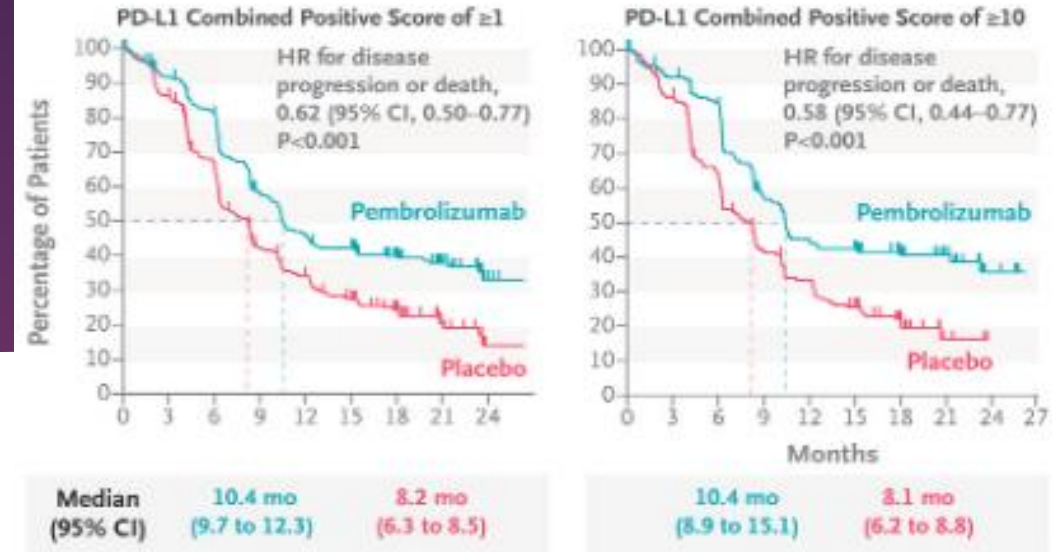
Chao et al , Future Medicine 2014

Stage	Description	5 year survival
Stage IVB	Spread to distant organs	<15-19%

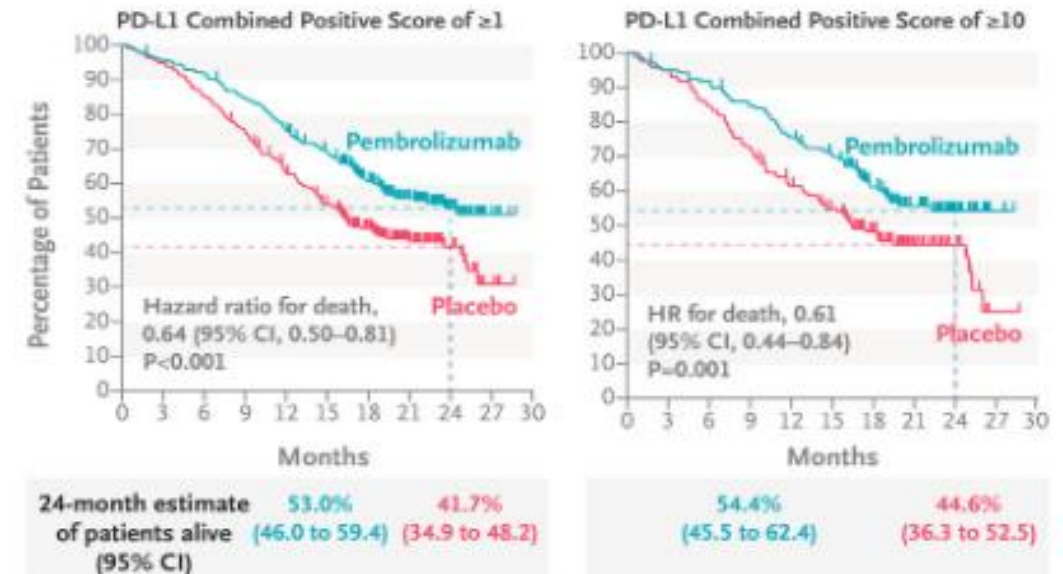
# Systemic treatment

- ▶ Goal: **Palliative**
- ▶ Chemotherapy: cis/carboplatin + paclitaxel
- ▶ GOG 240 (Tewari, NEJM 2014)
  - ▶ Adding bevacizumab increased ORR from 36 →48%
  - ▶ OS **16.8 vs 13.3 months** (HR 0.77 (CI 0.62-0.95) (update Tewari, Lancet 2017)
- ▶ Keynote 826 (Colombo et al, NEJM 2021)
  - ▶ Adding pembrolizumab to PDL1 positive tumor improves PFS
  - ▶ PFS 10.4 vs 8.2 months (HR 0.65)
  - ▶ OS at **24 months** (53 % vs 41.7% (HR 0.64))

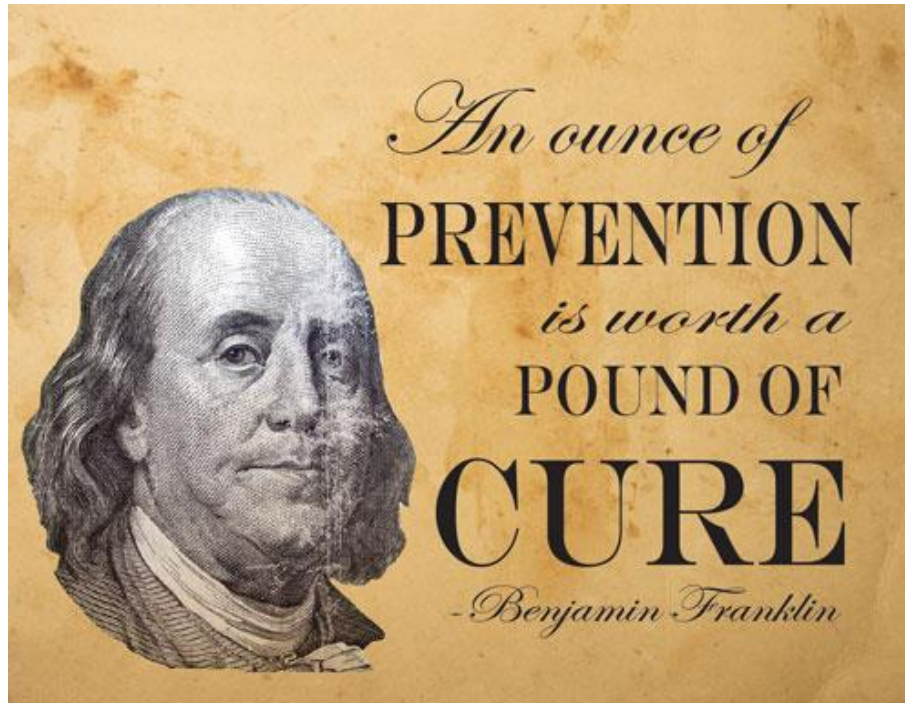
## Progression-free Survival



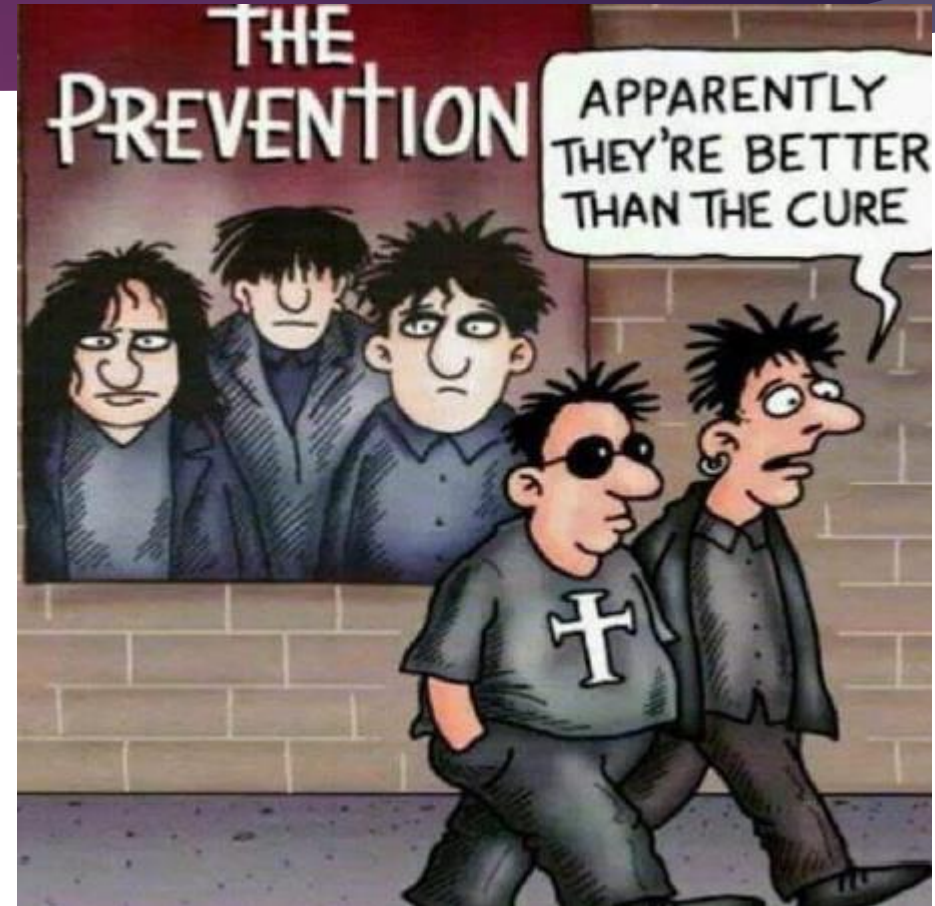
## Overall Survival



# Prevention is key!

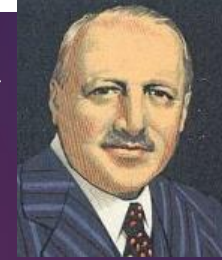


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# Evolution of Cervical Cancer Screening and Prevention



1943 – *Diagnosis of Uterine Cancer by the Vaginal Smear* by **Georgios Papanicolaou**

