



# Adolescence: Vulnerabilities and Opportunities

Linda-Gail Bekker  
The Desmond Tutu HIV Centre  
UCT  
August 2015



**UNIVERSITY OF CAPE TOWN**  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD



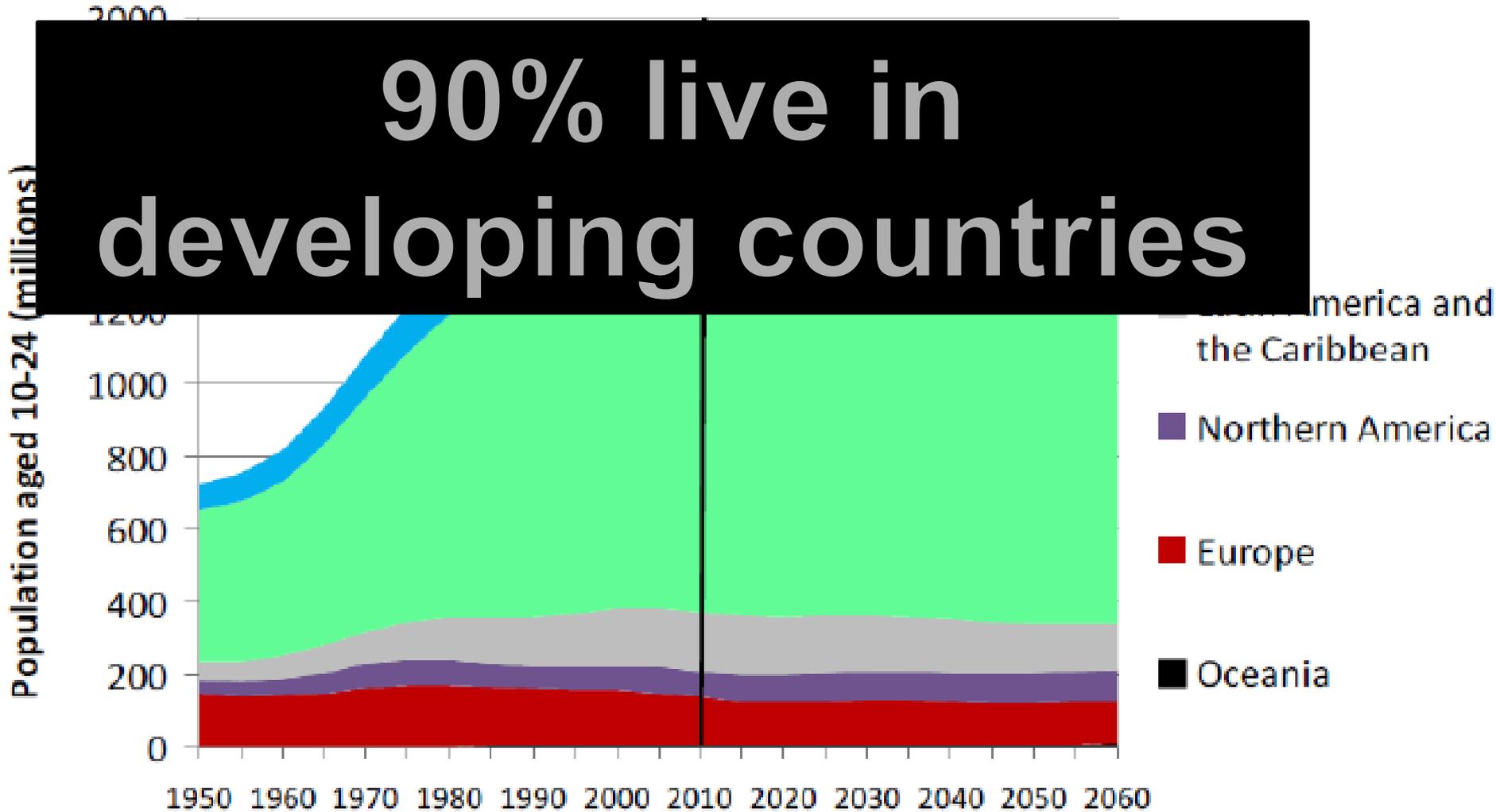
10-24 year olds:  $\frac{1}{4}$  of the  
World's population



