CURRENT THINKING ABOUT BEHAVIOR CHANGE AND PREVENTION OF SEXUAL TRANSMISSION OF HIV

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Global - and African - HIV epidemics far more heterogeneous than initially recognized
NATIONAL ANTENATAL AND POPULATION HIV ESTIMATES

Sources: NAC/NAP, 2001-2003, ORC/MACRO
HETEROGENEITY OF HIV IN AFRICA

Sources: UNAIDS 2004 estimates used unless recent national population-based HIV survey available.
HETEROGENEITY OF HIV IN AFRICA
A TALE OF THREE EPIDEMICS

Manzini, Swaziland
Kampala, Uganda
Dakar, Senegal

0 5 10 15 20 25 30 35 40 45 50
86 88 90 92 94 96 98 00 02 04
POPULATION-BASED HIV PREVALENCE IN FRANCISTOWN, BOTSWANA

Sources: BAIS, 2005
HETEROGENEITY OF HIV: AFRICAN EVIDENCE

Why is HIV so diverse in Africa?
Acute infection and concurrent sexual partnerships critical?

HETEROGENEITY OF HIV: CONCURRENT SEXUAL PARTNERSHIPS

(1-1)
Half of transmission in first 5 months
Wawer et al. 2005

CONCURRENT PARTNERSHIPS GLOBALLY

Percentage of 15-49 year olds reporting > 1 regular partner in last year

Sources: Cassell et al, 2005

Sources: Halperin et al., 2005
HETEROGENEITY OF HIV: MALE CIRCUMCISION

- **Meta-analyses** - circumcised men 50-70% less likely to get HIV
- **Ecological studies** - circumcision major factor in variations in Africa and Asia’s HIV epidemic
- **Randomized trial in South Africa** - circumcision reduced HIV transmission by 60-76%
Concurrent sexual partnerships and limited male circumcision fuel and match that lit Southern Africa’s unique hyper-epidemics – together, these factors may increase HIV transmission 30-fold – explaining much heterogeneity in HIV epidemic potential.
## Concentrated and Generalized Epidemics Fundamentally Different

<table>
<thead>
<tr>
<th>Concentrated epidemics</th>
<th>Generalized epidemics</th>
</tr>
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<tbody>
<tr>
<td>Driven by sexual and injecting practices, especially among HIV-vulnerable groups, including sex workers, men-having-sex-with-men and injecting drug users</td>
<td>Driven primarily by sexual behavior in the general population</td>
</tr>
<tr>
<td>Require large-scale interventions to protect HIV-vulnerable groups</td>
<td>Require large-scale, fundamental changes in community norms and sexual values and practices</td>
</tr>
<tr>
<td>Expanding coverage of proven interventions vital</td>
<td>Social and community change processes critical</td>
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</tbody>
</table>
HIV PREVALENCE, TRANSMISSION SOURCES AND FUNDING IN ACCRA, GHANA

Sex workers

- HIV prevalence: 78%
- Transmission sources: 76%
- Other: 0.08%

General population

- HIV prevalence: 99.2%
- Transmission sources: 24%
- Other: 2.2%

Sources: NACP, GAC, MAP, 2005
HIV PREVALENCE AND TRANSMISSION SOURCES IN ACCRA, GHANA

Sources: Cote et al, 2005
HIV PREVALENCE AND TRANSMISSION SOURCES IN NAIROBI, KENYA

Sources: Pisani et al, 2003

Infections from SW

Infections from Gen Pop

Sources: Pisani et al, 2003
HIV PREVALENCE AND TRANSMISSION SOURCES IN ZAMBIA

Sources: Shields, 2005

Infections from Vulnerable Groups

Infections from Gen Pop

Sources: Shields, 2005
HIV TRENDS AND THEIR IMPLICATIONS

- National HIV responses about two decades old
- HIV prevalence declining in growing number of countries
- What’s emerging from countries with declining national prevalence – what mightn’t we have expected two decades ago?
DECLINING HIV PREVALENCE IN GENERALIZED EPIDEMICS (1-1)

- National HIV prevalence declines reported in Uganda, Kenya and Zimbabwe

- HIV prevalence declines also reported in urban Burkina Faso, Burundi, Ethiopia, Malawi and Rwanda

- Declining HIV prevalence also observed in Haiti, Barbados and Bahamas
HIV PREVALENCE IN SOUTHERN AFRICA

- Gauteng (South Africa)
- Gabarone (Botswana)
- Harare (Zimbabwe)
- Manzini (Swaziland)
- Maputo (Mozambique)
- Maseru (Lesotho)
- Windhoek (Namibia)

Year Overview:
- 1997–1998
- 1999–2000
- 2000–2001
- 2003–2004
ANTENATAL PREVALENCE IN KAMPALA, 1985-2003
BEHAVIOR CHANGE IN UGANDA

