On the Horizon: Self-Collected HPV-based Testing for Cervical Cancer Screening

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FULL CIRCLE HEALTH

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Disclosures & Disclaimers

No financial disclosures or conflicts of interest.

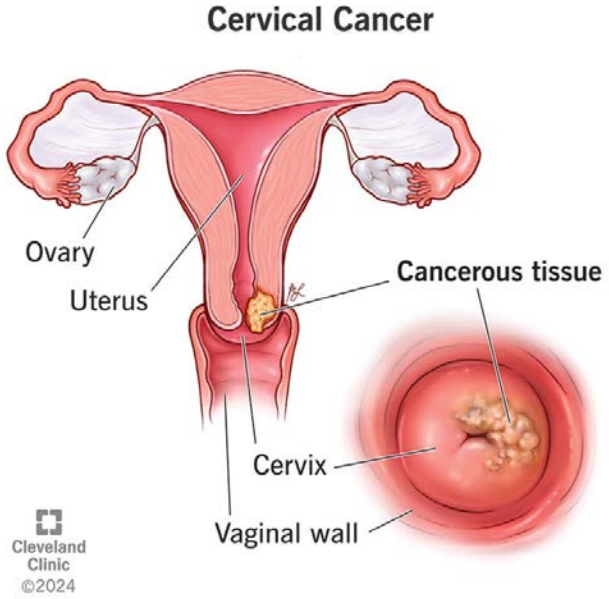
Objectives

- Review current guidelines for cervical cancer screening
- Discuss new options for cervical cancer screening on the horizon including in-office and at-home self-collected tests
- Assess the data regarding self-collected HPV testing
- Understand how self-collected testing for cervical cancer screening could help improve access to care and reduce health disparities
- Understand the purpose of “The Last Mile Initiative” and other federal and global efforts to reduce the incidence of cervical cancer

Epidemiology

American Cancer Society estimates:

- Nearly 14,000 cases of invasive cervical cancer will be diagnosed in the US in 2024
- About 4,300 people will die from cervical cancer in the US in 2024



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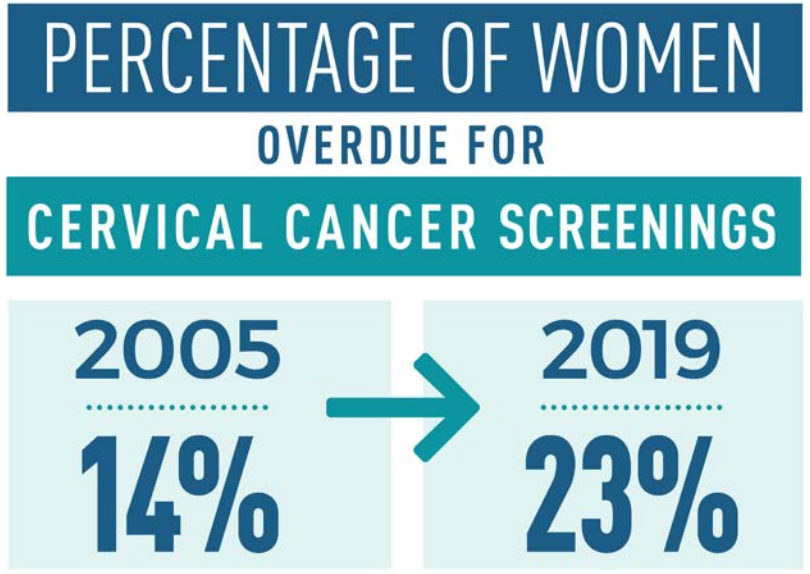

