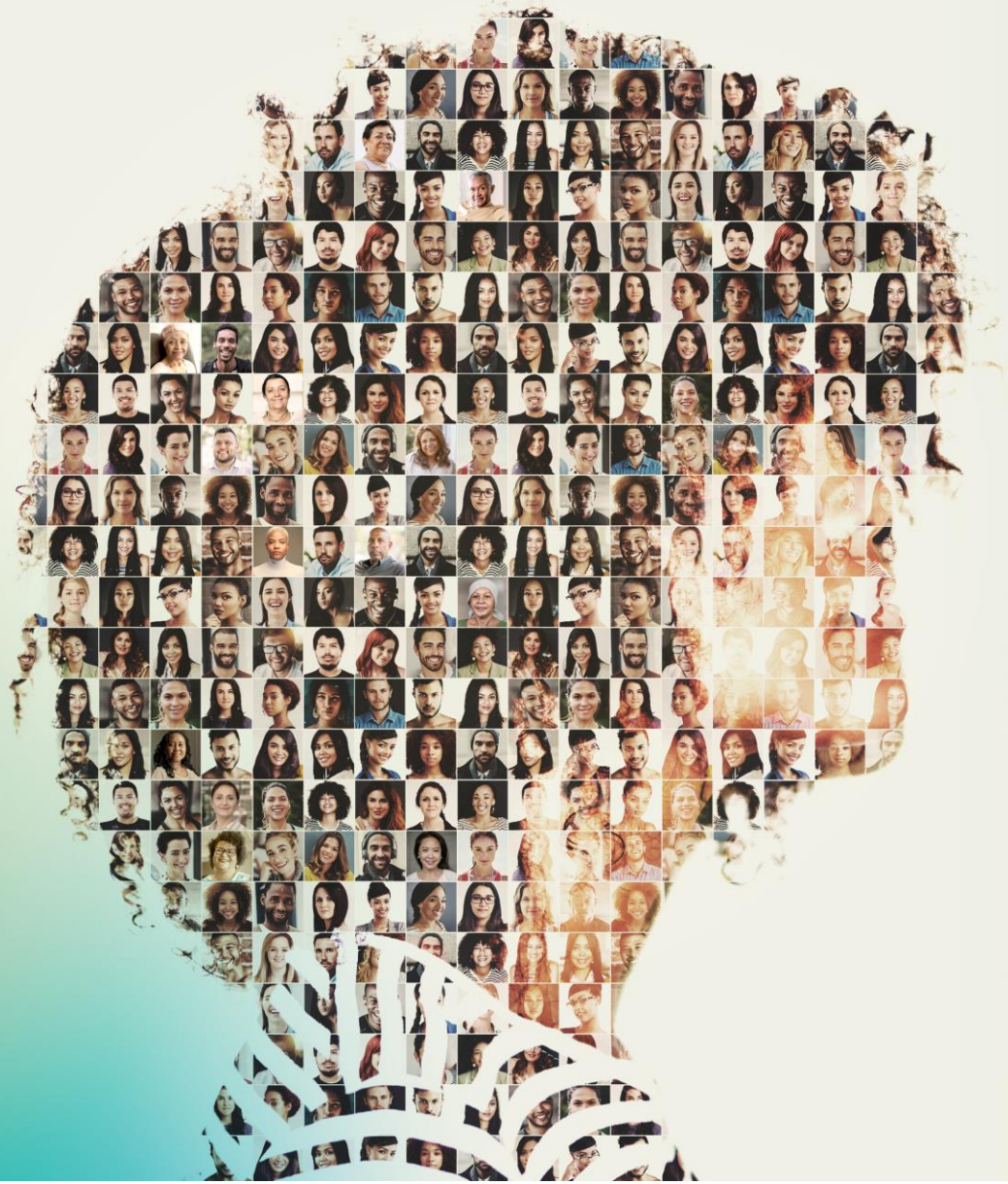

10.13.2021

AN ACCREDITED CONTINUING EDUCATION SERIES WITH THE EXPERTS

Addressing Disparities in Cancer Care and Incorporating Precision Medicine for Minority Populations

THIS ACTIVITY IS JOINTLY PROVIDED BY University of Nebraska Medical Center Bio Ascend

ENDORSED BY W. MONTAGUE NMA HEALTH Cobb Institute

Disparities in Cancer Care: Cervical Cancer/Gynecologic Malignancies

Moderator & Course Director

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Department of Medical Oncology

Director, Center to Eliminate Cancer Disparities

Associate Director, Diversity Affairs

Sidney Kimmel Cancer Center at Jefferson

116th President National Medical Association

Presenter

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Associate Professor of Obstetrics and Gynecology

Boston University School of Medicine

Boston Medical Center

Boston, Massachusetts

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Faculty Disclosures

Edith Mitchell, MD, MACP, FCPP, FRCP
Consultant: AstraZeneca, Bristol Myers Squibb, Genentech, Merck & Co., Inc., Pfizer Inc., Taiho Oncology, Inc.
Clinical Research: Amgen, Genentech

Rebecca Perkins, MD, MSc
No relevant financial disclosures

Planning Committee
The following planning committee members have nothing to disclose:
UNMC: Brenda Ram, CMP, CHCP
Bio Ascend: Chloe Dunnam; Lucja Grajkowska, PhD; Kraig Steubing

Learning Objectives

- Review racial difference in the outcomes in patients with cancer, including patients with both hematologic and solid tumors
- Evaluate sociodemographic, physician, and hospital factors that can help identify potentially modifiable patient and health care system factors that may underlie persistent racial disparities in receipt and quality of therapy
- Develop efforts to improve access to care, enhance diversity in the healthcare workforce, navigate minority cancer patients through the healthcare system, and enhance adherence to cancer-specific best practice

This activity is jointly provided by the University of Nebraska Medical Center and Bio Ascend

Cervical Cancer Prevention: Focus on Disparities

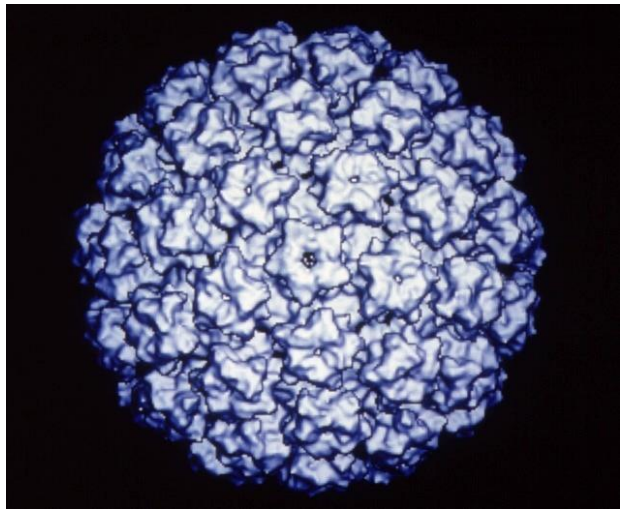
Rebecca B. Perkins MD, MSc
Boston University School of Medicine/ Boston Medical Center

Objectives

1) Understand etiology of cervical cancer
2) Understand the current state of cervical cancer disparities
3) Understand sources of disparities, screening/treatment
4) Call to action: prevent/reverse disparities in cervical cancer

What is HPV?

- A virus that infects human skin
- Transmitted easily by touching
- >80% of people are exposed during their lifetime
- Classified as a carcinogen

