International Agency for Research on Cancer
Centre International de Recherche sur le Cancer

Efficacy of visual inspection with acetic acid in early detection of cervical neoplasia

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Background

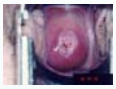
Cervical cancer screening methods

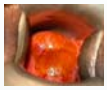
- Conventional cytology

Alternatives to cytology

- Naked eye visual inspection with 3-5% acetic acid (VIA)
- VIA with low level (2-4X) magnification (VIAM)
- Visual inspection with Lugol's iodine (VILI)
- HPV-DNA testing


Conventional pap smear


VIA


VILI


Hybrid Capture® 2 DNA test

High sensitivity is an important requirement for early detection in low-resource settings

Accuracy of screening tests in developing countries: range in sensitivity and specificity

Test	Sensitivity	Specificity
Cytology	31-78%	91-99%
HPV testing	61-90%	62-94%
VIA	50-96%	44-97%
VILI	44-93%	75-85%

Alternative programmatic approaches:

Reducing the number of visits and improving adherence to treatment

- conventional approach: screen, diagnose, confirm, and treat

New paradigms: "Single-visit approaches"

- screen and treat (1 or 2 visits)*
- screen, see (colposcopy), and treat (1 to 2 visits) (with a posteriori histological confirmation)**

**RTCOG/ JHPIEGO Lancet, 2003;361:814-20; * Denny et al., 2005 JAMA 294: 2173-81; *Blumenthal et al., Am J Obstet Gynecol, 2007; 196: 407.e1-8; ** Sankaranarayanan et al., Int J Cancer, 2004; 109: 461-7*

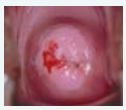
A single-visit approach: link test & treatment

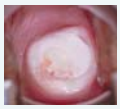
Test: VIA

- Identify precancerous lesions using 3-5% dilute acetic acid (vinegar) to cervix

Treatment: Cryotherapy

- Freezes and destroys abnormal cells
- Offered to eligible women immediately after VIA test

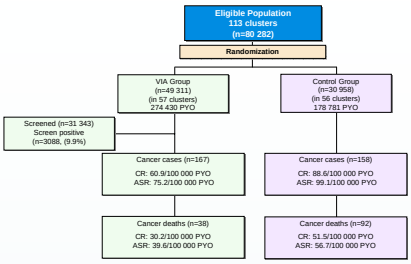

VIA Test-Positive


Immediate Post-Cryotherapy

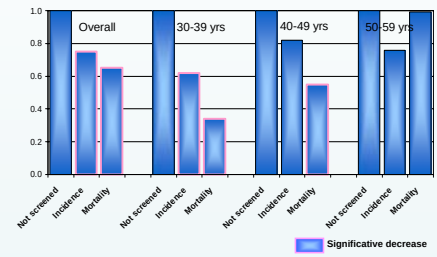
Indian studies

Cluster Randomized Controlled Trial of VIA Screening, Dindigul District, India

Follow-up results after the screening phase



Overall and age-specific hazard ratio for cervical cancer incidence and mortality



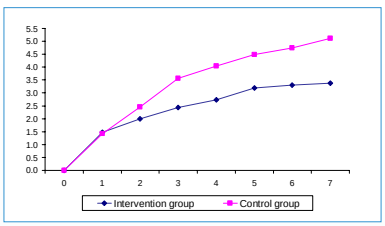
Cure rate of cryotherapy

Histopatology as baseline before cryotherapy	Number of women evaluated	Follow-up status: No evidence of disease (cured %)	CIN* 1 (%)	CIN 2 (%)	CIN 3 (%)	Invasive cancer (%)
CIN 1	924	752 (81.4)	162 (17.5)	7 (0.8)	1 (0.1)	2 (0.2)
CIN 2	77	55 (71.4)	14 (18.2)	7 (9.1)	1 (1.3)	0
CIN 3	25	17 (68.0)	3 (12.0)	2 (8.0)	3 (12.0)	0
Total	1026	824 (80.3)	179 (17.5)	16 (1.6)	5 (0.5)	2 (0.2)

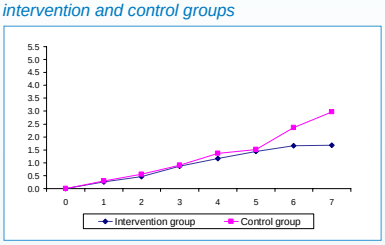
Follow-up status based on histology or colposcopy (range 7-57 months, mean follow-up 27 months)

* Cervical intraepithelial neoplasia

Cumulative incidence of cervical cancer (2000-06)



Cumulative mortality from cervical cancer in the intervention and control groups



A collaborative project of:
Christian Fellowship Community Health Centre (CFCHC), Ambillikai, India
PSG Institute of Medical Sciences and Research (PSGIMSR), Coimbatore, India
Cancer Institute (WIA), Chennai, India
International Agency for Research Cancer (IARC), Lyon, France

Supported by:
The Bill & Melinda Gates Foundation through the Alliance for Cervical Cancer Prevention (ACCP)

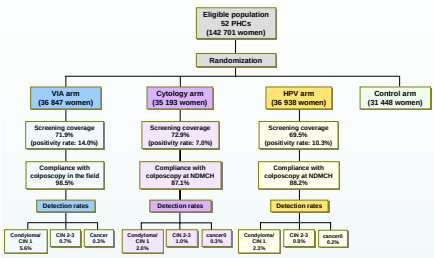
Sankaranarayanan *et al*, Lancet, 2007;370:398-406



Women waiting to be screened, India

Cluster Randomized Controlled Trial of VIA, HPV testing and cytology screening, Maharashtra State, India

Flow chart of the study design and findings



A collaborative project of:
Tata Memorial Centre (TMC), Mumbai, India;
Nargis Dutt Memorial Cancer Hospital (NCMCH), Barshi, India and International Agency for Research Cancer (WHO-IARC), Lyon, France

Supported by:
The Bill & Melinda Gates Foundation through the Alliance for Cervical Cancer Prevention (ACCP)

Sankaranarayanan *et al*, Int J Cancer, 2005;116:617-623

Final results in terms of cervical cancer incidence and mortality in the different study groups will be published in late 2008

Conclusions

VIA appears to be as sensitive as conventional cytology, although it is less specific. It has been shown to reduce cervical cancer incidence and mortality in a randomized trial. VIA screening, in the presence of good training and sustained quality assurance is an effective method to prevent cervical cancer in developing countries.

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