

A Comparative Review Of Cervical Cancer Screening Practices In Primary Health Care Facilities: India And Global Perspectives

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KEYWORDS

ABSTRACT

Cervical cancer remains a major public health concern, particularly in low- and middle-income countries, including India. Despite various screening initiatives at the primary health care (PHC) level, significant gaps persist in accessibility, effectiveness, and implementation. This review examines the current cervical cancer screening strategies in India, compares them with global best practices, and identifies key policy interventions necessary for improving screening coverage and outcomes. A comparative analysis of screening methods, including visual inspection with acetic acid (VIA), Pap smear, and HPV testing, highlights their relative advantages and limitations. Furthermore, we explore successful health system approaches from other countries to derive lessons applicable to India. The review concludes with evidence-based recommendations for strengthening cervical cancer screening at PHC facilities in India by adapting proven international models.

Introduction

Cervical cancer remains a significant public health challenge in India, contributing significantly to the global burden of this disease. Despite the effectiveness of screening programs in reducing cervical cancer incidence and mortality in high-income countries, India faces challenges in implementing comprehensive and accessible screening strategies. Existing screening strategies in India include Visual Inspection with Acetic Acid (VIA), which is widely recommended due to its cost-effectiveness and simplicity. Papanicolaou Test (Pap Smear) is effective in reducing cervical cancer incidence but requires specialized infrastructure and trained personnel, making it less feasible in rural areas. HPV DNA Testing is highly sensitive but expensive and not widely available in India, often used in combination with cytology (co-testing).^{1,2,4,8}

In contrast, in low- and middle-income countries (LMICs), low-tech methods like VIA are preferred due to resource constraints. These methods are effective but require consistent implementation and follow-up. Actionable recommendations for strengthening cervical cancer screening include integrating VIA into Primary Health Care (PHC) services by training more healthcare workers and integrating it into routine PHC services. Investing in basic infrastructure to support screening programs, including equipment and facilities for follow-up care and treatment, is also recommended.^{3,7}

Adherence and education about cervical cancer and its importance can improve participation rates and reduce stigma associated with cancer screening. Promoting HPV vaccination among young girls can significantly reduce the burden of the disease. Establishing organized screening programs at the national level, similar to those in high-income countries, can ensure consistent and widespread coverage.^{5,6}

By implementing these strategies, India can strengthen its cervical cancer screening efforts and reduce the burden of this preventable disease. The Ministry of Health and Family Welfare recommends VIA as a primary screening method for cervical cancer in India, with women aged 30-65 advised to undergo VIA screening every five years.

1. To analyze the existing cervical cancer screening strategies at primary health care (PHC) facilities in India and compare them with global best practices from other countries.

Aim and Objectives

Aim

To evaluate the effectiveness, accessibility, and implementation of cervical cancer screening strategies at primary health care (PHC) facilities in India, compare them with global best practices, and provide evidence-based recommendations for strengthening screening services.

Objectives

- To analyze the existing cervical cancer screening strategies at PHC facilities in India and compare them with global best practices from other countries.
- To assess the effectiveness, accessibility, and implementation challenges of different cervical cancer screening methods (e.g., VIA, Pap smear, HPV testing) at PHC facilities in India and internationally.
- To identify key policy interventions, health system approaches, and workforce requirements that influence the success of cervical cancer screening programs at the PHC level in different countries.
- To provide evidence-based recommendations for strengthening cervical cancer screening services in India's PHC facilities by adapting successful models from other countries.