$\frac{1}{3}$  of Africa's population

# POPULATION REGIONAL VARIATIONS (1950-2060)

90% live in  
developing countries



# The Opportunity and Challenge: Africa's Youth

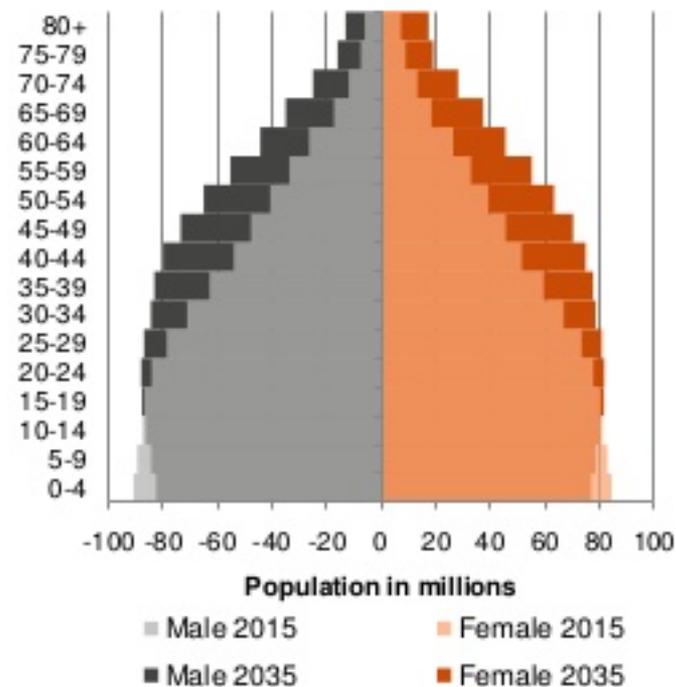
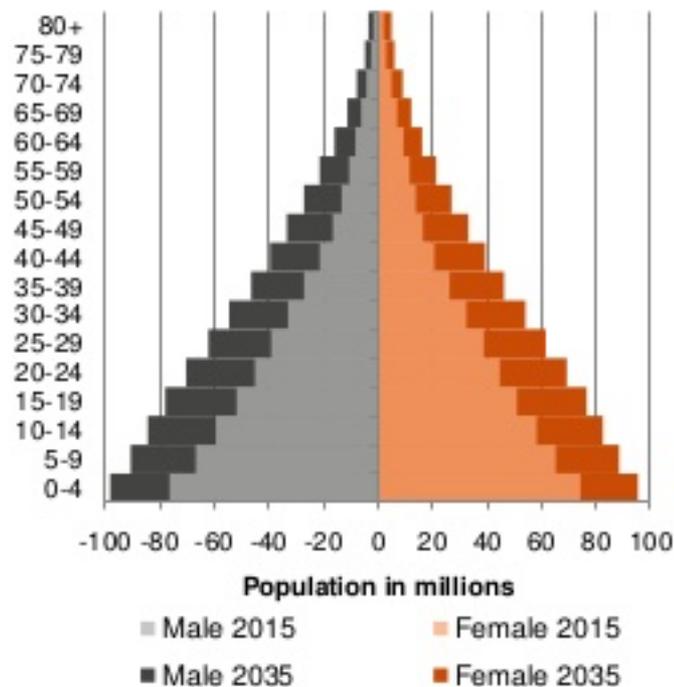
SSA Population 2015, 2035

South Asia Population 2015, 2035

Africa

G. 1

Population (in billions)



# 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.**”*

# Global Youth Wellbeing Index Rankings

- |   |                |    |             |
|---|----------------|----|-------------|
| 1 | Australia      | 16 | Mexico      |
| 2 | Sweden         | 17 | Jordan      |
| 3 | South Korea    | 18 | Turkey      |
| 4 | United Kingdom | 19 | Indonesia   |
| 5 | Germany        | 20 | Morocco     |
| 6 | United States  | 21 | Ghana       |
| 7 | Japan          | 22 | Philippines |

- ## INDEX DOMAINS
- Citizen Participation
    - Economic Opportunity
    - Education
    - Health
  - Information and Communication Technology
  - Safety and security