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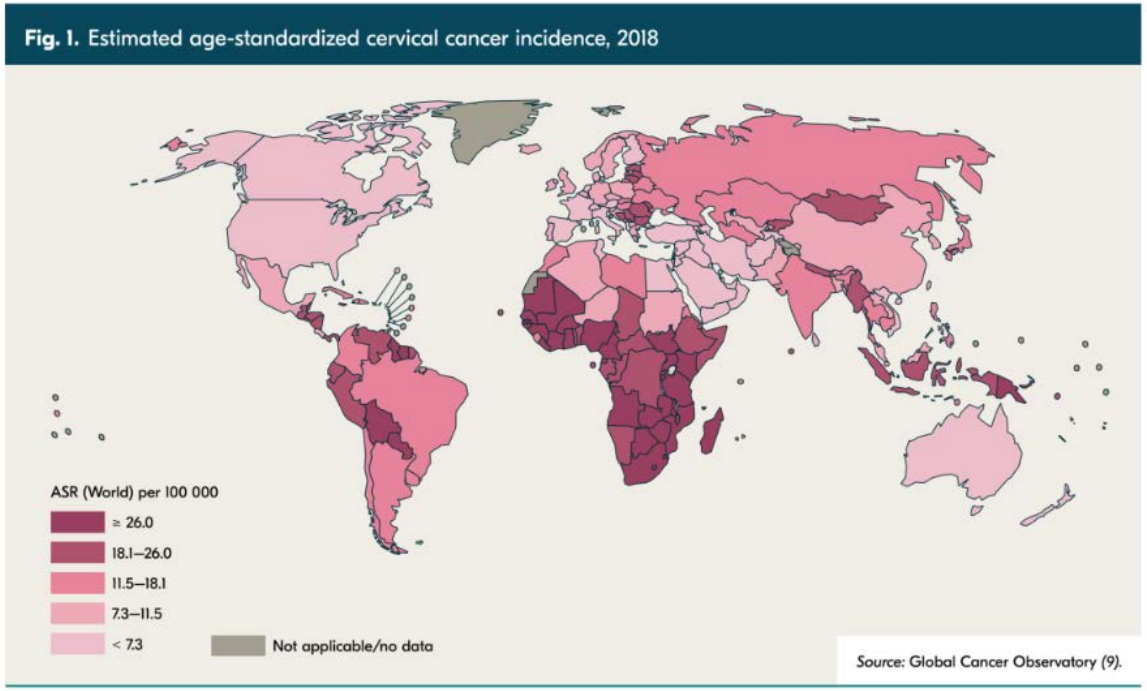
- In people aged 30-44, incidence rates have increased 1.7% annually from 2012 to 2019
- Cervical cancer disproportionately affects people in low- and middle-income countries

