

The Evaluation of Screening, Treatment and Vaccination of HIV-infected women

World STI @ HIV Congress 2015
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HPV and cervical lesions in HIV-seropositive women: What we know

- HIV seropositive women:
 - Higher prevalence, incidence and persistence of HPV
 - Higher risk of squamous intraepithelial lesions (SIL) and invasive cervical cancer
 - Higher rates of recurrent high-grade lesions

All of these associations are stronger in HIV+ women with lower CD4 counts.

De Vuyst H. et al. Eur J Cancer Prev, 2008;17(6):545-54

South Africa

Dr. Cindy Firnhaber
 Dr. Ian Sanne

WITS,
 Johannesburg



South Africa: Collaborative Results

- Prevalence of high-grade cervical lesions and HPV infection is notably higher among HIV-infected women with lower CD4 counts¹.
- HAART use appears to approximately halve the combined incidence and progression rates of cervical lesions in prospective analyses².

¹Firnhaber et al., Cancer Causes Control. 2010. ²Firnhaber et al., J Int AIDS Soc. 2012.

Methods

- 1,202 HIV-seropositive women screened in an HIV treatment clinic in Johannesburg
- Women had Digene HC-II HPV testing, conventional Pap smear and VIA screening.
- All women with positive Pap smears and VIA had colposcopy
- ~25% women with negative Pap and VIA results were referred for colposcopy to control for verification bias

Plos One, 2013



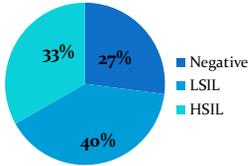
Quality Control



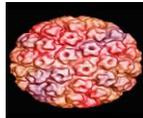
Results of 1,202 HIV-seropositive women screened in an HIV treatment clinic in Johannesburg

> VIA + 55.7%

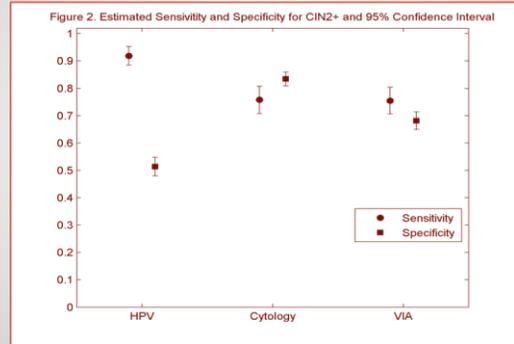
Pap smear



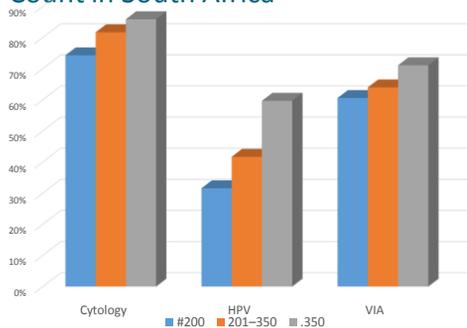
> HC-II HPV DNA 60.9%



Sensitivity / Specificity among HIV-seropositive in South Africa



Specificity Estimates, Stratified by CD4 Count in South Africa



Coptic Hope Center for Infectious Diseases in Nairobi, Kenya, Michael Chung et al.

- > 500 HIV-positive patients enrolled from Coptic Hope Center, a PEPFAR-funded HIV clinic based in Nairobi, Kenya since 2004



- > Eligible if HIV-positive, ≥18 years, intact cervix, never received cervical treatment

Detection of CIN3 by immune status and CD4 count in HIV-seropositive women in Nairobi, Chung et al.

	CD4 <350	CD4 >350	p-value
Sensitivity			
Pap (HSIL+)	78.6%	84.2%	0.7
VIA	67.9%	73.7%	0.7
HPV	89.3%	100%	0.3
Specificity			
Pap (HSIL+)	85.2%	89.3%	0.2
VIA	56.6%	67.0%	0.03
HPV	40.7%	58.9%	<0.001

	Off ART	On ART	p-value
Sensitivity			
Pap (HSIL+)	66.7%	85.7%	0.2
VIA	66.7%	71.4%	0.7
HPV	100%	91.4%	0.6
Specificity			
Pap (HSIL+)	89.5%	86.7%	0.5
VIA	62.9%	62.1%	0.9
HPV	46.7%	52.2%	0.3

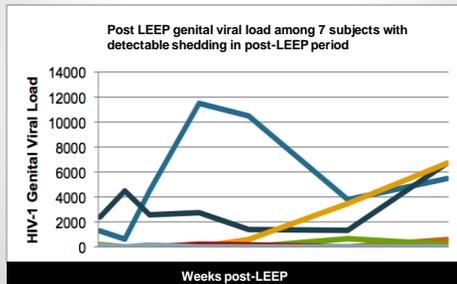
HIV-shedding pre and post treatment in Kenya



- > HIV+ women with CIN 2/3, on HAART treated LEEP
- > HIV-1 genital shedding samples collected at baseline and weeks 1, 2, 4, 6, 10 and 14
- > Blood serum testing for HIV-1 viral load at baseline
- > HIV-1 tear flo strips processed and analyzed at UCSF-GIVI lab using Abbott RealTime Viral Load Assay, lower detection limit < 40 copies/mL

Huchko et al. BIOP 2013:120:1233-9.