**Globally, youth fare better in health than economic indicators**

11 Vietnam

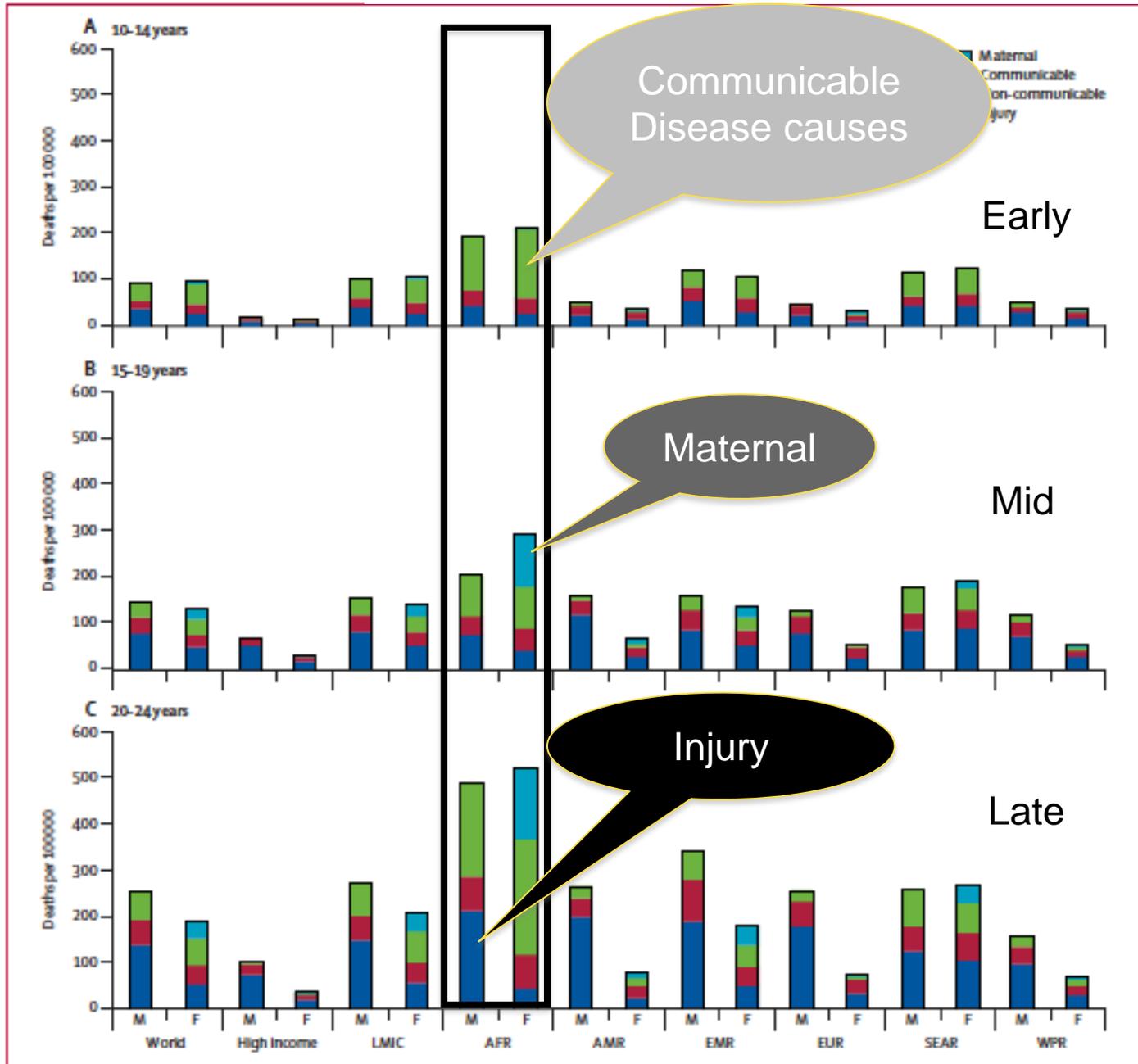
26 India

**85% of youth experienced low well being**



# A time of “risks and dangers” ....

HIV, (TB), viral and treatable STIs  
and Pregnancy.....



