Adolescence: Vulnerabilities and Opportunities

Linda-Gail Bekker
The Desmond Tutu HIV Centre
UCT
August 2015
Today’s generation of young people is the largest in human history.

UNFPA, 2013

10-24 year olds: ¼ of the World’s population

1/3 of Africa’s population
90% live in developing countries
The Opportunity and Challenge: Africa’s Youth

SSA Population 2015, 2035

South Asia Population 2015, 2035

Adolescent health – Lancet

“Adolescence is a time in life that harbours many risks and dangers, but also one that presents great opportunities for sustained health and wellbeing through education and preventive efforts.

Never before was there such a discrepancy between sexual and psychosocial maturity.”

Sabine Kleinert, Lancet series.
Globally, youth fare better in health than economic indicators

85% of youth experienced low well being
A time of “risks and dangers”....

HIV, (TB), viral and treatable STIs and Pregnancy....
Global patterns of mortality in young people: a systematic analysis of population health data

Communicable Disease causes

Patton G Lancet 2009

All cause mortality rates/100 000
An urgent and ongoing crisis:

2,500 infections every day: 1 new infection every 30 seconds

80% of new infections in SSA
Adolescents (10 – 19) Living with HIV

2.1 million [1.6 million – 2.6 million] of whom 2/3 are in girls (2012)

Note: The map is stylized and not to scale. It does not reflect a position on the part of UNICEF on the legal status of any country or territory or the delimitation of any frontiers.

Source:
- Country data: UNAIDS 2009 estimates
Unacceptable inequality: AIDS deaths rising among adolescents

2nd Leading cause of death...

Deaths in children aged 0 – 4 years

Deaths in adolescents aged 10 - 19

Deaths in young people aged 20 - 24

Deaths in children aged 5 – 9 years

Source: UNAIDS 2012 HIV and AIDS estimates
New HIV Infections in Adolescents in 20 Countries with Highest Number of New HIV Infections, 2012

Source: UNAIDS 2012 HIV and AIDS estimates
Young Key populations: Adolescents at greater risk.... HIV, STI, TB.
YPWID: at risk for HIV

Drug use starts in youth

IVDU increasing in some regions

Young IV drug users are

- More likely to have increased sexual risks.
- Poor HIV Knowledge
- More likely to share needles
- More likely to inject in groups

Prevalence among young IDU in Moscow is 12%

1.5-8% of All Russian men <30 years have injected at some time

Idele P, JAIDS 2014
Young SWs more at risk for HIV:

- Less likely to negotiate condoms
- Less able to deal with violence
- More vulnerable to exploitation
- Less correct information

Clients of CSW often are youth

FSWs have a 14-fold higher risk of infection as women of a similar age.
MSM are often young....

- Central America: 34% are < 24 yrs
- Peru: 50% are < 25 yrs

Young MSM are more at risk....

- Central Asia: 14-20 % HIV in 15-24 yr
- E Europe: 14-20 % HIV in 15-24 yr
- W Europe: 10 % HIV in 15-24 yr

More likely to take risks: ‘bare backing’, crystal meth usage, etc

J. Elford, Current Opinion in Infectious Diseases 2006, 19:26–32
“The Degree of Civilisation in Society can be judged by entering its prisons.”

(Dostoevsky)

Inadequate services
Poor knowledge
Greater risk taking

Youth in Detention:
The first three groups often link into this group.
Young women Southern Africa are 3-6x more likely HIV + than males
### Young and vulnerable

<table>
<thead>
<tr>
<th>Age Group (Years)</th>
<th>KZN HIV Prevalence ANC (N=1029)</th>
<th>CT HIV Prevalence General Female (N=600)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤16</td>
<td>8.4%</td>
<td>12%</td>
</tr>
<tr>
<td>17-18</td>
<td>18.6%</td>
<td>17%</td>
</tr>
<tr>
<td>19-20</td>
<td>25.4%</td>
<td>30%</td>
</tr>
</tbody>
</table>

In incidence KZN (16-35 yo) : 9% and Cape Town (16-20 yo) : 8%
Methods for collecting sexual behaviour information from South African adolescents: a comparison of paper versus personal digital assistant questionnaires.


