

Cervical cancer screening uptake among medically underserved women: A quality improvement opportunity

By Erica A. Newfield, DNP, RN, PHNA-BC; Kelley S. Borella, DNP, CRNP, WHNP-BC; Melanie P. Baucom, DNP, CRNP, FNP-BC; Wendy T. Madden, DNP, RN, OCN; Aimee C. Holland, DNP, CRNP, WHNP-BC, NP-C, FAANP, FAAN; Loretta T. Lee, PhD, RN, CRNP, FNP-BC, CNE

The gaps in cervical cancer screening uptake have severe implications for health outcomes among women within medically underserved populations. Cervical cancer screening is an effective intervention to detect cervical changes early, decreasing mortality risks. This article summarizes current disparities in cervical cancer screening among women in the United States who are unhoused, low income, eligible for Medicaid, Native Americans, and migrant farmworkers. Implications for women's health nurse practitioner practice and leadership in quality improvement initiatives are provided.

KEY WORDS: cervical cancer, screening uptake, disparities, medically underserved

Womens Healthcare. 2023;11(6):24-29. doi: 10.51256/WHC122324

© 2023 HealthCom Media. All rights reserved.



In 2023, an estimated 13,960 new cases of invasive cervical cancer will be diagnosed and approximately 4,310 women will die of the disease.¹ The burden of preventable mortality from cervical cancer disproportionately affects women from medically underserved populations (MUPs).²⁻⁵ Decreased uptake of cervical cancer screening among women within MUPs is a significant contributor to this disparity.⁶ Regular cervical cancer screening reduces the incidence of and mortality from cervical cancer.⁷

Box. Barriers to cervical cancer screening uptake for women^{6,13–17}

- Achieving less than a high school degree, a high school degree, or some college (compared to women who are college graduates)
- Household income levels less than \$50,000 annually
- Being un- or under-insured, or having public insurance, eg, Medicaid
- Being a member of a racial or ethnic minority group
- Rural living
- Identifying as a lesbian/gay woman or transgender man
- Limited English competence

The Health Resources and Services Administration defines an MUP as having a shortage of primary care health services for a specific population subset or an established geographic area.^{8,9} Women who are unhoused, low income, eligible for Medicaid, Native American, and migrant farmworkers are among those considered MUPs.⁸ These groups may face economic, cultural, or linguistic barriers to healthcare.^{8,9} The purpose of this article is to summarize cervical cancer screening uptake disparities in the United States among women within these specific MUPs. Implications for women's health nurse practitioners (WHNPs) at practice, systems, and community levels are provided.

Cervical cancer screening impact and scope of disparity

Among women age 30 years and older, cotesting every 5 years is more sensitive to detect cervical changes than a Pap test alone.⁷ Clinical trials also support screening with an HPV DNA or RNA test alone as a superior screening method capable of detecting high-grade cervical dysplasia.⁷ Cervical cancer mortality in the US has decreased from 2.8 deaths per 100,000 women in 2000 to 2.2 per 100,000 in 2020.¹⁰ Women who have not received adequate screening are most likely to be diagnosed with cervical cancer.¹¹ The US Preventive Services Task Force (USPSTF) cervical

cancer screening recommendation informs adequate cervical cancer screening for average-risk women age 21 to 29 years to be a Pap test every 3 years, and for women age 30 to 65 years either a Pap test every 3 years, a high-risk HPV test every 5 years, or a cotest every 5 years.¹¹ Of females 21 to 65 years who have not had a hysterectomy, 74% completed screening for cervical cancer by the most current USPSTF screening recommendation.¹² This is lower than the 79% Healthy People 2030 screening target.¹²

Women within medically underserved populations

Equitable cervical cancer screening uptake is not a reality across populations in the US. The *Box* lists selected factors contributing to disparities.^{6,13–17} Women within MUPs carry a disproportionate burden of inadequate cervical cancer screening uptake.^{14,18–21} Select MUPs include unhoused individuals, people with low income, those eligible for Medicaid, Native Americans, and migrant farmworkers.⁸

