

EARLY DETECTION AND PREVENTION OF CERVICAL CANCER: CURRENT SCREENING STRATEGIES

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<https://doi.org/10.5281/zenodo.1828869>

Introduction: Cervical cancer remains one of the leading causes of cancer-related morbidity and mortality among women worldwide, particularly in low- and middle-income regions. The disease develops gradually through precancerous lesions, most commonly associated with persistent infection by high-risk human papillomavirus (HPV) types. Because the preinvasive stage may remain asymptomatic for years, early detection through effective screening is crucial for reducing incidence and mortality. Advances in screening technologies and preventive strategies have significantly improved early diagnosis, enabling timely intervention and improved survival outcomes. Understanding the effectiveness and implementation of current screening methods is essential for optimizing cervical cancer prevention programs.

Objective: The objective of this study was to evaluate current cervical cancer screening strategies and assess their effectiveness in early detection and prevention of disease progression.

The study aimed to analyze the role of cytological, molecular, and visual screening methods in identifying precancerous lesions and to determine their impact on reducing cervical cancer incidence through timely diagnosis and preventive intervention.

Materials and Methods: The study included 150 women aged 21–65 years who underwent routine cervical cancer screening. Screening methods consisted of Papanicolaou smear testing, high-risk HPV DNA testing, and visual inspection with acetic acid where appropriate.

Clinical data, screening outcomes, and histopathological findings were analyzed.

Women with abnormal results were referred for colposcopic examination and biopsy when indicated. Preventive measures, including HPV vaccination counseling and education on reproductive health, were integrated into the screening program. Follow-up was conducted over a 12-month period to evaluate diagnostic accuracy, treatment initiation, and patient compliance.

Results: Screening identified cervical epithelial abnormalities in 18% of participants, with early-stage precancerous lesions detected in the majority of abnormal cases. HPV DNA testing demonstrated higher sensitivity in identifying high-risk individuals, while cytology remained effective for detecting established cellular changes. Early intervention led to successful management of detected lesions, preventing progression to invasive cancer. Participants who received combined screening and preventive counseling showed improved adherence to follow-up and treatment recommendations. No cases of advanced cervical cancer were identified among women who regularly participated in screening.

Discussion: The findings emphasize the critical role of organized screening programs in the early detection and prevention of cervical cancer. Combining cytological and molecular screening methods enhances diagnostic accuracy and allows for risk-based patient stratification.

HPV testing provides an opportunity for earlier identification of high-risk infections before morphological changes occur. Preventive strategies, including vaccination and health education, further reduce disease burden by addressing the underlying etiology. Barriers such as limited access, lack of awareness, and inconsistent follow-up remain challenges and require systematic public health interventions. Integration of screening services into primary healthcare systems is essential for achieving broader population coverage and long-term effectiveness.

Conclusion: Early detection and prevention of cervical cancer rely on effective and accessible screening strategies supported by preventive interventions. The use of combined cytology and HPV-based screening enables timely identification of precancerous lesions and significantly reduces the risk of invasive disease. Strengthening screening programs, promoting vaccination, and improving patient education are key measures for decreasing cervical cancer incidence and mortality. Sustained implementation of evidence-based screening strategies ensures improved outcomes and long-term protection of women's reproductive health.

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