- Sexual debut is at a young age <15 yrs (14.6 yrs in Masi)
- High risk sex:
  - Multiple sexual partners (mean 2.6)
  - Inconsistent/ poor condom use (<50%)
  - Coercion and violence (10%)
  - Transgenerational (25%)
  - Transactional (25%)
  - Strangers (12%)

Future Fighters Youth Camp 2007
Adolescents: WHO are these people?

- A social invention in last 100 years
- "Age of consent" laws – late 1800s
- Girls consenting to sex: 10-12 yrs
  - Few States a little older (14-16 yrs)
  - Delaware – 7yrs!!!
- 1913 paper – massive numbers of teenage prostitutes in 1800’s and early 1900’s.
“South African challenges such as unemployment, lack of basic sanitary needs (i.e. running water) and electricity and poor education require the most urgent and immediate attention.” South Africa
Adolescence is a Developmental Transition: Biological and Behavioural Vulnerabilities

- **Pre-adolescence**: 10-13 years
- **Middle Adolescence**: 14-16 years
- **Late Adolescence**: 17-20 years
- **Emerging Adulthood**: 21-25 years

Increasing Socialisation
Frontal lobe re-modeling until 25 yrs

Frontal lobe (executive function) ahead of limbic system-

Puberty occurs with much hormonal re-modeling too!

Adolescence is a Developmental Transition: Biological and behavioural vulnerabilities

- Greater Risk Taking
  - Present Bias
- Poor knowledge and application of knowledge
  - Lack of abstract thought
- Disregard for rules and establishment
- Poor health seeking behaviours
- Prejudicial and inadequate health services
  - Lack of privacy

Pre-adolescence 10-13 years
Middle Adolescence 14-16 years
Late Adolescence 17-20 years
Emerging Adulthood 21-25 years
Review of Evidence

1. Executive Summary: Opportunities for Action and Impact
2. Epidemiology of HIV and AIDS Among Adolescents
3. Systematic Review of Systematic Reviews
5. What Programs Work for Adolescent Girls?
6. Young Key Populations in Asia Pacific
7. Lessons Learned: Scale-Up of Voluntary Contraceptive Services
8. QUESTIONS REMAIN
9. Lessons Learned From HPV Vaccine Delivery Preventing Sexual Violence and HIV in Children

Susan Kasedde 2014
Effective Approaches for Programming to Reduce Adolescent Vulnerability to HIV Infection, HIV Risk, and HIV-Related Morbidity and Mortality: A Systematic Review of Systematic Reviews

Sue Napierala Mavedzenge, PhD, MPH,* Ellen Luecke, MPH,* and David A. Ross, MA, MSc, BMBCh, PhD†

<table>
<thead>
<tr>
<th>Evidence of Effectiveness</th>
<th>Quality of Evidence</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Consistently showed effectiveness</td>
<td>A1</td>
<td>B1</td>
</tr>
<tr>
<td>2. Largely, but not consistently, showed effectiveness</td>
<td>A2</td>
<td>B2</td>
</tr>
<tr>
<td>3. Mixed beneficial and ineffective or harmful results</td>
<td>A3</td>
<td>B3</td>
</tr>
<tr>
<td>4. Consistent ineffective or harmful results</td>
<td>A4</td>
<td>B4</td>
</tr>
</tbody>
</table>
Evidence for Adolescent interventions

To date very little biomedical research or programming in adolescents.

<table>
<thead>
<tr>
<th>Interventions Designed Specifically for Adolescents</th>
<th>Biological Outcomes</th>
<th>Behavioral Outcomes</th>
<th>Knowledge/Attitudes Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In-school HIV prevention education</td>
<td>B3</td>
<td>A3</td>
<td>A1</td>
</tr>
<tr>
<td>2. Delivery of services in youth centers</td>
<td></td>
<td></td>
<td>B3</td>
</tr>
<tr>
<td>3. Increasing adolescents’ use of HIV prevention interventions by making health services more adolescent-friendly</td>
<td></td>
<td>C2</td>
<td>C3</td>
</tr>
<tr>
<td>4. School-based health services</td>
<td></td>
<td></td>
<td>C3</td>
</tr>
<tr>
<td>5. Community-wide interventions within geographically-defined communities</td>
<td>B2</td>
<td></td>
<td>C2</td>
</tr>
<tr>
<td>6. Conditional cash transfers to adolescents to stay in school</td>
<td>C1</td>
<td></td>
<td>C1</td>
</tr>
<tr>
<td>7. Conditional cash transfers to adolescents to remain STI-free</td>
<td>C3</td>
<td></td>
<td>C3</td>
</tr>
<tr>
<td>8. Unconditional cash transfers to adolescents</td>
<td>C2</td>
<td></td>
<td>C2</td>
</tr>
</tbody>
</table>
Studies in the field (Specifically targeting adolescents)

