

# Cervical Cancer Prevention



Alliance for Cervical Cancer Prevention

## FACT SHEET

### Visual Screening Approaches: Promising Alternative Screening Strategies

Given the challenges of implementing high-quality cervical cancer prevention services, especially in developing countries, there is considerable interest in exploring the accuracy and acceptability of visual approaches to detect precursor cervical disease and/or cancer. There are several types of visual screening. Early studies used visual inspection, which involved simply looking at the cervix with the unaided eye for any signs of early cancer. Also known as “downstaging,” this approach was not accurate in identifying precursor lesions or cancer.<sup>1</sup> Visual inspection with acetic acid (VIA) has been shown to be a more promising screening approach for identifying women with high-grade precancerous lesions.

#### VIA: An Overview

VIA involves swabbing the cervix with a 3- to 5-percent acetic acid (vinegar) solution

prior to visual examination. Due to differences in precancerous cell structure and opacity, abnormal cells temporarily appear white when exposed to this solution. The health care provider performing the test then determines whether the test result is positive or negative for possible precancerous lesions or cancer.

#### VIA Is a Promising Approach

Many aspects of VIA make it an appealing approach for use in low-resource settings. In most cases, costs associated with launching and sustaining VIA screening are lower than those associated with other methods. VIA is a relatively simple, easy-to-learn approach that is only somewhat reliant upon infrastructure for its adequate performance, assuming that sufficiently trained providers are available. The approach does not require laboratory involvement; furthermore, non-physicians

can perform the procedure, provided that they receive adequate and ongoing training. As a result, VIA generally has the potential for greater population coverage than other available screening approaches. The results of the procedure are available immediately, making it possible to provide further management, including referral for further testing or an offer of immediate treatment of the suspected precancerous lesions during the same visit.

It is important to note, however, that VIA is less effective among post-menopausal women because of the tendency for the squamocolumnar junction (the point at which columnar cells meet ectocervical squamous cells of the cervix) to recede into the cervical os, making observation of lesions difficult. Adequate Pap smears also tend to be more difficult to obtain and are less reliably interpreted in post-menopausal women.

#### VIA Screening Study Findings

First Author (Year)	Country	Number of Women	Sensitivity	Specificity	Level of Provider	Grade of Disease Detected
<i>Not Subject to Verification Bias*</i>						
Belinson et al. (2001) <sup>2</sup>	China	1,997	71%	74%	Gynecologic oncologist	CIN II <sup>†</sup> and more severe
University of Zimbabwe/JHPIEGO (1999) <sup>3</sup>	Zimbabwe	2,203	77%	64%	Nurse-midwife	HSIL <sup>‡</sup> and more severe
<i>Subject to Verification Bias</i>						
Denny et al. (2000) <sup>4</sup>	S. Africa	2,944	67%	83%	Nurse	HSIL and more severe
Sankaranarayanan et al. (1999) <sup>5</sup>	India	1,351	96%	68%	Nurse	Moderate/severe dysplasia and more severe
Sankaranarayanan et al. (1998) <sup>6</sup>	India	3,000	90%	92%	Cytotechnician	Moderate/severe dysplasia and more severe
Londhe et al. (1997) <sup>7</sup>	India	372	72%	54%	Not specified	HSIL and more severe
Megevand et al. (1996) <sup>8</sup>	S. Africa	2,426	65%	98%	Nurse	HSIL and more severe
Cecchini et al. (1993) <sup>9</sup>	Italy	2,105	88%	83%	Midwives	CIN II and more severe
Slawson et al. (1992) <sup>10</sup>	USA	2,827	29%	97%	Clinicians	CIN II and more severe

\*Verification bias occurs when the reference test is not performed on all study subjects, including women with negative screening results.

<sup>†</sup>Cervical intraepithelial neoplasia (see the Cervical Cancer Prevention Fact Sheet, *Pap Smears*, for more information on terminology).

<sup>‡</sup>High-grade squamous intraepithelial lesions (see the Cervical Cancer Prevention Fact Sheet, *Pap Smears*, for more information on terminology).

## Variations on VIA

In an effort to increase VIA's specificity, variations to the approach are being explored. Visual inspection using Lugol's iodine (VILI) instead of acetic acid is one promising alternative. VILI involves applying an iodine-based solution as a means of temporarily staining normal cervical cells brown, leaving the abnormal cells with a yellow or unstained appearance. More research is required to determine whether VILI offers significant advantages over VIA.

## VIA Can Be Reasonably Accurate

Several studies examining the accuracy of VIA have found the technique to be reasonably accurate,<sup>11</sup> but differences in study protocols, populations studied, and outcomes make it difficult to generalize across studies. In addition, verification bias was a problem in many studies because a reference test was not performed on all study subjects, including women with negative screening test results. This bias tends to inflate sensitivity estimates of the test being assessed, and has been a common problem in many assessments of screening techniques including cytology and human papillomavirus (HPV) testing. Nevertheless, some broad conclusions regarding VIA's usefulness in low-resource settings can be made based on results of both published and unpublished work. In general, the sensitivity of VIA in detecting high-grade dysplasia in low-resource settings is at least equal to that of cytology, while VIA's specificity is somewhat lower. When used on a wide scale in

clinical settings, the replicability of VIA is unknown, however.

The limited specificity of VIA is a concern to some due to the potential for unnecessarily treating women with false-positive results. Treating these women may overburden the health care system and increase costs both to the health system and the women, as well as potentially causing women unnecessary discomfort or health risks. Additional research is needed to clarify the health and cost implications of false-positive VIA screening, including treating women with no precancerous lesions.

## Training Is Essential to Success

Adequate and ongoing training is essential for enabling health care providers using VIA to evaluate the features of a lesion and make an accurate assessment. Lesions vary in size, thickness, opacity, and border definition (larger, thicker, more opaque lesions with clear borders adjacent to the squamocolumnar junction suggest more severe disease). As with cytology, the subjective nature of the test makes development of universal diagnostic standards important. The feasibility of using VIA for wide-scale screening is untested and, to a large extent, will be determined by the effectiveness of training and monitoring efforts.

## Policy and Research Recommendations

- If VIA screening is included in the cervical cancer screening program, ensure that health care providers, including non-physicians, receive adequate training and regular supervision to maximize their skills in performing VIA and classifying findings.
- Monitor the performance of VIA and develop quality-improvement procedures to ensure that providers perform VIA competently.

- In addition to quality improvement, explore ways to maximize the accuracy of VIA and identify key factors contributing to its viability as a screening approach.
- Implement follow-up protocols linking screening, diagnosis (if used), treatment, and monitoring of treated women.
- Support research to explore use of VIA as part of a two-stage screening process with VILI, VIAM (VIA with magnification), Pap, or HPV testing.

## References

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Support for development of this document was provided by the Bill & Melinda Gates Foundation through the Alliance for Cervical Cancer Prevention (ACCP). For more information, please visit the ACCP website: [www.alliance-cxca.org](http://www.alliance-cxca.org). The Alliance can be contacted by writing to the ACCP in care of PATH or by email: [accp@path.org](mailto:accp@path.org).  
October 2002