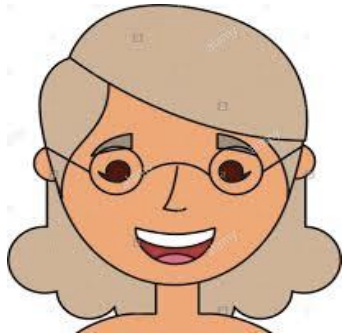


HPV

Cervical cancer prevention throughout the lifespan

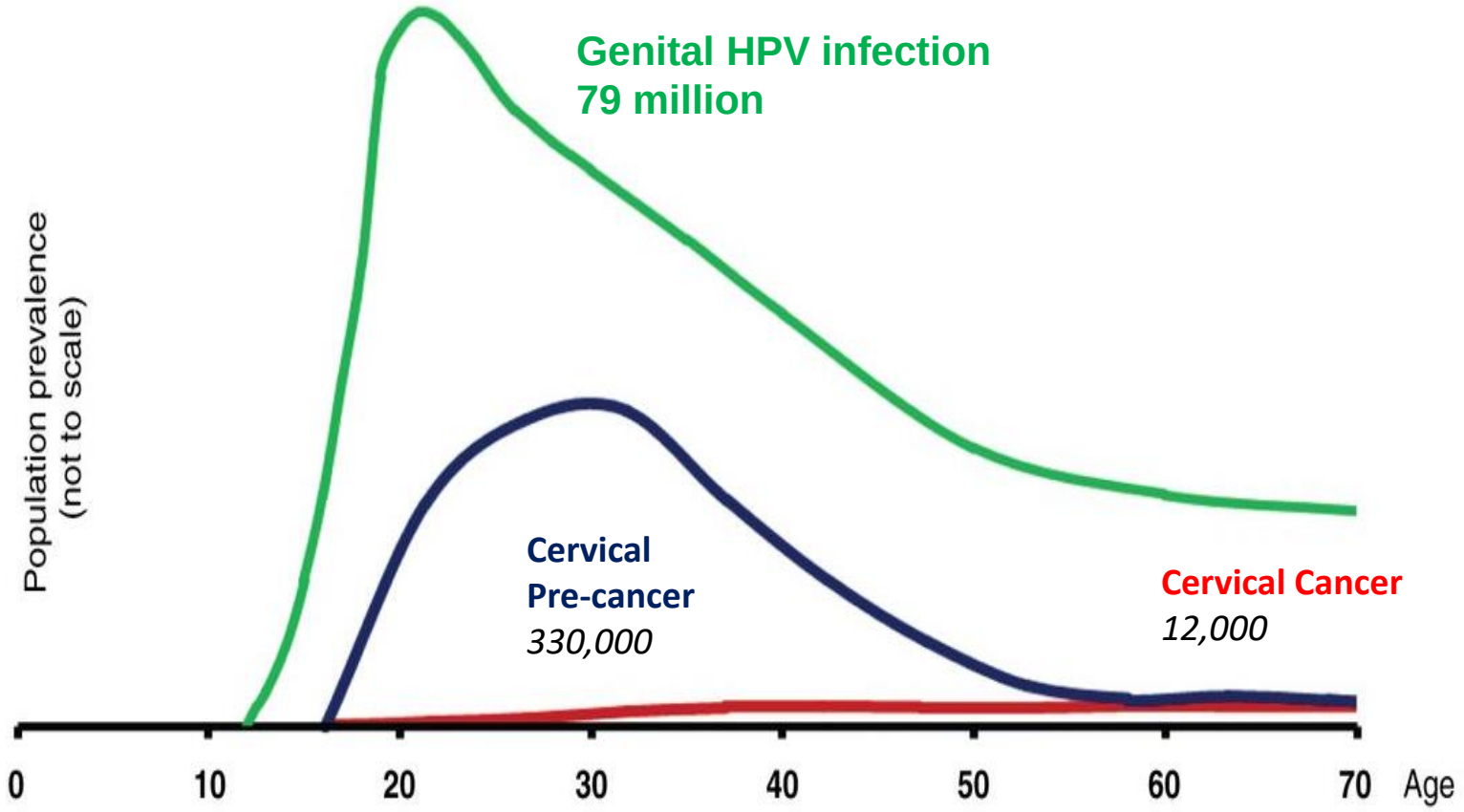
- **Ages 9-20**
  - **HPV vaccination**

- **Ages 21-26**
  - **Screening + catch-up vaccination**



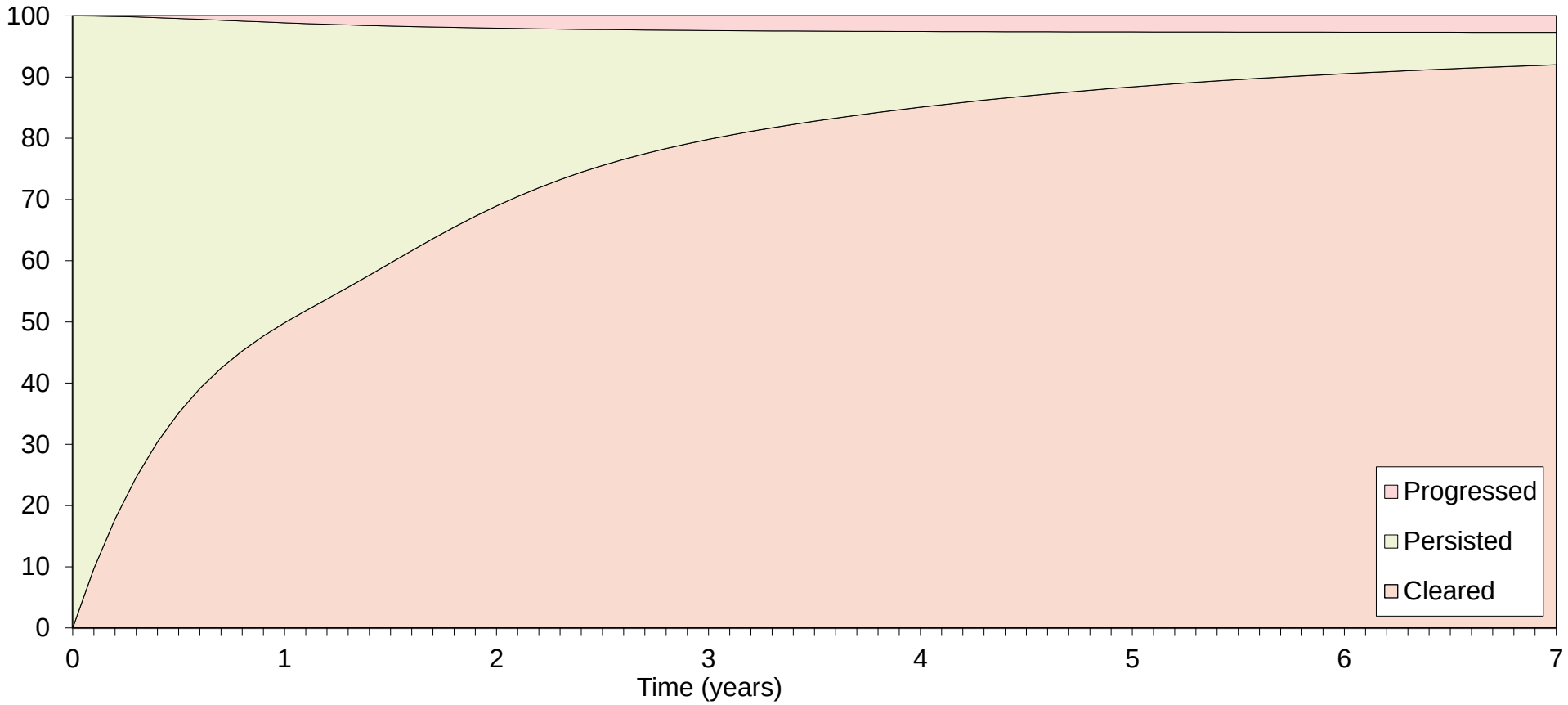
- **Ages 27-65**
  - **Screening**

HPV infection occurs in young adulthood, cancers develop 10-30 years later

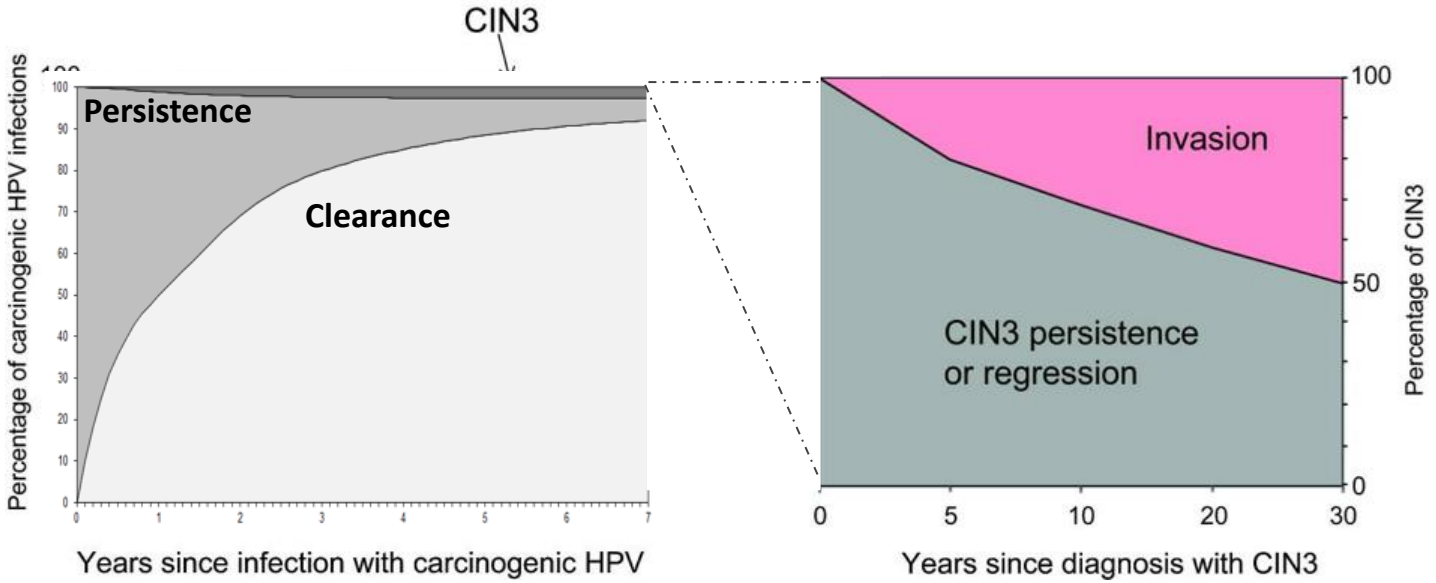


Source: Schiffman M et al., 2013

Most HPV infections become undetectable in 1-3 years those that persist cause precancer (CIN3+) over time



Precancer and cancer increase markedly when infections persist for 5 years or more



HPV cancer prevention has two phases

1) Vaccinating adolescents to prevent infections that can lead to cancer
2) Screening adults to detect and treat precancer before cancer develops
3) *Universal application of vaccination and screening can eliminate cervical cancer*

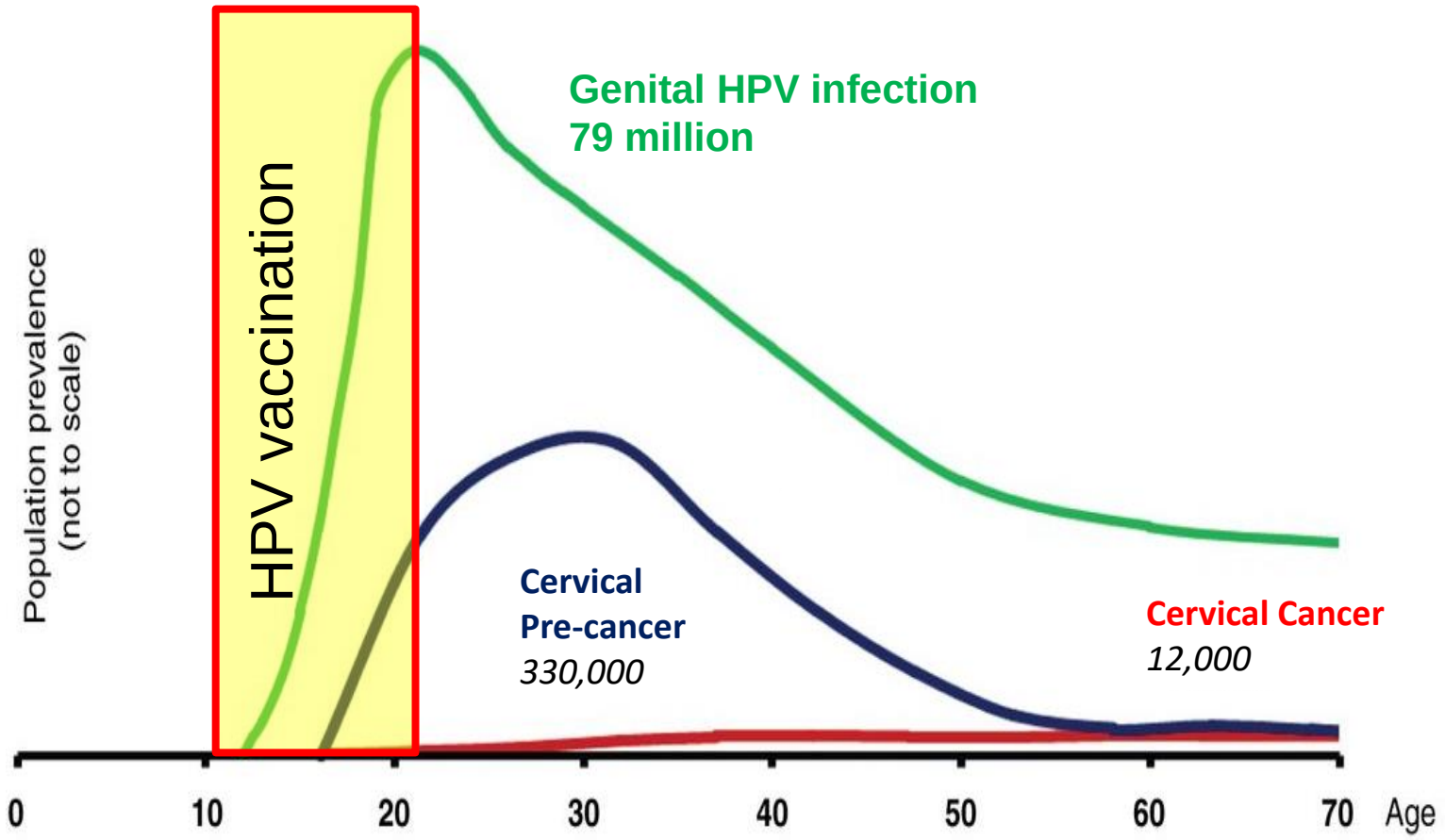
https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(20)30006-2/fulltext

HPV vaccination: Current ACIP/AAP Recommendations

- HPV vaccine ***recommended*** for all adolescents ages 9 through age 26
- On-time vaccination is ages 9–12
- Catch-up vaccination ages 13-26

- ***Individual decision making*** for individuals age 27-45 (not routinely recommended due to limited benefit)

HPV Vaccination of Kids Eliminates HPV Infection and the Downstream Consequences

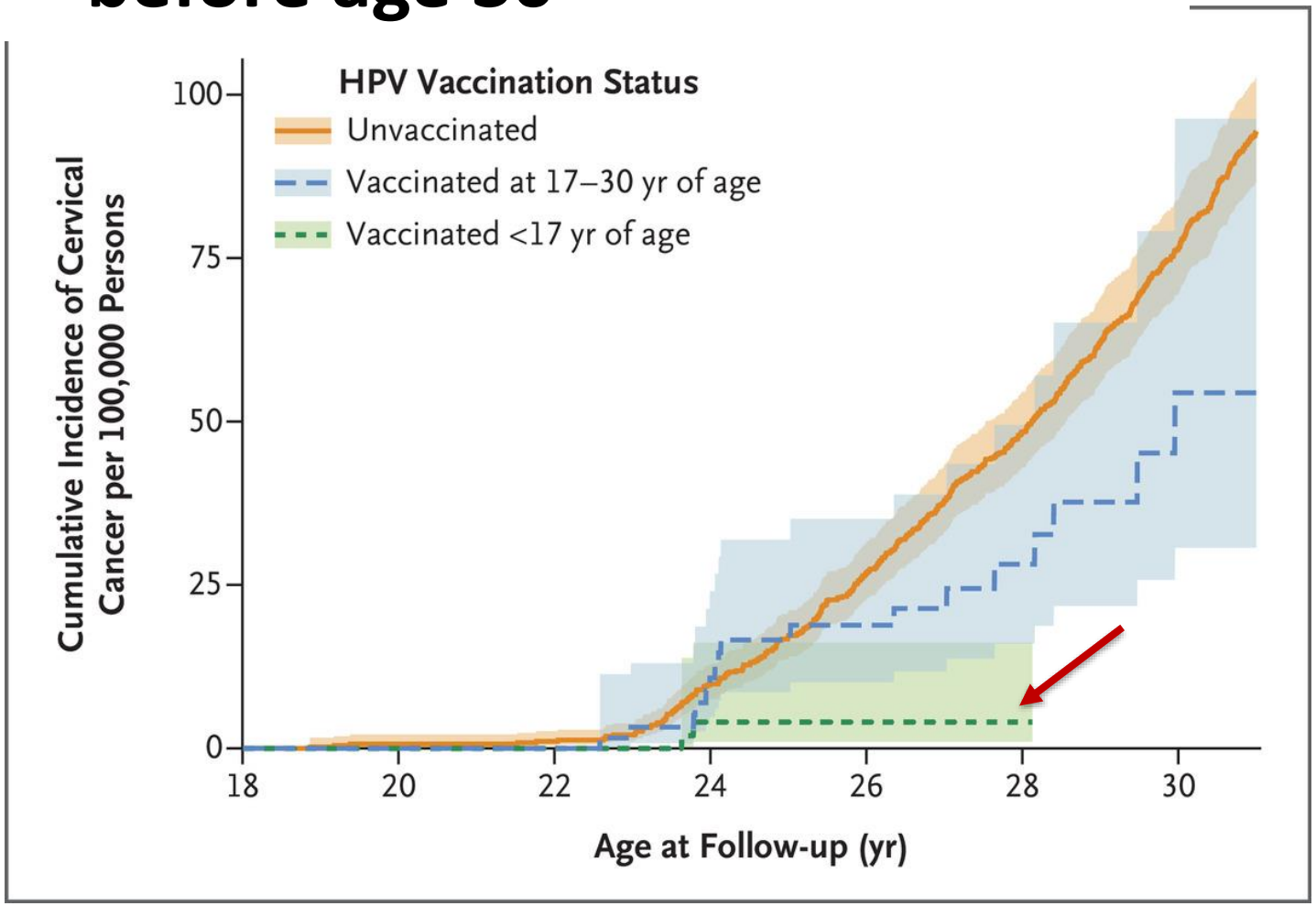


Source: Schiffman M et al., 2013

Near elimination of cervical cancer before age 30

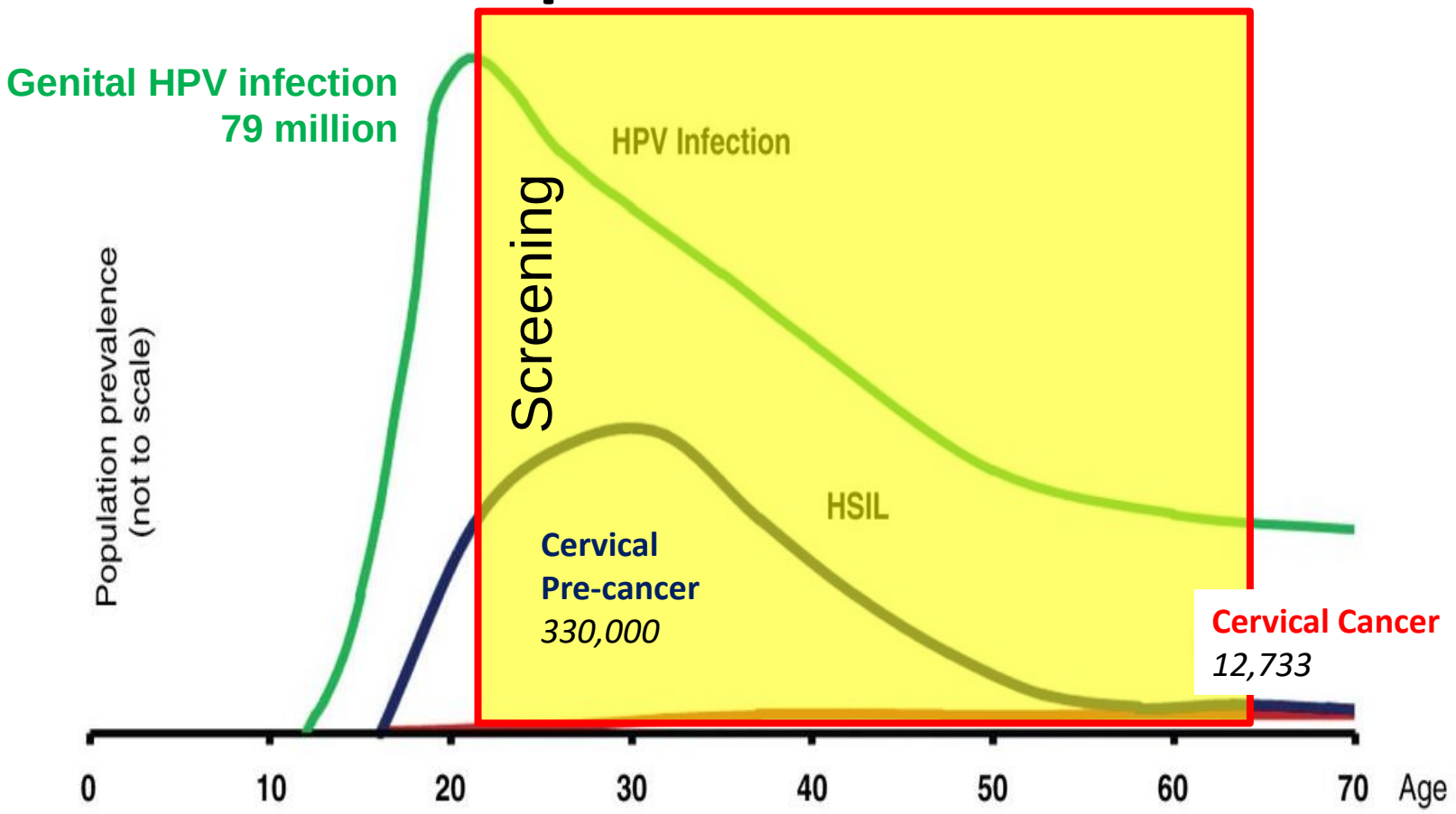
- Girls vaccinated before age 17 were 88% less likely to develop cervical cancer