- MTN 023: Dapivirine Gel: 16-17yo (96) USA Safety, acceptability F
- ATN 113: TDF/FTC PrEP: 15-17yo (79) USA Safety, acceptability, adherence. 79 MSM
- CHAMPS-Pluspills: TDF/FTC PrEP: 15-19 yo M+F. Safety, adherence, use. 2 sites (150)
Project PREPare

Mayer K, IAPAC, 2014

- Chicago cooling off
- 2/3 of those w/ PrEP use only
- 70% of those w/ PrEP use ongoing PrEP

with choice of

strong! smart! sexy!

PrEPared!
HIV infections averted per 100 person years of PrEP

Age group in which PrEP is provided

Johnson L, 2014
Millennial Survey

Millennials consider the technology and media sector to be the most innovative

Sectors most responsible for innovation

- 52% TMT
- 47% Consumer Business
- 37% Manufacturing
- 23% Healthcare & Life Sciences
- 18% Energy & Resources
- 15% Public Sector
- 14% Financial Services

Top mention: Spain, Australia, Netherlands and Canada
Youth Opportunities

- Biological
- Psychological
- Social
- Behavioural
- Structural
Roger’s theory of dissemination

Beaudoin P et al. 2014

Adolescents are Early Adopters

Source: Everett Rogers. Diffusion of innovations model.
Diffusion of Innovation favours:

- Still adapting and developing frontal lobe
  - Executive function still developing
  - Impulse control inadequate
  - Long term decision making poor

- Better developed limbic lobe
  - Emotional
  - Impulsive
  - Short term gratification
To get to 50 million people….

- Radio: 38 years
- Phone: 20 years
- TV: 13 years
- Facebook: 3.6 yrs
- Twitter: 1.5 yrs
- Google plus: 88 days
Cashing in on evolving capacities

Almost Half of Mobile Users are Younger than 25

“Invention is the talent of youth, as judgement is of age”

Jonathan Swift
At the end of 2013, there were 1.2 billion Facebook users in the world and 82% of them were between the ages 18 and 35 years.
• 222 participants (69.4% female) between the ages of 16 – 25 yrs.

• Conclusion:
  – HIV self-testing device can be used accurately and is acceptable to a young population.
  – Participants reported high usability and acceptability ratings, with younger participants and new testers giving higher acceptability scores.
In East Africa 49% of 350 000 MMC performed in 2008-2011 were in young men aged 15-19

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Male Circumcisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>1 800 000</td>
</tr>
<tr>
<td>2010</td>
<td>1 600 000</td>
</tr>
<tr>
<td>2011</td>
<td>1 400 000</td>
</tr>
<tr>
<td>2012</td>
<td>1 200 000</td>
</tr>
</tbody>
</table>

2/3 of MSM volunteering for SIBANYE PrEP demo in CT are 18-24 years

Galbraith JS, JAIDS

UNAIDS Global Report 2013
If we offer it- will they take it “well enough”

ADHERENCE

EFFICACY

AGE

<25 years

>25 years

RCTs of pre-exposure prophylaxis with antiviral agents in HIV negative
ADAPT/HPTN 067 in Cape Town