All cause mortality rates/100 000

# An urgent and ongoing crisis:

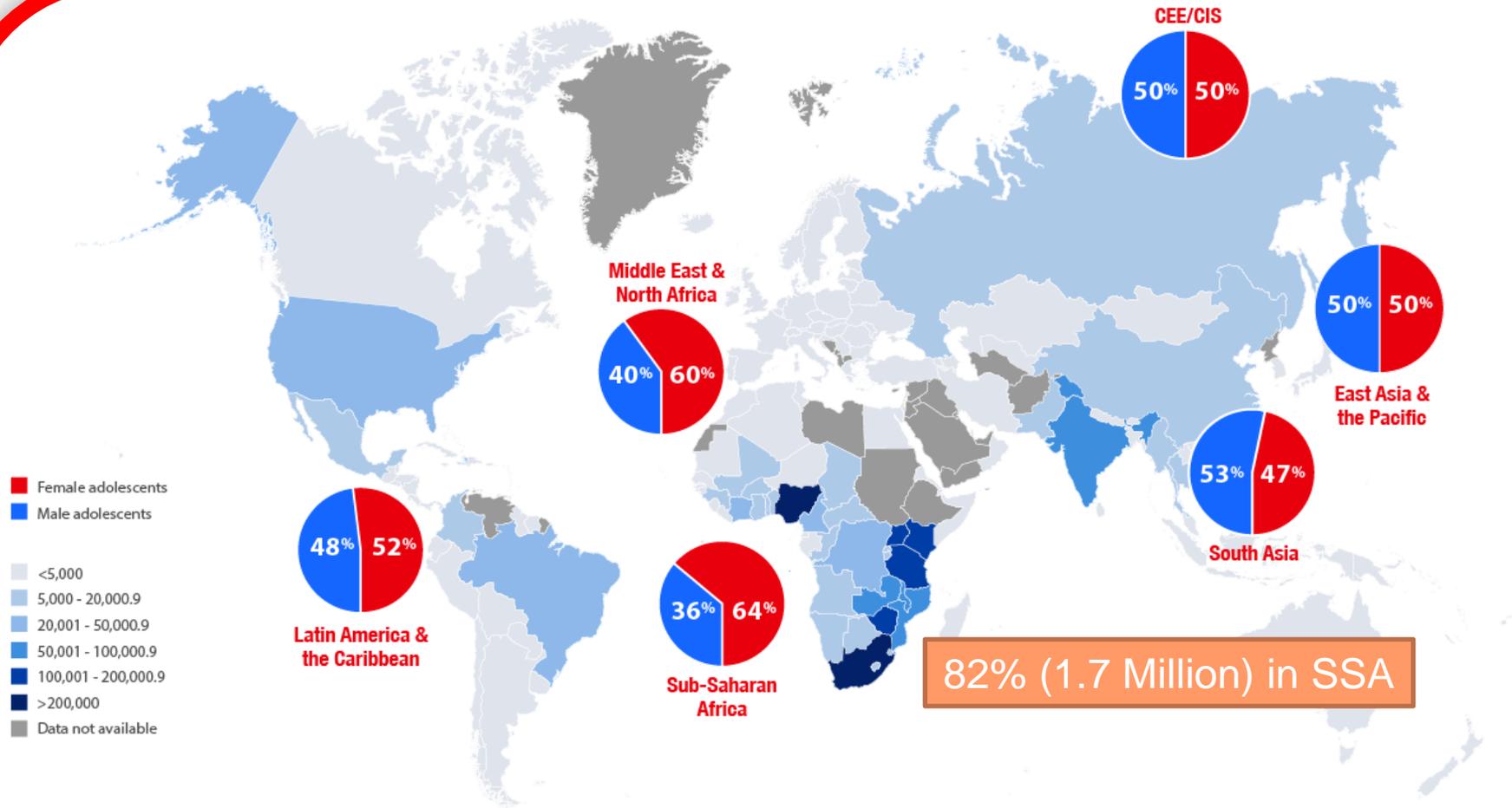
2 500 infections every day : 1 new infection every 30 seconds



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)