Women experiencing homelessness

Data collected between 2012 and 2014 document 76% of interviewed 21- to 65-year-old homeless women living in New York City's shelters self-reported Pap test completion within the prior 3 years.²² Researchers acknowledge the potential for

over-reporting in this self-reported Pap test data.²² Among a cohort of homeless adults receiving care at Boston Health Care for the Homeless, cervical cancer deaths substantially surpassed expected mortality at the population level, indicating a need to improve cancer screening uptake in this population.³

Researchers have recognized diverse factors contributing to Pap test utilization among homeless women, and have suggested rates may be similar to utilization among women with less than a high school degree and women living below 100% of the federal poverty level (FPL).¹⁸

Lack of knowledge, negative screening experiences, and transportation also are recognized barriers to cervical cancer screening in this population.^{18,23}

Women who have low income and/or are Medicaid eligible

Currently 63% of females with an income less than 200% of the FPL are up to date on cervical cancer screening, compared to 76% among females with an income at 200% or greater.¹⁹ Multiple factors affect cervical cancer screening uptake among women with low incomes. Lack of adequate insurance coverage is consistently associated with lower rates of up-to-date screening.^{23–25}

Breast and cervical cancer screening are Medicaid-covered services in most states.²⁶ Thus Medicaid is critical to mitigating insurance-status-based barriers to cervical cancer screening uptake.¹³ However, disparities in cervical cancer screening persist even among women enrolled in Medicaid, as care coordination and sociocultural barriers to screening endure.²⁰ Enrolled women are disproportionately low income, have less than a high school education, and are racial and ethnic minorities.²⁶

Table. Facilitators to cervical cancer screening uptake for women within medically underserved populations^{20,21,34–38}

Practice level	Culture- and language-appropriate cervical cancer education about risk factors, screening, and treatment Interpreters Shared decision-making conversation(s) about values and health preferences
Systems level	Methods to recognize age-based screening outreach opportunities Outreach to women with few visits with a provider Screening completion incentives Health insurance coverage Health coaches for telephone-based Pap test education, barrier identification/mitigation, and reminders
Community level	Interpreter facilitated group-setting appointments Community-based patient navigators to educate and connect women to screening Community organizations with population-specific connections to provide screening outreach Community-based screening event Outreach house to house Radio screening advertisement Mobile screening opportunities Community-centered information sessions Primary care providers giving care in communities to enhance relationships

Claims data for Medicaid-insured women age 30 to 59 years inform 31% completed two or more Pap tests in a 5-year period (2010–2015) to be adherent with the 3-year screening recommendation, a completion rate lower than women insured commercially (59%).²⁰ Among Medicaid-enrolled women, 41% did not have documentation of a completed Pap test versus 22% in the commercially insured population, despite many having a billable healthcare visit in the 5 years assessed.²⁰ Additionally, claims data-based Pap test completion rates across Medicaid and commercially insured women are lower than rates reflected in self-reported Pap test completion data.²⁰

Native American women

American Indian/Alaska Native (AI/AN) women have higher cervical cancer incidence and distant cervical cancers compared to non-Hispanic White women and later-stage diagnoses.²

They are 34% less likely to com-

plete cervical cancer screening with a Pap test than their White women counterparts.¹⁴ The 2022 Government Performance and Results Act prevention measures reported by the Indian Health Service document that 33% of female patients age 24 through 64 years without a documented history of hysterectomy completed cervical cancer screening with either a Pap test within the prior 3 years or a Pap test with HPV DNA cotest in the prior 5 years.²⁷ Of the eight states with available AI/AN Behavioral Risk Factor Surveillance Survey (BRFSS) Pap test data, 75% have a screening completion percentage lower than the Healthy People 2030 screening target.^{12,28} For AI/AN women residing in the Pacific Northwest, individuals assessed to be current with cervical cancer screening in 2019 range from a high of 65% in Washington to a low of 59% in Idaho.²⁹ These data do show slight increases in current screening across the Pacific Northwest states when compared to 2011.²⁹ For rural

and urban AI women in the southwest US, having a visit with a health-care provider in the previous 12 months is a strong predictor of Pap test use within the past 3 years.³⁰ Among rural AIs in the Southwest, currently having a job and household income are strong predictors.³⁰