Youth in ADAPT

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Daily usage</th>
<th>Time-driven usage</th>
<th>Event-driven usage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18–20</td>
<td>13 (21.7%)</td>
<td>13 (22.0%)</td>
<td>13 (21.7%)</td>
<td>39 (21.8%)</td>
</tr>
<tr>
<td>21–25</td>
<td>18 (30.0%)</td>
<td>14 (23.7%)</td>
<td>18 (30.0%)</td>
<td>50 (27.9%)</td>
</tr>
<tr>
<td>26–30</td>
<td>11 (18.3%)</td>
<td>14 (23.7%)</td>
<td>4 (6.7%)</td>
<td>29 (16.2%)</td>
</tr>
<tr>
<td>31–35</td>
<td>1 (1.7%)</td>
<td>5 (8.5%)</td>
<td>8 (13.3%)</td>
<td>14 (7.8%)</td>
</tr>
<tr>
<td>36–40</td>
<td>9 (15.0%)</td>
<td>5 (8.5%)</td>
<td>10 (16.7%)</td>
<td>24 (13.4%)</td>
</tr>
<tr>
<td>&gt;40</td>
<td>8 (13.3%)</td>
<td>8 (13.6%)</td>
<td>7 (11.7%)</td>
<td>23 (12.8%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Daily usage</th>
<th>Time-driven usage</th>
<th>Event-driven usage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>25</td>
<td>26</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>25th, 75th %tile</td>
<td>21, 37</td>
<td>21, 33</td>
<td>21, 37</td>
<td>21, 37</td>
</tr>
<tr>
<td>Min, Max</td>
<td>18, 48</td>
<td>18, 52</td>
<td>18, 48</td>
<td>18, 52</td>
</tr>
</tbody>
</table>
## ADAPT

**Number with detectable plasma levels**

22% 18-20yrs ; 27 % 21-25yrs

<table>
<thead>
<tr>
<th>Weeks on study</th>
<th>Age (yrs)</th>
<th>Daily arm</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>&lt;25</td>
<td>87.0</td>
</tr>
<tr>
<td>30</td>
<td>&lt;25</td>
<td>81.3</td>
</tr>
<tr>
<td>10</td>
<td>&gt;25</td>
<td>100</td>
</tr>
<tr>
<td>30</td>
<td>&gt;25</td>
<td>76.9</td>
</tr>
</tbody>
</table>

>40 ng/ml in plasma means a tablet was taken in last 24 hours
At the end of 2013, there were 1.2 billion Facebook users in the world and 82% of them were between the ages 18 and 35 years.

Half of these utilized this technology daily, most before getting out of bed in the morning!
Pluspills Study

A Demonstration Open Label Study to Assess the Acceptability, Safety and Use of Truvada Pre-exposure Prophylaxis in Healthy, HIV-Uninfected Adolescents, 15-19 Years of Age.

(under IND)
PrEP: ready, steady, GO!

Is it for me?
Eligibility and Desire

Get started
USE DAILY
Cover for 3 weeks

You are on your way!
USE DAILY
Test 3 monthly

KEEP CALM AND PREP

AS LONG AS YOU TAKE A PILL A DAY- THE VIRUS WILL STAY AWAY!!!
Drug detection levels

% participants

POOR

Good

1/3 enrolled: 11 M and 32 F
Unintended Pregnancy Is a Particular Concern in Adolescents Worldwide

- Around the world, about 16 million girls and women aged 15 to 19 years give birth each year.
  - Most of these pregnancies are unintended.

Unintended Pregnancy May Result From Incorrect or Inconsistent Use of Contraceptives

Failures Within First 12 Months of Use (United States)\(^1\)

<table>
<thead>
<tr>
<th>Method</th>
<th>Perfect Use</th>
<th>Typical Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Rod Implant</td>
<td>0.05</td>
<td>0.2</td>
</tr>
<tr>
<td>Levonorgestrel IUS</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Copper T IUD</td>
<td>0.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Injection</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>OCs</td>
<td>0.3</td>
<td>9.0</td>
</tr>
<tr>
<td>Patch</td>
<td>0.3</td>
<td>9.0</td>
</tr>
<tr>
<td>Ring</td>
<td>0.3</td>
<td>9.0</td>
</tr>
</tbody>
</table>

IUS = intrauterine system; IUD = intrauterine device; OC = oral contraceptive (progestin-only and combined pills).

Barriers to services and care

Individual
- Poor Education
- Poor Knowledge
- Poor risk perception
- Social isolation
- Stigma
- Mental health
- Financial Resources

Health care system
- Discrimination
- Poor knowledge
- Judgmental attitudes
- Lack of privacy
- Lack of confidentiality
- Lack of peer involvement
- Overcrowding
- Fragmentation
- Transport
- Clinic hours

Other structural barriers
- Legal consent issues
- Criminalization
- Discriminatory laws or practices

Delaney Moreletwa S 2014 JIAS
JLO knows.....
Youth friendly?