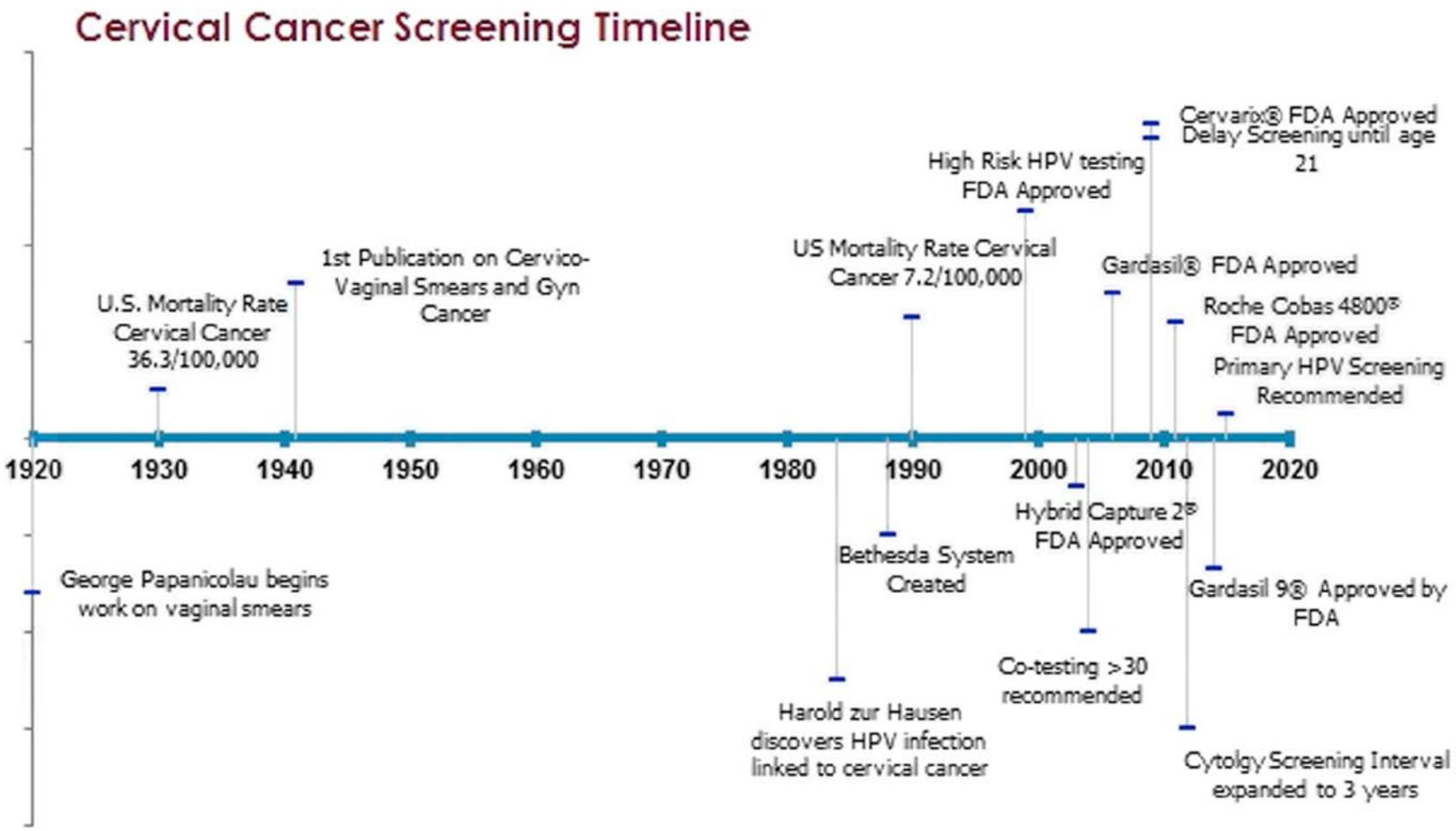


Effects of Screening

Pap smear was introduced in 1941.

Incidence rates decreased by more than 70% since the 1950s with increased screening.

However, currently almost 30% of people eligible for screening can't or don't get screening at recommended intervals.



WHO Goal:
Eliminate* cervical cancer within the next century

*Elimination defined as reducing the number of new cases annually to 4 or fewer per 100,000

Health Equity

Poor access to screening disproportionally affects people who are/have:

Uninsured/underinsured	Low socioeconomic status	Racial and ethnic minorities	Rural residents
Transgender/gender non-conforming	Physical disabilities	History of abuse or trauma, particularly healthcare trauma	*Essentially everyone during COVID-19 pandemic