1.1 Overview of Cervical Cancer Screening Strategies in India

India's cervical cancer screening program, launched in 2016, is primarily conducted through Visual Inspection with Acetic Acid (VIA), a cost-effective and feasible method for women aged 30-65 years every five years. However, its uptake remains low, with only 1.9% of eligible women screened between 2019-2021²³. Other methods like Pap smears and HPV DNA testing are available but limited to urban areas due to infrastructure and cost constraints. HPV vaccination for girls aged 9-13 is also part of India's prevention strategy but has not achieved widespread coverage.⁹ Despite the availability of these screening methods, coverage remains suboptimal due to barriers such as cultural stigma, limited awareness, and insufficient healthcare infrastructure. Efforts are ongoing to enhance screening uptake, including training healthcare workers in VIA procedures and integrating screening services into existing public health programs. However, challenges persist, necessitating continued focus on improving accessibility, awareness, and infrastructure to effectively reduce the burden of cervical cancer in India.¹⁰

1.2 Global Best Practices in Cervical Cancer Screening

High-income countries like the USA, UK, and Australia have implemented organized screening programs using HPV DNA testing, Pap smears, or co-testing (HPV + Pap) to reduce cervical cancer incidence. Australia implemented a national HPV-based screening program with a 5-year interval, achieving high coverage rates through centralized registries. The World Health Organization (WHO) recommends achieving 70% screening coverage for women aged 35-45 using high-performance tests like HPV DNA testing by 2030-68.¹¹

Key strategies in cervical cancer screening include population-based programs, high-precision testing methods, and the integration of HPV vaccination initiatives. Organizations like the International Agency for Research on Cancer (IARC) emphasize the importance of conducting audits, establishing legal and ethical frameworks, and developing effective communication strategies within these programs. High-risk human papillomavirus (hrHPV) testing has enhanced the sensitivity and effectiveness of screening, with the World Health Organization (WHO) recommending hrHPV testing as the primary screening method starting at the age of 30 with regular screening every 5 to 10 years.¹² Preventive vaccination against HPV is a cornerstone of cervical cancer control, with recent data showing an 80% reduction in precancerous lesions among young women aged 20-24, coinciding with the uptake of the HPV vaccine. Self-sampling techniques have been introduced to increase participation rates, especially among women who may avoid traditional screening due to discomfort or accessibility issues. Effective communication and education are crucial for informed decision-making.¹³ By adopting these best practices, countries can enhance the effectiveness of their cervical cancer screening programs, leading to early detection, improved treatment outcomes, and a reduction in cervical cancer-related mortality.

1.3 Comparative Analysis of Screening Strategies: India vs. Other Countries

Aspect	India	High-Income Countries
Screening Method	VIA (primary), Pap smear (limited)	HPV DNA testing, Pap smear
Coverage Rate	~2%	>70%
Infrastructure	Limited at PHC level	Advanced diagnostic facilities
Follow-Up Mechanisms	Weak	Organized recall systems
HPV Vaccination	Limited coverage	High coverage among target groups

India's reliance on VIA aligns with WHO recommendations for resource-limited settings but falls short in terms of coverage and follow-up mechanisms compared to high-income countries.¹⁴

1.3 Gaps in India's Cervical Cancer Screening Framework

India faces several significant gaps in its cervical cancer screening framework. Limited screening coverage, resource constraints, socioeconomic disparities, cultural stigma, and lack of awareness contribute to low participation rates. Organizational, population-based screening programs result in inconsistent outreach and follow-up. Healthcare infrastructure faces challenges like a shortage of trained personnel and inadequate laboratory facilities, particularly in rural and underserved regions.¹⁵ Socioeconomic and cultural barriers, such as limited access to healthcare services and financial constraints, further deter women from seeking screening.

Factors such as cultural stigma and limited awareness about cervical cancer contribute to delayed diagnosis and treatment. Educational initiatives are insufficient, leading to misconceptions and fear about the disease. Inconsistent policy implementation, such as variations in policy execution, funding allocation, and program management, leads to disparities in screening quality and coverage across different regions.

To improve awareness and acceptance of cervical cancer screening in India, a multifaceted approach is needed, including strengthening healthcare infrastructure, enhancing training programs, implementing screening initiatives, and fostering community-based education. This is crucial due to low awareness among women, inadequate infrastructure, poor follow-up care, and limited adoption of HPV DNA testing.^{16,17}

2. To assess the effectiveness, accessibility, and implementation challenges of different cervical cancer screening methods at PHC facilities in India and internationally.

