The HIV Epidemic: Progress & Challenges

Southern African HIV Clinicians Society Conference
26 September 2014, Cape Town

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Overview

• The first 25 years of HIV/AIDS...
• A changing HIV/AIDS epidemic: Recent trends
• Two key factors impacting HIV epidemiology:
  ▪ Series of new HIV prevention research results
  ▪ Growth in resources for treatment & prevention
• Ongoing challenges in South Africa
  – high HIV burden in young women
• Envisioning a future...
• Conclusion
The first 25 years of HIV:
Global number of people living with HIV
& number of HIV-related deaths: 1990-2005

Source: UNAIDS Global Report 2014
Global number of people living with HIV & HIV-related deaths: Changes post-2005

Source: UNAIDS Global Report 2014
Global number of new HIV infections in adults & children: 1990-2013

Source: UNAIDS Global Report 2014
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• **Two key factors impacting HIV epidemiology:**
  - Series of new HIV prevention research results
  - Growth in resources for treatment & prevention

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Clinical trial evidence for preventing sexual HIV transmission – July 2010

Medical male circumcision
54% (38; 66)

Mwanza - STD treatment
42% (21; 58)

RV144 - HIV vaccine
31% (1; 51)

Source: Adapted from Abdool Karim SS & Abdool Karim Q. Lancet 2011
Clinical trial evidence for preventing sexual HIV transmission – July 2011

- CAPRISA 004 – Coital microbicide for women: 31% (1; 51)
- iPrEX - Daily PrEP for MSM: 44% (15; 63)
- TDF2 - Daily PrEP for heterosexual men and women: 62% (22; 84)
- PartnersPrEP - Daily PrEP for discordant couples: 73% (49; 85)
- HPTN 052 - ART for prevention: 96% (73; 99)
- Mwanza - STD treatment: 42% (21; 58)
- Medical male circumcision: 54% (38; 66)
- RV144 - HIV vaccine: 31% (1; 51)

Source: Adapted from Abdool Karim SS & Abdool Karim Q. Lancet 2011
Clinical trial evidence for preventing sex/IDU HIV transmission – July 2013

Prevention in IDUs
- Bangkok Tenofovir Study - Daily oral PrEP for IDUs 49% (10; 72)
- HPTN 052 - ART for prevention 96% (73; 99)
- PartnersPrEP - Daily PrEP for discordant couples 73% (49; 85)
- TDF2 - Daily PrEP for heterosexual men and women 62% (22; 84)

Sexual transmission prevention
- Medical male circumcision 54% (38; 66)
- iPrEX - Daily PrEP for MSM 44% (15; 63)
- Mwanza - STD treatment 42% (21; 58)
- CAPRISA 004 - Coital microbicide for women 39% (6; 60)
- RV144 - HIV vaccine 31% (1; 51)
- MTN 003 - Daily microbicide for women 15% (-21; 40)
- FEM-PrEP - Daily oral PrEP for women 6% (-52; 41)

Source: adapted from Abdool Karim SS. Lancet 2013
Note: PMTCT, Screening transfusions, Harm reduction, Universal precautions, etc. have not been included – this is on sexual transmission
Total annual resources for AIDS in low and middle income countries

Source: UNAIDS 2012. Together we will end AIDS
Increasing antiretroviral therapy coverage by region

Number of people receiving ART globally rose from ~2 million in 2005 to ~13 million in 2013

% of people eligible who are receiving ART (based on 2010 WHO guidelines)

Source: UNAIDS Global report 2013
South Africa’s response to HIV post-2009

- **↑ funding:** R4.5 billion in 2009 to R8.4 billion in 2011
- **HIV testing campaign:** 13 million HIV tests
- **Male circumcision:** 250,000 in 2011 (50-fold ↑ since 2008)
- **ART scale-up:** largest ART programme in the world, with ~2.6 million people estimated to be on ARVs in 2014
- **pMTCT:** 92% HIV+ mothers get ART; MTCT rate = 2.7% (2011)
- **Life expectancy:** ↑ by 6 years (60 years in 2011)

Despite impressive progress, the spread of HIV has yet to be controlled!