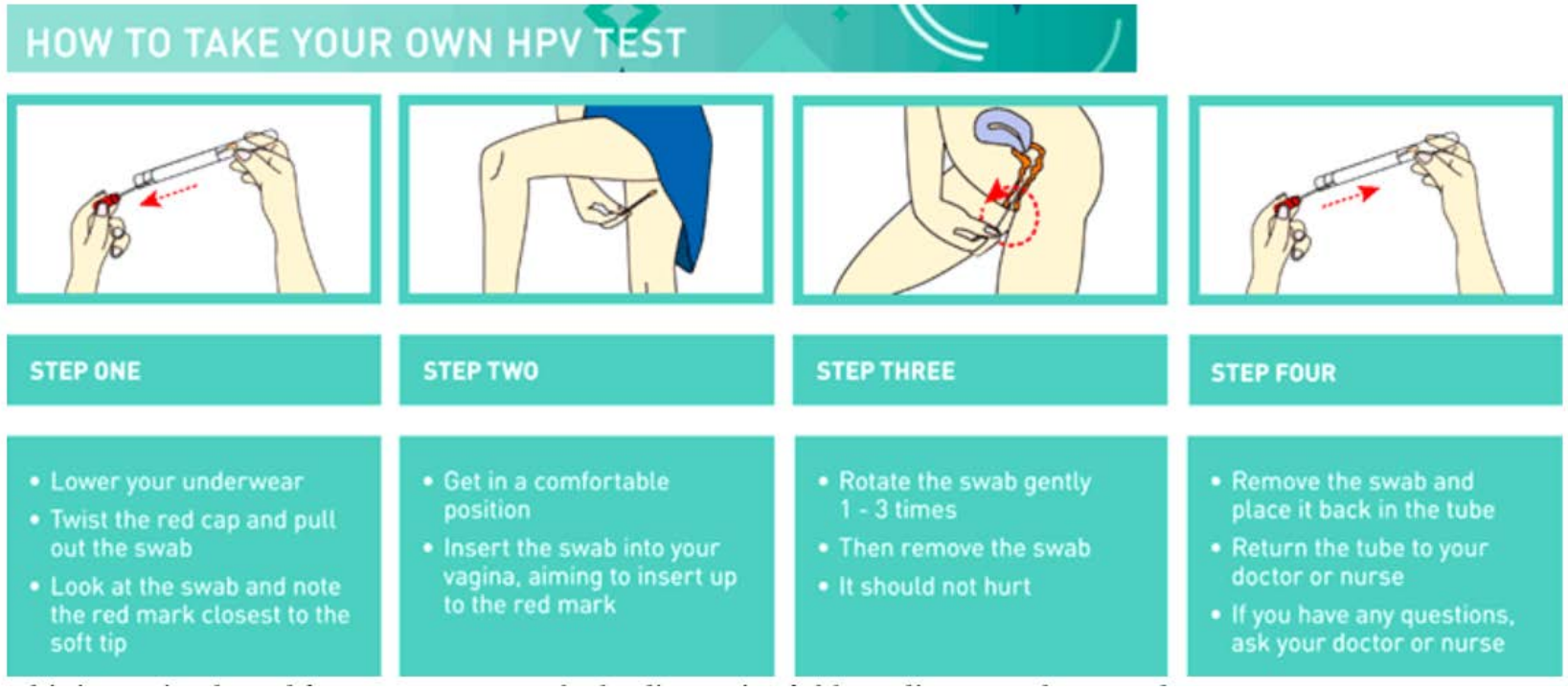
Recommendation Summary

Population	Recommendation	Grade
Women aged 21 to 65 years	The USPSTF recommends screening for cervical cancer every 3 years with cervical cytology alone in women aged 21 to 29 years. For women aged 30 to 65 years, the USPSTF recommends screening every 3 years with cervical cytology alone, every 5 years with high-risk human papillomavirus (hrHPV) testing alone, or every 5 years with hrHPV testing in combination with cytology (cotesting). See the Clinical Considerations section for the relative benefits and harms of alternative screening strategies for women 21 years or older.	A

Current USPSTF Recommendations

On the Horizon: Self-collected HPV testing

Will patient-collected samples for primary HPV testing replace clinician-collected samples?



FDA NEWS RELEASE

FDA Roundup: May 17, 2024

- On Tuesday, the FDA approved expansions to the indications for use (IFU) of the Beckon, Dickinson (BD) and Co. Onclarity HPV Assay and the Roche Molecular Systems, Inc. cobas HPV Test. These tests were each previously approved (P160037, P100020, and P190028, respectively) for cervical cancer screening through the detection of Human Papillomavirus (HPV) in cervical specimens collected in a health care setting by a clinician. The expanded IFUs allow for the patient to self-collect a vaginal swab in a health care setting when the patient and the health care provider determine that it is not possible for the clinician to collect a cervical specimen. The approvals for use of self-collected vaginal specimens with these HPV tests are the latest example of the FDA's continued commitment to expanding cervical cancer screening options for patients, particularly for individuals currently not participating/engaging in routine screening.

BD Onclarity

May 2024: FDA approves self-collected HPV testing for in clinic environment. Not yet approved for in-home self-collection.

The New York Times

An Alternative to the Pap Smear Is Here, No Speculum Required

Starting this fall, women will be able to use a simple swab to screen for cervical cancer. The method offers an alternative to a procedure that many dread — and promises to address disparities in who develops the disease.

A short leap: Anticipating likely approval of in-home self-collected HPV testing

Also in May 2024: FDA granted Breakthrough Device Designation to Teal Wand made by Teal Health

A not so novel approach

Countries using self-collection for ***all individuals***:

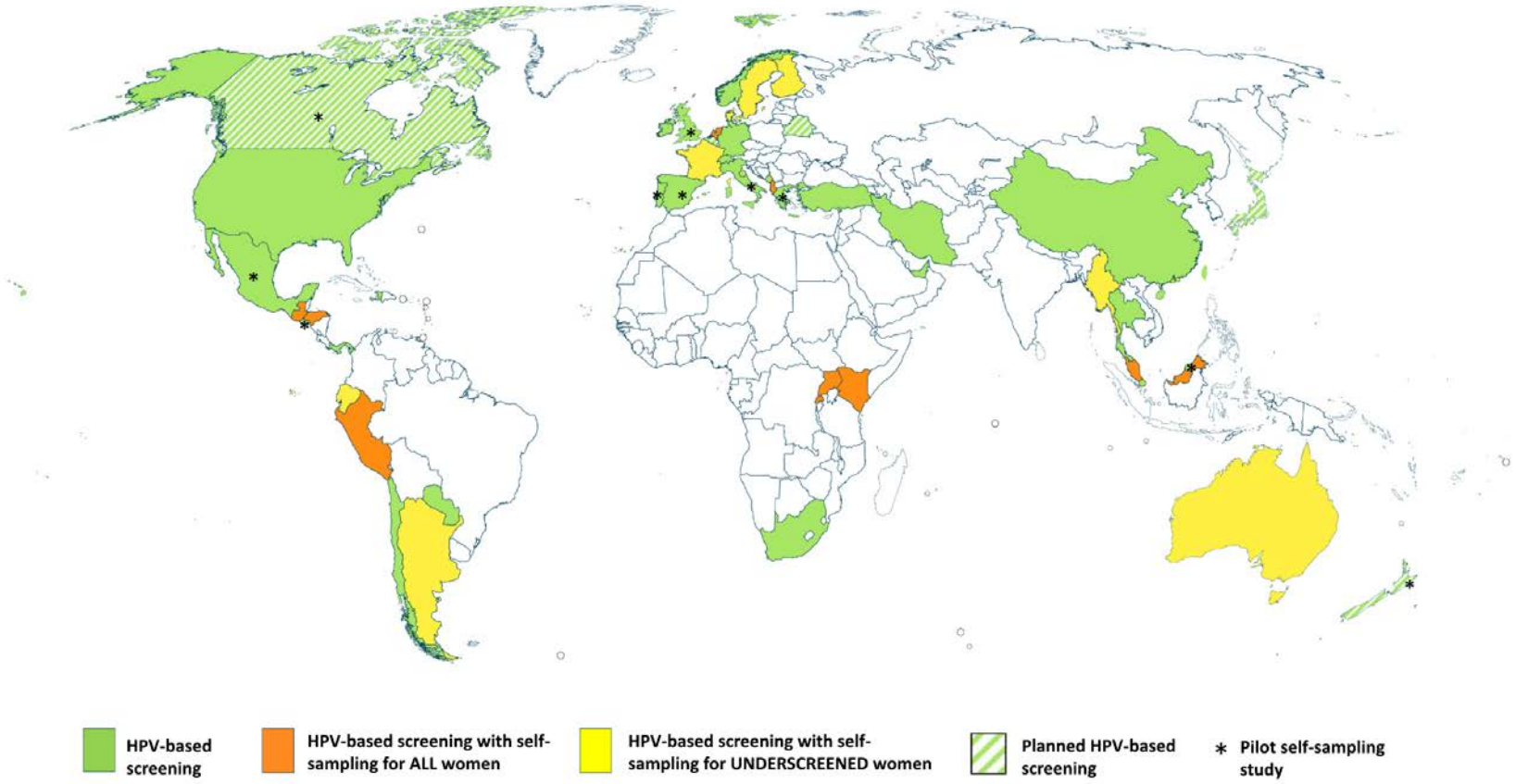
- The Netherlands, Albania, Kenya, Rwanda, Guatemala, Peru, Malaysia

Countries using self-collection for ***under-screened individuals***:

- Denmark, Finland, France, Sweden, Australia, Argentina, Honduras

Additional countries ***piloting use***:

- Greece, Italy, Spain, Portugal, United Kingdom, Canada, New Zealand, Mexico, El Salvador



Self-collected HPV testing: The Evidence

Shifting data. A few meta-analyses including studies up until 2013 showed mixed results.

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- **2014**: hrHPV testing of self-samples was less sensitive in detecting CIN2+ than clinician samples (ratio 0.88 [95% CI 0.85-0.91]). Specificity of self-samples were also lower than clinician samples (ratio 0.96 [95% CI 0.95-0.97]). *However,* this pooled signal-based assays and PCR-based testing. PCR-based HPV tests showed similar sensitivity and specificity of self-collected and clinician-collected samples.

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Recent meta-analyses continue to support this method.

- **2018**: Signal amplification and PCR-based assay pooled separately. PCR-based HPV tests showed no difference in sensitivity between self-collected and clinician-collected samples (pooled ratio 0.99 [95% CI 0.97-1.02]). PCR-based self-collection was still slightly less specific than clinician-collected (pooled ratio 0.98 [95% CI 0.97-0.99]).
  - Pooled absolute sensitivity of hrHPV PCR tests for CIN2+ (regardless of collection method): **96%**
  - Pooled absolute specificity of hrHPV PCR tests for CIN2+ (regardless of collection method): **79%**

Acceptability

Virtually every study supported improved acceptance of self-collect samples over clinician-collected samples.