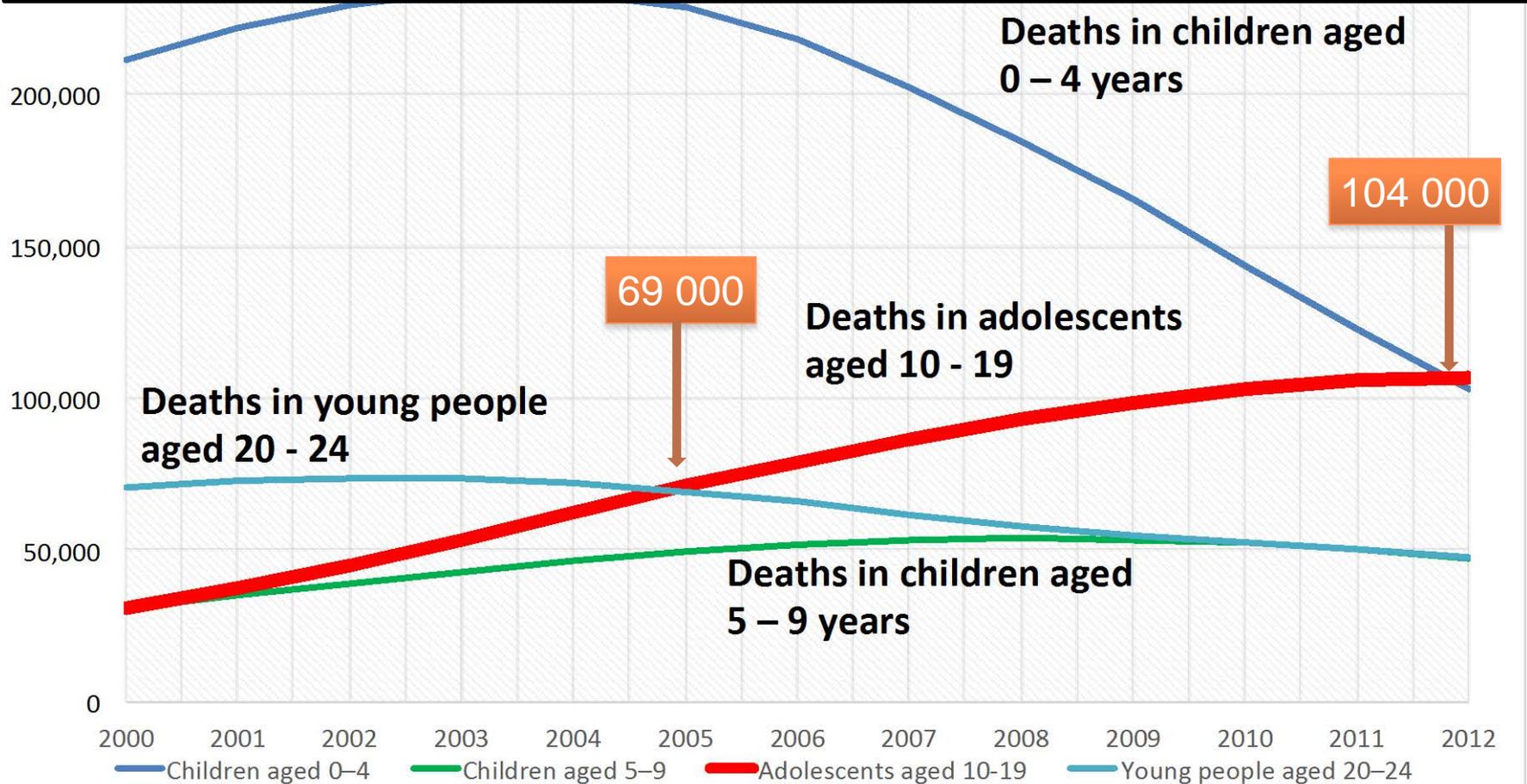
Note: The map is stylized and not to scale. It does not reflect a position on the part of UNICEF on the legal status of any country or territory or the delimitation of any frontiers.

Source:

- Regional summaries by gender: UNICEF, Progress for Children, 2012 derived from 2010 estimates
- Country data: UNAIDS 2009 estimates

