Estimating HIV Prevalence from the Swaziland HIV Incidence Measurement Survey

Rejoice Nkambule, Henry Ginindza, George Bicego, Deborah Donnell, Jessica Justman, Jason Reed, Ingrid Peterson and the SHIMS team

Abstract # 142
March 8, 2012
The Kingdom of Swaziland

- Small country in southern Africa
- Population: 1.2 million
- Demographic Health Survey 2006: Overall HIV prevalence 31% among men and women (ages 18-49)*
- Highest national HIV prevalence in the world

*calculated from DHS 2006

Adapted from WorldVision
Male Circumcision as Part of Swaziland’s Scale-Up of Combination Prevention Strategy

- **National combination prevention program:**
  - HIV testing and counseling
  - PMTCT
  - Social behavior change communication
  - ART expansion
  - *Voluntary medical male circumcision*

2010: Soka Uncobe (“Conquer through Circumcision”), the national campaign to scale-up male circumcision from 8% to 80% of adult men in one year

What will be the reduction in HIV incidence in Swaziland?
Primary Objective:
To estimate HIV incidence rates in a household-based, nationally representative sample of men and women, before and after accelerated scale-up of HIV prevention programs.

Current Analysis
To estimate HIV prevalence rate in a household-based, nationally representative sample of men and women.
SHIMS Methods
Select 575 of 2054 Enumeration Areas (EAs)

Randomly select 26 households from each EA

Invite all adults aged 18-49 in households to participate in cross-sectional survey

Invite HIV-uninfected adults to join incidence cohort
SHIMS Survey: Inclusion Criteria

- Resides or has slept the night before in selected household
- Age 18-49 years
- Able to provide consent

*SHIMS Study team visiting a selected household*
SHIMS Study Procedures

- Interviewer-administered questionnaire

- HIV counseling and testing
  - 4th generation Determine® HIV 1/2 Antigen/Antibody Combo

- If HIV-positive, refer to care services

- If HIV-negative, refer to prevention services
Weighting Methods

- SHIMS sample weighted to achieve population representativeness
- Weights adjust for sample selection and differences in non-response
Results
<table>
<thead>
<tr>
<th>SHIMS Survey Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Selected households</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Participating households</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible household members</td>
<td>10,886</td>
<td>13,414</td>
<td>24,300</td>
</tr>
<tr>
<td>No contact made</td>
<td>2445</td>
<td>1353</td>
<td>3798</td>
</tr>
<tr>
<td></td>
<td>(22%)</td>
<td>(10%)</td>
<td>(16%)</td>
</tr>
<tr>
<td>Refused participation</td>
<td>1362</td>
<td>1084</td>
<td>2446</td>
</tr>
<tr>
<td></td>
<td>(13%)</td>
<td>(8%)</td>
<td>(10%)</td>
</tr>
<tr>
<td>Participating household members</td>
<td>7,079</td>
<td>10,977</td>
<td>18,056</td>
</tr>
<tr>
<td></td>
<td>(65%)</td>
<td>(82%)</td>
<td>(74%)</td>
</tr>
</tbody>
</table>
## Swaziland Demographics (Ages 18-49)

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>37%</td>
<td>35%</td>
<td>36%</td>
</tr>
<tr>
<td>25-34</td>
<td>36%</td>
<td>33%</td>
<td>34%</td>
</tr>
<tr>
<td>35-49</td>
<td>27%</td>
<td>32%</td>
<td>30%</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>6%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>Primary</td>
<td>27%</td>
<td>29%</td>
<td>28%</td>
</tr>
<tr>
<td>Secondary</td>
<td>49%</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>Higher</td>
<td>17%</td>
<td>14%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Married or living with a partner</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>36%</td>
<td>51%</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Circumcised (self-reported)</strong></td>
<td>15%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
HIV Prevalence In Swaziland: HIV+ Test in SHIMS (n= 18,056)

<table>
<thead>
<tr>
<th>Gender</th>
<th>HIV+ Test</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td></td>
<td>23%</td>
</tr>
<tr>
<td>Women</td>
<td></td>
<td>38%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>31%</td>
</tr>
</tbody>
</table>
2011 HIV PREVALENCE IN SWAZILAND SHIMS SURVEY (AGES 18-49)

Men: Prevalence by Age

Women: Prevalence by Age
2011 HIV PREVALENCE IN SWAZILAND SHIMS SURVEY (AGES 18-49)

Men: Prevalence by Age

- 48% in men aged 35-39

Women: Prevalence by Age

- 54% in women aged 30-34
2006 DHS AND 2011 SHIMS
HIV PREVALENCE IN SWAZILAND
(AGES 18-49)

Men: Prevalence by Age

Women: Prevalence by Age
Among HIV-Seropositives: Knowledge of HIV Status

- **Unaware**
  - Men: 48%
  - Women: 32%

- **Aware**
  - Men: 52%
  - Women: 68%
Self-Reported ART Use among HIV-Seropositives

*No CD4 data collected therefore results do not indicate proportion eligible for ART
Conclusions

- National HIV prevalence remains high at 31%
- Overall HIV prevalence stable since 2006
- Shift in age-pattern of prevalence points towards
  - “survival effect” related to ART use at older ages
  - reduced rate of new infections at younger ages
- Half of all HIV+ men are not aware of their status
  - Evidence for public programs to target HTC for men
- Half of individuals aware of their HIV infection are on ART, irrespective of CD4
- Analysis of HIV incidence estimate in progress
## Protocol Team

**Rejoice Nkambule**  
Naomi Bock  
Muhle Dlamini  
Deborah Donnell  
Dennis Ellenberger  
Tedd Ellerbrock  
Wafaa El-Sadr  
Jonathan Grund  
**George Bicego**  
Jessica Justman  
Amy Medley  
Jan Moore  
Emmanuel Njeuhmeli  
**Jason Reed**  
Nelisiwe Sikhosana  

**CDC Swaziland**  
Peter Ehrenkranz  
Ahmed Liban  
Khosi Makhanya  

**CDC Atlanta**  
Anindya De  
Joy Chang  
Josh DeVos  
Yen Duong  
Dennis Ellenberger  
Al Garcia  
Carole Moore  
John Nkengasong  
Michele Owen  
Bharat Parekh  
Hetal Patel  
Connie Sexton  
Barbara Suligoi  
Chunfu Yang  

**Nat ’l Ref Laboratory**  
Hosea Sukati  
Sindi Dlamini  
All Laboratory Scientists  

**ICAP in Swaziland**  
Alfred Adams  
Kerry Bruce  
Gcinekile Dlamini  
Ndumisi Dlamini  
Sindisiwe Dlamini  
Henry Ginindza  
Sibuse Ginindza  
Alison Koler  
Yvonne Mavengere  
Khudzie Mlambo  
Phakamile Ndlangamandla  
Ingrid Peterson  
Nicola Pierce  
Bhangazi Zwane  

**SCHARP**  
Claire Chapdu  
Lynda Emel  
Iraj Mohebalian  
Lei Wang  

**Epicentre/Maromi Health Research**  
Cherie Cawood  
Mark Colvin  
David Khanyile  
Nomsa Nzama  
Phindile Radebe  
All Regional Managers  
All field teams  

**ICAP at Columbia University**  
Elizabeth Barone  
Montina Befus  
Mary Diehl  
Mark Fussell  
Allison Goldberg  
Leslie Horn  
Jacqueline Maxwell  
Joan Monserrate  
Neena Philip  
Peter Twyman  
Leah Westra  
Allison Zerbe