1983 – **Harald zur Hausen (German Virologist)** – makes first association between HPV16 virus and cervical cancer (awarded the 2008 Nobel Prize in Medicine)

1991 – **Ian Frazer and Jian Zhou** discovered VLPs

2003 – HPV test included in screening guidelines

2006 – HPV4 Gardasil introduced by Merck and Co

12/2014 – HPV9 Gardasil-9 introduced by Merck and Co

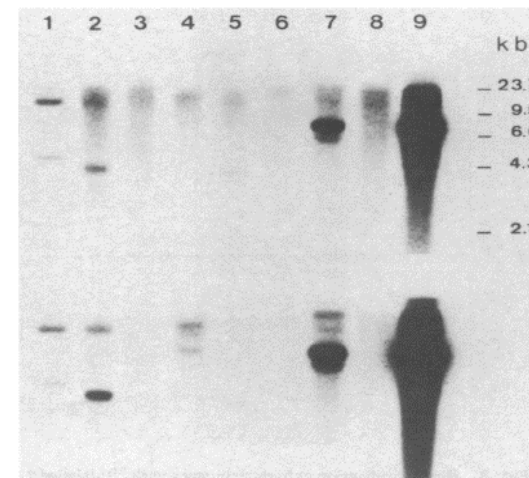
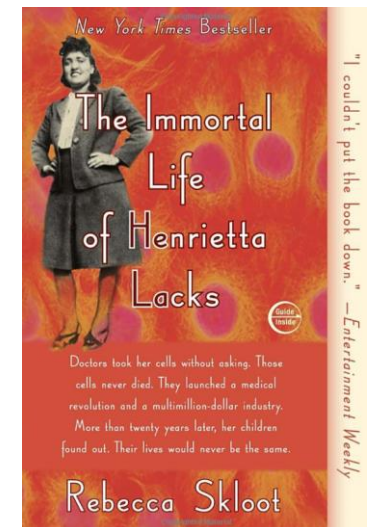


Image: PNAS 1983



# Primary Prevention: HPV Vaccine

Eligible persons	# Doses	Dosing Intervals
Persons 9-14 years Except immunocompromised	2	0, 6-12 months
Persons 15-26 years And immunocompromised 9-26 years  *FDA expansion to age 45 10/2018	3	0, 1-2, 6 months • Minimum interval between 1st and 2nd dose is <b>4 weeks</b> • Minimum interval between 2nd and 3rd dose is <b>12 weeks</b> • Minimum interval between 1st and 3rd dose is <b>24 weeks</b>

- ▶ Females with abnormal pap tests, positive HPV tests or genital warts can still receive the vaccine
- ▶ Do not restart series if recipient is late for follow-up doses and resume vaccine series at regular dosing interval for remaining vaccines
- ▶ If subsequent dose given too early, should be re-administered
- ▶ Any available HPV vaccine product may be used to continue or complete series(interchangeable)

# Who do we offer HPV vaccines to?

- ▶ Routine recommendation: ages 9-12
- ▶ “Shared decision making” for 27-45
  - ▶ Consider if at risk for new HPV strains = this is a PREVENTION vaccine
  - ▶ Consider costs to system and vaccine supply
- ▶ Immunocompromised
  - ▶ Will need 3 doses regardless of age
- ▶ Healthcare workers
  - ▶ ASCCP recommends vaccination with high exposure to HPV (gyn, FP, dermatology, OR)

# Cervical Cancer is Preventable!

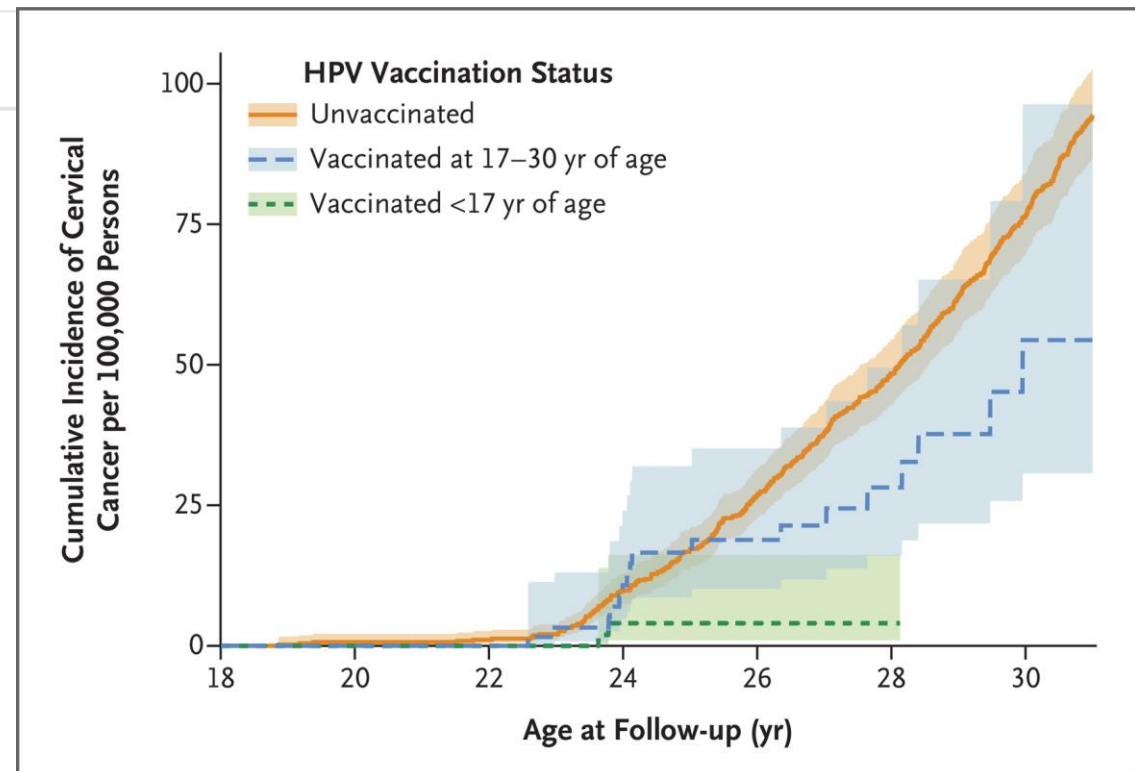
ORIGINAL ARTICLE

## HPV Vaccination and the Risk of Invasive Cervical Cancer

Jiayao Lei, Ph.D., Alexander Ploner, Ph.D., K. Miriam Elfström, Ph.D., Jiangrong Wang, Ph.D., Adam Roth, M.D., Ph.D., Fang Fang, M.D., Ph.D., Karin Sundström, M.D., Ph.D., Joakim Dillner, M.D., Ph.D., and Pär Sparén, Ph.D.

[Article](#) [Figures/Media](#)

- ▶ Swedish registry of 1.67mil women ages 10-30
  - ▶ Incidence rate ratio 0.12 if vaccinated before age 17
  - ▶ IRR 0.47 if vaccinated age 17-30





Cervical,  
vaginal, and  
vulvar cancers  
in women

Penile  
cancer in  
men

Throat cancers  
in men and  
women

Anal cancer  
in men and  
women

**HPV VACCINATION  
CAN PREVENT MOST  
OF THESE CANCERS.**

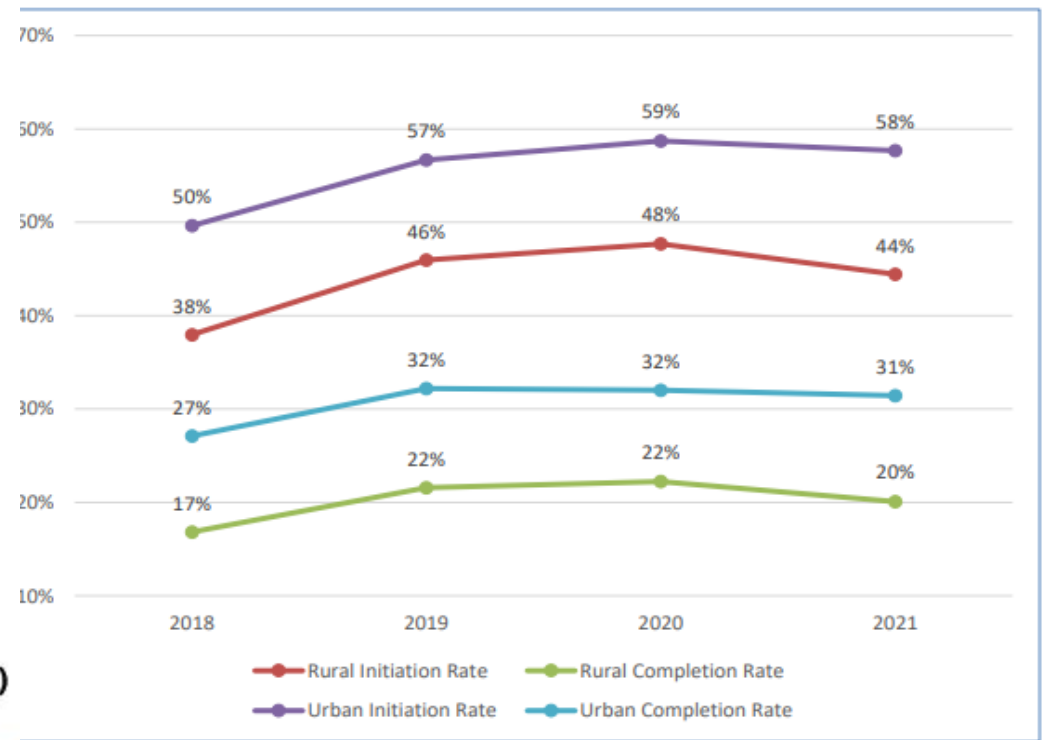
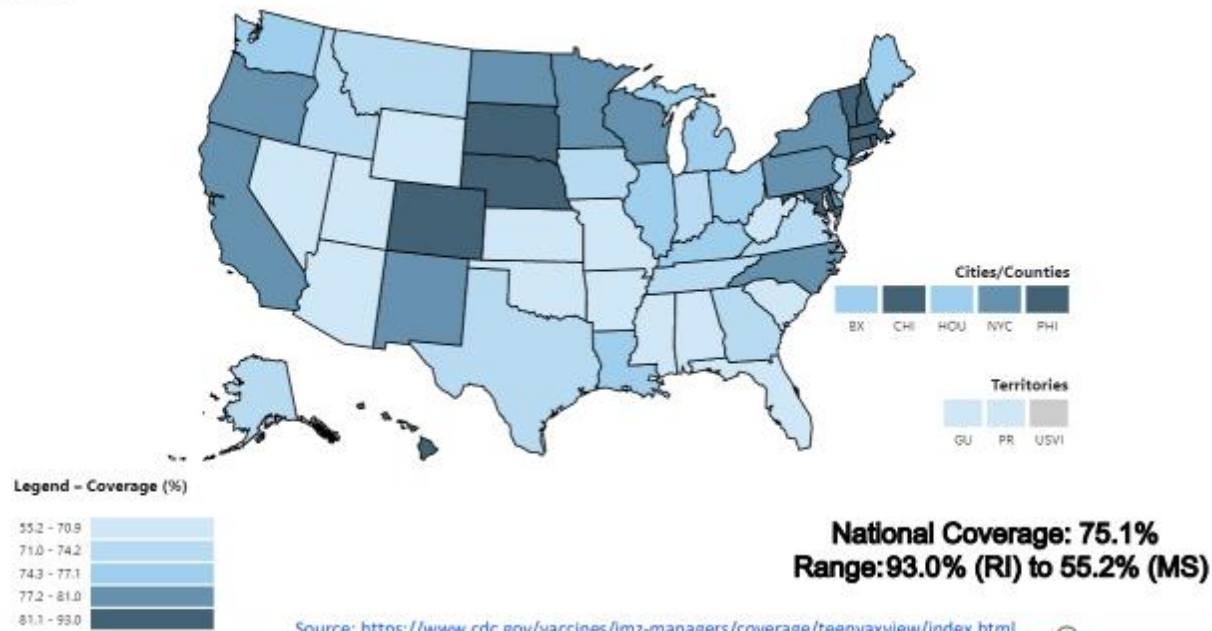
ACS