Migrant farmworkers

The majority of migrant farmworkers in the US are Hispanic (78%).³¹ The average stage of formal education completed is ninth grade.³¹ Approximately two-thirds (62%) of these workers report Spanish as their primary language, with one-third (32%) reporting that they could speak English “well.”³¹ One-fifth live below the FPL, and overall, only 28% of migrant farmworkers have health insurance for non-work-related injury or illness.³¹ In a review of the available literature, researchers found low English language assimilation, and not possessing health insurance or costs, as barriers to breast and cervical cancer screening among US female Latinx migrant farmworkers.²¹ Additional barriers include lack of correct knowledge about cancer, lack of transportation, limited-service access hours, and fear of the healthcare system.²¹

Implications for WHNPs

The National Breast and Cervical Cancer Early Detection Program (NBCCEDP), an evidence-based program, provides medically underserved women with access to breast and cervical cancer screening.³² The program provides a roadmap WHNPs can use for effecting change in elements impacting screening uptake within practice, community, healthcare systems, and policy.³³ Categorized by practice, systems, and community level, the *Table* lists promising practices implemented

by the NBCCEDP grantees and interventions noted in the literature that the authors of this article suggest aligning with a community-centered screening enhancement model.^{20,21,34-38} WHNPs are able to provide leadership in quality improvement (QI) initiatives for increasing cervical cancer screening.

Practice level

Quality improvement initiatives at the practice level to increase cervical cancer screening uptake include structured strategies to ensure providers impart screening awareness education, encourage clients to have appropriate screening, provide person-centered, culturally competent care that is focused to each client's "needs, barriers and facilitators," make the Pap test visit a positive event, and treat clients with "respect and dignity."^{18,23,39} For example, survey data from New Mexico's Zuni Pueblo Tribe document that having a greater understanding of cervical cancer risk equates to completing screening for cervical cancer.⁴⁰ Other QI initiatives can support provider adherence to current cervical cancer screening and management guidelines, address barriers outside of health like transportation, and facilitate patient self-sampling for high-risk HPV.^{6,41,42} Continuous monitoring and evaluation of current processes support ongoing quality and access improvements and increased uptake of cervical cancer screening.

Systems level

Persistent cervical cancer screening uptake disparities between women from MUPs and majority populations indicate a need for systems-level interventions. Select evidence-based solutions reported in the literature include linking education with navigation support and providing access to

Despite efforts to increase public awareness about the positive impact routine screening plays in preventing the incidence of and mortality from cervical cancer, disparities in screening continue.

cervical cancer screening at Federally Qualified Health Care Centers (FQHCs), systems central to lowering race/ethnicity-based health disparities.^{43,44}

Investigators evaluated the impact of a multicomponent intervention linking culturally appropriate cervical cancer education with navigation support for screening services on cervical cancer screening rates among Korean American women living in the US.⁴³ Participants were provided with a 2-hour educational session presented by bilingual community health educators.⁴³ The intervention significantly increased cervical cancer screening in Korean women and built on similar outcomes from a prior pilot study in the same population.⁴³ WHNPs could partner with bilingual navigators to develop similar QI initiatives for healthcare systems.