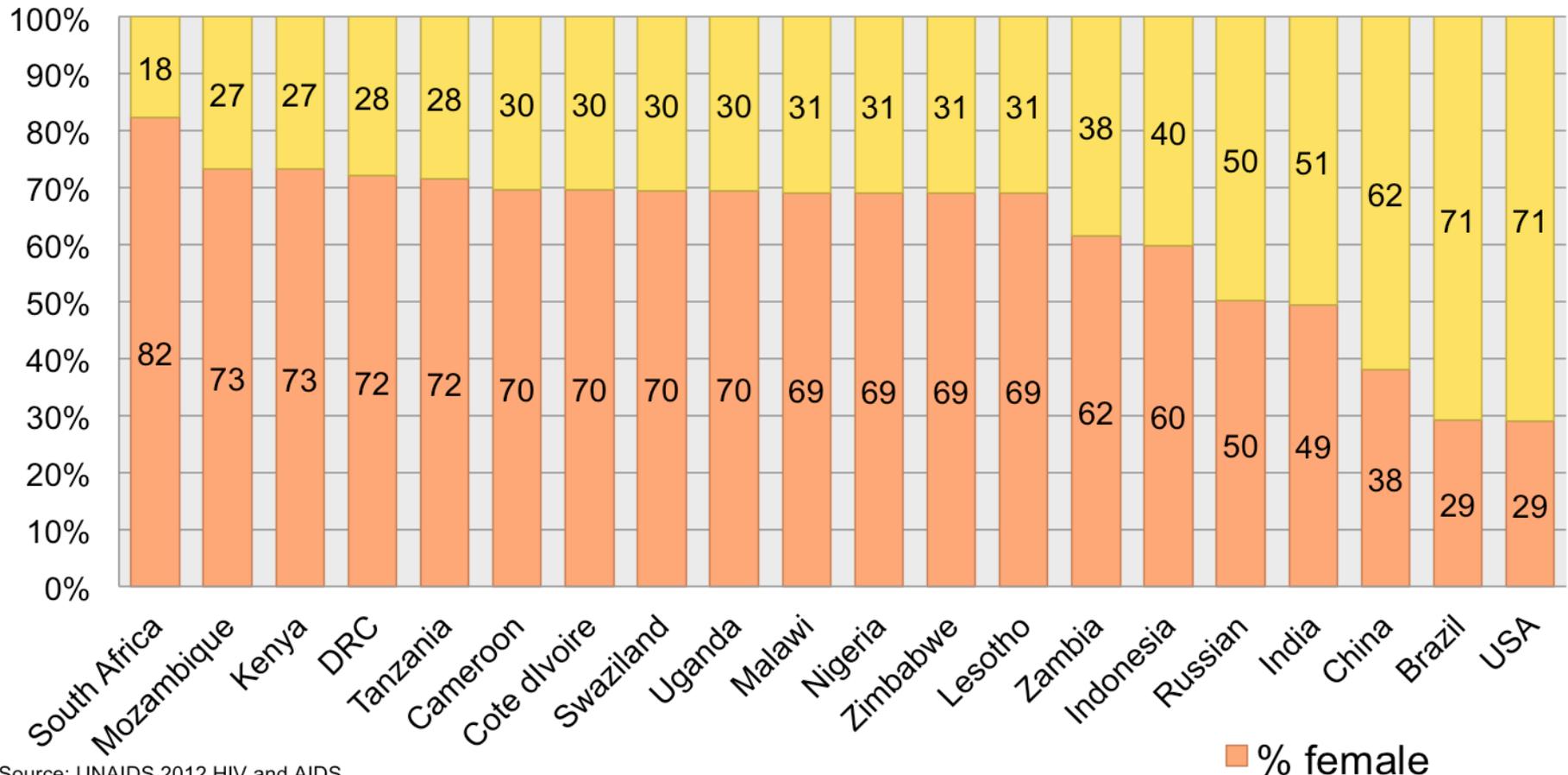
# Unacceptable inequality: **AIDS deaths rising among adolescents**

## 2<sup>nd</sup> Leading cause of death...



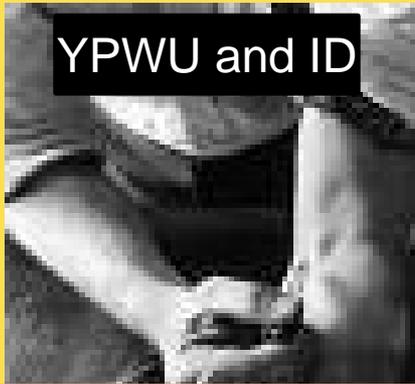
Source: UNAIDS 2012 HIV and AIDS estimates

# New HIV Infections in Adolescents in 20 Countries with Highest Number of New HIV Infections, 2012



Source: UNAIDS 2012 HIV and AIDS estimates

YPWU and ID



YSWs



Young Key populations:  
Adolescents at greater  
risk....

HIV, STI, TB.