And  
Preventable  
for other  
HPV  
cancers

# How well are we vaccinating?

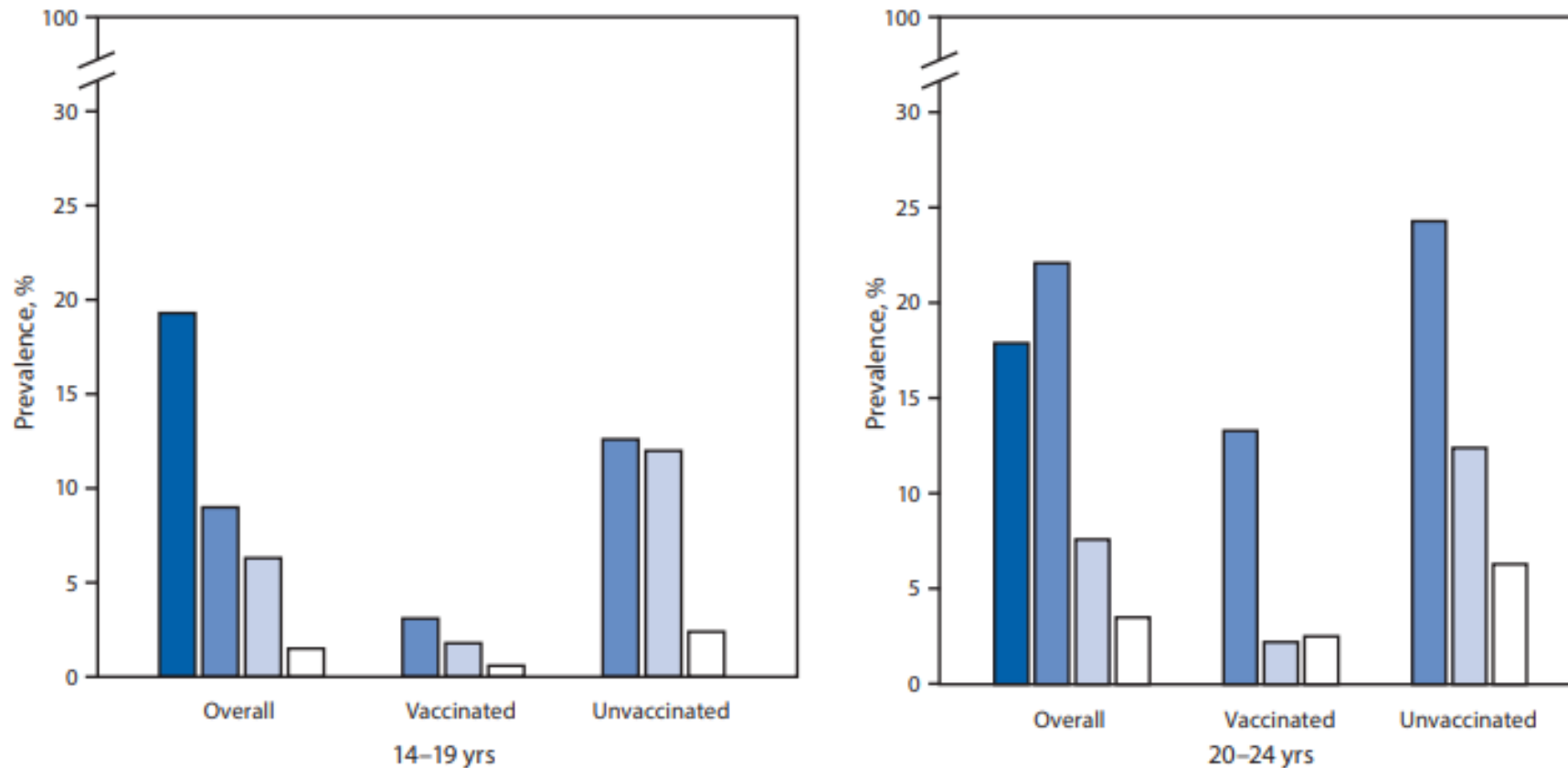
Figure 6. HPV vaccine initiation and completion rates among 13-year-olds by urbanicity classification, 2018-2021 (Source: CAIR)

## Estimated vaccination coverage with $\geq 1$ HPV vaccine, 2020



# How well are we Preventing HPV Cancers

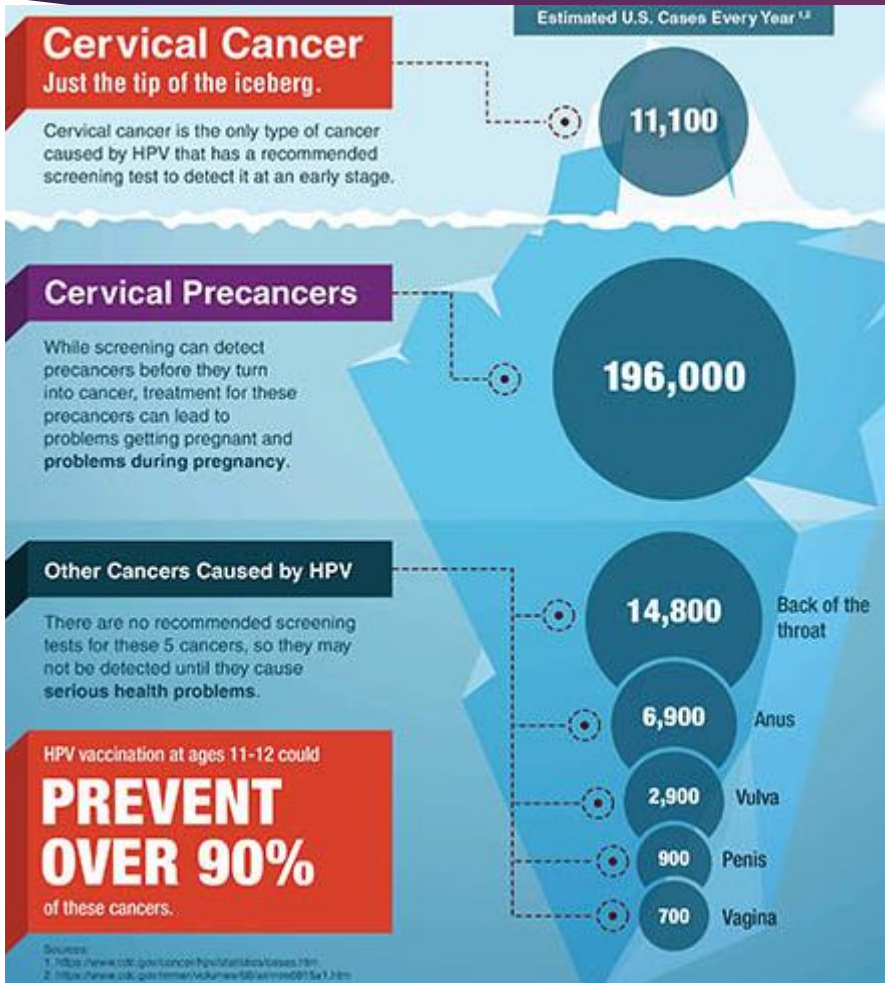
FIGURE. Quadrivalent vaccine-type (4vHPV-type) prevalence among sexually experienced females aged 14–34 years, by age group, vaccination history,\* and survey years — National Health and Nutrition Examination Survey, United States, 2003–2018<sup>†,§</sup>



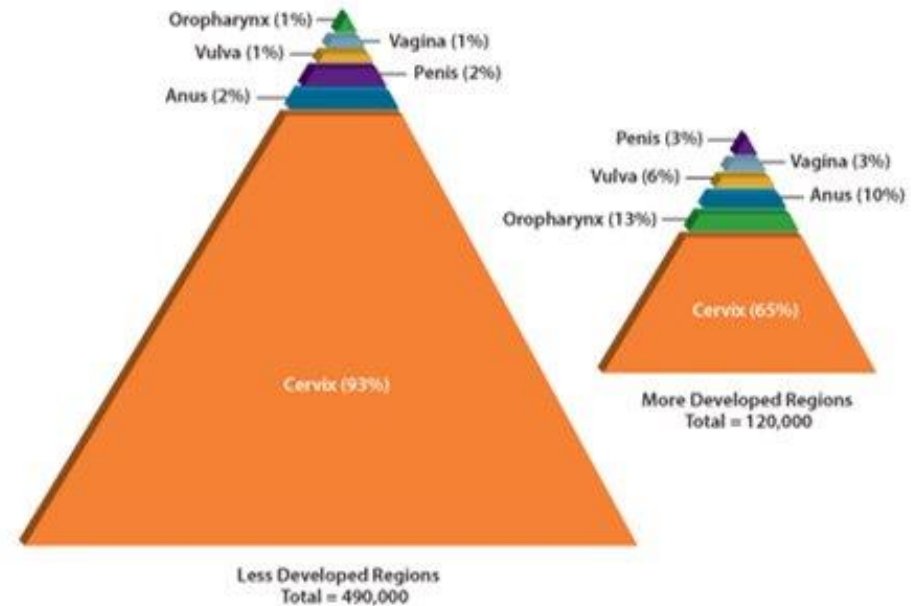
**88%** reduction!