- Cervical cancer screening began at age 23, so this reduction was in addition to screening



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

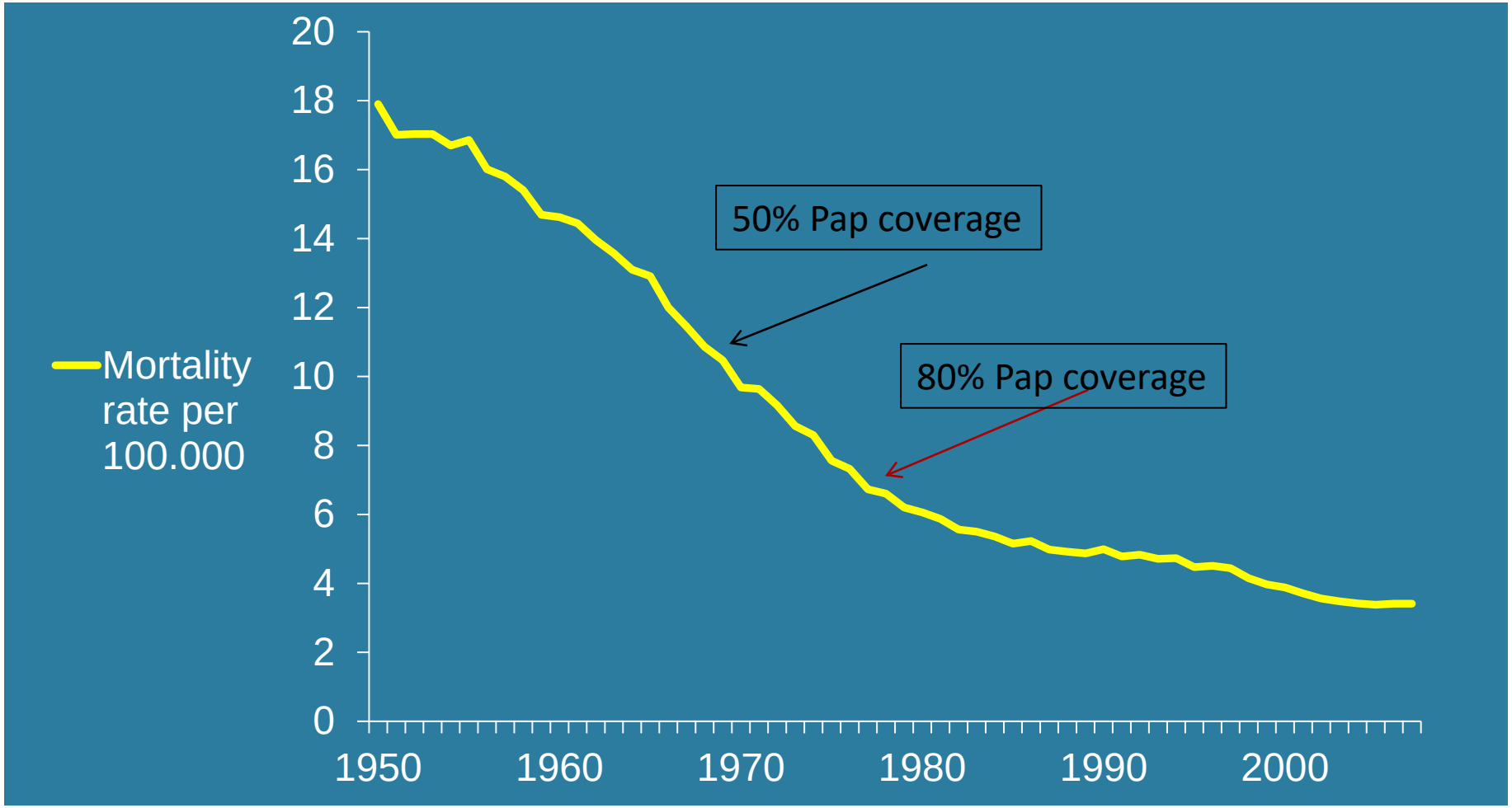
Screening and treatment of precancers prevents cancer



Source: Schiffman M et al., 2013

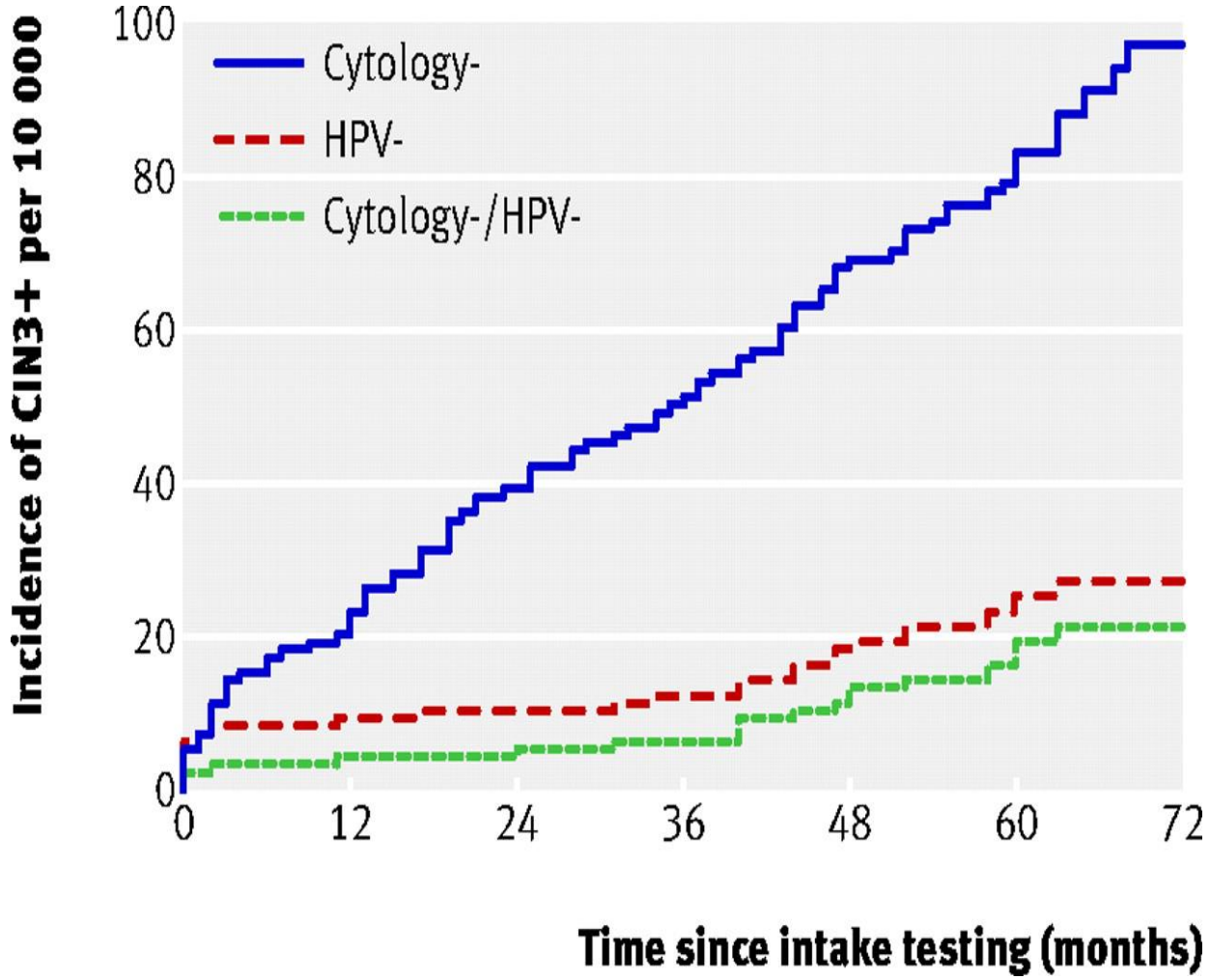
CERVICAL CANCER SCREENING

Secondary Cancer Prevention for Potentially HPV-infected Individuals



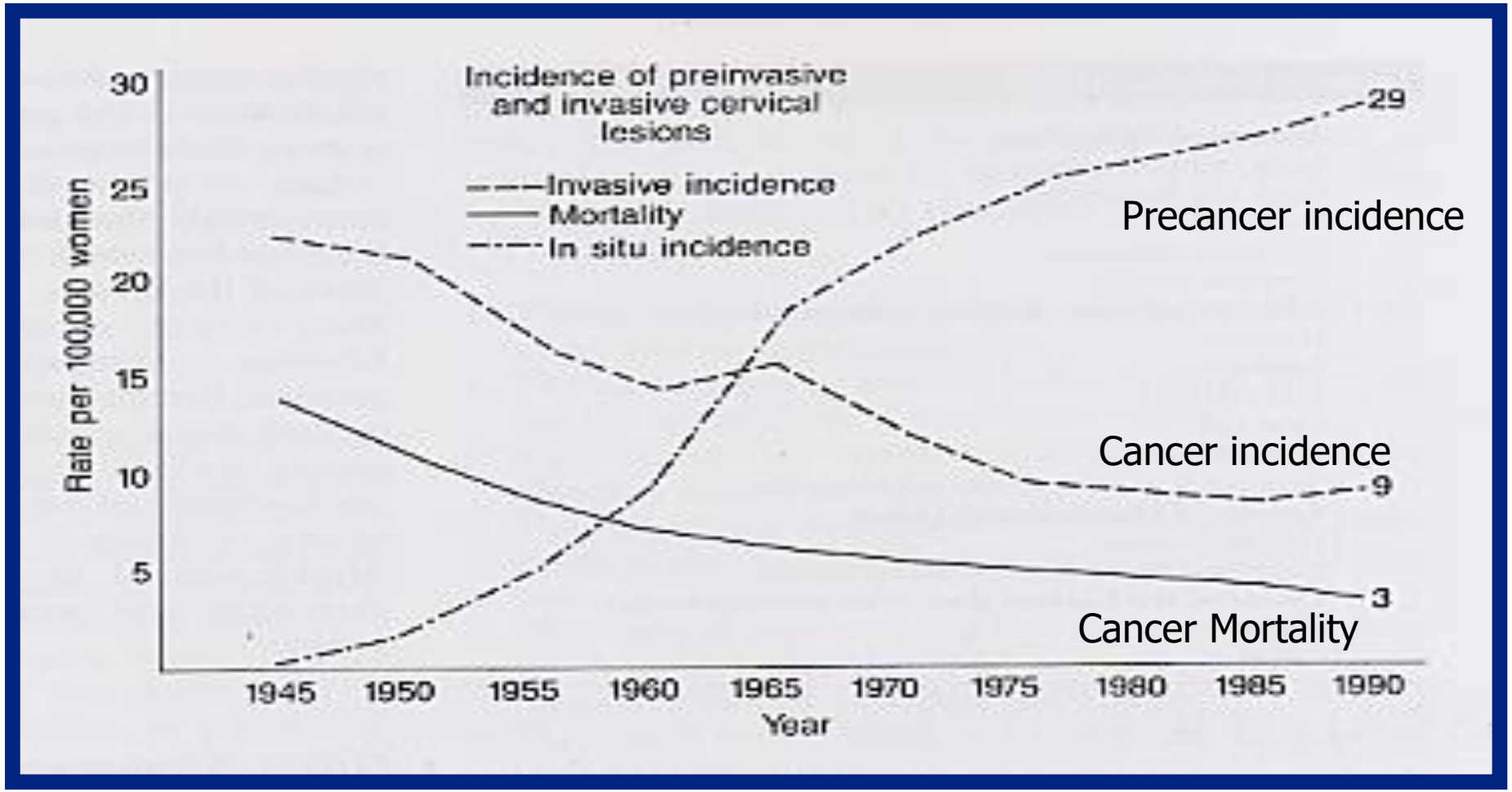
HPV testing detects more precancer (CIN3+) than Pap testing

- Pap testing is less sensitive than HPV testing
  - Detects 50-70% of CIN3+ vs >90%
- Cytology alone does not confer long-term protection against CIN3+ following a negative test
- HPV testing can further reduce cancer rates



Dillner, BMJ 2008

As Detection of Cervical Precancer Increases, Cancer Mortality Decreases

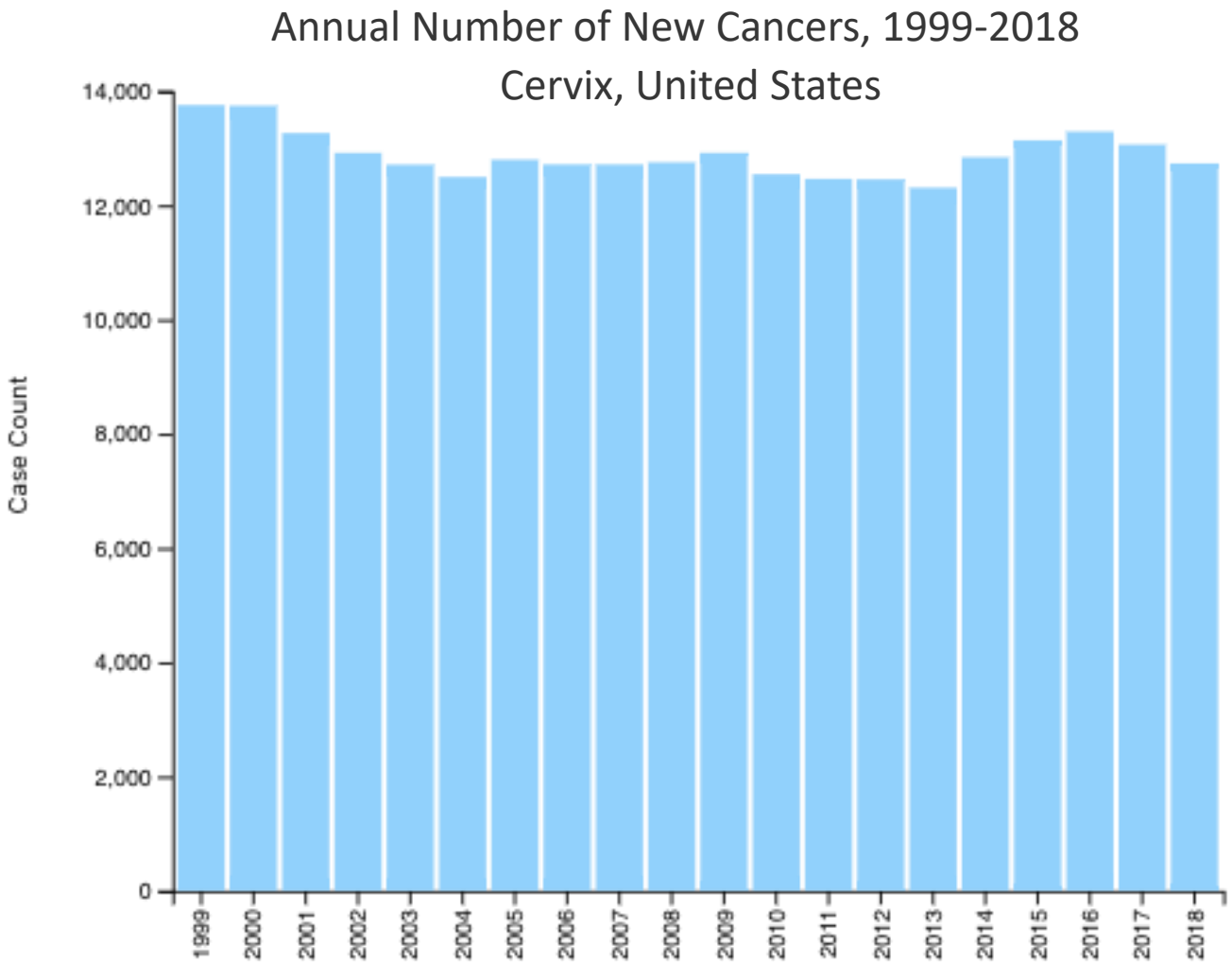


Despite knowing how to prevent cervical cancer…

- In **2018**, the latest year for which incidence data are available, in the **United States**,
- **12,733 new cases of Cervical Cancer**
- **4,138 deaths**