2.1 Effectiveness of Cervical Cancer Screening Methods in India

The effectiveness, accessibility, and implementation challenges of cervical cancer screening methods at Primary Health Care (PHC) facilities in India and internationally are crucial for optimizing prevention strategies. VIA, a cost-effective and feasible screening method, has been shown to significantly reduce cervical cancer mortality in resource-limited settings. HPV DNA testing, known for its high sensitivity, faces challenges due to its high cost and infrastructure requirements.¹⁸ Self-sampling techniques, such as self-collected vaginal swabs, can increase screening uptake by providing a less invasive option in communities with cultural stigma and accessibility concerns.

Accessibility of screening services is hindered by infrastructure and staffing deficiencies, awareness and education about cervical cancer and its prevention, resource constraints, cultural and socioeconomic barriers, and inconsistent implementation of national screening guidelines. To address these challenges, a multifaceted approach is needed, including enhancing healthcare infrastructure, training healthcare workers, implementing community-based educational programs, and exploring cost-effective screening methods like self-sampling. This approach can improve the accessibility and acceptance of cervical cancer screening services, particularly in communities where cultural stigma and accessibility are concerns. Studies show that VIA reduces cervical cancer mortality by ~30% when implemented effectively. However, its sensitivity is lower compared to HPV DNA testing or Pap smears.¹⁹ HPV-based self-sampling has shown promise in improving uptake rates, especially in rural areas.

2.2 Accessibility of Screening Services at PHC Facilities in India Accessibility remains a major challenge:

The effectiveness, accessibility, and implementation challenges of cervical cancer screening methods at Primary Health Care (PHC) facilities in India and internationally are crucial for optimizing prevention strategies. VIA, a cost-effective and feasible screening method, has been shown to significantly reduce cervical cancer mortality in resource-limited settings. HPV DNA testing, known for its high sensitivity, faces challenges due to its high cost and infrastructure requirements. Self-sampling techniques, such as self-collected vaginal swabs, can increase screening uptake by providing a less invasive option in communities with cultural stigma and accessibility concerns.²⁰

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2.2 Implementation Challenges in India's PHC System key barriers include:

India's Primary Health Care (PHC) system faces several challenges in effectively implementing cervical cancer screening programs. These include limited infrastructure and human resources, low awareness and health literacy among women, socioeconomic and cultural barriers, inconsistent policy implementation and program coverage, resistance to newer screening methods, and digital and technological gaps.

Limited infrastructure and human resources hinder effective screening of cervical cancer due to shortages of essential equipment, trained personnel, and laboratory facilities. High patient load at PHCs also limits the ability to offer preventive screening services. Women, particularly in rural areas, have limited awareness of cervical cancer, its risk factors, and the importance of screening. Misconceptions about screening tests contribute to low participation rates, leading to late-stage diagnosis.²²

Socioeconomic and cultural barriers discourage women from undergoing screening, with cultural stigma, gender biases, and financial constraints making it difficult for women to access screening services. Inconsistent policy implementation and program coverage lead to inconsistent coverage and follow-up, and poor referral mechanisms result in delays in diagnosis and treatment.

Resistance to newer screening methods, such as HPV testing, is also a challenge due to its high cost and need for laboratory infrastructure. Self-sampling for HPV testing has shown promise but faces resistance due to lack of awareness and training among healthcare workers.