**1%** Prevalence of HPV in age 14-19

# Stats on other HPV Related Cancers



**Figure 8**  
Numbers of HPV-Associated Cancers in Less Developed and More Developed Regions



Note: Global estimates of genital warts and RRP incidence are not available.

Source: de Martel C, Ferlay J, Franceschi S, Vignat J, Bray F, Forman D, et al. Global burden of cancers attributable to infections in 2008: a review and synthetic analysis. *Lancet Oncol.* 2012;13(6):607-15. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22575588>

# Cervical Cancer Screening Guidelines

	Age to screen	Recommendation
USPTF 2018/ACOG/ASCCP	21-29	Cytology q3 years
	30-65	-Cytology q3 years OR -Cotesting q5 years OR -Primary HPV q5years (FDA approved tests: Roche cobas and BD clarity)
ACS 2020	25-65	- <b>Primary HPV q5years (preferred)</b> -Cotesting q5 years (alternate) - Cytology q3 years (alternate)

# Harms of detection and over-treatment

- Invasive diagnostic procedures: colposcopy and cervical biopsies
  - Pain, vaginal bleeding, infection
  - Failure to diagnosis (inadequate sampling)
- Excisional procedures: associated with adverse pregnancy outcomes
- Abnormal tests associated with anxiety, distress, concern
  - HPV infection – relationship concerns
- Cost



Google images

# Why the change by ACS?

**TABLE 4. Model-Estimated Benefits and Burdens of Cervical Cancer Screening Starting at Age 21 Versus 25 Years, per 1000 Screened Over a Lifetime**

SCREENING STRATEGY <sup>a</sup>	PER 1000 WOMEN					
	TOTAL NO. OF TESTS <sup>b</sup>	NO. OF COLPOS	CIN2, CIN3 DETECTED	CANCER CASES	CANCER DEATHS	LYG
1. No screening	0	0	0	18.86	8.34	63,921.34
2. Cyto every 3 y from age 21 y/cotest every 5 y ages 30-65 y	19,806	1630	201	1.08	0.30	64,192.97
3. Cyto every 4 y from age 21 y/HPV every 3 y ages 25-65 y	17,067	2209	217	0.75	0.23	64,195.53
4. Cyto every 4 y from age 21 y/HPV every 5 y ages 25-65 y	12,042	1826	209	0.81	0.25	64,195.35
5. Cyto every 4 y from age 21 y/cotest every 5 y ages 25-65 y	20,859	2029	213	0.82	0.26	64,195.26
6. Cyto every 3 y from age 25 y/HPV every 5 y ages 30-65 y	10,671	1303	175	1.46	0.40	64,188.10
7. Cyto every 3 y ages 25-65 y	13,313	564	142	2.60	0.86	64,176.12
8. HPV every 5 y ages 25-65 y	10,954	1775	195	0.94	0.28	64,193.52

Abbreviations CIN, cervical intraepithelial neoplasia; COLPOS, colposcopies; Cotest, cytology and human papillomavirus test; Cyto, cytology; HPV, human papillomavirus test; LYG, life-years gained.

<sup>a</sup>Scenarios 1 through 5 were reported previously (see Kim 2018<sup>44,45</sup>), whereas scenarios 6 through 8 were estimated as part of the supplementary modeling analysis.

<sup>b</sup>Values indicate the total number of tests, irrespective of primary, triage, or surveillance context.

# When to stop Cervix Cancer Screening

## ▶ At age 65

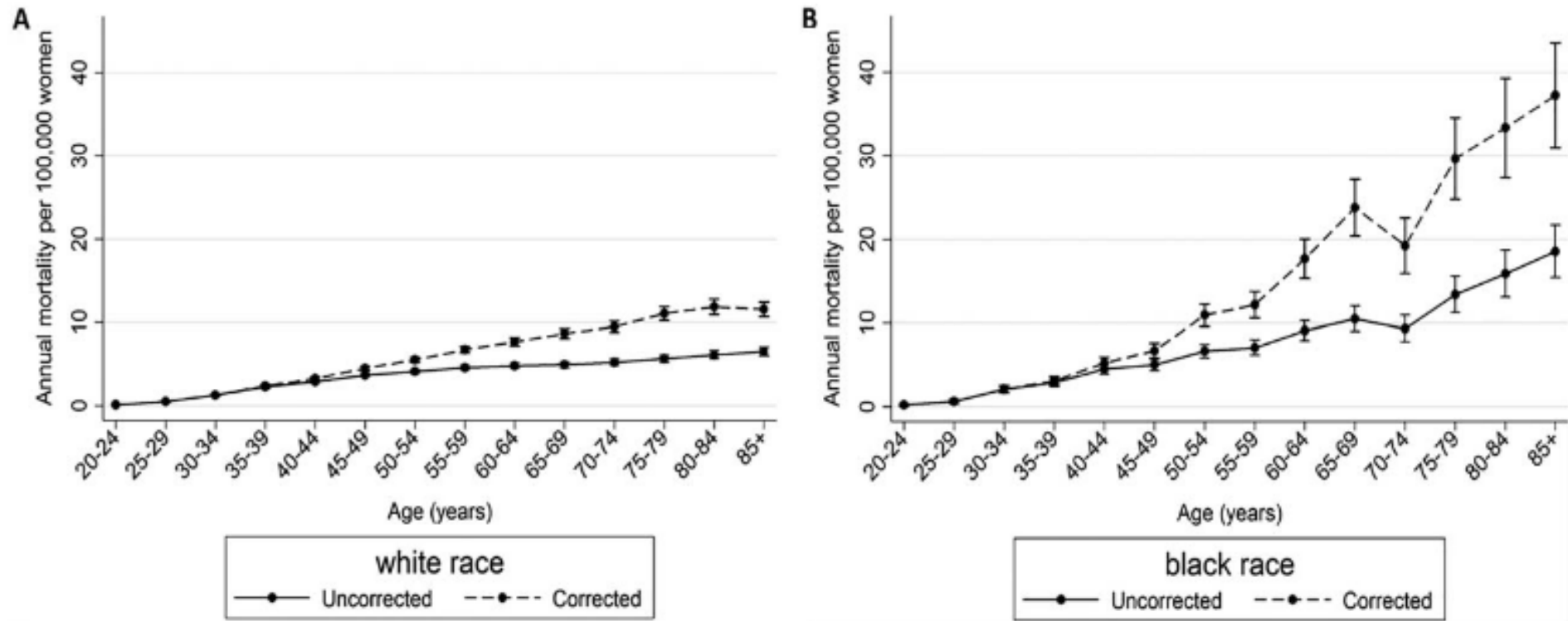
- ▶ Provider determines “adequate screening”
- ▶ ACS/ASCCP/ASCP guidelines define adequate prior screening as
  - ▶ **3 consecutive negative cytology results**
  - ▶ **or 2 consecutive negative HPV results**
  - ▶ **within 10 years** before cessation of screening
  - ▶ **most recent test occurring within 5 years”**

## ▶ Continue beyond age 65 if:

- ▶ Adequacy cannot be assessed
- ▶ Assessment of lifetime risk



# Emerging evidence for extending screening for certain populations



**Figure 3.** Age-specific cervical cancer mortality rates, uncorrected and corrected for the prevalence of hysterectomy, in (A) white and (B) black women.

# Special Circumstances

## ▶ Heightened pap test screening:

- Prior history of CIN 2/3, VAIN, VIN, PAIN, or cervical/vulvar/vaginal cancer – screen for at least 20 years after diagnosis
  - No colpo on LSIL lesion or less
- **High risk patients:** history of in utero DES exposure or immunosuppression (HIV, transplant patients, steroid use)
- Uterine didelphys – pap both cervixes!