https://gis.cdc.gov/Cancer/USCS/#/AtAGlance/

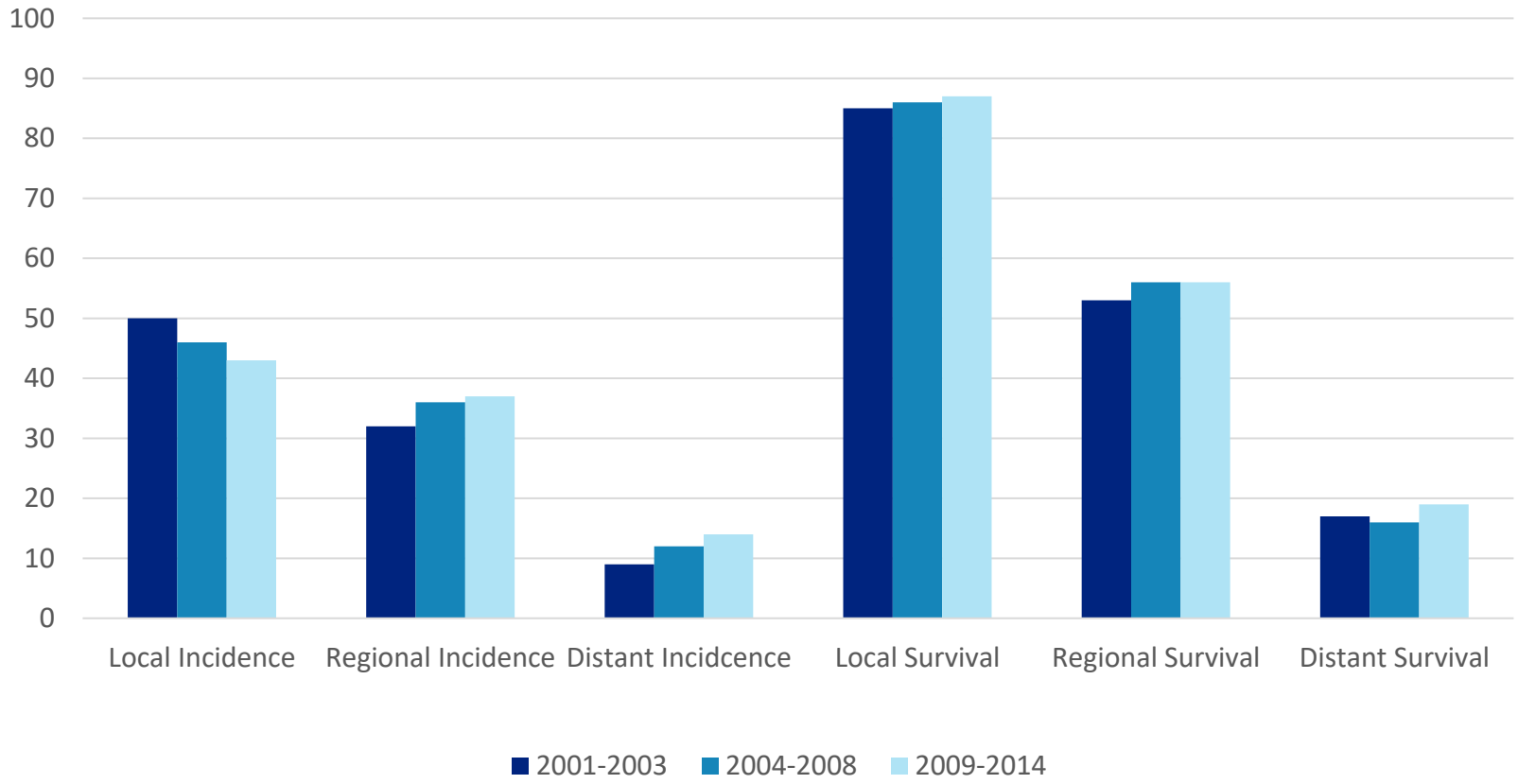
Cervical cancers have not decreased in more than two decades



Data source - U.S. Cancer Statistics Working Group. U.S. Cancer Statistics Data Visualizations Tool, based on 2020 submission data (1999-2018): U.S. Department of Health and Human Services, Centers for Disease Control and Prevention and National Cancer Institute; https://www.cdc.gov/cancer/dataviz, released in June 2021.

Cancer being diagnosed at later stages, leading to lower overall survival in US despite improved survival for each stage

Overall survival decreased from 64% to 62% between 2003-2014



Data from 41 state-wide population-based cancer registries on 138,883 women diagnosed with cervical cancer during 2001–2014

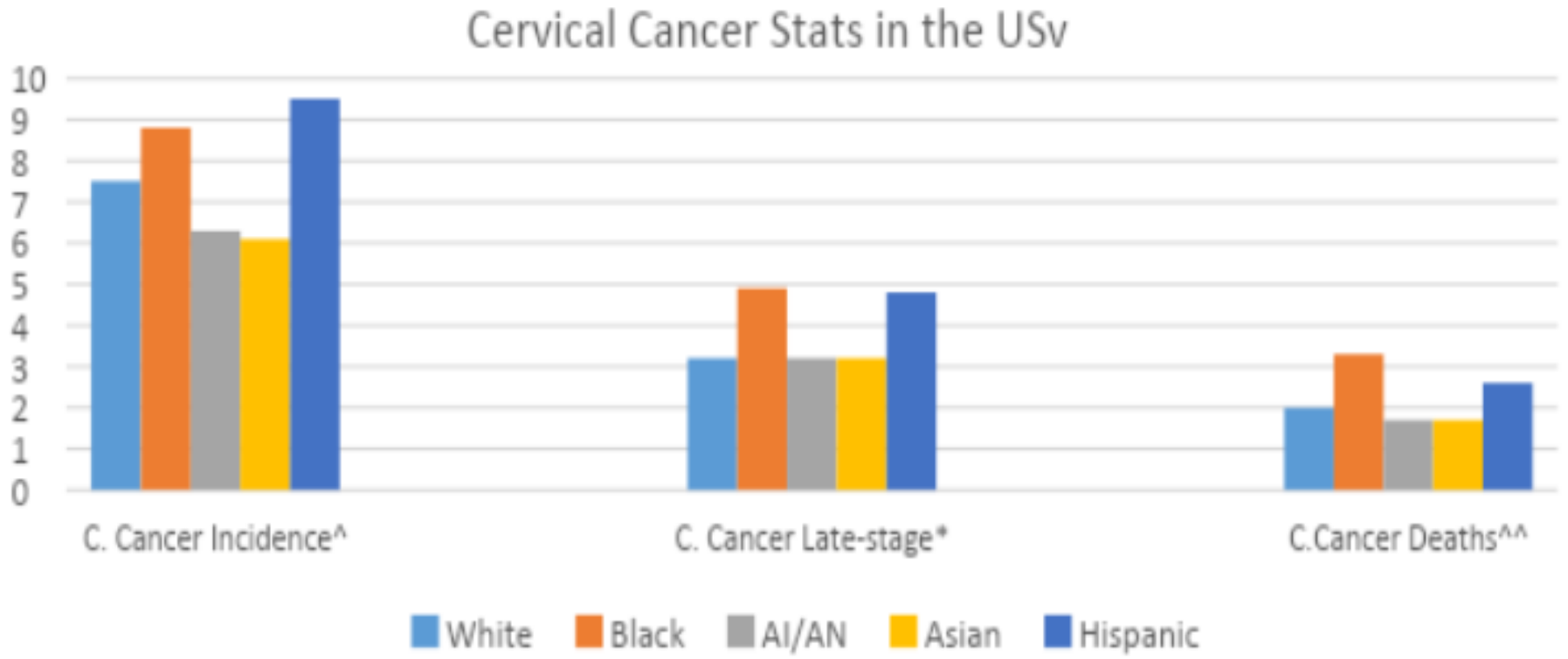
Matz, Gynecol Oncol, 2021 PMID: 34454725

Key topics for women's health in 2021 identified by Congress:
(1) clinical practices related to rising maternal morbidity and mortality rates;
(2) increasing rates of chronic debilitating conditions in women;
(3) ***stagnant cervical cancer survival rates.***

There are also significant racial and ethnic disparities related to cervical cancer. For example, Black and Hispanic women in the U.S. are diagnosed more frequently than women of other races and ethnicities in the U.S. and are less likely to survive.

https://www.sgo.org/news/nih-public-comment-on-research-gaps-cervical-cancer-survival

Racial/ethnic disparities in cervical cancer incidence, stage at diagnosis, and mortality



^Incidence: age-adjusted rate/100,000 women. 2013-2017
**Late-stage incidence: age-adjusted rate/100,000. 2013-2017*
^^Deaths: age-adjusted rate/100,000. 2014-2018
https://www.jsi.com/why-is-cervical-cancer-still-claiming-lives/

Why does cervical cancer still occur?

Medical record review of 376 women with invasive cervical cancer: 3 US cancer registries; Michigan, New Jersey, Louisiana, 2013—2016

Among women who developed cervical cancer:

60% unscreened

22% had inadequate follow-up after an abnormal test

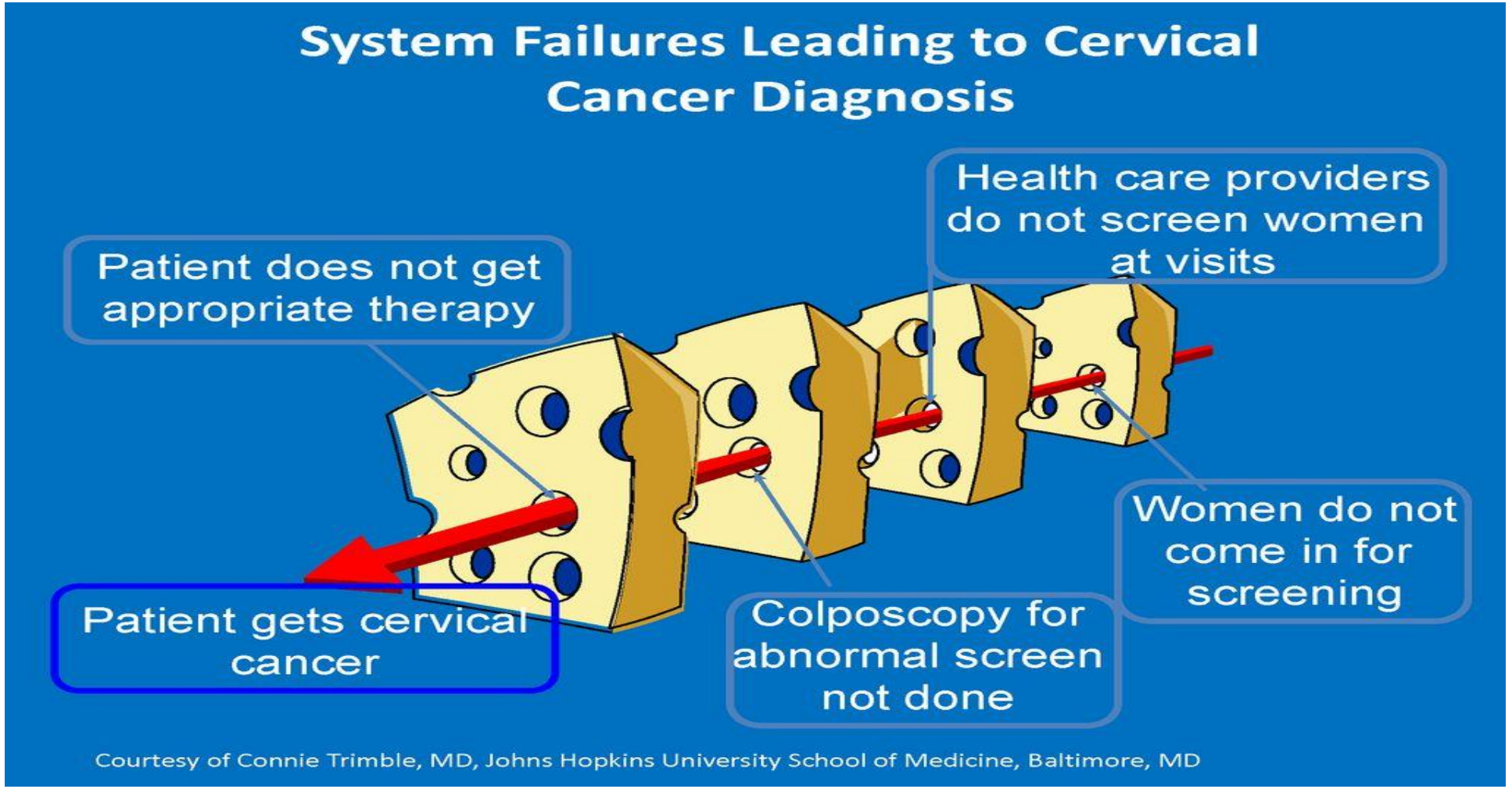
15% missed by colposcopy

13% missed by screening*

3 of 4 unscreened women thought they were not at risk

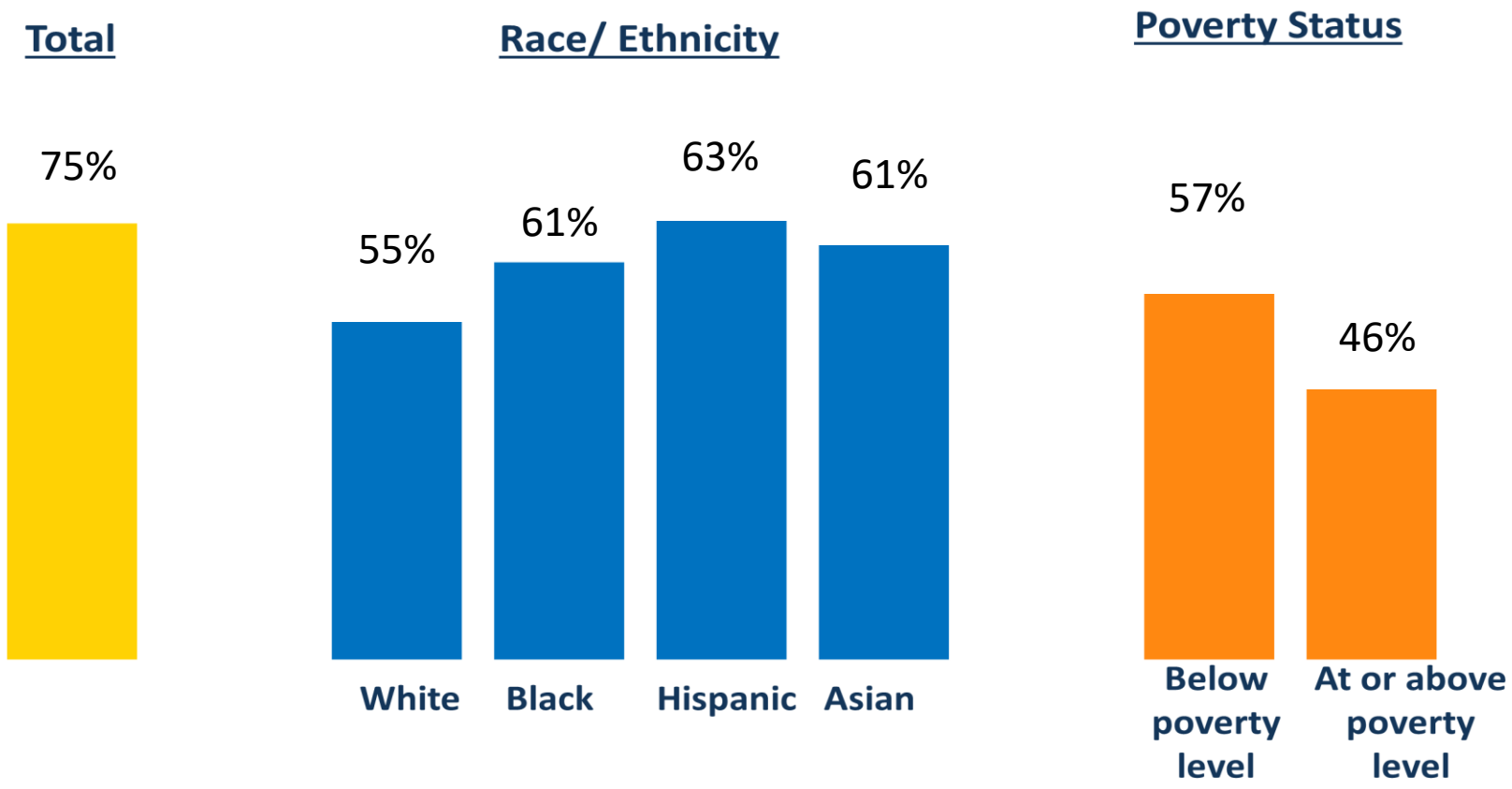
Benard, Cancer Med, 2021, PMID: 34018674 Senkomago, J Prim Care Community Health 2021, PMID: 34486436

* Defined as either all screens negative or screening results did not indicate that a biopsy was needed



What factors drive observed disparities?

Racial/ethnic disparities *not* observed in HPV vaccination by race or poverty status

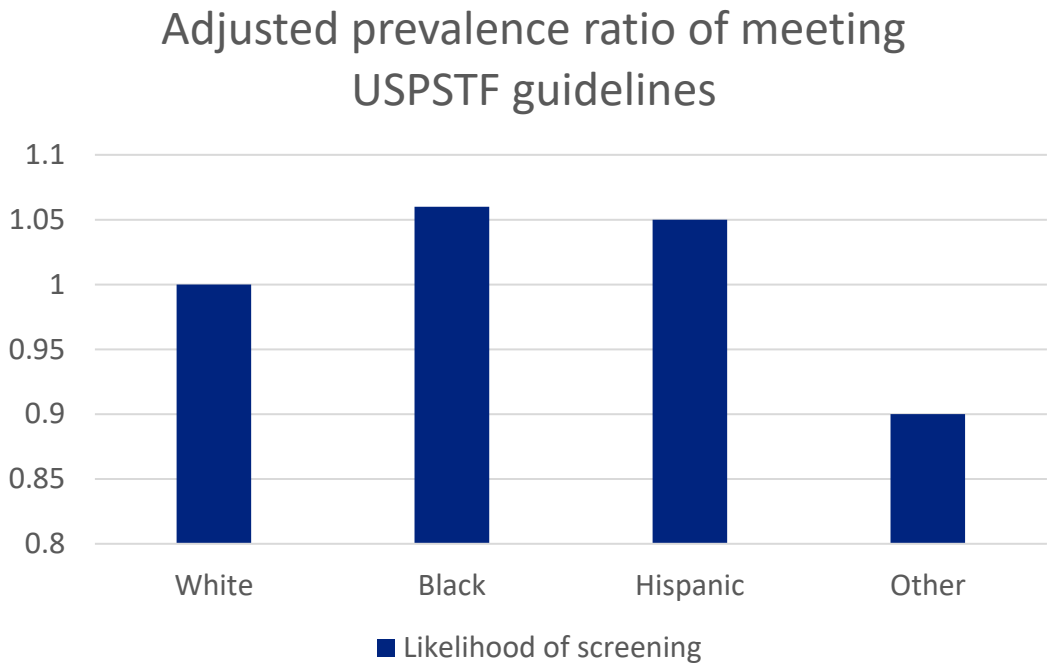


Pingali, MMWR, 2021 PMID: 34473682

Racial/ethnic disparities *not* observed in cervical cancer screening or abnormal result follow-up

- ~ 80% of Black and White women report Pap test in the past 3 years or Pap+HPV test in the past 5 years

- *Higher* screening rates reported by Black and Hispanic compared to White women in 2018 BRFSS



- Racial/ethnic differences not seen in follow-up after abnormal testing

Sauer, Cancer Epidemiol Biomarkers Prev, 2019, PMID: 30944145; Battaglia, Cancer, 2010 PMID: 20052731; Benard, Cancer Med, 2021 PMID: 34018674 ; Benavides, Prev Med Chronic Disease, 2021; PMID: 33856975

Racial/ethnic disparities *observed* in treatment

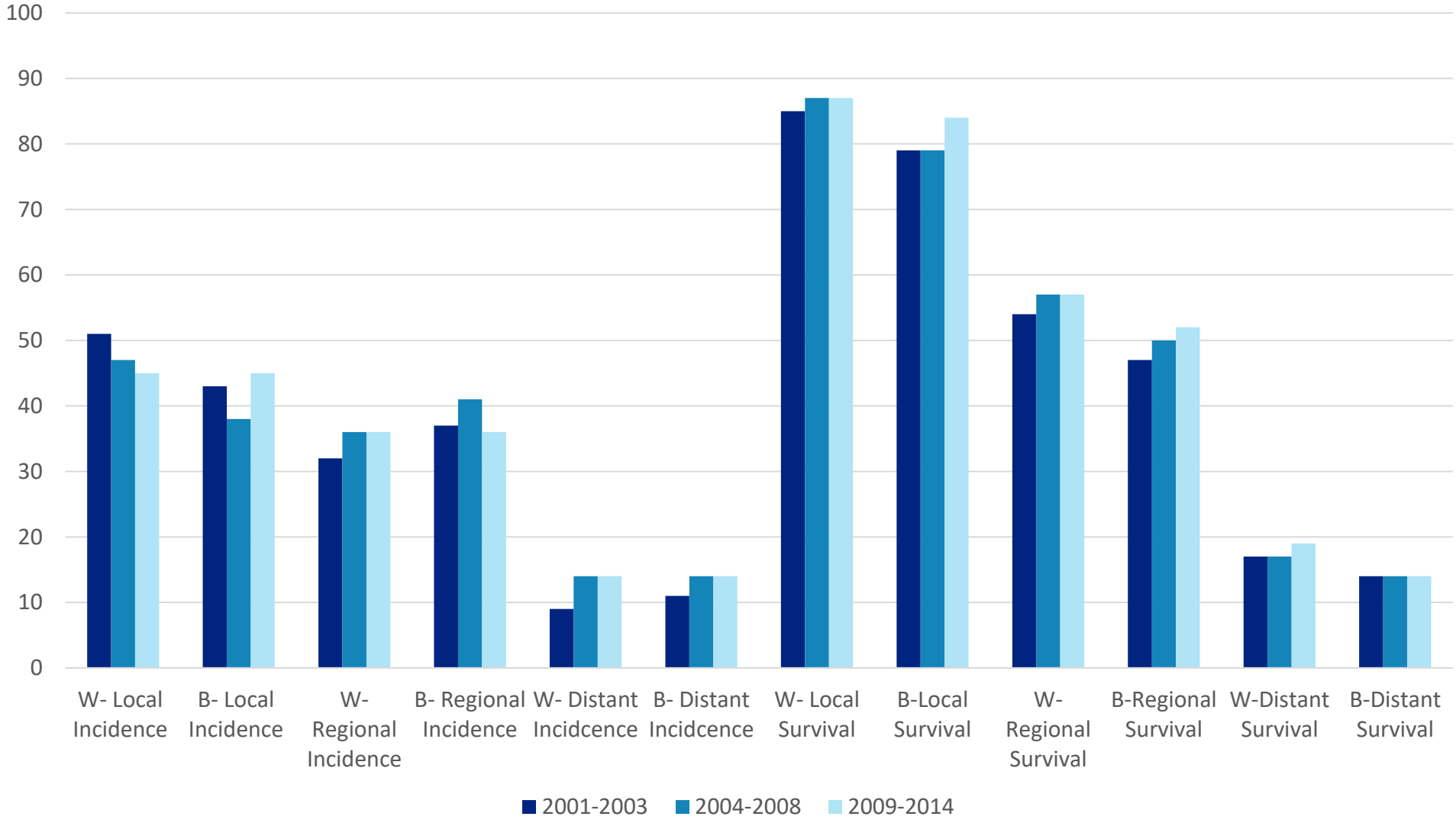
- Delay of 7-11 days to treatment initiation among Black or Hispanic compared to white women after adjusting for other factors; no difference in outcomes or survival

- Fewer Black vs. white women received surgery for localized tumors (84% vs. 74%) or systemic therapy for distant tumors (65% vs 58%)

- Decreased use of brachytherapy independently associated with Black race, Medicaid/uninsured. Racial disparities in overall and disease-free survival disappeared when adjusting for receipt of brachytherapy

Ramey, Gynecol Oncol, 2018 PMID: 29605051; Matz, Gynecol Oncol, 2021, PMID: 34454725
Boyce-Fappiano, JCO Oncol Practice PMID: 34550749

Racial Disparities *observed* in both stage at diagnosis and survival, Disparity in survival lessening over time