- 2019: Systematic review and meta-analysis found greater screening uptake among HPV self-sampling participants compared with control (RR 2.13 [95% CI 1.89-2.40]).
- 2018: Direct offer of self-sampling devices to under-screened individuals generated high participation rates (>75%).
- Primary concern among individuals who preferred provider-collected samples was related to concern about their ability to collect the sample properly to attain accurate results.

Cost

Cost analyses from England, Sweden, and Uganda suggest self-collection HPV testing is cheaper, but not enough data currently for cost analysis in the US.

One study did suggest that community-based (i.e. CHW-driven) HPV self-sampling had the potential to be a useful and cost-effective screening strategy.

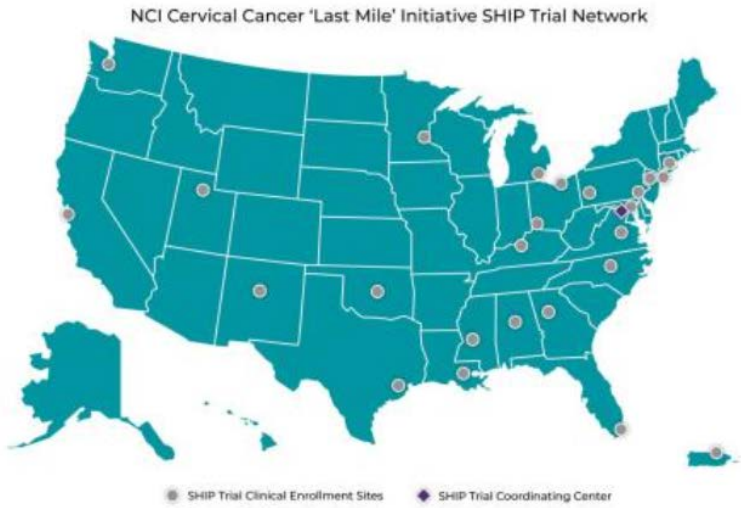
The “Last Mile” Initiative

The National Cancer Institute has developed this initiative, a public-private partnership, with the goal of ensuring that everyone who needs cervical cancer screening can access it.

At-home self-collection vaginal samples have been identified as having significant potential to help reach individuals who have never been screened or are under-screened.

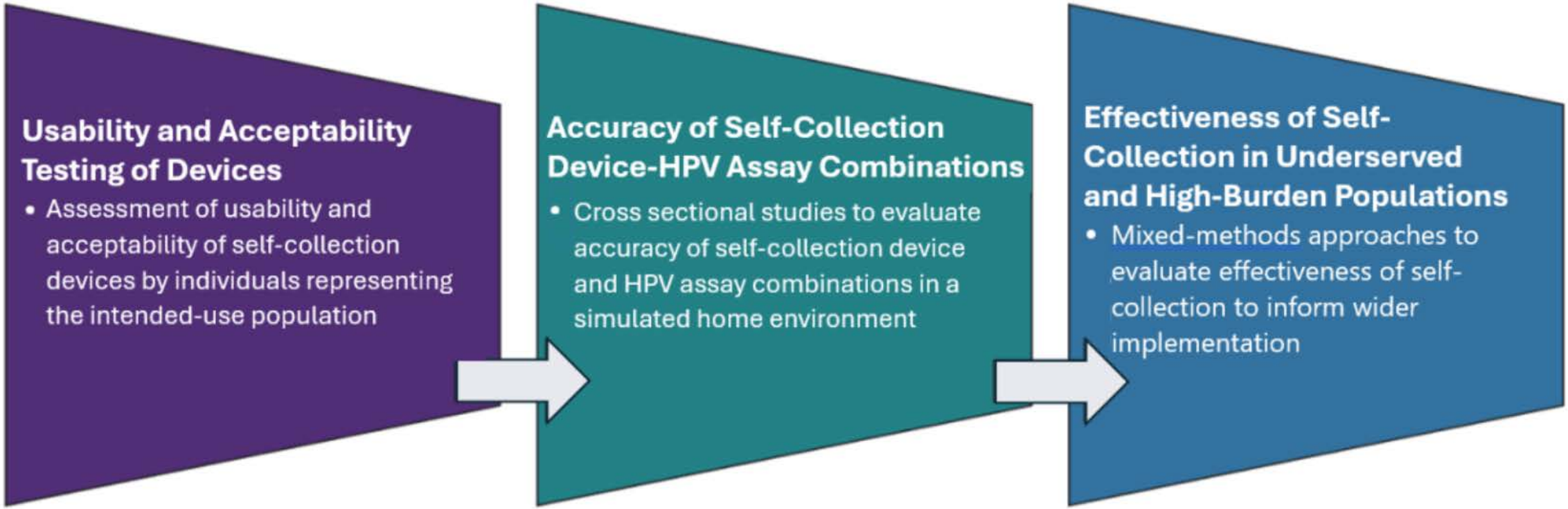
Supporting federal agencies, industry, and professional societies to develop evidence regarding the accuracy and effectiveness of this model.