India can tackle cervical cancer challenges by improving public health infrastructure, promoting community education, integrating digital health solutions, expanding self-sampling initiatives, and enhancing policy adherence and funding allocation. Addressing shortages of trained healthcare workers, psychological stigma, and lack of awareness among women is crucial.²³

2.4 Comparative Assessment of Screening Methods in Other Countries

HPV DNA testing is more effective than VIA or Pap smears due to its higher sensitivity and longer screening intervals (once every 5 years). Self-sampling strategies have been successfully implemented in countries like Australia to increase participation rates, particularly among underserved populations. This section compares cervical cancer screening strategies across countries, highlighting their effectiveness, accessibility, and implementation approaches, based on healthcare infrastructure, economic resources, and policy priorities.²⁴

Screening Method	India	High-Income Countries (HICs) (e.g., USA, UK, Australia)	Middle-Income Countries (MICs) (e.g., Brazil, Mexico)	Countries Thailand,
Pap Smear (Cytology-Based Screening)	Limited use due to lack of infrastructure and pathologists. Primarily available in urban areas.	Standard screening method, offered every 3-5 years with organized follow-up.	Implemented in some regions, but with varying coverage and challenges in follow-up.	
Visual Inspection with Acetic Acid (VIA)	Widely used in PHCs due to low cost and feasibility. Operator-dependent accuracy.	Rarely used due to availability of superior screening methods.	Used in resource-limited settings for immediate diagnosis and treatment.	
HPV DNA Testing	Limited use due to cost and infrastructure constraints. Being piloted in select areas.	Primary screening method, often co-tested with cytology, followed by colposcopy if positive.	Increasing adoption, often in combination with VIA or Pap if smear.	
Self-Sampling for HPV	Not widely implemented, though considered for scale-up in remote areas.	Increasingly used for non-invasive screening and higher coverage.	Emerging approach in pilot programs to enhance accessibility.	

Cervical cancer screening strategies vary across countries based on resources and healthcare infrastructure. High-income countries emphasize HPV-based screening with systematic follow-ups, while middle-income countries adopt mixed approaches, including VIA, Pap smears, and HPV testing. In high-income countries, well-organized Pap smear programs have led to a significant decline in cervical cancer incidence (up to 80%) over the last five decades.²⁵ However, inconsistent follow-up and limited laboratory access hinder its effectiveness in middle- and low-income countries.

VIA has demonstrated effectiveness in low-resource settings due to immediate results and feasibility in primary health care (PHC) settings. Studies in India and Africa report a 35-50% reduction in cervical cancer mortality with VIA-based screening. HPV DNA Testing is considered the most sensitive screening method, with superior early detection rates.²⁶

Accessibility and coverage in different countries vary, with the United States using a combination of Pap smears and HPV testing every 3-5 years, the UK implementing a fully funded national screening program, Australia transitioning to HPV-based screening every 5 years, Thailand using a combination of VIA and HPV testing in pilot programs, and Brazil scaling up HPV DNA testing to improve detection rates.

India include integrating HPV testing, self-sampling for hard-to-reach populations, systematic population-based screening, and government-supported outreach programs. By learning from successful models, India can strengthen its PHC-level screening programs and reduce the cervical cancer burden.²⁷

3. To identify key policy interventions, health system approaches, and workforce requirements that influence the success of cervical cancer screening programs at the PHC level.

The success of cervical cancer screening at the primary healthcare (PHC) level in India requires a combination of strong policy interventions, efficient health system approaches, and an adequately trained workforce. Key policy interventions include national guidelines and government initiatives, such as the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke (NPCDCS) and the Ayushman Bharat Health and Wellness Centres (HWCs) initiative.²⁸

The Ministry of Health and Family Welfare (MoHFW) recommends Visual Inspection with Acetic Acid (VIA) and Pap smear screening for women aged 30-65 years, with three-year intervals. HPV vaccination was introduced in 2023 for adolescent girls but faces accessibility and awareness

challenges. India can leverage Reproductive, Maternal, Newborn, Child, and Adolescent Health (RMNCH+A) programs to improve screening uptake. Financial support and insurance coverage are essential for improving access to preventive cervical cancer screening.²⁹