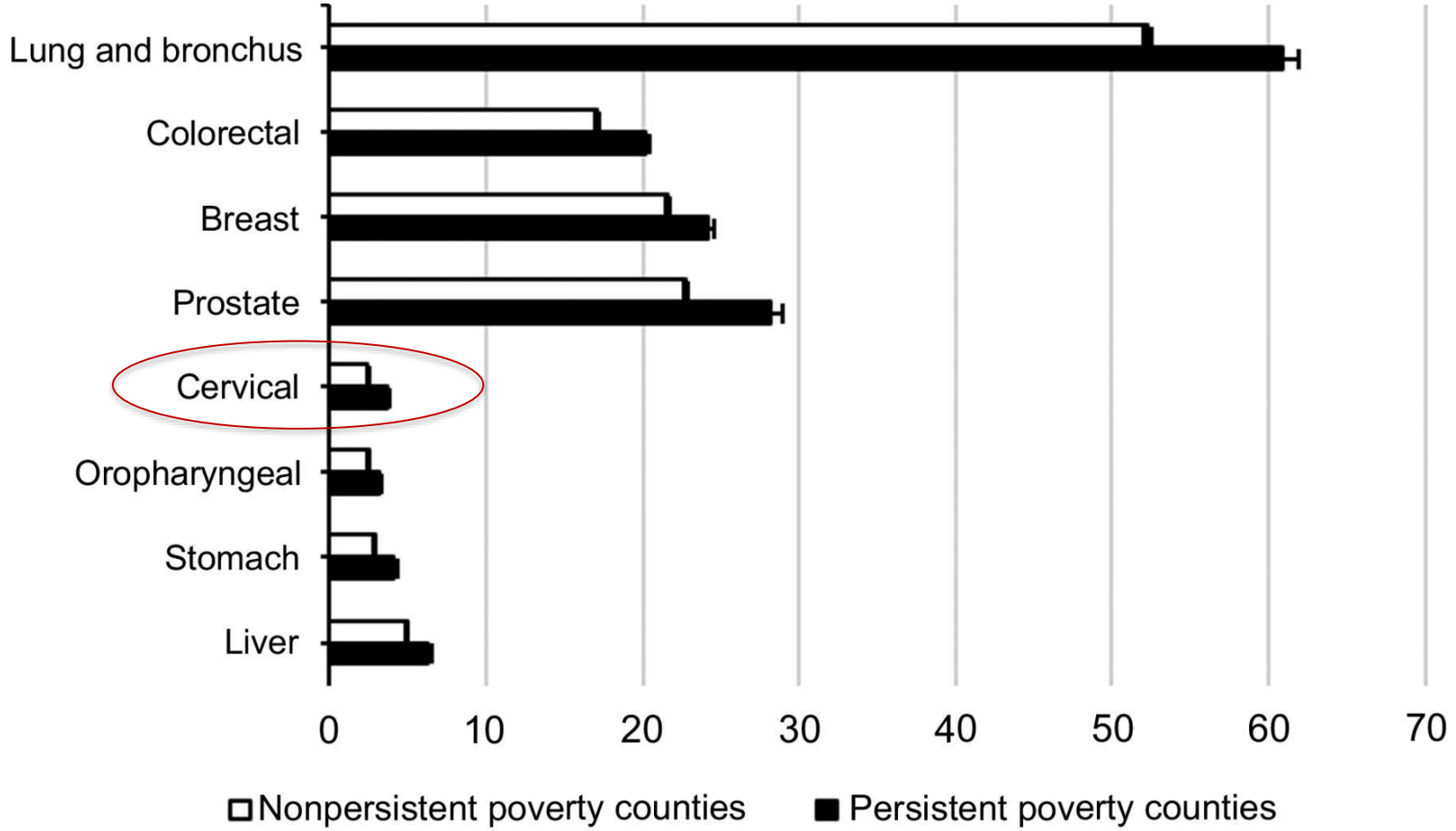


Matz, Gynecol Oncol, 2021 PMID: 34454725

Drivers of disparities

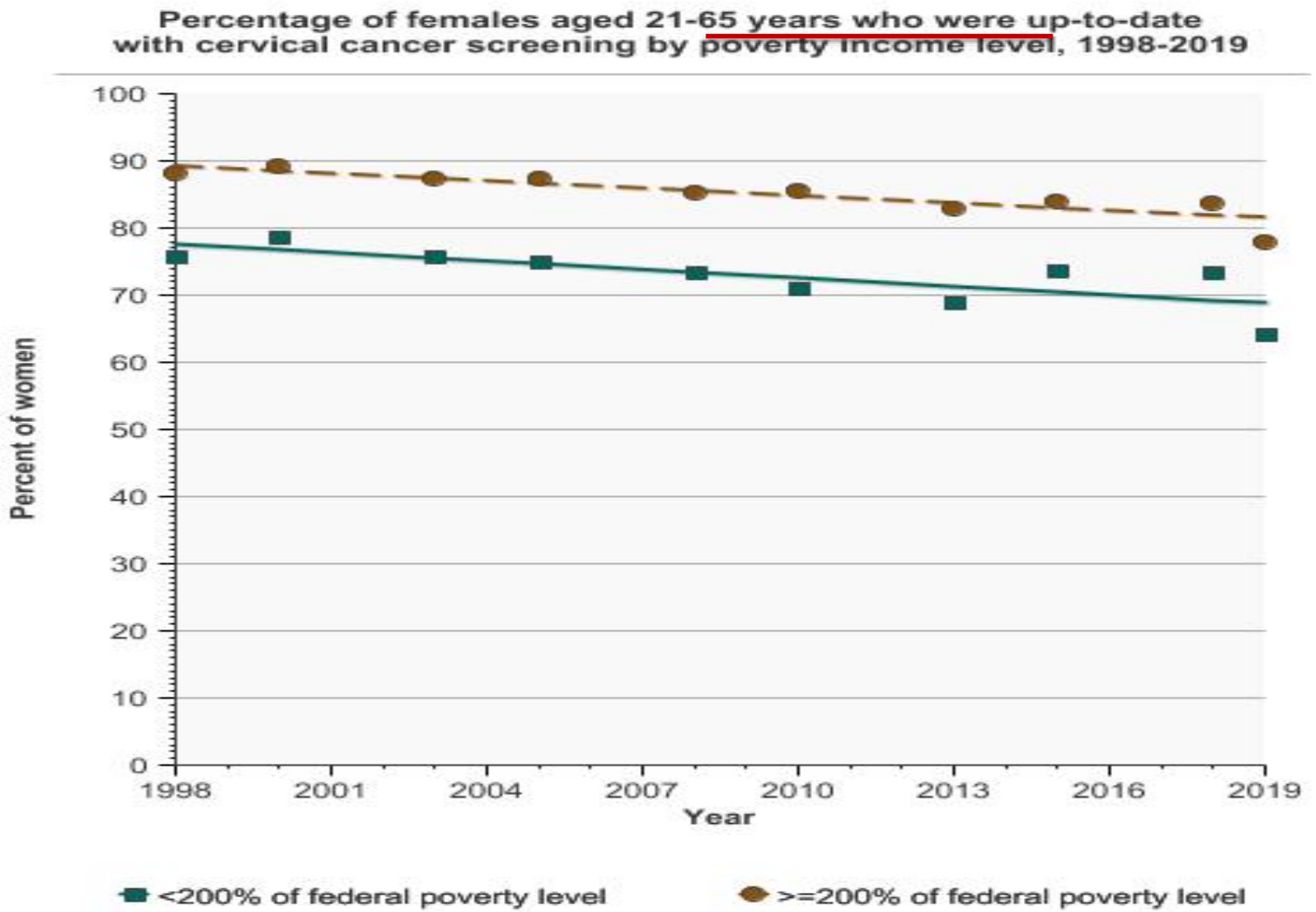
Poverty
Rurality
Geography

Age-adjusted cancer mortality rates for nonpersistent poverty versus persistent poverty counties, 2007–2011.



Jennifer L. Moss et al. Cancer Epidemiol Biomarkers Prev 2020;29:1949-1954

AACR American Association for Cancer Research
Cancer Epidemiology, Biomarkers & Prevention



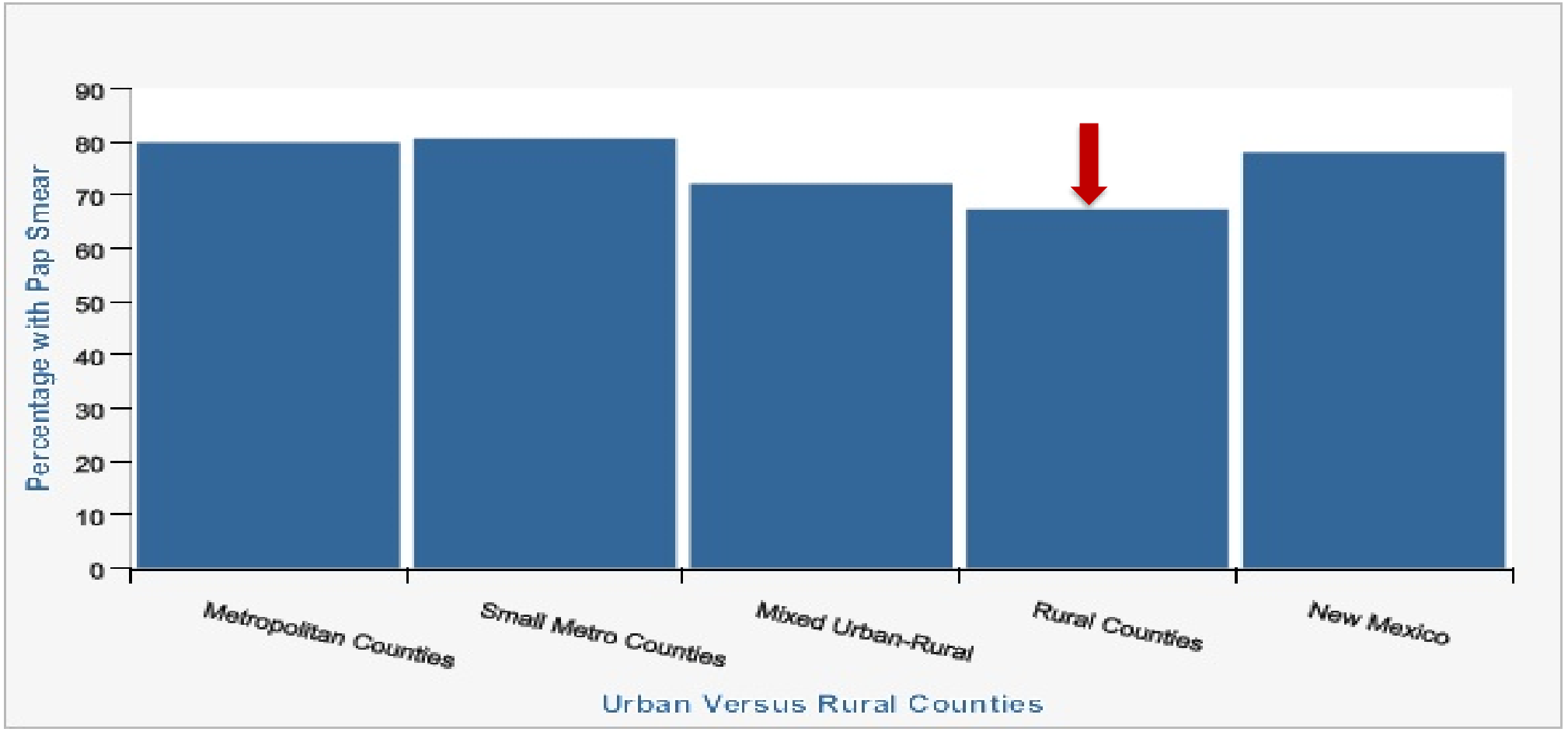
Source: Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey.
Data are age-adjusted to the 2000 US standard population using age groups: 21-34, 35-44, 45-65. For 2013 and before, up-to-date with cervical cancer screening was defined as having a Pap test within the past 3 years. For 2014-2018, up-to-date is defined as having a Pap test within the past 3 years for all women aged 21-65 years, with or without an HPV test in the past 5 years for women aged 30-65 years.

Income and insurance disparities in screening, follow-up, and stage at diagnosis; *account for observed racial/ethnic differences*

	a. Screened (vs. Not Screened) (n=376)[b]			b. Adequate (vs. Inadequate) Follow-up Among Screened (n=122)[c]			c. Stage I (vs. Stage (n=349)	
	No.[d]	uOR (95% CI)	aOR (95% CI)[e]	No.d	uOR (95% CI)	aOR (95% CI)[e]	No.d	uOR (95% CI)
Income								
< $30,000	163	Reference	Reference	40	Reference	Reference	155	Reference
≥ $90,000	67	**5.74**	**3.62**	38	**4.18**	**3.96**	61	**2.20**
Insurance status								
Not insured	97	Reference	Reference	20	Reference	Reference	94	Reference
Insured	273	**2.97**	**2.09**	100	**3.16**	1.77	249	**1.74**
Race/ethnicity								
Non-Hispanic white	249	Reference	Reference	88	Reference		229	Reference
Other	127	**0.54**	0.96	34	0.72		120	0.72

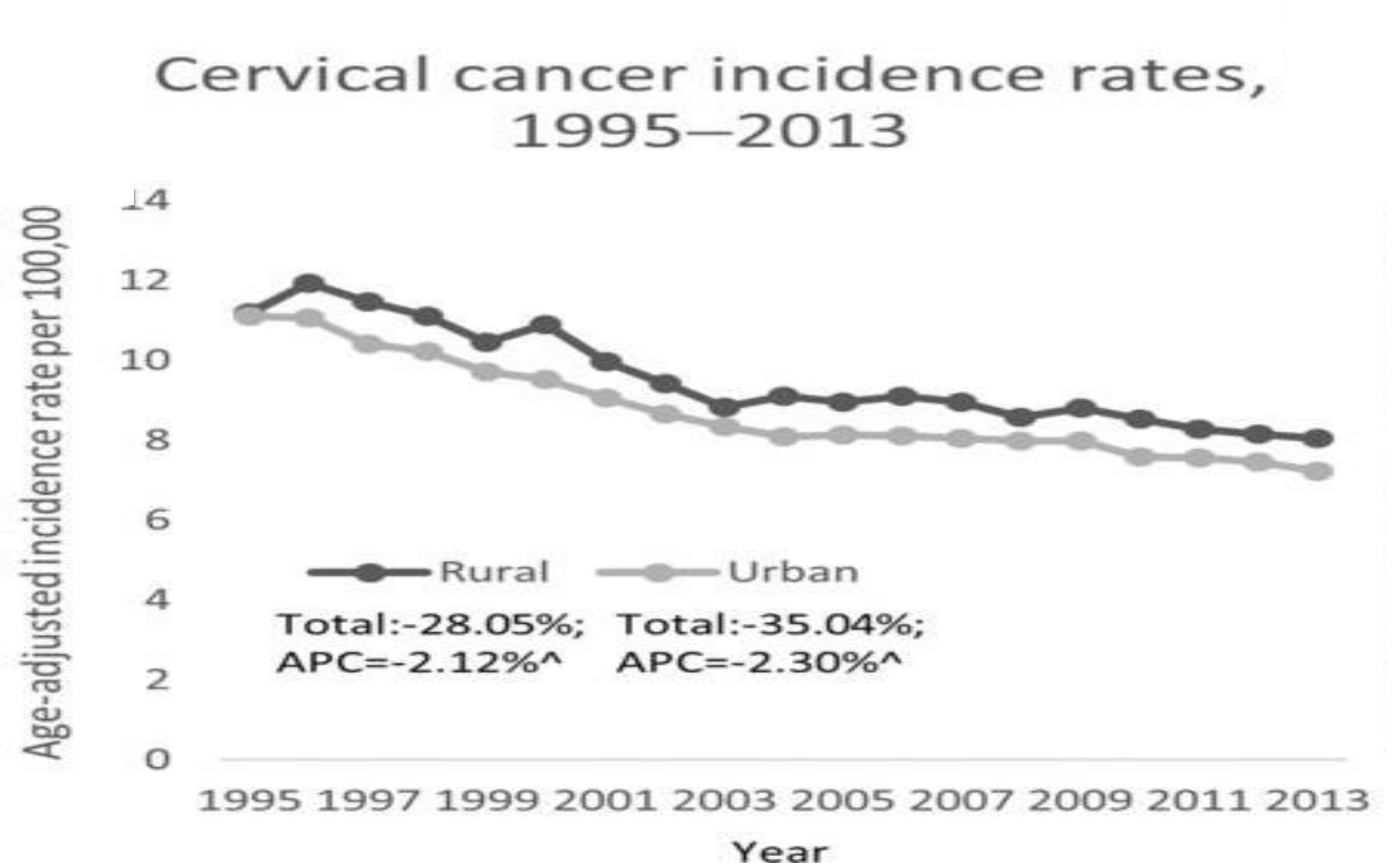
Benard, Cancer Med, 2021 PMID: 34018674

Estimated Percentage of Women Ages 21-65 Years Who Have Had a Pap Test Within the Past Three Years by Urban and Rural Counties, New Mexico, 2016