Investigators compared population-level Pap test rates to rates among women receiving care at FQHCs.⁴⁴ In this setting, African Americans and Hispanic/Latinos women were more likely than non-Hispanic White women to have received a Pap test.⁴⁴ WHNPs are needed in FQHCs to lead QI initiatives that use all clinic visits as an opportunity to identify individuals due for cervical cancer screening, provide screening at that visit or make a timely appointment to return for screening, and provide targeted client reminder and follow-up interventions.^{6,20}

Community level

The Community Preventive Services Task Force (CPSTF) guides community-based health promotion and disease prevention intervention approaches to improve cervical cancer screening uptake.⁴⁵ A systematic review of articles published from 2010 to 2018 revealed the engagement of community health workers (CHWs) increased cervical cancer screening by a median of 12.8 percentage points compared to no intervention or usual care.⁴⁵ In effect, the CPSTF recommends collaborative practice with CHWs to increase cervical cancer screening uptake for women from MUPs.⁴⁵ Community health workers delivering HPV-self sampling kits to women is a successful strategy to reduce barriers and expand access to cervical cancer screening.⁴⁶ Trusted community members without formalized healthcare education, CHWs can meet women from MUPs where they live, eat, play, work, and worship.⁴⁷ The WHNP, a skilled healthcare provider responsible for diagnosis, psychosocial assessment, and illness management, is well positioned to provide leadership to leverage the CHWs expertise on increasing cervical cancer screening uptake among MUPs.

Conclusion

Despite efforts to increase public awareness about the positive impact routine screening plays in preventing the incidence of and mortality

from cervical cancer, disparities in screening continue. A need for more research to understand facilitators and barriers to cervical cancer screening among MUPs is evident. Additional research evidence will support WHNPs as they lead and develop innovative, culturally competent, evidence-based QI initiatives designed to ensure equitable uptake of cervical cancer screening, thereby mitigating cervical cancer incidence and preventable mortality among MUPs. ■

Erica A. Newfield is Assistant Professor and Kelley S. Borella is Assistant Professor at the University of Alabama at Birmingham. Melanie P. Baucom is Instructor and Wendy T. Madden is Instructor at the University of Alabama at Birmingham. Aimee C. Holland is Professor and Associate Dean of Graduate Clinical Education at the University of Alabama at Birmingham, and Loretta T. Lee is Associate Professor and Vice Chair of the Department of Family, Community and Health Systems at the University of Alabama at Birmingham. The authors have no actual or potential conflicts of interest in relation to the contents of this article.

