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Accelerating the 90-70-90 Targets: Overcoming Global Disparities in Cervical Cancer Elimination through Point-of-Care HPV Self-Sampling

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Editorial

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Abstract

Cervical cancer remains one of the greatest paradoxes in modern medicine: a disease that is nearly 100% preventable, yet claims the lives of more than 350,000 women annually, over 85% of whom reside in low- and middle-income countries (LMICs). The World Health Organization's (WHO) Global Strategy to Accelerate the Elimination of Cervical Cancer establishes clear '90-70-90' targets by 2030: 90% of girls vaccinated with the HPV vaccine by age 15, 70% of women screened with a high-performance test by ages 35 and 45, and 90% of identified women receiving adequate treatment. While single-dose HPV vaccination schedules provide a transformative breakthrough for primary prevention, secondary screening coverage remains persistently low in resource-constrained regions. Point-of-care, primary HPV DNA self-sampling represents an indispensable, highly acceptable technological equalizer. This editorial critiques current policy bottlenecks, highlights implementation successes from rural outreach initiatives, and articulates an urgent editorial call to integrate decentralized screening, thermal ablation triage, and community health worker networks into national health missions.

Keywords: Cervical Cancer Elimination; HPV Self-Sampling; WHO 90-70-90; Point-of-Care Diagnostics; Global Health Disparities; Maternal Health

The Unacceptable Toll of an Entirely Preventable Disease

Cervical cancer represents a profound global health inequity. Every two minutes, a woman dies from cervical cancer somewhere in the world, with over 85% of these preventable deaths concentrated in low- and middle-income countries (LMICs) [1]. In countries such as India, Nigeria, and parts of Sub-Saharan Africa, cervical cancer continues to rank among the top two fatal female malignancies, disproportionately striking women during their most economically and socially productive years [2].

In 2020, the World Health Organization launched the historic Global Strategy for Cervical Cancer Elimination, defining elimination as fewer than 4 cases per 100,000 women-years [3]. To reach this horizon, the global community must achieve the 90-70-90 targets by 2030: 90% HPV vaccination coverage in adolescent girls, 70% high-performance screening twice per lifetime (at ages 35 and 45), and 90% access to treatment for precancer and invasive disease [3,4].

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The Screening Chokepoint: Why Cytology and VIA Fail LMICs

While primary prevention has gained substantial momentum following the SAGE recommendation for a single-dose HPV vaccination schedule [5], secondary prevention remains severely compromised. Conventional Pap cytology requires sophisticated laboratory infrastructure, cytotechnologists, and multiple clinic visits—a model that has consistently failed in decentralized and rural settings.

Similarly, visual inspection with acetic acid (VIA), while low-cost, suffers from high inter-observer variability, poor specificity, and unacceptable rates of overtreatment [6]. The transition to molecular high-risk HPV (hrHPV) DNA testing is now an undeniable scientific imperative.

The Revolution of Point-of-Care HPV Self-Sampling

HPV DNA self-sampling overcomes the profound cultural, geographical, and logistical barriers associated with pelvic examinations. Extensive meta-analyses have confirmed that self-collected vaginal swabs exhibit clinical sensitivity and specificity for detecting CIN2+ lesions comparable to clinician-collected cervical samples [7,8].

When paired with rapid, cartridge-based point-of-care (POC) molecular assays, women in remote primary healthcare centers can receive a definitive diagnostic result within 60 minutes. Under a 'screen-and-treat' protocol, hrHPV-positive women with eligible precancerous lesions can undergo same-day thermal ablation or Large Loop Excision of the Transformation Zone (LLETZ), completely eliminating patient loss-to-follow-up [9,10].

An Urgent Call for Action

Eliminating cervical cancer is not a biological enigma; it is an implementation challenge. Our editorial board urges national ministries of health, global funding bodies, and medical societies to enact three urgent priorities:

1. Formally mandate primary hrHPV self-sampling in national guidelines, replacing outdated cytology protocols in primary care.
2. Subsidize molecular testing cartridges and portable battery-operated thermal ablation devices to make point-of-care screen-and-treat models universal.
3. Mobilize frontline community health workers (e.g., ASHA workers in India, village health teams in Africa) for door-to-door self-sampling kit distribution and education.

The tools to consign cervical cancer to the history books exist today. Inaction is no longer a logistical shortcoming; it is a moral failure.

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