## ▶ No need to continue screening:

- Hysterectomy for benign indication (unless meets criteria above)
- Women with history of endometrial cancer



# Cervical Cancer Workup



Asymptomatic



Screening Pap →  
colposcopy and  
biopsies



Symptomatic

- Abnormal or postcoital vaginal bleeding
- Foul smelling discharge
- Pelvic pain/sciatic pain
- Trouble urinating
- Anemia



Pelvic exam and biopsies

# How to collect a Pap

## Conventional Pap

- ▶ Majority of cells not captured – use wood or plastic spatula
- ▶ Non-representative transfer of cells
- ▶ Clumping and overlapping of cells
- ▶ Obscuring material
- ▶ HPV testing requires separate swab

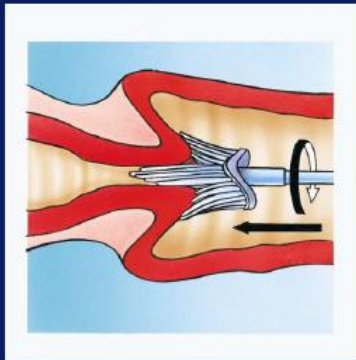
## Liquid based cytology (LBC)

- ▶ Virtually all of sample collected – use plastic spatula
- ▶ Even distribution of cells
- ▶ Decrease in unsatisfactory results – less likely to be affected by gel, blood, other contaminants
- ▶ Increased sensitivity for SIL
- ▶ Specimen available for HPV and other STD tests

# ThinPrep Pap Collection

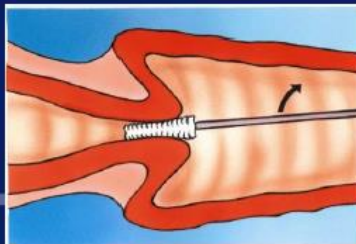
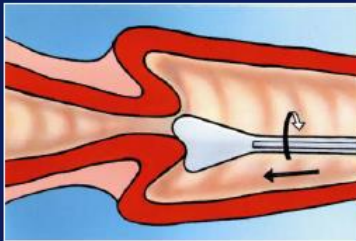
Obtain

Broom



OR

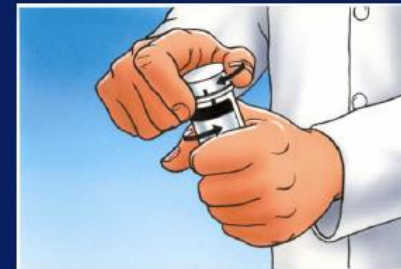
Spatula  
&  
Brush



Rinse  
Immediately &  
Vigorously



Tighten Vial



# Sensitivity of Pap Smear



	Sensitivity	Specificity
Pap smear	55 -80%	96.8%
HPV test	94.6%	94.1%

	CIN 2+	CIN3+	Cervical cancer
Neg cytology along	0.68%	0.26%	0.025%
Pap neg, HPV neg	0.27%	0.08%	0.011%
Pap neg, HPV pos	10%	4.5%	0.34%

# HPV Testing – how to order it

- ▶ **Reflexive (RNA/DNA)** - done with ASCUS result
- ▶ **Cotesting (RNA/DNA)**– done along with cytology every 5 years for age  $\geq 30$
- ▶ **HPV genotyping** – specifically looking for 16/18 strains triage to colposcopy
- ▶ **Primary HPV testing (DNA)** – preferred by ACS
  
- ▶ All HPV tests are FDA approved for co-testing
- ▶ Primary HPV testing is specific to two vendors

**TABLE 3. Cervical Cancer Screening Tests**

TEST	DEFINITION	FDA-APPROVED TEST	GENOTYPE
Cytology (also known as Pap test or Pap smear)	Examination of the cells in a sample taken from the cervix under a microscope to check for the presence of abnormal cells (abnormal cells may be precancerous or cancerous cells)		
Primary HPV test	A test to detect the DNA of oncogenic (high-risk) types of HPV in a sample taken from the cervix	cobas <sup>®</sup> HPV (approved 2014)	HPV types 16 and 18
	HPV is the causal agents of almost all cervical cancers	Onclarity HPV (approved 2018)	HPV types 16, 18, 45, 31, 51, 52, 33+58, 35+39+68, 56+59+66
Cotest (cytology and HPV test administered together)	A test that combines cytology to look at cells under a microscope and test for HPV DNA in the same sample taken from the cervix	Digene HC2 (approved 2003)	No
		Cervista HPV HR (approved 2009)	No
		Cervista HPV16/18 (approved 2009)	HPV types 16 and 18
		Aptima HPV (approved 2011)	No
		Aptima HPV16 and 18/45 (approved 2012)	HPV types 16 and 18/45
		cobas HPV (approved 2011)	HPV types 16 and 18
		Onclarity HPV (approved 2018)	HPV types 16, 18, 45, 31, 51, 52, 33+58, 35+39+68, and 56+59+66

Abbreviations: Aptima HPV, human papillomavirus assay from Hologic, Inc; Cervista HPV HR, high-risk human papillomavirus test (Cervista; cobas HPV, human papillomavirus test (cobas; Digene HC2, hybrid capture 2 test (Digene; FDA, US Food and Drug Administration; Hologic, Inc); HPV, human papillomavirus; Onclarity HPV, human papillomavirus assay from Becton, Dickinson & Company; Pap, Papanicolaou; Qiagen); Roche Molecular Systems).  
 Adapted from: US Food and Drug Administration. FDA Executive Summary: New Approaches in the Evaluation for High-Risk Human Papillomavirus Nucleic Acid Detection Devices. Prepared for the March 8, 2019 meeting of the Microbiology Devices Panel of the Medical Devices Advisory Committee (see FDA 2019<sup>14</sup>).



# Sampling Challenges



## ▶ Vaginal atrophy

- ▶ Vaginal fornices are obliterated
  - ▶ Perform bimanual exam (confirm has a cervix)
  - ▶ Improve visualization – ensure adequate abduction, elevate sacrum (bedpan, folded towel)

## ▶ Cervical stenosis

- ▶ Perform pap during menses (slightly dilates cervix) – menstrual blood not an issue for LBC
- ▶ Grasp anterior lip with single tooth tenaculum so provides traction against endocervical brush
- ▶ Paracervical block/small dilators
- ▶ Only need 10 endocervical cells to be adequate specimen (may still obtain even with absent EC/TZ component)

# HIV Positivity, Immunosuppression

- **START:** year after sexual activity and no later than age 21:
  - Cervical cytology every 12 months x 3.
  - If the three consecutive cervical cytology tests are normal, screening with cervical cytology is recommended every 3 years along with inspection of anus, perineum, vulva, vagina and cervix.
- 30 years of age and older COTEST every three years is recommended.
  - Primary HPV screening is not recommended for patients with HIV.
- **DO NOT STOP** at age 65
- When to refer for abnormal pap
  - For LSIL or worse, referral to colposcopy is recommended regardless of HPV result.
  - For ASCUS HPV +, patients should be referred to colposcopy irrespective of age.
- Screening should occur throughout the individual's lifetime (and not discontinue at age 65).

# Interpreting a Pap Test

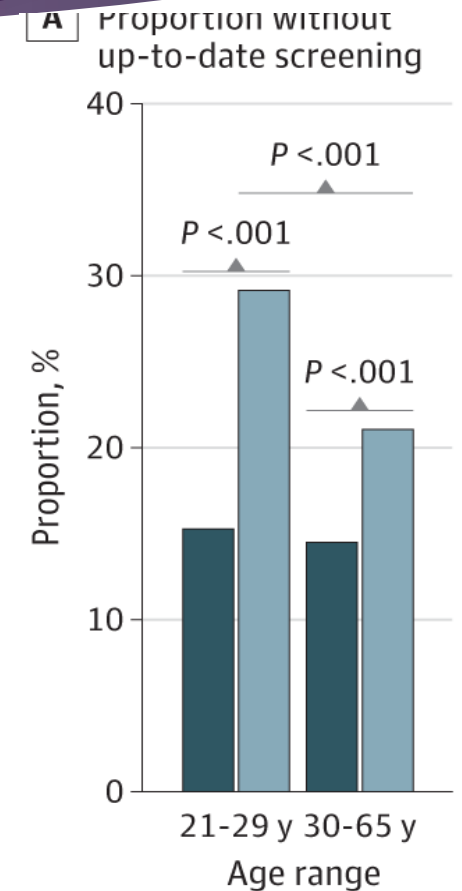
- ▶ Specimen Adequacy
  - ▶ Satisfactory for evaluation - endocervical cells present
  - ▶ Unsatisfactory for evaluation - specimen rejected/not processed vs. processed but unsatisfactory
- ▶ Interpretation/Result –
  - ▶ NILM – organisms, reactive changes, atrophy
    - ▶ Candida
    - ▶ Actinomyces with IUD
    - ▶ Bacterial vaginosis, Trichomonas
  - ▶ Epithelial cell abnormalities
- ▶ Comment if case done by automated device and result

# How to deal with Unsatisfactory Paps

Result	Action
Cytology unsatisfactory, HPV neg or unknown	Repeat cytology/cotest in 2-4 months
Cytology unsatisfactory, HPV HR +, not 16-18	Repeat cotest in 2-4 months
Cytology unsatisfactory, infection seen	Treat infection before repeating cytology
Cytology unsatisfactory, atrophy seen	PMP women without contraindication, consider low dose vaginal estrogen and STOP 1 week before repeat cytology
Two unsatisfactory paps	Refer for colposcopy

