Efficacy of Using HPV Self-Collection Kits to Increase Cervical Cancer Screening Among Under-Screened Women in the United States

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Introduction

Cervical cancer is largely preventable yet continues to disproportionately affect under-screened and medically underserved women. Persistent infection with high-risk human papillomavirus (HPV) causes nearly all cases, but regular screening enables early detection and treatment. Despite these benefits, screening gaps persist, leading to preventable morbidity and mortality. Home-based HPV self-collection kits provide an innovative, patient-centered solution to expand access, and close critical gaps in preventive care.

Objective

To evaluate whether mailed HPV self-collection kits improve cervical cancer screening uptake among under-screened women in the United States.

Design

PubMed Search
Keywords: "cervical cancer," "self-collection," "HPV," "underscreened."

Articles Reviewed
5 randomized controlled trials were reviewed. International studies were excluded.

Finalized Studies
Two RCTs were selected for similarity in baseline characteristics, intervention, follow-up, and outcomes.

Methods

The two RCTs included in this evidence-based literature review included a total of 1,467 under-screened women in the U.S.

- MBMT-3 (North Carolina, n=665) randomized women 2:1 to kits with scheduling assistance or scheduling alone.
- HOME Initiative (Appalachia, n=802) randomized 1:1 to kits with patient navigation or mailed reminders.

Results

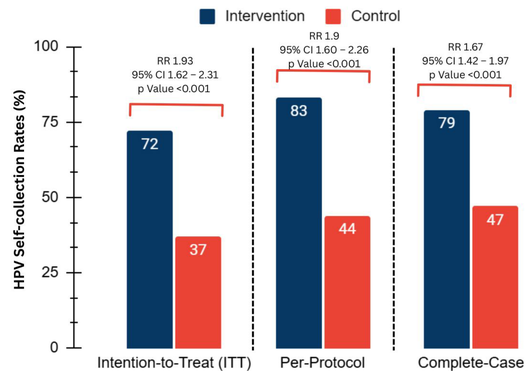

Figure 1: MBMT-3 Pretsch PK et al. Effects of self-collection intervention on uptake of cervical cancer screening by analysis type

Figure 2: MBMT-3 Pretsch PK et al. Subgroup analysis of intervention effect on uptake of cervical cancer screening in intention-to-treat analysis

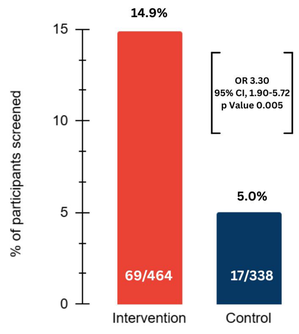

Figure 3: HOME Initiative Reiter PL et al. HPV Self-Collection Kit Return Rates

Validity Analysis

Criteria	MBMT-3 Trial	HOME Initiative
Randomized	Yes	Yes
Concealed Randomization	Yes	Yes
Intention-to-Treat (ITT)	Yes	Yes
Baseline Characteristics	Similar demographics, and eligibility criteria across groups	Similar demographics and eligibility criteria across groups
Equal Treatment	Yes	Yes
Blinded	No	No
Follow-Up	Yes	Yes
Results	Statistically significant screening uptake: 72% vs 37% (RR 1.93, 95% CI 1.62–2.31)	Statistically significant screening uptake: 14.9% vs 5.0% (OR 3.30, 95% CI 1.90–5.72)
Conflict of Interest	Funded by *NCI	Funded by **NIH/NCI
Sample Size	n = 665 *(438 intervention, 227 control)*	n = 802 *(464 intervention, 338 control)*

*NCI: National Cancer Institute; **NIH: National Institutes of Health

Clinical Recommendation and SOR

Clinical Recommendation	Strength of Recommendation (SOR)	Reference
Mailing HPV self-collection kits significantly increases cervical cancer screening uptake among under-screened women in the U.S.	B	Reiter PL et al. (MBMT-3 Trial), Pretsch PK et al. (HOME Initiative)

Discussion

- **Effectiveness**: Across two RCTs (n=1,467), mailed HPV self-collection kits significantly increased cervical cancer screening uptake. High-risk HPV detection (10–16%) highlights strong potential for early intervention.
- **Equity & Relevance**: Kits improve access to preventive care and may help reduce disparities among underserved, rural, and low-income populations. Family physicians are well-positioned to integrate this approach into routine screening.

Future Directions

- **Barriers:** Current cost ($99 insured / $249 uninsured) and low follow-up rates after positive results remain critical barriers. FDA approval of the first fully at-home HPV kit (May 2025) is a breakthrough in preventative care in the U.S., but success depends on improving affordability and patient navigation.
- **Next Steps:** More U.S.-based studies are needed to develop scalable, cost-effective navigation strategies and evaluate long-term outcomes for under-screened populations.

Acknowledgments

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References

1. Pretsch PK, Reiter PL, Shoben AB, Cooper S, Ashcraft AM, McKim Mitchell E, et al. Effect of HPV self-collection kits on cervical cancer screening uptake among under-screened women from low-income US backgrounds (MBMT-3): a phase 3, open-label, randomized controlled trial. *Lancet Public Health*. 2023;8(6):e411-e421. doi:10.1016/S2468-2667(23)00094-3.
2. Reiter PL, Shoben AB, Cooper S, Ashcraft AM, McKim Mitchell E, Dignan M, et al. A mail-based HPV self-collection program to increase cervical cancer screening in Appalachia: results of a group randomized trial. *Cancer Epidemiol Biomarkers Prev*. 2025;34(1):159-165. doi:10.1158/1055-9965.EPI-24-0999. PMID:39445831; PMCID:PMC11717618.

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