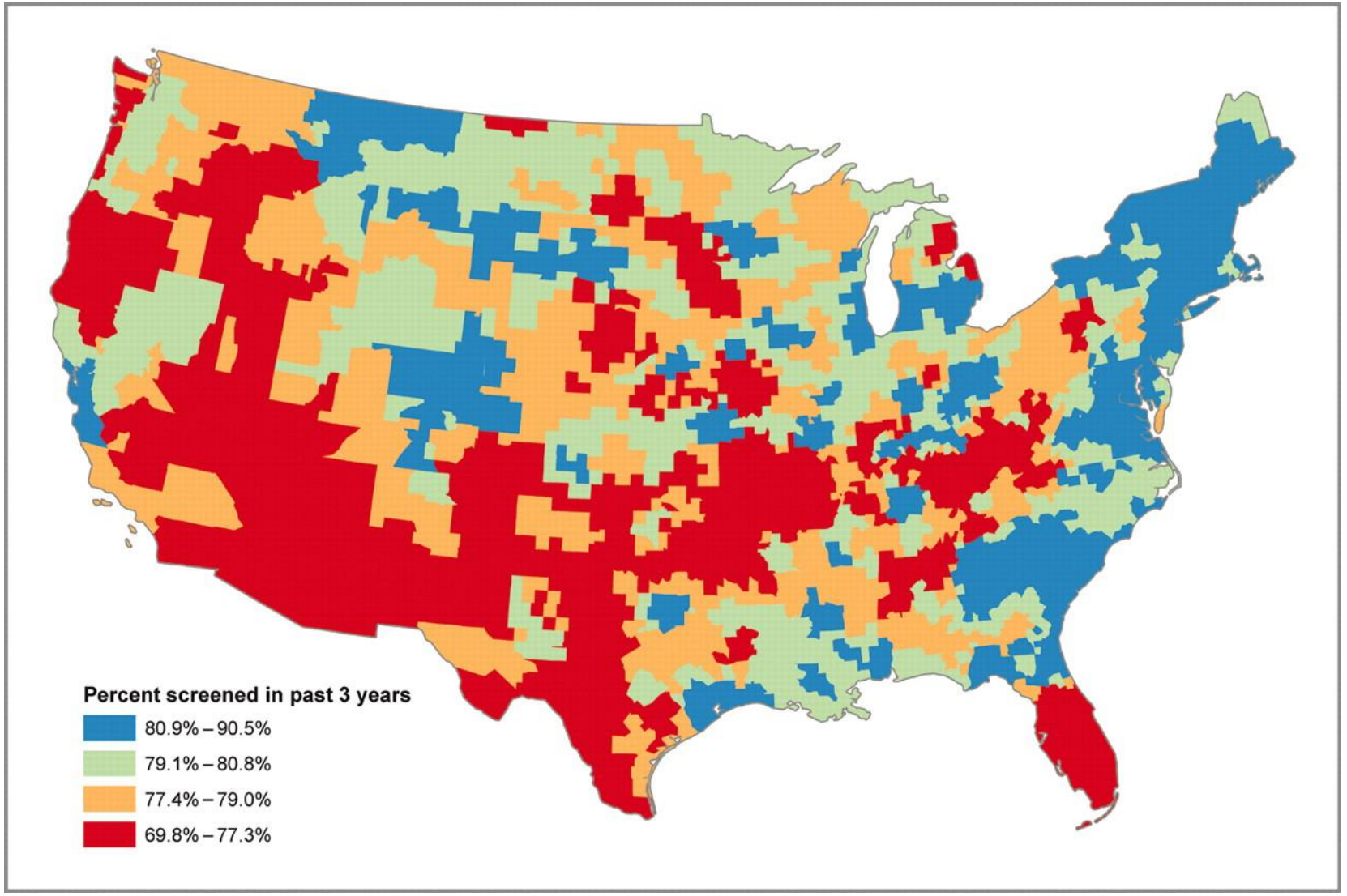
Data Source: Behavioral Risk Factor Surveillance System Survey Data, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, together with New Mexico Department of Health, Injury and Behavioral Epidemiology Bureau.

Rural/Urban disparities in Cancer Rates



Whitney E. Zahnd et al. Cancer Epidemiol Biomarkers Prev 2018;27:1265-1274

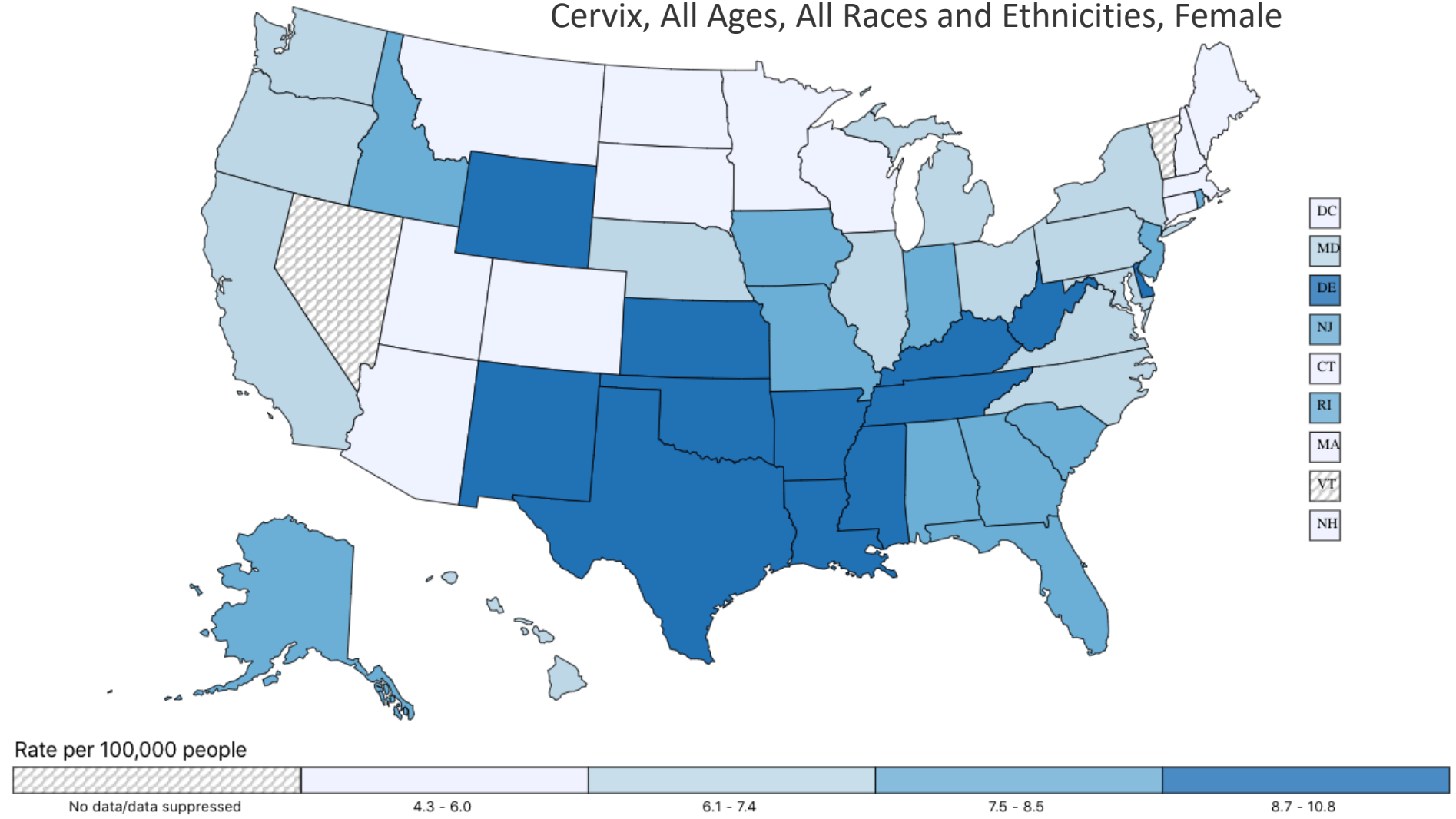
Geographic disparities in cervical cancer screening



https://cebp.aacrjournals.org/content/20/4/591.figures-only

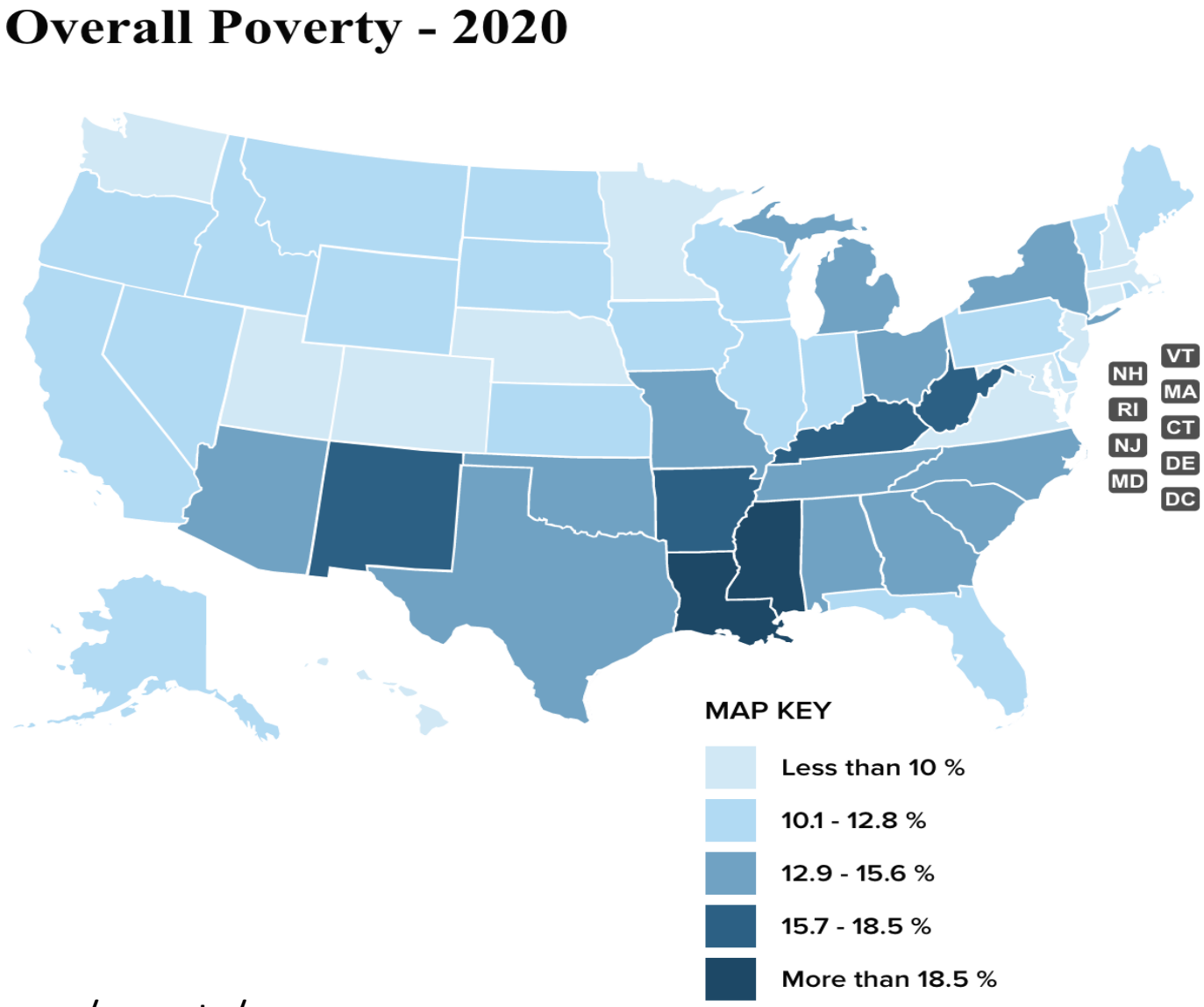
Geographic disparities in cervical cancer

Rate of New Cancers in the United States, 2018
Cervix, All Ages, All Races and Ethnicities, Female



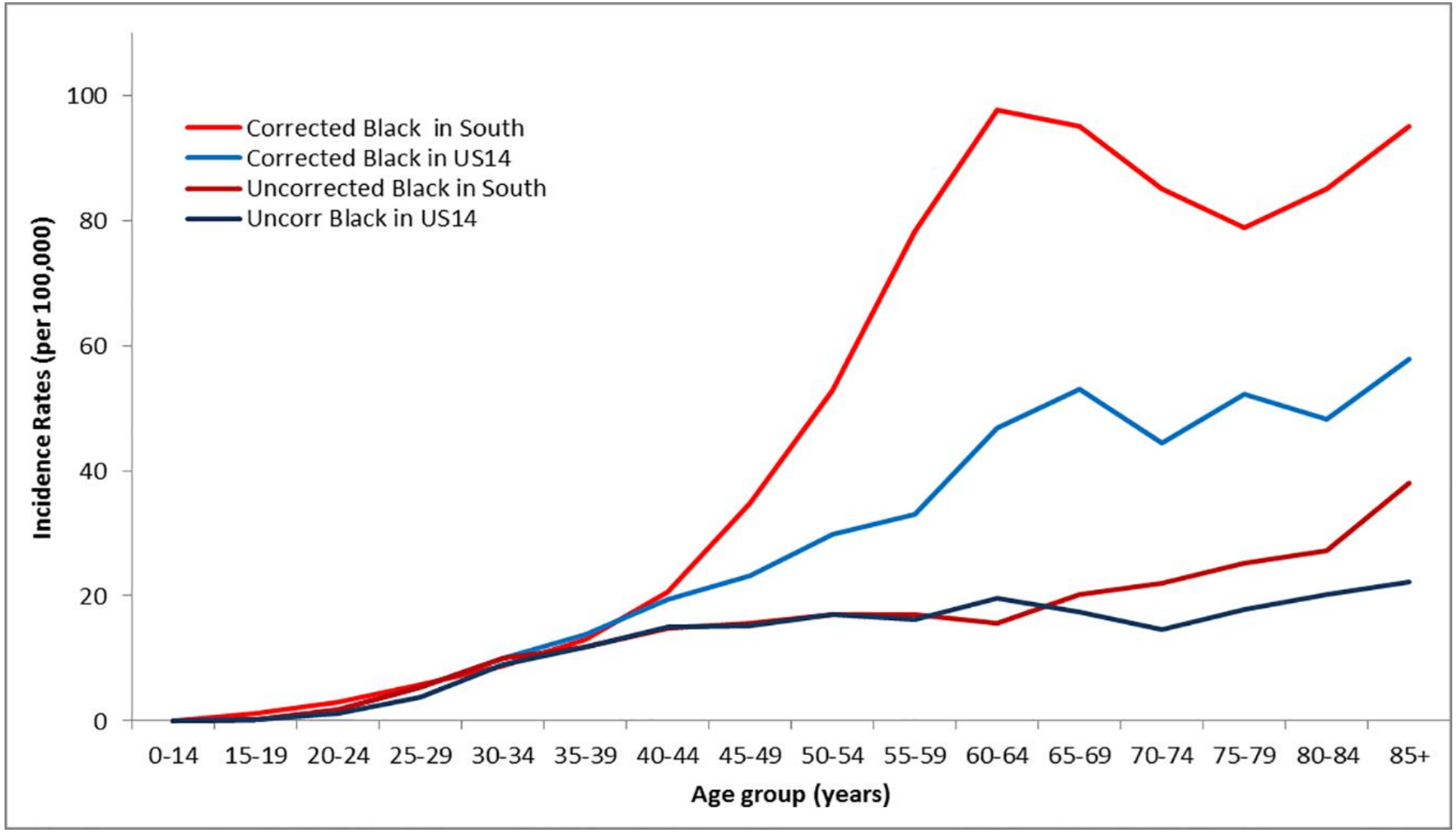
https://gis.cdc.gov/Cancer/USCS/#/AtAGlance/