- Non judgmental
- Staff know-how
- Less fragmentation
- Staff continuity
- Flexi hours
- Affordable
- Peer involvement
- Relaxed
- Psychosocial support
- Other services available
Socioecological Framework and levels of Risk…….
Socioecological Framework and levels of RISK ENGAGEMENT

Shared experiences
- Social networks
- Sexual networks
- School
- Sports
- Community venues
- Youth centres
- Drop in centres
- Concerts
- Public transport
- Church
- Taverns

Shared spaces
- Social networks
- Sexual networks
- School
- Sports
- Community venues
- Youth centres
- Drop in centres
- Concerts
- Public transport
- Church
- Taverns
Bundle age and venue specific interventions

COMMUNITY BASED Community partnerships
The DTHF Youth Centre, Kommetjie
What have we achieved?

LOTS OF FUN AND SURFING
Contraception
HIV, STI, Preg screening
Mental health screens
Basic primary care
CD4, VL
ART, BMI, Blood sugar
CV writing, ID books
Hairbraiding,
manicures
Music
WIFI

Accessible
Efficient
Friendly
Tailored
Funky
Comprehensive
One STOP Shopping

Philip, Elzette
Youth messaging....

Youth marketing....
3 Ps for Prevention: Partners, PrEP and Payment.

Formative work on risk, partners, narratives

Best message

General community of 20,000

PrEP + SOP + CCT

CCT contingent on Adequate drug levels monthly For first 3 months.

PrEP + SOP

Approach 1000 selected women 16-26 years

Enrol, randomise 100 women to PrEP +/- CCT

12 months follow up
Evaluation of daily oral PrEP as a primary prevention strategy for young African women: A Vanguard Study

Target Enrollment

- Uninfected women, 16-25, southern Africa
- 400 women who accept PrEP at enrollment
- Up to 200 women who decline PrEP at enrollment

Follow-up duration: 12 months

Primary objective: Assess PrEP initiation, adherence, acceptability, and continuation among young women in three sites in southern Africa offered open label oral PrEP.
The double helix: How?

• Recognise adolescent population and tailor accordingly!
• Put Adolescent in the centre of the service
• Provide enabling environments and ZERO TOLERANCE to harmful, negative or undermining policies.
• Streamline services (health, education, social, community based) on the ground to take advantage of youth friendly requirements
  – bundle age appropriate interventions
  – Utilise strong linkages that already exist in services (SRH and HIV)
  – Reduce need for referrals – one stop shopping.
  – Use venues already used regularly by youth
  – Use media, tools, ways of thinking already utilized by adolescents.
  – Pay attention to social marketing and keep it funky but simple
• Involve adolescents through active engagement and strengthen outreach through peers to reach all adolescents
• Be innovative, transparent and accountable.
Youth at the centre of multiple epidemics in all scenarios and groups.

They can’t afford to wait -and neither can we....
Conclusions

• We are failing adolescents **globally**
• YKP globally and YWAG in SSA are **extraordinarily** at risk for HIV
• An unprecedented youth BULGE is occurring in Africa exacerbating **urgency**.
• HIV treatment outcomes for youth are poor leading to **unacceptable morbidity and mortality**
• Our options for HIV interventions are **limited**.
• **Tailored, adolescent friendly, acceptable and feasible prevention packages** for YKPs and YWAG are **URGENTLY needed and MUST be tested in this population.**
Follow us on Facebook:
“Youth are a wonderful gift. They have an extraordinary capacity to see into the heart of things and to expose sham and humbug for what they are.”

Desmond Tutu 2014
Thanks

Robin Wood and the DTHF/DTHC Family
MTN: Sharon, Ian and team
Connie and Jared
Kai Jones
IDM: Val Mizrahi and team
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PHRU Adolescent Division: Glenda Gray, Janan Diedrichs
Mobile services: Philip Smith, Tutu Teen Truck and Tester Teams
Drs. Jo-ann Passmore, Heather Jaspan, Shaun Barnabas
(Wish studies.)
Dr. Leigh Johnson, School of Public Health, UCT
DTHF Youth Centre and DTF YC Staff: Dante Robbertze, Jen, staff and Youth interns
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CAPRISA- Slim and Quarraisha Karim
ATOMO – Byron Darroch

Adolescents and their Families

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