YMSMs



YOUTH IN REFUGEE CAMPS

# 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%



Idele P, JAIDS 2014

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

CSWs have a 14-fold higher risk of infection as women of a similar age

## 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



# 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

*“The Degree of Civilisation in Society can be judged by entering its prisons.”*  
(Dostoevsky)

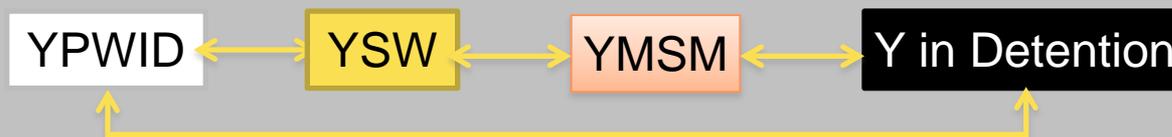


**Inadequate services**  
**Poor knowledge**  
**Greater risk taking**

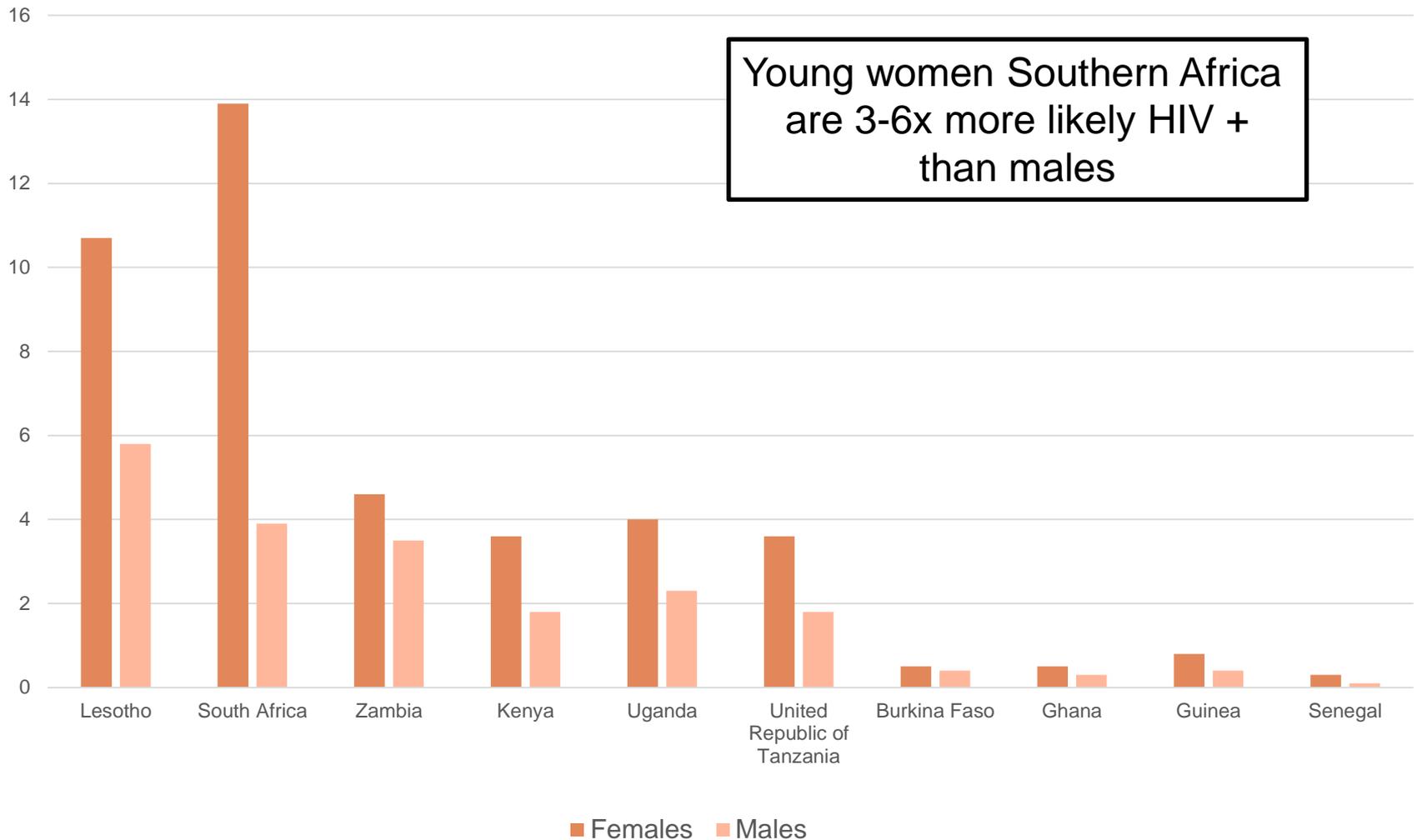


Youth in Detention:

The first three groups often link into this group



# HIV prevalence: 15-24 yr old



# Young and vulnerable

Age Group (Years)	KZN HIV Prevalence ANC (N=1029)	CT HIV Prevalence General Female (N=600)
≤16	8.4%	12%
17-18	18.6%	17%
19-20	25.4%	30%



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.