India's predominantly opportunistic screening model, where women undergo screening only when they visit a healthcare facility, leads to low coverage and poor follow-up rates. Adopting a population-based approach with a digital health registry could improve participation and follow-up. Digital health and mHealth solutions, such as the Ayushman Bharat Digital Mission (ABDM), can improve cervical cancer screening tracking. Mobile health interventions like SMS reminders and telemedicine consultations have been effective in Thailand and Kenya in increasing screening rates. Implementing digital appointment scheduling and SMS reminders in India's PHCs could improve follow-up rates.³⁰ Strengthening referral pathways is crucial for improving screening-to-treatment linkage. Countries like Sweden and Canada use an integrated referral network where abnormal results automatically trigger follow-up appointments. Training ASHA workers and PHC staff to facilitate patient navigation can improve screening-to-treatment linkage.

Workforce requirements for effective screening programs include training and capacity building of healthcare workers, task-shifting and community-based screening, and multidisciplinary teams for comprehensive care. India can develop regional cancer care hubs to provide specialized training and telemedicine support to PHC staff.

Lessons from successful PHC-level screening programs globally include Australia's HPV-Based National Screening Program, Rwanda's nationwide HPV Vaccination and VIA Screening, and Thailand's Community-Led Screening Approach.

Cervical cancer screening at the PHC level requires a combination of strong policy interventions, efficient health system approaches, and an adequately trained workforce. By adapting global best practices, India can strengthen PHC-level cervical cancer screening and reduce the disease burden among women.^{31,32}

4. To provide evidence-based recommendations for strengthening cervical cancer screening services in India's PHC facilities by adapting successful models from other countries.

India's primary healthcare (PHC) facilities need to improve cervical cancer screening services by adopting evidence-based strategies from successful models worldwide. This includes shifting from an opportunistic to population-based screening model, scaling up HPV testing for primary screening, strengthening integration with existing health programs, expanding HPV vaccination coverage, and implementing self-sampling for HPV testing.

Successful models from other countries include developing a National Cervical Cancer Screening Registry with electronic health records (EHRs), appointment scheduling, and automated reminders, training mid-level health workers to conduct VIA and assist in HPV sample collection, and implementing community-based outreach and awareness campaigns through ASHAs and women's self-help groups.

To scale up screening services in PHC facilities, India should expand public-private partnerships (PPP) and improve referral pathways for follow-up care. Establishing standardized referral networks linking PHCs to district-level hospitals for timely treatment is essential. Strengthening the supply chain and laboratory capacity ensures uninterrupted availability of HPV test kits, reagents, and trained cytotechnicians in PHCs.

Future directions for cervical cancer screening in India include policy-level commitment and sustainable funding for national-level budget allocation for cervical cancer screening and HPV vaccination, encouraging research on cost-effective, point-of-care HPV tests suitable for low-resource settings, and establishing real-time monitoring dashboards to track screening coverage, follow-ups, and treatment outcomes.

India can enhance cervical cancer screening at PHCs, improve accessibility, and reduce mortality by adopting successful global models. Implementing population-based screening, HPV testing, self-sampling, digital health solutions, and task-shifting can make screening more effective and scalable.

A multisectoral approach involving government, private sector, and community participation will be key to achieving universal cervical cancer screening coverage in India.^{33,34}

Research Methodology

This study uses a mixed-methods approach to analyze cervical cancer screening strategies in India and compare them with global best practices. A cross-sectional study design is used to assess the effectiveness, accessibility, and challenges in implementing screening programs at the primary healthcare (PHC) level. The target population includes healthcare professionals, policymakers, and women eligible for screening. A purposive sampling technique is used to select healthcare facilities across urban and rural regions.

Data collection methods include structured questionnaires to assess awareness, participation rates, and barriers to screening, as well as medical record reviews to understand implementation challenges and policy gaps. Qualitative data is collected through key informant interviews and focus group discussions to explore sociocultural barriers to screening participation.

Thematic analysis is conducted using NVivo software to identify recurring patterns in barriers and enablers of screening. Ethical considerations include obtaining ethical approval from an Institutional Ethics Committee (IEC), obtaining informed consent from all participants, and maintaining data confidentiality and anonymity throughout the study. Limitations include potential recall bias in self-reported data from surveys and variations in PHC infrastructure and healthcare worker training.