In 2013, worldwide there were:

1.5 million HIV deaths

35 million living with HIV

2.1 million new infections

Source: UNAIDS Global Report 2014
2013 Global HIV epidemic at a glance

6,000 new HIV infections each day

2 out of 3 new HIV infections are in sub-Saharan Africa

1 out of 3 new HIV infections are in youth (15-24yr)

Source: UNAIDS Global Report 2014
Top 10 countries: People living with HIV

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>% of people with HIV in the world</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>South Africa</td>
<td>18%</td>
</tr>
<tr>
<td>2</td>
<td>Nigeria</td>
<td>9%</td>
</tr>
<tr>
<td>3</td>
<td>India</td>
<td>6%</td>
</tr>
<tr>
<td>4</td>
<td>Kenya</td>
<td>5%</td>
</tr>
<tr>
<td>5</td>
<td>Mozambique</td>
<td>4%</td>
</tr>
<tr>
<td>6</td>
<td>Uganda</td>
<td>4%</td>
</tr>
<tr>
<td>7</td>
<td>Tanzania</td>
<td>4%</td>
</tr>
<tr>
<td>8</td>
<td>Zimbabwe</td>
<td>4%</td>
</tr>
<tr>
<td>9</td>
<td>USA</td>
<td>4%</td>
</tr>
<tr>
<td>10</td>
<td>Zambia</td>
<td>3%</td>
</tr>
</tbody>
</table>

Remaining countries 39%

Source: UNAIDS Global Report 2014
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The HIV epidemic in South Africa: HIV in pregnant women & ART scale-up

Sources: Data from South African Department of Health Antenatal Surveys. www.doh.gov.za
Global report: UNAIDS report on the global AIDS epidemic 2013

HIV Prevalence (%)

<table>
<thead>
<tr>
<th>Year</th>
<th>National</th>
<th>Estimated number on ART</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>29.5</td>
<td>47,500</td>
</tr>
<tr>
<td>2005</td>
<td>30.2</td>
<td>110,900</td>
</tr>
<tr>
<td>2006</td>
<td>29.2</td>
<td>235,000</td>
</tr>
<tr>
<td>2007</td>
<td>29.4</td>
<td>382,000</td>
</tr>
<tr>
<td>2008</td>
<td>29.3</td>
<td>588,000</td>
</tr>
<tr>
<td>2009</td>
<td>29.3</td>
<td>912,000</td>
</tr>
<tr>
<td>2010</td>
<td>29.4</td>
<td>1,287,000</td>
</tr>
<tr>
<td>2011</td>
<td>30.2</td>
<td>1,793,000</td>
</tr>
<tr>
<td>2012</td>
<td>29.5</td>
<td>2,010,340</td>
</tr>
</tbody>
</table>
HIV prevalence in young pregnant women in rural South Africa (2009-2012)

<table>
<thead>
<tr>
<th>Age Group (Years)</th>
<th>HIV Prevalence (N=1029)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤16</td>
<td>8.4%</td>
</tr>
<tr>
<td>17-18</td>
<td>18.6%</td>
</tr>
<tr>
<td>19-20</td>
<td>25.4%</td>
</tr>
<tr>
<td>21-22</td>
<td>32.8%</td>
</tr>
<tr>
<td>23-24</td>
<td>44.8%</td>
</tr>
</tbody>
</table>

HIV incidence in 18-35 year women in this community:

9.1% per 100 women-yrs (95% CI: 7 - 12)

Source: Abdool Karim Q et al, Science 2010
<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>HIV Prevalence (2010) % (95% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male (n=1252)</td>
</tr>
<tr>
<td>≤15</td>
<td>1.0 (0.0 - 2.2)</td>
</tr>
<tr>
<td>16-17</td>
<td>1.1 (0.2 - 2.0)</td>
</tr>
<tr>
<td>18-19</td>
<td>1.5 (0 - 3.7)</td>
</tr>
<tr>
<td>≥20</td>
<td>1.8 (0 - 3.9)</td>
</tr>
</tbody>
</table>

