Cervical Cancer Prevention Program in Botswana

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Background

• Cervical cancer is preventable
• Many challenges for effective prevention strategies in LMICs
• Goal of screening is to prevent cervical cancer, but also to reassure a woman without the disease
• Burden borne disproportionately by HIV infected women
• Age is a powerful co-factor for developing cervical cancer

LMICs: Low Middle Income Countries
DISCLOSURE

Full Name
Position Title
Company/ Institution
Department
City, State, Country
### Length of HIV Treatment and Nadir CD4 Count

<table>
<thead>
<tr>
<th>History of cART use</th>
<th>Cases</th>
<th>Controls</th>
<th>OR (95% CI)</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>(%)</td>
<td>N</td>
<td>(%)</td>
</tr>
<tr>
<td>CIN2/3</td>
<td>364</td>
<td>(44.0)</td>
<td>1087</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>160</td>
<td>(44.0)</td>
<td>513</td>
<td>(47.2)</td>
</tr>
<tr>
<td>Ever</td>
<td>204</td>
<td>(56.0)</td>
<td>574</td>
<td>(52.8)</td>
</tr>
<tr>
<td>≤2years</td>
<td>103</td>
<td>(28.3)</td>
<td>231</td>
<td>(21.3)</td>
</tr>
<tr>
<td>&gt;2years</td>
<td>101</td>
<td>(27.7)</td>
<td>343</td>
<td>(31.5)</td>
</tr>
<tr>
<td>ICC</td>
<td>20</td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>10</td>
<td>(50.0)</td>
<td>32</td>
<td>(53.3)</td>
</tr>
<tr>
<td>Ever</td>
<td>10</td>
<td>(50.0)</td>
<td>28</td>
<td>(46.7)</td>
</tr>
<tr>
<td>≤2years</td>
<td>4</td>
<td>(20.0)</td>
<td>8</td>
<td>(13.3)</td>
</tr>
<tr>
<td>&gt;2years</td>
<td>6</td>
<td>(30.0)</td>
<td>20</td>
<td>(33.3)</td>
</tr>
</tbody>
</table>

**Abbreviations:** cART: combined antiretroviral therapy; CI: confidence interval; CIN: cervical intraepithelial neoplasia; ICC: invasive cervical cancer; OR: odds ratio.

1 Conditioned upon matching variables.

2 Conditioned upon matching variables and adjusted for nadir CD4 categories in Table 2.
In the fiscal year 2011, the American people, through the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR), supported the fight against global AIDS through bilateral and regional programs in over 70 countries. As a result of this commitment the U.S. directly supported life-saving treatment for 3.9 million men, women and children worldwide. In addition, in 2011, the U.S. was the largest donor to the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Names and boundary representation are not necessarily authoritative.

Sources: Office of the U.S. Global AIDS Coordinator; PEPFAR Annual Program Reports

July 19, 2012 - U603 STATE (HIU)
Role of VIA and See and Treat in Botswana?

• Augment the existing cytology-based screening
• Ensure greater coverage especially for women at high risk for loss to follow up
• Provide avenue for rapid scale up of cervical cancer screening to cope with exponential growth in service demand
• Develop infrastructure for other future service deliveries such as HPV testing
Pilot Prevention Project Started 2009

Primary Clinic: Bontleng
- Nurse led clinic
- Screening with VIA
- Picture taken with camera - enhanced digital imaging (EDI)
- Treatment with Cryotherapy
- Women with severe abnormalities referred
- All pictures reviewed by team weekly

Referral Clinic: Princess Marina Hospital
- Physician led Colposcopy/LEEP service

- Provided Colposcopy/LEEP service for referred patients with:
  - Cryotherapy ineligible VIA lesions from Bontleng clinic
  - Abnormal Pap smear results (from the Southern part of the country)
FIGURE 1. Distribution of the number of HIV-infected women screened and treated by a "see-and-treat" cervical prevention program, Botswana 2007-2011.
Botswana National Cervical Cancer Prevention Strategy 2012-16

PRIMARY PREVENTION: HPV Vaccine demonstration project

SECONDARY PREVENTION: Screening & treatment

HPV DNA test

Adjusted Timeline for activities

SECONDARY PREVENTION: Screening & treatment


PRIMARY PREVENTION: HPV Vaccine demonstration project Phase 1 & 2

HPV DNA Test Project

PRIMARY PREVENTION: National HPV Vaccine Program Expansion
Botswana National Roll-out-February 2015

The Minister of Health Honourable Dorcas Makgato recently launched the HPV Vaccine.
National Scale up of SAT Clinics

VIA/Cryotherpy & Colp/LEEP Services
2015-Functioning

VIA/Cryotherpy &/Or Colp/LEEP Services
Sept 2016-Planned and Functioning

[Map showing existing and planned locations]
Secondary Prevention in Botswana: 2012-16

Conventional Pap Smear
- HSIL: Colp/LEEP
- Persistent LSIL: Colp/LEEP

VIA/Enhanced Digital Imaging
- Cryotherapy
- Colp/LEEP
Screening Resources Available in 2017

Screening Results at Site

- VIA
- Clinic-based HPV Analyser

Centrally Produced Results

- Lab-Based HPV Analyser
Prevention in Botswana Beyond 2016 (Algorithms still under Discussion)

**HPV Vaccination**
- 9 year old girls
- ?Should we add boys

**HPV Testing**
- HPV 16/18
- ?Role of p16/k1-67 stain on cytology
- ?Colp/LEEP for dual stain positive

**HPV Testing**
- Non HPV 16/18
- Visual Assessment for Treatment
Challenges for Cervical Cancer Prevention in Botswana?

• Limited in country experts to guide policy and lead implementation
• Competing health needs
  – Reliance on donors
Lessons Learned

• HPV vaccination will be the most impactful investment in the next two decades
• Screening need to move towards the objective HPV testing
• Prevention program sustainability requires institutionalizing training
• Next major investment to focus on building capacity on the treatment side