Sources: WHO/GPA surveys

<table>
<thead>
<tr>
<th></th>
<th>Never had sex</th>
<th>&gt;1 sexual partner in last year</th>
<th>Ever used condom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1989</td>
<td>1995</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
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<td>Female</td>
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Sources: WHO/GPA surveys
ANTENATAL HIV PREVALENCE IN KENYA:
SENTINEL SURVEILLANCE 1990-2003

![Graph showing antenatal HIV prevalence in Kenya from 1990 to 2003. The prevalence rates are as follows: 5.1% in 1990, 6.3% in 1991, 7.4% in 1992, 8.5% in 1993, 9.5% in 1994, 10.4% in 1995, 11.2% in 1996, 11.9% in 1997, 12.5% in 1998, 13% in 1999, 13.4% in 2000, 12.8% in 2001, 10.6% in 2002, 9.4% in 2003, and 6.7% in 2004.]}
Kenya: Changes in “ABC” indicators between the 1998 and 2003 Demographic and Health Surveys (DHS)

“A”
Never-married aged 15-24 who have had sex in the past year

“B”
Multiple partners in the past year, ages 15-49

“C”
Condom use last higher-risk sex, ages 15-49

Percent

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<thead>
<tr>
<th></th>
<th>1998</th>
<th>2003</th>
</tr>
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<tbody>
<tr>
<td>Young men</td>
<td>56%</td>
<td>41%</td>
</tr>
<tr>
<td>Young women</td>
<td>32%</td>
<td>21%</td>
</tr>
<tr>
<td>Males</td>
<td>30%</td>
<td>17%</td>
</tr>
<tr>
<td>Females</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Males</td>
<td>44%</td>
<td>47%</td>
</tr>
<tr>
<td>Females</td>
<td>16%</td>
<td>24%</td>
</tr>
</tbody>
</table>
ANTENATAL HIV PREVALENCE IN ZIMBABWE: SENTINEL SURVEILLANCE 1990-2005

Sources: NACP, 1990-2004
Behavior change among females in Manicaland, Zimbabwe

A. Proportion of 15-17 year olds who have had sex
B. Proportion of people with new sex partners in the past year
C. Proportion of people with a casual partner in the past month
D. Proportion reporting consistent condom use with recent casual partner(s)
E. HIV prevalence in 15-24 year olds

Source: Gregson et al, Science; 311:2006
DECLINING HIV PREVALENCE IN CONCENTRATED EPIDEMICS

Declining HIV prevalence reported in Thailand, Cambodia and South India
Behavioral Changes and HIV Infection, Thailand 1990–1995

Adapted from Stoneburner and Low-Beer: “Epidemiological elements associated with HIV declines and behavior change in Uganda: Yet another look at the evidence”
CONDOM USE AND MALE STIS IN THAILAND, 1989-1994

STIs and condom non-use

STIs
Unprotected sex

0 10 20 30 40 50 60 70


0 10 20 30 40 50 60 70

HIV PREVALENCE IN INDIAN ANC CLIENTS AGED 15-24

Sources: Kumar et al, 2006
HIV PREVALENCE IN INDIAN STI CLIENTS AGED 20-29

Sources: Kumar et al, 2006
MALE RESPONSIBILITY IS CRITICAL

- Community and normative change and greater male responsibility critical
HIV PREVALENCE AMONG DRINKERS AND NON-DRINKERS, CARLETONVILLE, SOUTH AFRICA

Source: Campbell et al. (2004)
PROPORTION OF 15 - 19 YEAR OLDS IN SOUTH AFRICA WITH SEX PARTNERS 5 OR MORE YEARS OLDER

HIV PREVALENCE AMONG 15 - 19 YEAR OLDS IN SOUTH AFRICA WITH SEX PARTNERS 5 OR MORE YEARS OLDER

SEXUAL COERCION REPORTED BY WOMEN IN RAKAI, UGANDA

SEXUAL COERCION AND HIV INCIDENCE AMONG WOMEN < 25 IN RAKAI, UGANDA

MALE RESPONSIBILITY CRITICAL (1-2)

- Reduce multiple, concurrent sexual partnerships
- Reduce inter-generational sex
- Reduce sexual coercion
- Reduce vulnerability of married women
- Reduce alcohol/substance abuse
CONCLUSION (1-1)

- HIV more diverse than initially recognized
- Concurrent sexual partners and absence of male circumcision perhaps the lethal cocktail that fuelled Southern Africa’s unique hyper-epidemics
- HIV declining in many regions – little decline in Southern Africa
- Behavior change major cause of declines in HIV epidemics
- Partner reduction major cause of HIV reduction in generalized epidemics
- Condom use AND partner reduction major causes of HIV reduction in concentrated epidemics
- Large-scale changes in risk-disposing behaviors fundamental to declining HIV prevalence
- Analogy with smoking cessation – have to de-norm smoking (multiple partners, unprotected sex) in general population before other focused interventions have supportive effect
- Male responsibility the key to HIV prevention