Geographic disparities in Poverty, US Census 2020



https://talkpoverty.org/poverty/

Racial and Geographic disparities co-exist

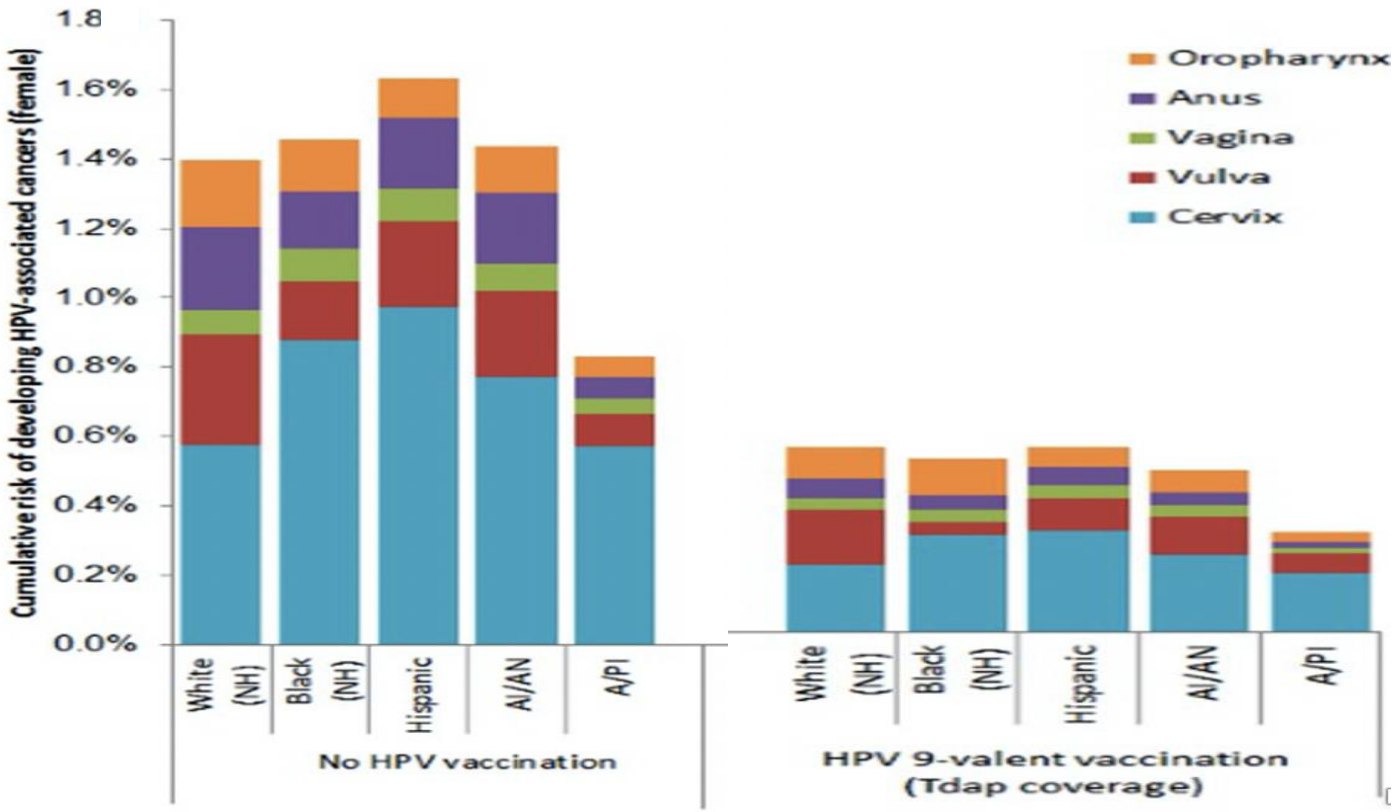


https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0172548

Call to action: decrease cancer disparities

1. HPV vaccination: can reduce disparities in cancer development

Projected Cumulative lifetime risk of developing a human papillomavirus (HPV)-associated cancer with current HPV vaccination coverage vs. 90% coverage



Unvaccinated projected to have 9 times higher cancer rates than vaccinated

Burger, Cancer, 2016, PMID: 27124396; Nazlazi, CEBP PMID: 33837119

Call to action: decrease cancer disparities

2. Improve access

- Insurance
  - Lack of insurance highly correlated with lack of screening
  - 17% lower screening prevalence on 2018 BRFSS
  - ACA increased screening participation
- Regular source of healthcare
  - Lack of regular medical provider associated with lack of screening

Benard, Cancer Med, 2021, PMID: 34018674; Clark, Proj Comm Health Part, 2011 PMID: 22080772; Benavides, Prev Chron Dis, 2021 PMID: 33856975; Biddell JWH, 2021; Salcedo, Pers Public Health PMID: 34130548; Hatch, WHI, 2021, PMID: 33023807

Call to action: decrease cancer disparities

2. <u>Improve screening participation and follow up</u>

- Patient education
  - Individualized education (promotoras) increased cervical cancer screening in several trials
  - *But only effective if patient has insurance/financial coverage for services*

- Provider prompts
  - Electronic medical record alerts can be helpful
  - *More acceptable to Advanced Practice Providers (NPs, PAs) than to physicians*

Savas, Prev Med, 2021, PMID: 33548363; Thompson, Cancer 2017, PMID: 27787893; Kelsey, J Prim Care Community Health, 2020 PMID: 33016170

Call to action: decrease cancer disparities

2. <u>Improve screening participation and follow up</u>

   Patient navigation

   - Increases both screening and follow-up in several studies/RCTs
   - Increased colposcopy attendance from 50% to 70%

Nelson, JGIM, 2020, PMID: 32700218; Falk, J Cancer Education, 2020, PMID: 33150556; Fernandez-Esquer, Women Health, 2020, PMID: 32990199; Kuroki, Am J Obstet Gynecol, 2021 PMID: 33316278; Luckett, J Women's Health, 2015, PMID: 26173000

Call to action: decrease cancer disparities

2. Improve screening participation and follow up

HPV self-sampling

- Similar detection to clinician collected samples (using PCR-based tests)
- Improved screening uptake in underscreened individuals
- Currently part of national screening programs in Australia and UK

Arbyn, BMJ, 2018, PMID: 30518635

Call to action: decrease cancer disparities

3. Improve access to treatment

CA:
A Cancer Journal for Clinicians

ACS Communication | Free Access

Charting the future of cancer health disparities research: A position statement from the American Association for Cancer Research, the American Cancer Society, the American Society of Clinical Oncology, and the National Cancer Institute

Blase N. Polite MD, MPP, Lucile L. Adams-Campbell PhD, Otis W. Brawley MD, Nina Bickell MD, John M. Carethers MD, Christopher R. Flowers MD, Margaret Foti PhD, MD (hc), ... See all authors

First published: 24 July 2017 | https://doi-org.ezproxy.bu.edu/10.3322/caac.21404 | Citations: 25

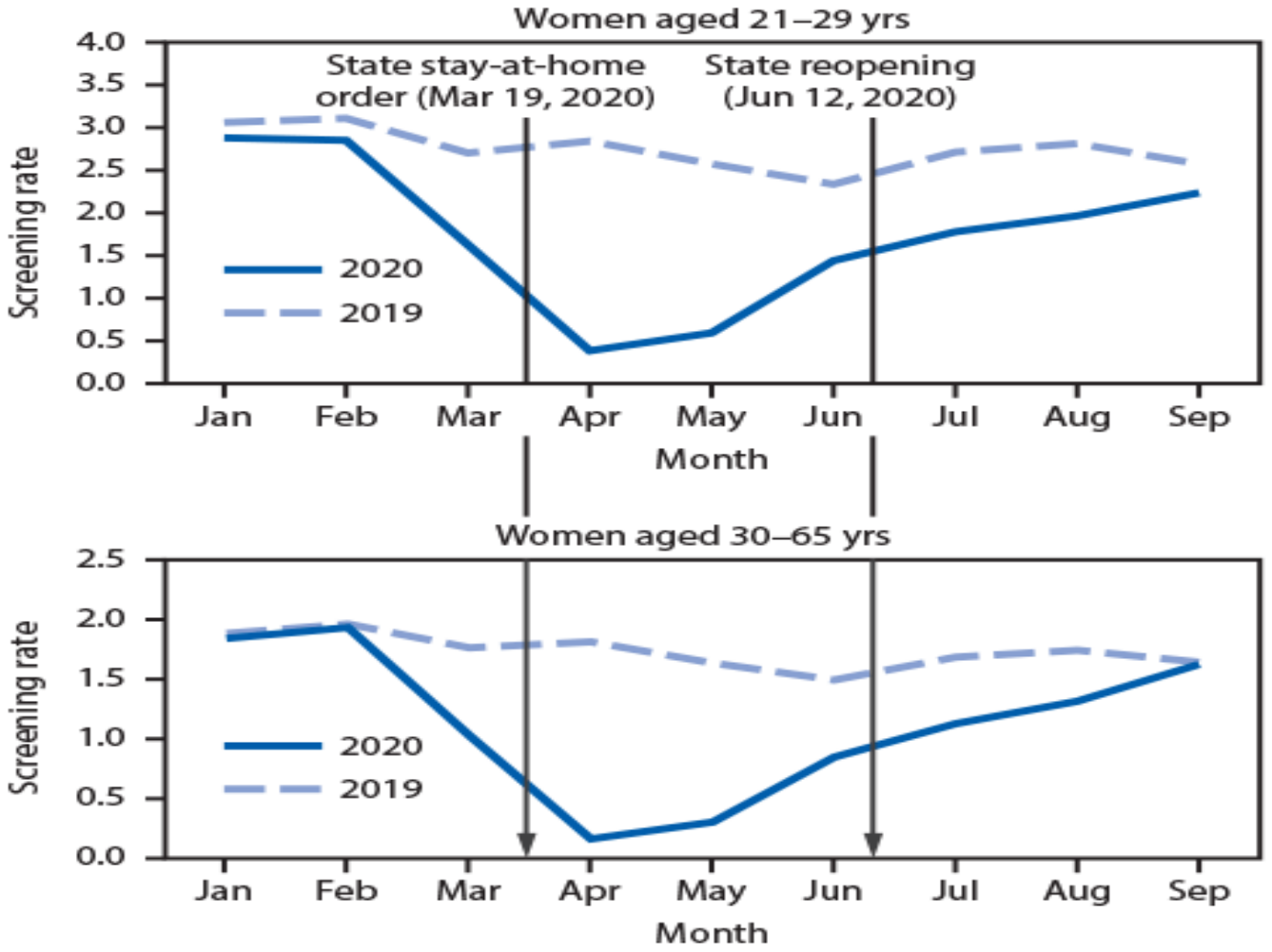
Goal: to ensure that cancer research benefits all populations and patients regardless of race, ethnicity, age, gender identity, sexual orientation, SES, or the communities in which they live.

Call to action: decrease cancer disparities

4. Reverse care disruptions due to COVID

Highest priority groups:

- Prior abnormal results
- Screened with Pap alone
- Very overdue for screening
  - >4 years after pap
  - >6 years after HPV test or co-test



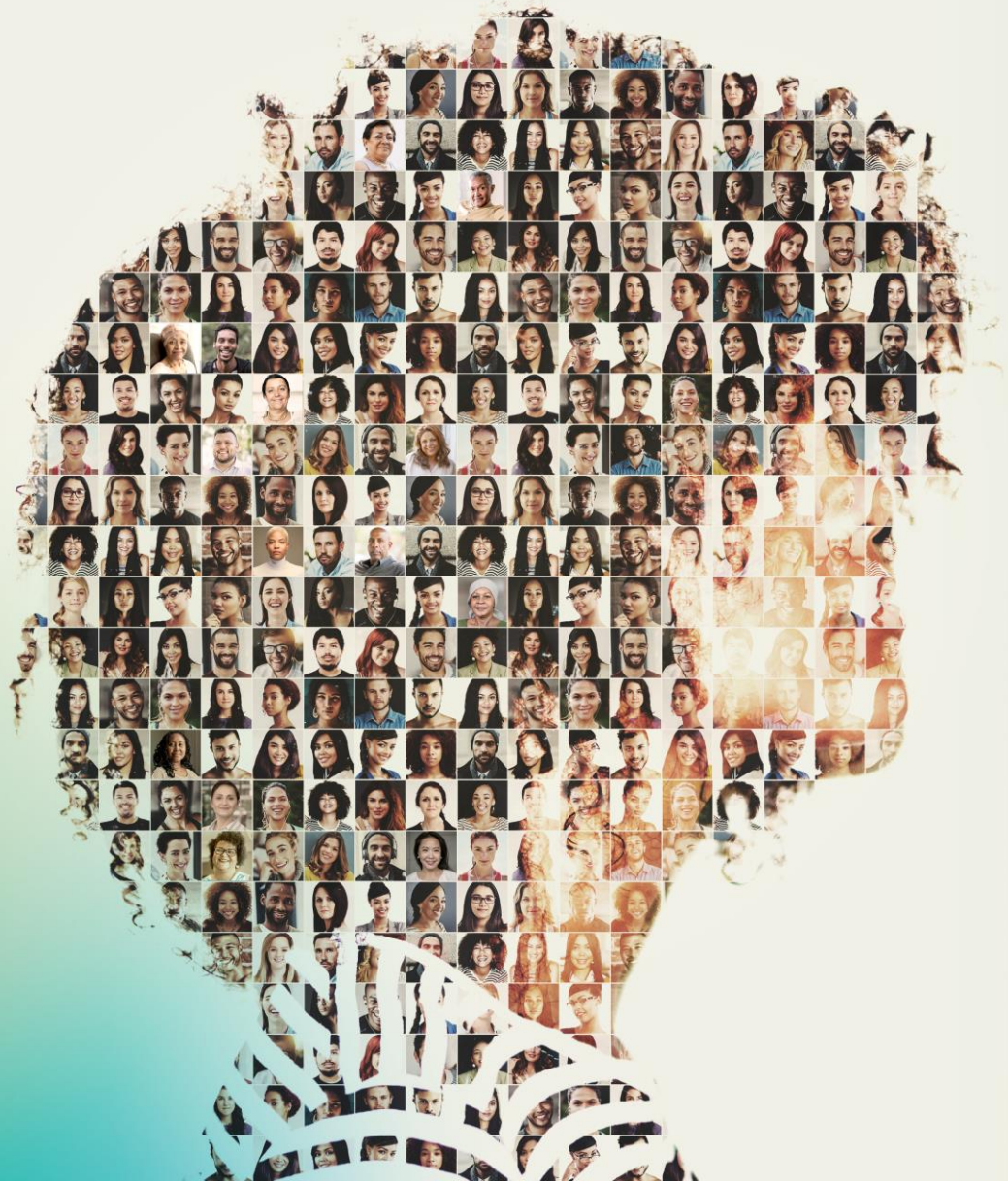
Burger, J Med Screen, 2021, PMID: 33730899; Miller, MMWR, 2021, PMID: 33507893

Summary

The primary drivers of cervical cancer disparities are inequitable access to screening, follow-up, and cancer treatments

Promising steps to reduce disparities are:

- Continue to expand insurance coverage and access to primary care
- Patient education, outreach and navigation
- HPV self-sampling
- Improved research on cancer treatments and equitable access to advanced cancer treatments



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Addressing Disparities in Cancer Care and Incorporating Precision Medicine for Minority Populations

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