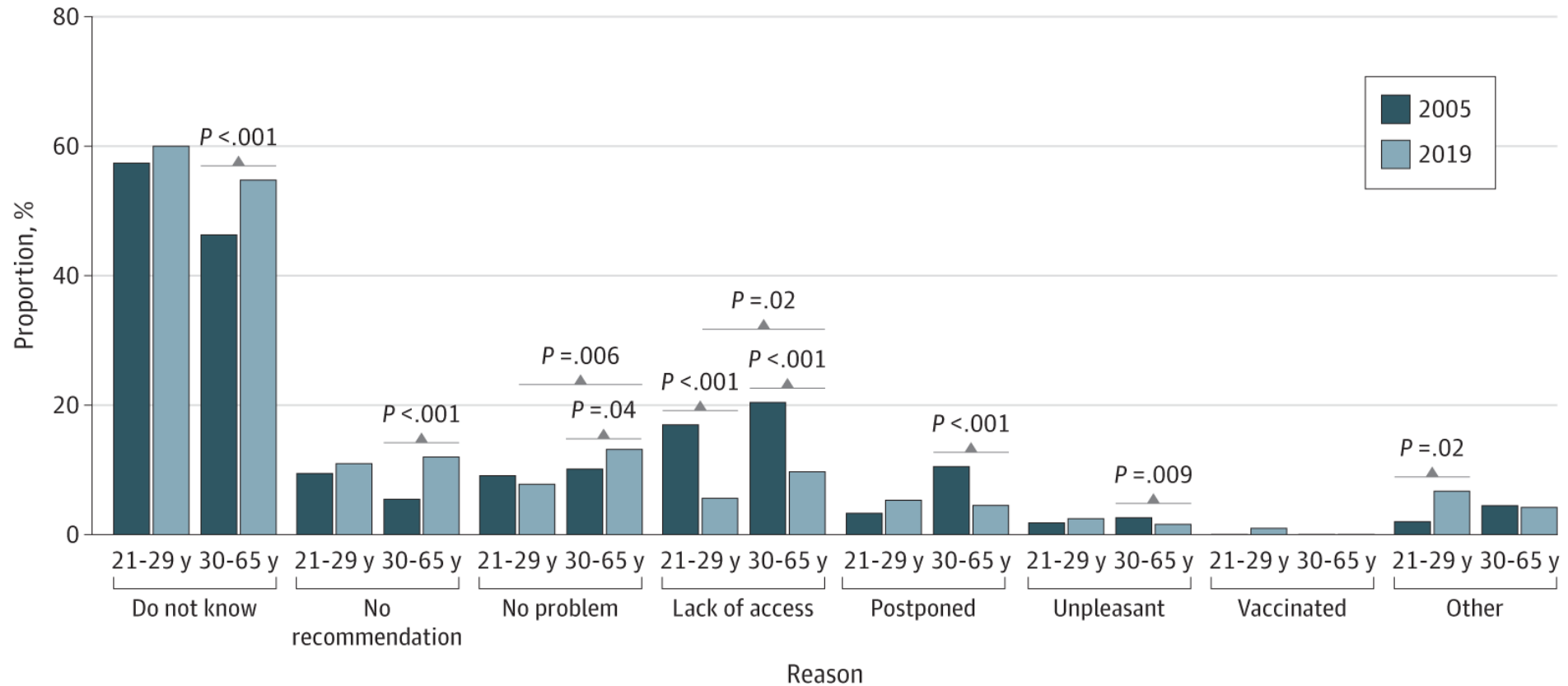
# How well are we doing?

- ▶ Assessment of USPSTF Screening Guideline Adherence – 2005 and 2019
  - ▶ Reviewed cross sectional data from the National Health Interview Survey (n=20,557)
  - ▶ 2005: screening q3 years (21-65yo)
  - ▶ 2019: q3 year (21-29), cotest 5 years (30-65)
- ▶ **23%** of women have not had up to date screening



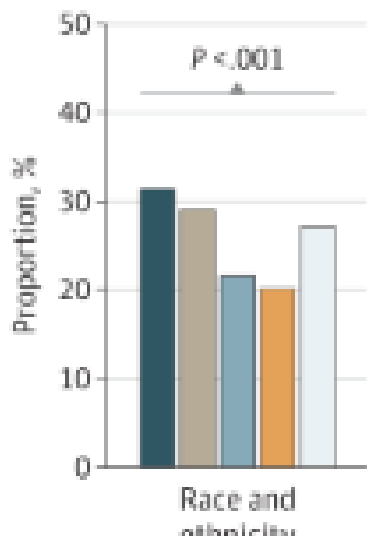
# 23%: Individuals without Updated Screening

**B** Reasons for not receiving screening

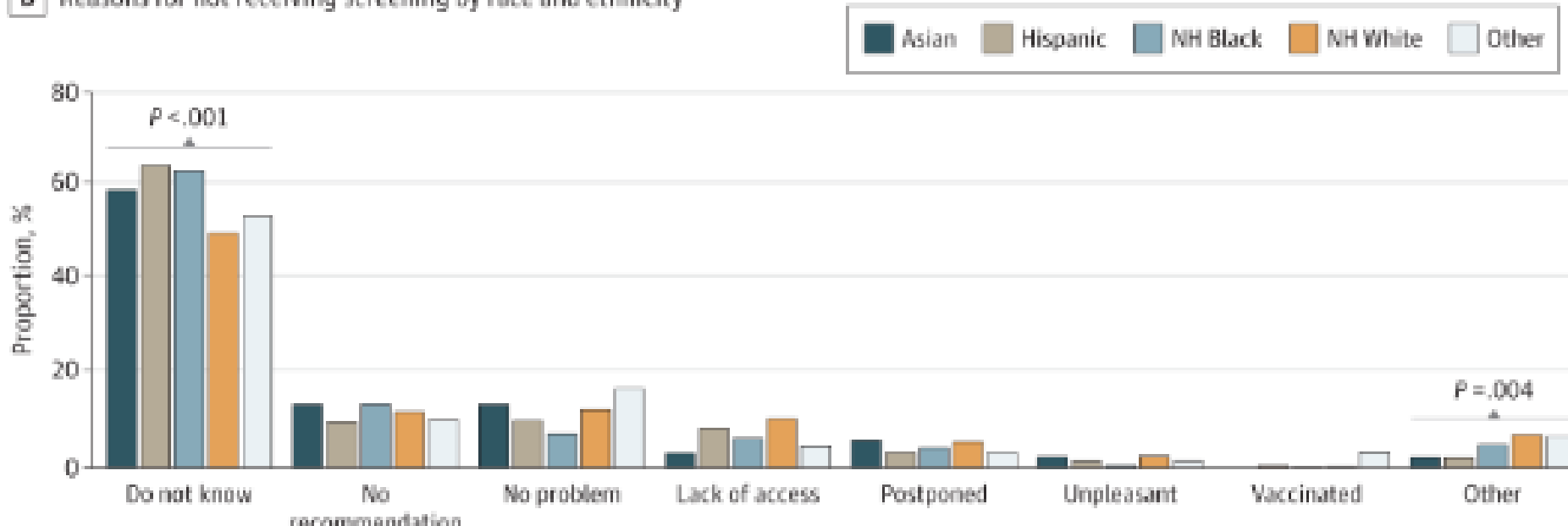


# Reasons for Underscreening - Ethnic

**A** Proportion without up-to-date screening by race and ethnicity

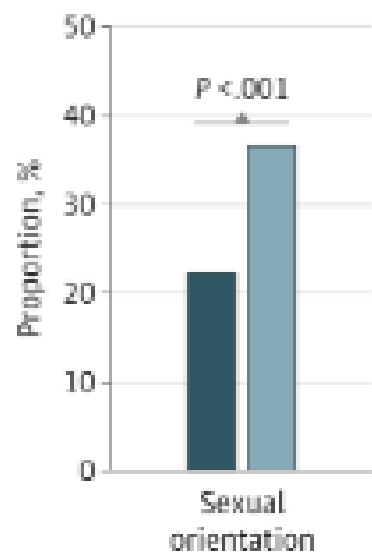


**B** Reasons for not receiving screening by race and ethnicity

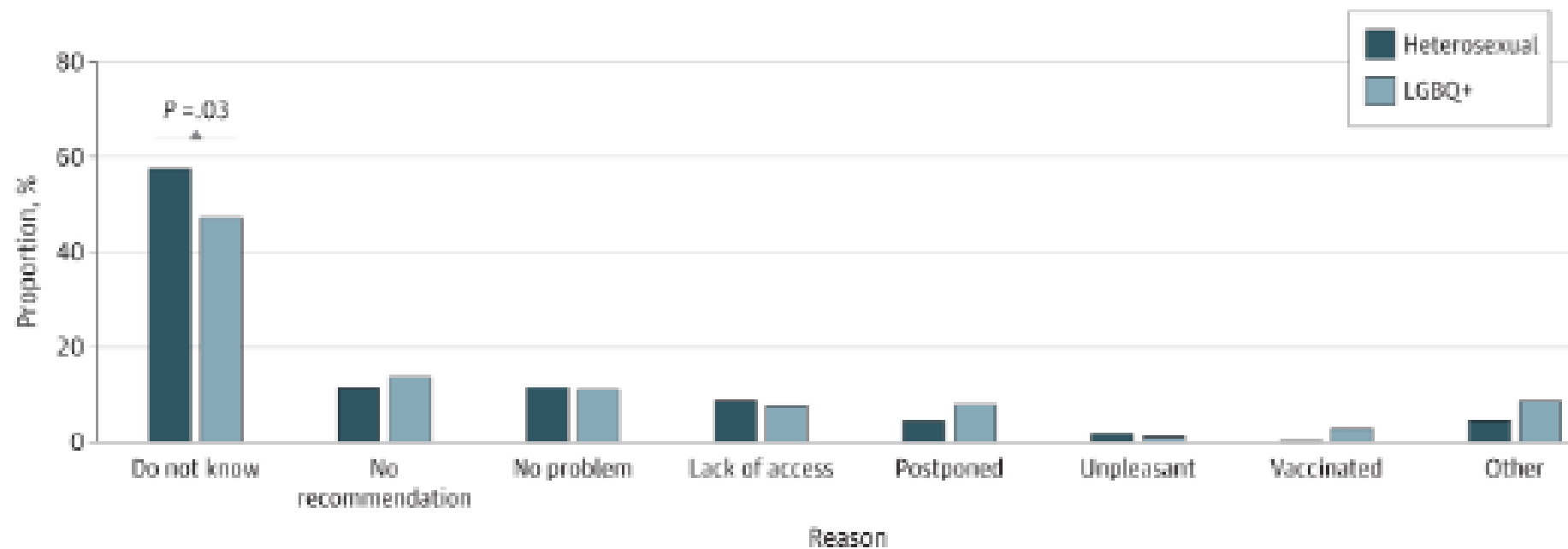


# Reasons for Underscreening – Sexual Orientation

C Proportion without up-to-date screening by sexual orientation



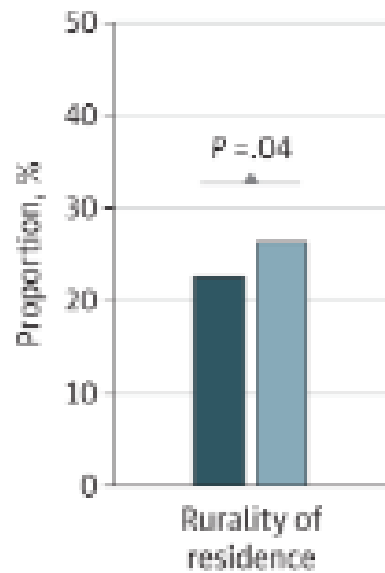
D Reasons for not receiving screening by sexual orientation