No pattern was observed among the seven women who demonstrated HIV-1 genital shedding





THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL



Right
to care
TREATING AIDS SERIOUSLY

**Upcoming this week at IPV Lisbon 2015:
A Randomized Trial Comparing Cervical
Dysplasia Treatment Modalities in HIV-
Seropositive Women from Johannesburg,
South Africa**

<http://www.qagen.com>

Busola Sanusi (speaker), Jennifer Smith, Avril Swarts, Mark Faesen,
Simon Levin, Bridgette Goeleman, Sibongile
Ramtshela, Ntombiyenkosi rakhombe, Anna Lise Williamson, Pam
Michelow, Tarvier Omar, Michael Hudgens, Cindy Firnhaber

CFAR Meeting in Cape Town, South Africa
Research Priorities

- What are the optimal screening strategies for cervical cancer precursors in setting of HIV
 - Potential role of self-collection; use of HPV RNA Aptima testing
- What are the optimal treatment methods for cervical cancer precursors in setting of HIV
- Does screening or treatment effectiveness vary by CD4/CD4 nadir or ART status
- What are the determinants of recurrence and what are best strategies to identify recurrences

CFAR Meeting in Cape Town, South Africa
Research Priorities, continued

- How to evaluate and manage ICC in setting of HIV
- What is efficacy and effectiveness of HPV vaccine in the setting of HIV to prevent HPV-related cancers
- Implementation issues
- What is natural history of other HPV-related cancers and precursors (anal, oral) and what are effective screening, treatment and longitudinal follow-up of precancerous lesions in these sites

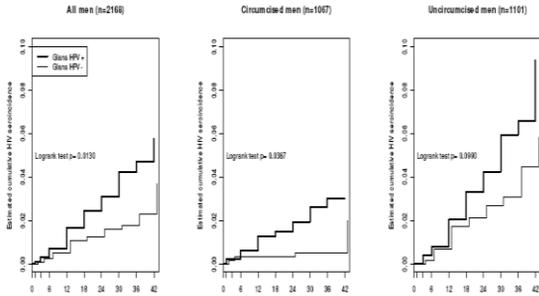
CFAR Meeting in Cape Town, South Africa
Research Priorities

- How can high-grade recurrences be prevented
- What is role of male circumcision in cervical cancer prevention (and programmatic implications)
- What are effects of treatment (cryotherapy vs LEEP, others?) on HIV shedding and what are the determinants
- What are the most effective strategies to incorporate cervical screening and treatment into HIV care
 - Models of integration
 - Systems issues
 - Quality control: training, pathology, etc

HPV Vaccination in HIV-seropositive

- High neutralizing antibody titers following HPV vaccination in HIV-seropositive individuals
- No data yet available on vaccine efficacy

Results: Cumulative HIV Seroincidence Across Follow-up Visits by HPV Positivity in the Glans



Thank you!

Let's work to be Cervical Cancer Free
www.Cervicalcancerfreeorganization.org

JenniferS@unc.edu

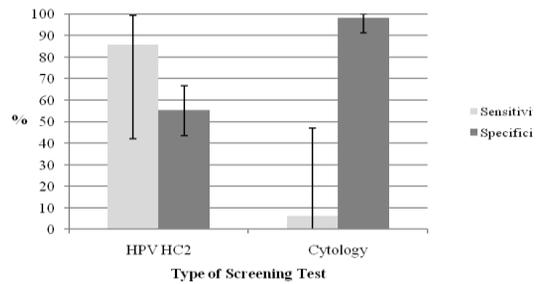
Intraepithelial neoplasia among HIV-infected women in Yunnan Province



The Women and Children's Hospital Luxi County, Mangshi, Yunnan Province

Zhang HV et al., Asian Pac J Cancer Prev. 2012;13(1):91-6.

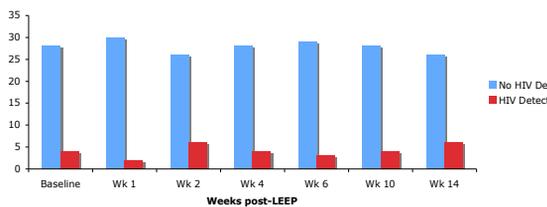
Sensitivity and Specificity for CIN2+ of HPV DNA (Hybrid Capture 2) Testing vs. Cytology among HIV-infected women in Yunnan, China



Zhang HV et al., Asian Pac J Cancer Prev. 2012;13(1):91-6.

The majority of women had no detectable HIV-1 genital shedding

Participants with Detectable Shedding at Each Visit



Huchko et al, BJOG 2013;120:1233-9.