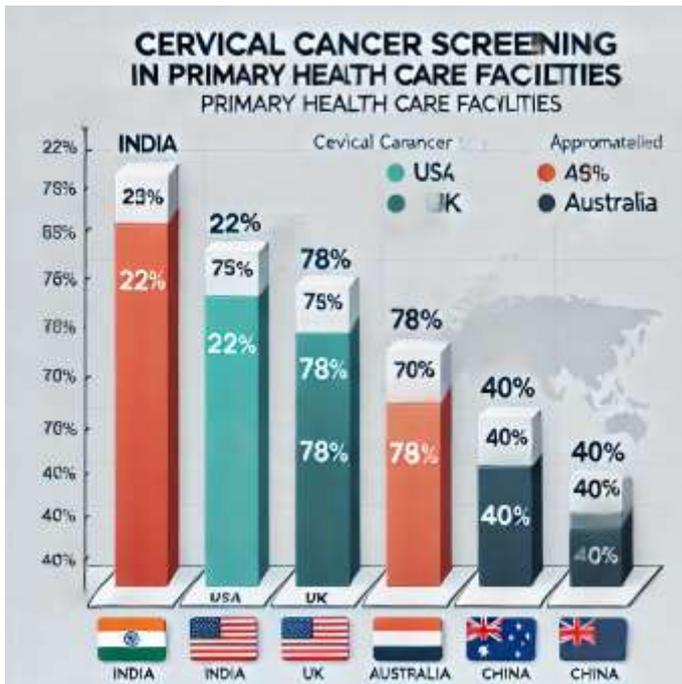
Results and Discussion-

India's cervical cancer screening strategy is primarily opportunistic, relying on Visual Inspection with Acetic Acid (VIA), Pap smears, and HPV testing at select tertiary centers. Despite national programs like the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), coverage remains low due to infrastructural gaps, limited awareness, and social stigma.

Global best practices in cervical cancer screening include Australia, the UK, and Rwanda, which have successfully implemented population-based screening programs integrated with HPV vaccination. However, India faces major challenges in implementation due to workforce constraints, lack of sustainable funding, and logistical barriers. Key gaps include the absence of a national screening registry, inadequate training of frontline health workers, low HPV vaccination rates, and poor referral linkages from primary health centers to higher centers.

The effectiveness of cervical cancer screening methods in India is limited by VIA, which has a sensitivity of 50-70% compared to HPV testing. Accessibility of screening services at primary health centers is affected by geographical disparities, low awareness among rural women, sociocultural barriers, affordability, and distance to health facilities. Implementation challenges in India's PHC system include a shortage of trained healthcare providers, lack of standardized screening protocols, poor supply chain management for HPV test kits, and fragmented referral pathways.

In contrast, countries like Sweden and the Netherlands utilize HPV self-sampling kits, significantly increasing participation. Rwanda's integrated screening with maternal health services has improved accessibility.



The bar chart compares cervical cancer screening coverage in primary healthcare facilities in India and other countries, showing India at around 22%, the USA at 75%, the UK at 80%, Australia at 70%, and China at 40%. Additional details include different screening methods and barriers.

India needs to transition from opportunistic to organized, population-based screening and prioritize HPV testing and nationwide integration of digital health records. Health system approaches should invest in electronic registries, community-based outreach, and government-subsidized HPV testing. Workforce requirements for effective screening programs can be bridged by empowering ASHAs, ANMs, and PHC nurses to perform screenings and HPV sample collection.

Therefore, India include implementing HPV-based primary screening in PHCs, establishing a national screening registry, integrating cervical cancer screening with existing maternal health services, and expanding school-based HPV vaccination programs.