Phylogenetic analysis to identify HIV transmission networks in rural SA schools

Gag gene (p17p24 fragment) sequences from 118 learners (88F & 30M) and 135 community sequences

F21-B = Female, 21 years, from School B
M20-C = Male, 20 years, from School C
Green colour = line linking cluster in map

Source: Kharsany et al. AIDS Research & Human Retroviruses 2014
One of every 3 HIV infections in young women occurs in SA
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Choosing a future for AIDS in South Africa

• “The End of AIDS” is an aspirational vision

• Epidemiological concepts of elimination and eradication not readily applicable to AIDS as millions are living with HIV and no cure available

• Key step to “The End of AIDS” is epidemic control
  – Epidemic control - Reduction of disease incidence, prevalence, morbidity or mortality to a locally acceptable level as a result of deliberate intervention measures
  – Point where HIV no longer represents a public health threat and no longer among the leading causes of Gauteng’s disease burden
  – Mathematically defined as the point at which the reproductive rate of infection ($R_0$) is below 1
Is HIV epidemic control achievable? Without a vaccine or cure?

Yes, HIV epidemic control is achievable! However, a vaccine or cure is essential for elimination.

Source: Cremin I. et al. AIDS 2013
Know your epidemic!
Know your hotspots & high risk populations in South Africa
Know your local epidemic!
Know your hotspots & High risk populations at provincial & district level

HIV Prevalence in Gauteng: 2009 - 2012
Know your hotspots: HIV prevalence in pregnant women by district in South Africa, 2012
What will it take to reach the ambitious target of epidemic control?

• Act on knowledge of detailed local epidemiology
• Build on successes
  ....learn from failures
  ....implement to scale
• As the HIV epidemic changes – so too should our programs & interventions. Adapt with the changes!
• Focused effort on young women – will need combinations of appropriate prevention strategies
• Deal with underlying drivers such as stigma & social norms simultaneously
• Continued funding & greater program efficiency
• Biomedical, socio-behavioural and implementation research, incl. new innovations – vaccine and cure
Conclusion

• Impressive progress in scientific discovery, resource mobilisation, political commitment & implementation:
  ▪ created a favourable global HIV trajectory
  ▪ South Africa needs to join this trend

• Focused effort on young women needed

• South Africa cannot afford to miss this historic “tipping” point & risk losing momentum against AIDS

• There are many challenges but it should not deter us!

• We won’t end AIDS tomorrow….
  …. but it has to be part of our long-term vision
i can make a pledge and change the world.

Could it really be that simple? We think so.

Your words count. Your actions matter. And even small changes can have a great impact in the lives of our patients.

Out of this philosophy comes the concept of 'I can ngingakhona' a grassroots movement where we ask you to join us in committing to making small changes in the way we approach our work in health care — not just for one day, but every day. It's simple. Just think of one thing you can do differently in every day practice, and then make it official by submitting it as a pledge. Whether you vow to smile more, no matter how long and tiring your day has been, or promise to be more conscientious about submitting paperwork on time, your pledge is a personal reminder to yourself of why you do what you do.

Based on the UK National Health Services' “Change Day” initiative, the campaign I can ngingakhona aims to gain as much momentum in South Africa. In the UK, almost 1 million NHS staff members have submitted their pledges to making a difference through their everyday actions. The result has been a passionate and inspired social movement that is changing the status quo within their health system.

A joint initiative by the Southern African HIV Clinicians Society and The Aurum Institute, i can ngingakhona is being launched during the 2014 SA HIV Clinicians Society Conference. Already, many of the conference speakers and honoured guests have made their pledges — and now we invite you to make yours. Simply find our stand no 3 in the Ballroom and have a picture taken with your pledge. In March 2015 we will be hosting a national i can ngingakhona event, where we will follow up with pledge makers to find out how their actions have affected others around them. And we will be handing out materials to help you take i can ngingakhona back to your facility, to inspire others to get involved and join the movement.

And remember that when it comes to making a difference - i can ngingakhona.