SHIP trial (**S**elf-collection for **H**PV testing to **I**mprove Cervical Cancer **P**revention) is a US-based nationwide multicenter study to assess multiple self-collection devices and HPV assays. Enrollment began Summer 2024.



NCI Cervical Cancer 'Last Mile' Initiative

Self-Collection for **H**PV testing to **I**mprove Cervical Cancer **P**revention (**SHIP**) Trial



https://prevention.cancer.gov/lastmile

Keep a look out for USPSTF Updates

Final Recommendation Statement

Cervical Cancer: Screening

August 21, 2018

Recommendations made by the USPSTF are independent of the U.S. government. They should not be construed as an official position of the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

This topic is being updated. Please use the link(s) below to see the latest documents available.
Update in Progress for Cervical Cancer: Screening

The Recommendation Development Process

The Task Force follows a multistep process when developing each of its recommendations. Use the graphic below to see where this recommendation is in the development process. Learn about our full development process.

Proposed Key Questions

1. What is the comparative effectiveness of different cervical cancer screening strategies (i.e., test, mode of collection, and interval of testing) on precancer detection, cancer incidence, morbidity, or mortality?
   a. Does the comparative effectiveness vary by population (e.g., by age, gender, race and ethnicity, or human papillomavirus [HPV] immunization status)?
2. What is the test accuracy of and adherence to self-collected high-risk HPV vaginal samples?
   a. Does the test accuracy or adherence vary by population (e.g., by age, gender, race and ethnicity, or HPV immunization status)?
3. What are the comparative harms of different cervical cancer screening strategies (i.e., test, mode of collection, and interval of testing)?
   a. Do the comparative harms vary by population (e.g., by age, gender, race and ethnicity, or HPV immunization status)?

Proposed Contextual Questions

Contextual questions will not be systematically reviewed and are not shown in the Analytic Framework.

1. What is the comparative test accuracy of high-risk HPV tests used in U.S.-based clinical practice?
2. How do different levels of racism and other factors contribute to inequities in cervical cancer incidence and health outcomes? (For example, the increased incidence and mortality from cervical cancer among Black and Latinx populations.)
3. Are there effective interventions that could redress existing inequities in morbidity and mortality from cervical cancer, such as strategies to improve screening rates and followup to abnormal screening results?