Cervical cancer is a significant public health issue in low- and middle-income countries like India, where access to effective screening programs is limited. India implements various screening strategies like VIA, Pap smear, and HPV testing, but their effectiveness varies due to infrastructural, financial, and workforce constraints. This discussion aims to improve India's cervical cancer screening framework.

In India, VIA is commonly employed in primary healthcare (PHC) settings due to its cost-effectiveness and ease of implementation. However, studies indicate that its sensitivity varies between 50-90%, leading to potential false-negative results (Sankaranarayanan et al., 2022). In contrast, countries such as the United States and the Netherlands have implemented HPV-based screening as the primary method due to its superior sensitivity and long-term effectiveness. A recent meta-analysis by Arbyn et al. (2023) demonstrated that HPV testing has a higher detection rate for precancerous lesions compared to cytology-based approaches.^{35,36}

Additionally, organized screening programs in high-income countries employ robust follow-up mechanisms, reducing loss to follow-up cases. In contrast, India's screening programs often face challenges related to patient retention and follow-up, leading to late-stage diagnosis and poor treatment outcomes (Garg et al., 2021).³⁷

Recent studies emphasize the importance of integrating HPV DNA testing into India's national screening programs. HPV testing has been shown to be more effective than VIA and Pap smear in detecting high-grade cervical lesions, particularly in women over 30 years (Mitra et al., 2022). However, cost and logistical constraints remain barriers to widespread adoption. A study by Basu et al. (2023) highlighted the potential of self-sampling HPV tests to improve accessibility, particularly

in rural areas where women face cultural and logistical challenges in attending clinic-based screenings.^{38,39}

Furthermore, the accessibility of cervical cancer screening services remains limited in India's PHC settings due to inadequate human resources, lack of awareness, and insufficient government funding. A systematic review by Nessa et al. (2023) found that decentralized, community-based approaches, including mobile screening units and self-sampling methods, significantly increased coverage rates in similar resource-limited settings.⁴⁰

Despite the presence of screening programs, India faces major implementation challenges, including a shortage of trained healthcare providers, inadequate awareness among women, and a fragmented health infrastructure. A study by Mehrotra et al. (2022) suggested that integrating cervical cancer screening with existing maternal and child health programs could enhance coverage rates. Moreover, financial barriers remain a significant deterrent, as many women in lower socio-economic groups cannot afford HPV testing. Countries like Australia and Rwanda have successfully implemented government-funded HPV vaccination and screening programs, ensuring universal access (Murray et al., 2023).^{41,42}

To overcome these barriers, policy interventions such as task-shifting strategies, where trained mid-level healthcare providers conduct screenings, have been proposed. The WHO recommends integrating community health workers into cervical cancer screening programs to enhance outreach and follow-up rates, a model successfully implemented in sub-Saharan Africa (Bruni et al., 2023).⁴³ Global evidence suggests that organized screening programs with strong government support, adequate funding, and effective follow-up mechanisms yield the best outcomes. Sweden and the UK have demonstrated that national HPV-based screening programs combined with high HPV vaccination coverage significantly reduce cervical cancer incidence (Bosch et al., 2023). India can adapt similar models by implementing national registry systems, ensuring timely follow-ups, and increasing awareness through community engagement programs.⁴⁴

India is enhancing its cervical cancer screening framework by scaling up HPV testing in primary health centers, integrating with existing programs, training mid-level healthcare workers, and implementing digital health solutions. Mobile health applications are used for patient education and follow-up tracking, while government-funded screening programs are expanded for testing and treatment.

Conclusion

India's cervical cancer screening is facing challenges due to accessibility, awareness, and implementation at the primary health care level. The country faces workforce shortages, lack of organized screening programs, and inadequate referral systems. To improve early detection and reduce cervical cancer-related mortality, India must transition to HPV-based primary screening, invest in digital health solutions, and enhance healthcare provider training. Strengthening policy frameworks, increasing public awareness, and integrating screening with maternal health services can also help. Adopting successful models from countries with established screening programs will help shape a more effective and sustainable cervical cancer prevention strategy in India.

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