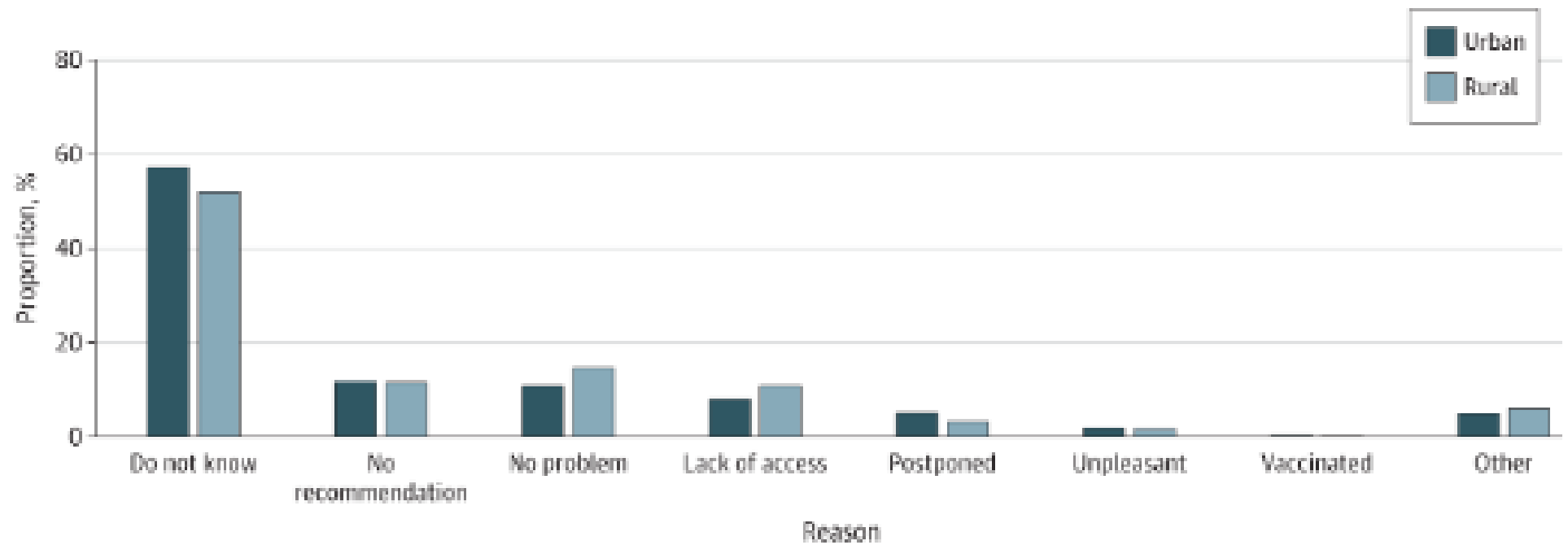


# Reasons for Underscreening – Location

**E** Proportion without up-to-date screening by rurality of residence

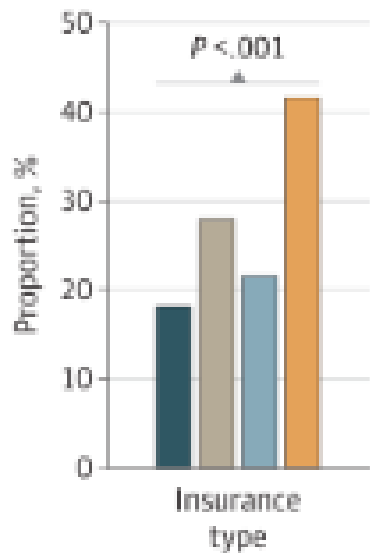


**F** Reasons for not receiving screening by race and ethnicity

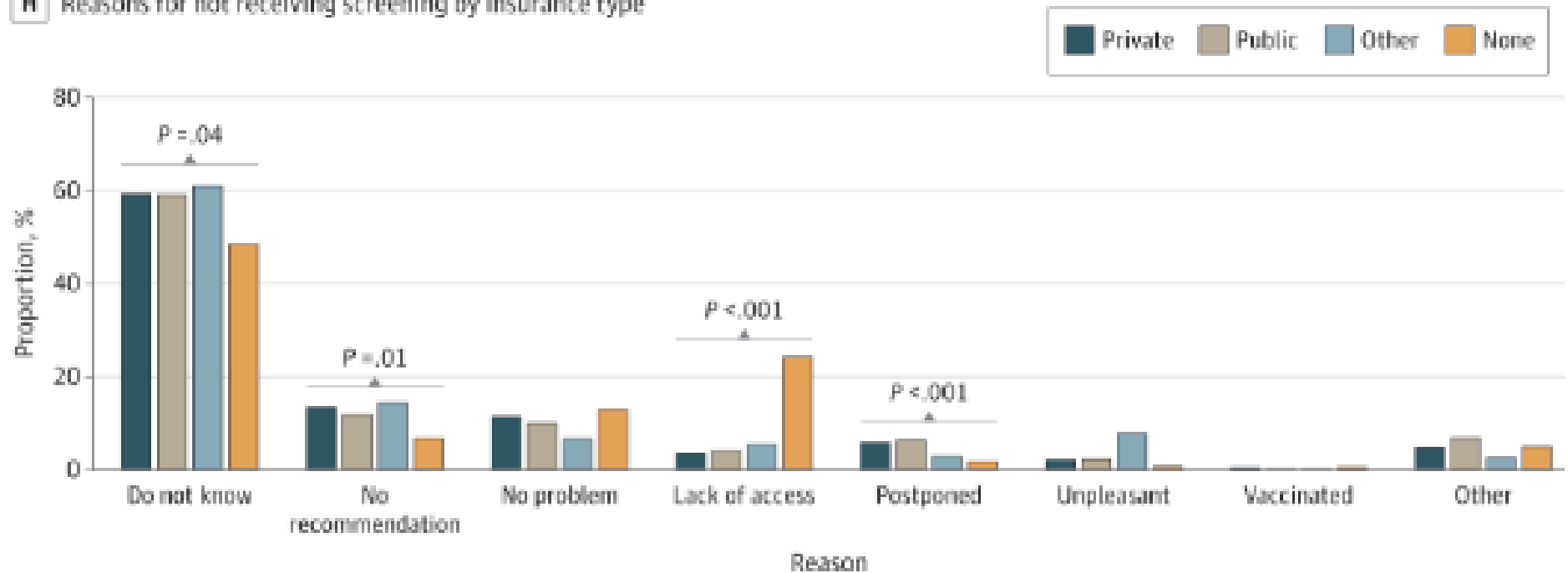


# Reasons for Underscreening - Insurance

**G** Proportion without up-to-date screening by insurance type



**H** Reasons for not receiving screening by insurance type



# Barriers to access to care associated with cervical cancer deaths

- ▶ Over **50%** of cervical cancer deaths are in women who have never been screened or screened over 5 years ago
  - ▶ Access
  - ▶ Less knowledge/health literacy
  - ▶ Cultural beliefs
- ▶ *DPH/OWH- Health Indicators for Women in Los Angeles County 2017*

LA County	Asian	Black	Latina	White
21-65yo who had pap test within past 3 years	73.9%	89.3%	85.7%	86.6%
Incidence cervical cancer – age adjusted per 100,000	6.5	10.5	8.0	7.3

# Pandemic Effect

FIGURE 3

## Cervical Cancer Screening Volumes

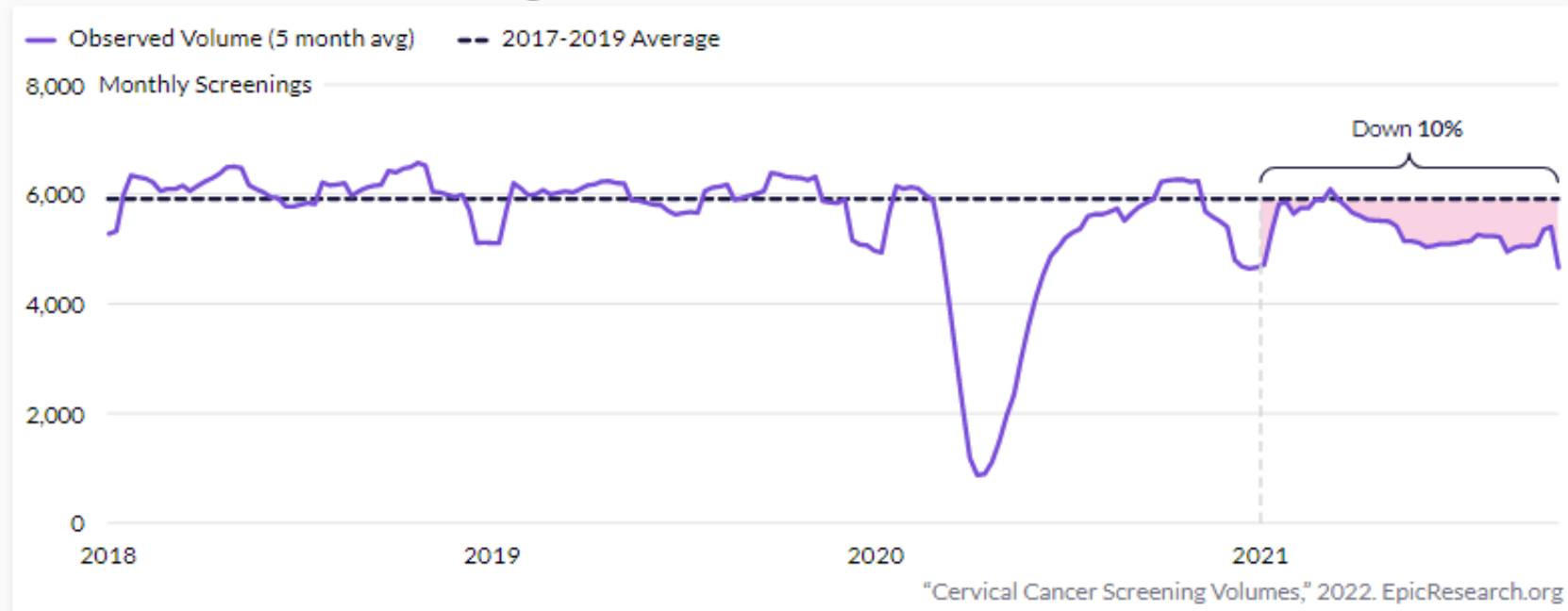


Figure 3. Cervical cancer screenings from January 2018 through October 2021, compared to the historical weekly average.