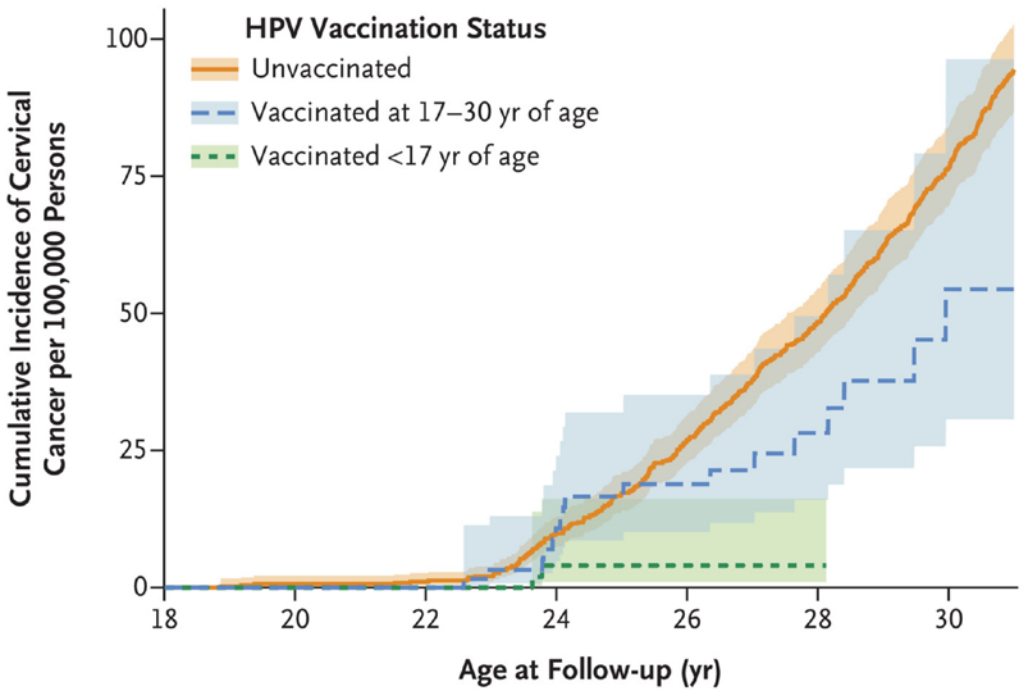
Additional Considerations

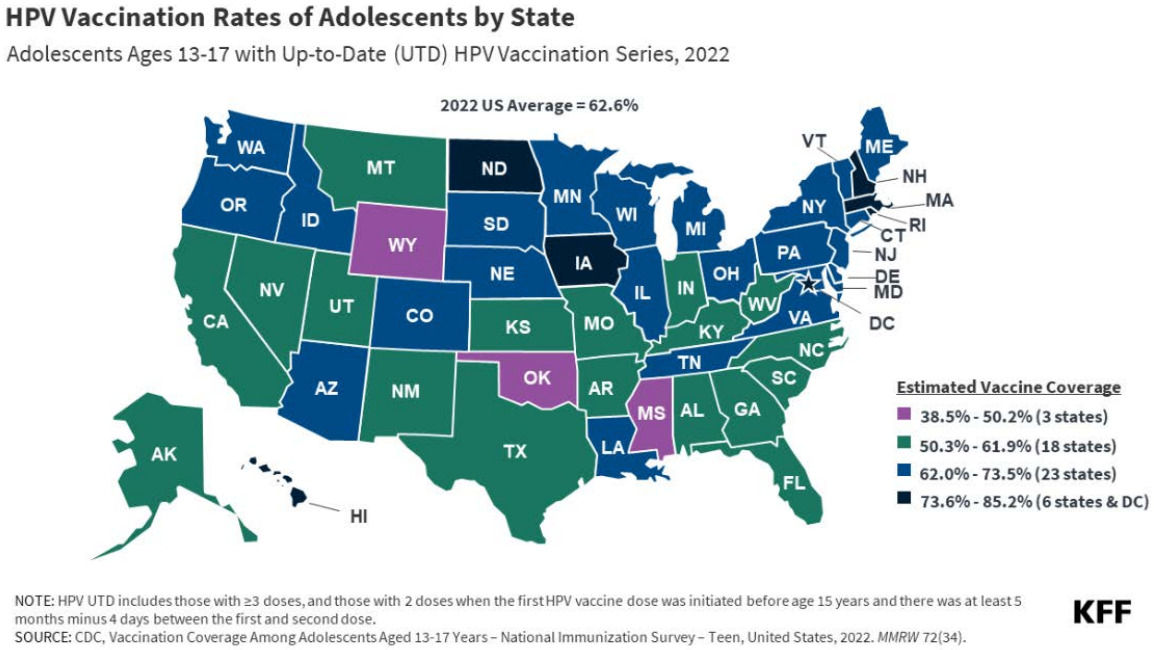
- Self-collection HPV testing may not replace all pelvic exams/clinician-collected testing at this point, but it could help reach un- and under-screened individuals.
- Will need a plan for follow up in the event of a positive result. This includes a pelvic exam.
- Will need to consider access to HPV-based tests—systems, lab accessibility, workflow changes

HPV Vaccine

Guardasil vaccine was initially approved in the early 2000s, with an extended Guardasil-9 approved in 2014.

Significant decreases in cervical cancer incidence with increased vaccination rates.





In Summary

- Anticipating likely approval of in-home self-collection HPV tests as early as 2025. Evidence thus far suggests this method is equally accurate and efficacious to in-office pelvic exam-based testing. This has the potential to reach many more individuals who have never been screened or are under-screened.

Thank You

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