References

1. Siegel RL, Miller KD, Wagle NS, Jemal A. Cancer statistics, 2023. *CA Cancer J Clin.* 2023;73(1):17-48.
2. Melkonian SC, Chen L, Jim MA, et al. Disparities in incidence and trends of colorectal, lung, female breast, and cervical cancers among non-Hispanic American Indian and Alaska Native people, 1999-2018. *Cancer Causes Control.* 2023;34(8):657-670.
3. Baggett TP, Chang Y, Porneala BC, et al. Disparities in cancer incidence, stage, and mortality at Boston Health Care for the Homeless program. *Am J Prev Med.* 2015;49(5):694-702.
4. Hallowell BD, Endeshaw M, McKenna MT, et al. Cervical cancer death rates among U.S.- and foreign-born women: U.S., 2005-2014. *Am J Prev Med.* 2019;56(6):869-874.
5. Moss JL, Pinto CN, Srinivasan S, et al. Persistent poverty and cancer mortality rates: an analysis of county-level poverty designations. *Cancer Epidemiol Biomarkers Prev.* 2020;29(10):1949-1954.
6. Fuzzell LN, Perkins RB, Christy SM, et al. Cervical cancer screening in the United States: challenges and potential solutions for underscreened groups. *Prev Med.* 2021;144:106400.
7. National Cancer Institute. Cervical Cancer Screening (PDQ®)—Health Professional Version. Updated April 21, 2023. <https://www.cancer.gov/types/cervical/hp/cervical-screening-pdq>.
8. Health Resources & Services Administration. Health Workforce. What Is Shortage Designation? Last reviewed June 2023. <https://bhwhrsa.gov/workforce-shortage-areas/shortage-designation>.
9. Health Resources & Services Administration. Health Workforce. Glossary. Medically Underserved Populations (MUPs). Last reviewed December 2020. <https://bhwhrsa.gov/glossary#m>.
10. National Cancer Institute. Surveillance, Epidemiology, and End Results Program. Cancer Stat Facts: Cervical Cancer. <https://seer.cancer.gov/statfacts/html/cervix.html>.
11. US Preventive Services Task Force; Curry SJ, Krist AH, Owens DK, et al. Screening for cervical cancer: US Preventive Services Task Force Recommendation Statement. *JAMA.* 2018;320(7):674-686.
12. US Department of Health and Human Services. Office of Disease Prevention and Health Promotion. Healthy People 2030. Increase the proportion of females who get screened for cervical cancer. Data. <https://health.gov/healthypeople/objectives-and-data/browse-objectives/cancer/increase-proportion-females-who-get-screened-cervical-cancer-c-09/data>.
13. Benavidez GA, Zgodic A, Zahnd WE, Eberth JM. Disparities in meeting USPSTF breast, cervical, and colorectal cancer screening guidelines among women in the United States. *Prev Chronic Dis.* 2021;18:E37.
14. McDaniel CC, Hallam HH, Cadwalader T, et al. Persistent racial disparities in cervical cancer screening with Pap test. *Prev Med Rep.* 2021;24:101652.
15. Johnson NL, Head KJ, Scott SF, Zimet GD. Persistent disparities in cervical cancer screening uptake: knowledge and sociodemographic determinants of Papanicolaou and human papillomavirus testing among women in the United States. *Public Health Rep.* 2020;135(4):483-491.
16. Spencer JC, Kim JJ, Tiro JA, et al. Racial and ethnic disparities in cervical cancer screening from three U.S. healthcare settings. *Am J Prev Med.* 2023;S0749-3797(23)00202-7.
17. Locklar LRB, Do DP. Rural-urban differences in HPV testing for cervical cancer screening. *J Rural Health.* 2022;38(2):409-415.
18. Mings J, Soto Mas F. Barriers to pap smear among homeless women at Albuquerque Healthcare for the Homeless. *J Community Health.* 2019;44(6):1185-1192.
19. National Cancer Institute. Cancer Trends Progress Report. Cervical cancer screening. Updated August 2023. https://progressreport.cancer.gov/detection/cervical_cancer.
20. Bonafede MM, Miller JD, Pohlman SK, et al. Breast, cervical, and colorectal cancer screening: patterns among women with Medicaid and commercial insurance. *Am J Prev Med.* 2019;57(3):394-402.
21. Pariser A, Hirko KA, Munoz GM, et al. Barriers to access for cervical and breast cancer screenings among female Latinx migrant farmworkers in the US: a scoping literature review. *J Prim Care Community Health.* 2022;13:21501319211073252.
22. Asgary R, Alcabas A, Feldman R, et al. Cervical cancer screening among homeless women of New York City shelters. *Matern Child Health J.* 2016;20(6):1143-1150.
23. Suk R, Hong YR, Rajan SS, et al. Assessment of US Preventive Services Task Force guideline-concordant cervical cancer screening rates and reasons for underscreening by age, race and ethnicity, sexual orientation, rurality, and insurance, 2005 to 2019. *JAMA Netw Open.* 2022;5(1):e2143582.
24. Harper DM, Plegue M, Harnes KM, et al. Three large scale surveys highlight the complexity of cervical cancer under-screening among women 45-65