[Troubling Cancer Screening Rates Still Seen Nearly Two Years Into the Pandemic \(epicresearch.org\)](https://www.epicresearch.org)

# Future Advancements

- ▶ Improve Vaccination rates: Single dose HPV vaccine
- ▶ Incorporation of p16/Ki-67 Dual Stain (triage for HPV positive)
- ▶ Extended genotyping
- ▶ **Self collection pap tests – FDA approval 5/14/2024**
  - ▶ NCI Last Mile Initiative
  - ▶ SHIP Trial: **Self-sampling for HPV testing to Improve Cervical Cancer Prevention**”



# Strategies to improve screening

## Identifying National (U.S.) Cervical Cancer Priorities

Authors: Shelly Dusic, MA | Scott Wheeler, MS | Debbie Saslow, PhD



Patient/Consumer Education (51.62%)



### Method

Qualitative data were collected using 33 key informant interviews...



Provider/Clinician Education (51.11%)

7 focus groups (19 participants) for consumers and advocates + 4 community conversation group (16 participants)...

Stigma (46.51%)



Key conversations with community specialists with lived experiences...



Primary HPV/Self-Sampling Prep (45.94%)

531 survey responses (193 Providers/Clinicians, 179 Patients/Consumers, 120 ACS Partners, 39 Community Members)...

Using grounded theory, the data were analyzed and common themes were established.

Access (44.44%)



**Patients:** Increase knowledge and awareness

**Providers:** Strong recommendations, decrease missed opportunities

**Social Media:** Reduce Stigma

**Systems:** Improve access, standardized workflows

n(%) = Average percentage of total respondents who identified this topic as a priority.

Scan for data breakdown



# WHO 2030: Enough is enough – global mission to ERADICATE cervical cancer

Few diseases reflect global inequities as much as cervical cancer. Cervical cancer is the fourth most common form of cancer among women worldwide.

More than **85%** OF THOSE AFFECTED ARE YOUNG undereducated women who live in the world's poorest communities.

Furthermore, **90%** OF THE DEATHS occur in low- and middle-income countries (LMICs)

OF THE 20 HARDEST HIT COUNTRIES, 19 ARE IN AFRICA



Even in high-income countries, the inequity of cervical cancer disproportionately afflicts women of color, minorities, and other marginalized communities.

The disease **KILLS MORE THAN 300 000 WOMEN EVERY YEAR,**

Unless we take action, this preventable tragedy will only worsen. If we accept the status quo,



annual **DEATHS WILL RISE TO 400 000**

Annually, it is **DIAGNOSED IN OVER 600 000 MORE,**



the annual number of new cases is projected to **INCREASE TO 700 000**

BY 2030

- 90% of girls fully vaccinated with the HPV vaccine by the age of 15;



- 70% of women screened using a high-performance test by the age of 35, and again by the age of 45;



- 90% of women with pre-cancer treated and 90% of women with invasive cancer managed.



Meeting and maintaining the 90-70-90 targets would yield significant returns in the coming century:

- the median cervical cancer incidence rate will fall by 42% by 2045, and by 97% by 2120, averting more than 74 million new cases of cervical cancer; and
- the median cumulative number of cervical cancer deaths averted will be 300 000 by 2030, over 14 million by 2070, and over 62 million by 2120.





Level of Prevention	Strategies
Primary	HPV vaccination, safe sex practices
Secondary	Pap and Colposcopy
Tertiary	Surgery, Chemo-radiation, immunotherapy

# References

- ▶ CDC <https://www.cdc.gov/cancer/cervical/index.htm>
- ▶ NCI <https://www.cancer.gov/types/cervical>
- ▶ <https://www.kff.org/womens-health-policy/fact-sheet/the-hpv-vaccine-access-and-use-in-the-u-s>
- ▶ California HPV Roundtable [www.cahpvrountable.org](http://www.cahpvrountable.org)
- ▶ Schiffman and Castle, Perspective: The Promise of Global Cervical-Cancer Prevention, *N Engl J Med* 2005; 353:2101-2104.
- ▶ Revzina NV, Diclemente RJ. Prevalence and incidence of human papillomavirus infection in women in the USA: a systematic review. *Int J STD AIDS*. 2005 Aug;16(8):528-37. doi: 10.1258/0956462054679214. PMID: 16105186.
- ▶ Plummer M, de Martel C, Vignat J, Ferlay J, Bray F, Franceschi S. Global burden of cancers attributable to infections in 2012: a synthetic analysis. *Lancet Glob Health*. 2016 Sep;4(9):e609-16. doi: 10.1016/S2214-109X(16)30143-7. Epub 2016 Jul 25. PMID: 27470177.
- ▶ Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin*. 2021 May;71(3):209-249. doi: 10.3322/caac.21660. Epub 2021 Feb 4. PMID: 33538338.
- ▶ Lei J, Ploner A, Elfström KM, Wang J, Roth A, Fang F, Sundström K, Dillner J, Sparén P. HPV Vaccination and the Risk of Invasive Cervical Cancer. *N Engl J Med*. 2020 Oct 1;383(14):1340-1348. doi: 10.1056/NEJMoa1917338. PMID: 32997908.
- ▶ <https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screenin>

# References II

- ▶ Rosenblum HG, Lewis RM, Gargano JW, Querec TD, Unger ER, Markowitz LE. Declines in Prevalence of Human Papillomavirus Vaccine-Type Infection Among Females after Introduction of Vaccine — United States, 2003–2018. *MMWR Morb Mortal Wkly Rep* 2021;70:415–420. DOI: <http://dx.doi.org/10.15585/mmwr.mm7012a2>
- ▶ <https://www.asccp.org/hpv-vaccination>
- ▶ Fontham ETH, Wolf AMD, Church TR, Etzioni R, Flowers CR, Herzig A, Guerra CE, Oeffinger KC, Shih YT, Walter LC, Kim JJ, Andrews KS, DeSantis CE, Fedewa SA, Manassaram-Baptiste D, Saslow D, Wender RC, Smith RA. Cervical cancer screening for individuals at average risk: 2020 guideline update from the American Cancer Society. *CA Cancer J Clin*. 2020 Sep;70(5):321-346. doi: 10.3322/caac.21628. Epub 2020 Jul 30. PMID: 32729638.
- ▶ Beavis AL, Gravitt PE, Rositch AF. Hysterectomy-corrected cervical cancer mortality rates reveal a larger racial disparity in the United States. *Cancer*. 2017 May 15;123(6):1044-1050. doi: 10.1002/cncr.30507. Epub 2017 Jan 23. PMID: 28112816.
- ▶ Katki HA, Schiffman M, Castle PE, Fetterman B, Poitras NE, Lorey T, Cheung LC, Raine-Bennett T, Gage JC, Kinney WK. Benchmarking CIN 3+ risk as the basis for incorporating HPV and Pap cotesting into cervical screening and management guidelines. *J Low Genit Tract Dis*. 2013 Apr;17(5 Suppl 1):S28-35. doi: 10.1097/LGT.0b013e318285423c. PMID: 23519302; PMCID: PMC3616419.
- ▶ Moscicki, AB, Flowers, L, Huchko, MJ, et al. G. Guidelines for Cervical Cancer Screening in Immunosuppressed Women Without HIV Infection . *J Low Genit Tract Dis* 2019. 23: 87-101.
- ▶ Perkins RB, Guido RS, Castle PE, Chelmow D, Einstein MH, Garcia F, Huh WK, Kim JJ, Moscicki AB, Nayar R, Saraiya M, Sawaya GF, Wentzensen N, Schiffman M; 2019 ASCCP Risk-Based Management Consensus Guidelines Committee. 2019 ASCCP Risk-Based Management Consensus Guidelines for Abnormal Cervical Cancer Screening Tests and Cancer Precursors. *J Low Genit Tract Dis*. 2020 Apr;24(2):102-131. doi: 10.1097/LGT.0000000000000525. Erratum in: *J Low Genit Tract Dis*. 2020 Oct;24(4):427. PMID: 32243307; PMCID: PMC7147428.

# FAQs

**Q1: Should I still do a pap if I see a cervical mass on routine exam?**

▶ A: Maybe. Pap test is a screening test for a presumably normal looking cervix. If a mass or cancer is suspected, recommend biopsy or referral to gynecology for evaluation/biopsy as a pap test may not be diagnostic.

**Q2: My patient completed the HPV vaccine series. Does she still need to get cervical cancer screening routinely?**

▶ A: Yes, current guidelines recommend same cervical cancer screening intervals regardless of prior HPV vaccination history.

**Q3: My healthy 67yo patient who transferred her care from another country is asking if she still needs a pap smear as she states that she never had an abnormal pap smear. Is it ok to stop?**

▶ A: Depends. If patient is not able to provide adequate screening over the preceding 10 years, would recommend ongoing screening until can document 3 consecutive negative liquid-based cytology test results or 2 consecutive negative primary HPV or co-tests (most recent test within 5 years).

**Q4: I got an unsatisfactory pap test result but her HPV test was negative. Is it ok to just repeat it next year?**

▶ A: No, unsatisfactory cytology should be repeated in 2-4 months. Also consider cause for unsatisfactory cytology (i.e. Infection, vaginal atrophy) and treat underlying cause before repeat pap test.

# Questions



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