- years of age in the United States. *Prev Med.* 2020;130:105880.
25. Zhao G, Okoro CA, Li J, Town M. Health insurance status and clinical cancer screenings among U.S. adults. *Am J Prev Med.* 2018;54(1):e11-e19.
 26. KFF. Women's Health Policy. Medicaid coverage for women. February 17, 2022. <https://www.kff.org/womens-health-policy/issue-brief/medicaid-coverage-for-women/>.
 27. US Department of Health and Human Services. Indian Health Service. Government Performance and Results Act. GPRA Report Summary 2022. <https://www.ihs.gov/quality/government-performance-and-results-act-gpra/gpra-report-summary-2022/>.
 28. Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division of Population Health. BRFSS prevalence and trends data. Reviewed July 19, 2023. <https://www.cdc.gov/brfss/brfssprevalence/>.
 29. Bruegl AS, Emerson J, Tirumala K. Persistent disparities of cervical cancer among American Indians/Alaska natives: are we maximizing prevention tools? *Gynecol Oncol.* 2023;168:56-61.
 30. Nuno T, Gerald JK, Harris R, et al. Comparison of breast and cervical cancer screening utilization among rural and urban Hispanic and American Indian women in the southwestern United States. *Cancer Causes Control.* 2012;23(8):1333-1341.
 31. Gold A, Fung W, Gabbard S, Carroll D. Findings from the National Agricultural Workers Survey (NAWS) 2019-2020: A Demographic and Employment Profile of United States Farmworkers. Research Report No. 16. January 2022.
 32. Miller JW, Plescia M, Ekwueme DU. Public health national approach to reducing breast and cervical cancer disparities. *Cancer.* 2014;120(suppl 16):2537-2539.
 33. Centers for Disease Control and Prevention. National Breast and Cervical Cancer Early Detection Program. About the Program. Last reviewed March 28, 2023. <https://www.cdc.gov/cancer/nbccedp/about.htm>.
 34. Lofters AK, Baker NA, Corrado AM, et al. Care in the community: opportunities to improve cancer screening uptake for people living with low income. *Prev Med Rep.* 2021;24:101622.
 35. Centers for Disease Control and Prevention. National Breast and Cervical Cancer Early Detection Program. Increasing outreach to underserved groups. Last reviewed March 28, 2023. <https://www.cdc.gov/cancer/nbccedp/success/underserved-groups.htm>.
 36. Kuroki LM, Massad LS, Woolfolk C, et al. Cervical cancer risk and screening among women seeking assistance with basic needs. *Am J Obstet Gynecol.* 2021;224(4):368.e1-368.e8.
 37. Maxwell AE, Young S, Rabelo Vega R, et al. Building capacity to address women's health issues in the Mixtec and Zapotec community. *Womens Health Issues.* 2015;25(4):403-409.
 38. Breault P, Nault J, Audette M, et al. Improving preventive screening with Indigenous peoples. *Can Fam Physician.* 2021;67(8):588-593.
 39. Peterson EB, Ostroff JS, DuHamel KN, et al. Impact of provider-patient communication on cancer screening adherence: a systematic review. *Prev Med.* 2016;93:96-105.
 40. Cartwright K, Kosich M, Gonya M, et al. Cervical cancer knowledge and screening patterns in Zuni Pueblo women in the Southwest United States. *J Cancer Educ.* 2023:1-8.
 41. Dillon J, Chen L, Melamed A, et al. Patterns of cervical cancer screening among Medicaid beneficiaries. *BJOG.* 2022;129(7):1104-1111.
 42. Wittenberg E, Bharel M, Bridges JF, et al. Using best-worst scaling to understand patient priorities: a case example of Papanicolaou tests for homeless women. *Ann Fam Med.* 2016;14(4):359-364.
 43. Fang CY, Ma GX, Handorf EA, et al. Addressing multilevel barriers to cervical cancer screening in Korean American women: a randomized trial of a community-based intervention. *Cancer.* 2017;123(6):1018-1026.
 44. Lee DC, Liang H, Chen N, et al. Cancer screening among racial/ethnic groups in health centers. *Int J Equity Health.* 2020;19(1):43.
 45. The Community Guide. Cancer screening: Interventions engaging community health workers — cervical cancer. Last reviewed September 24, 2020. <https://www.thecommunityguide.org/findings/cancer-screening-interventions-engaging-community-health-workers-cervical-cancer.html>.
 46. Saraiya M, Senkomago V. A door-to-door approach to cervical cancer screening. *Lancet Glob Health.* 2015;3(2):e63-e64.
 47. Perry HB, Chowdhury M, Were M, et al. Community health workers at the dawn of a new era: 11. CHWs leading the way to "Health for All." *Health Res Policy Syst.* 2021;19(suppl 3):111.