Heather B Jaspan, Alan J Flisher, Landon Myer, Catherine Mathews, Chris Seebregts, Jessica R Berwick, Robin Wood, Linda-Gail Bekker.

- 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.

# vey

"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**

Challe

5...



# Adolescence is a Developmental

# INCREASING SOCIALISATION



Pre-adolescence  
10-13 years

Middle Adolescence  
14-16 years

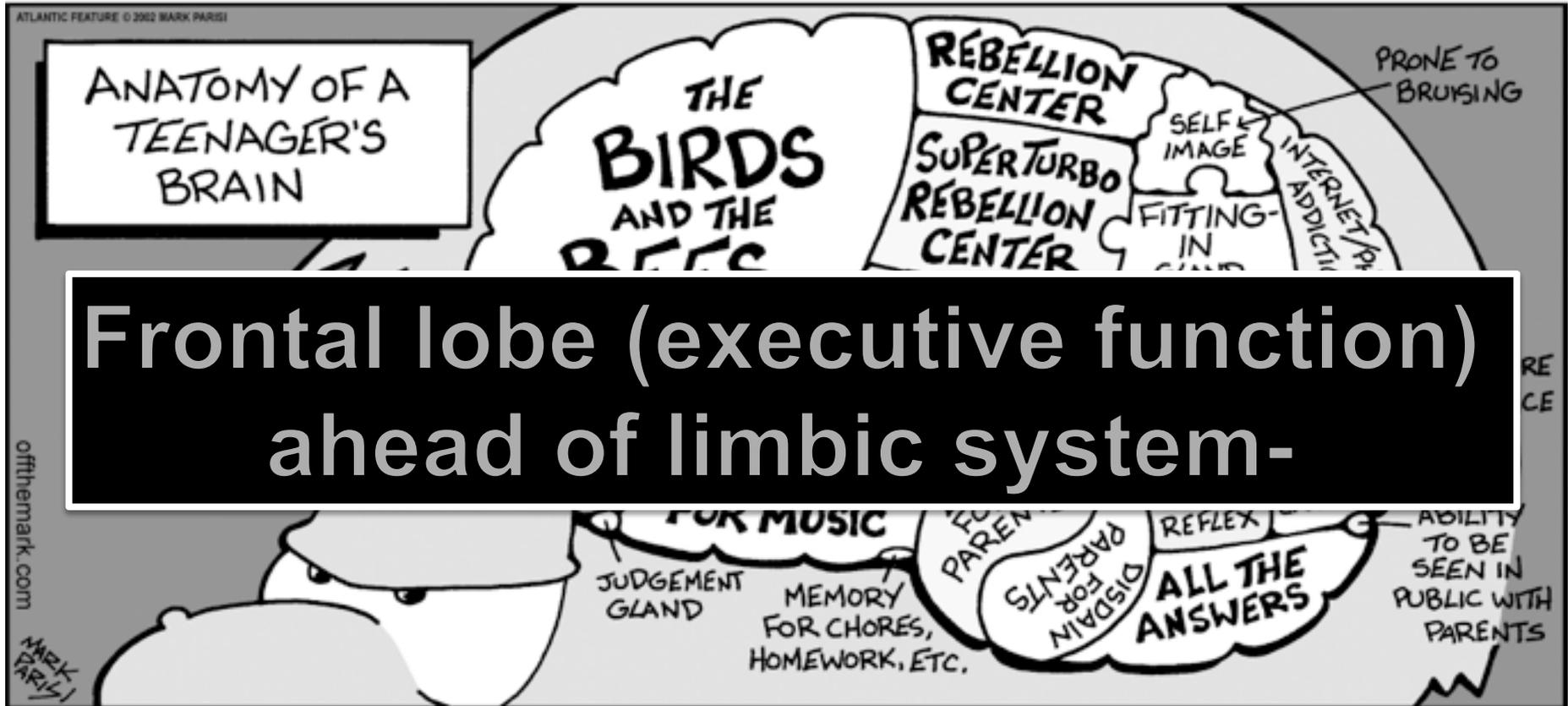
Late Adolescence  
17-20 years

Emerging Adulthood  
21-25 years

# Frontal lobe re-modeling until 25 yrs

off the mark.com

by Mark Parisi



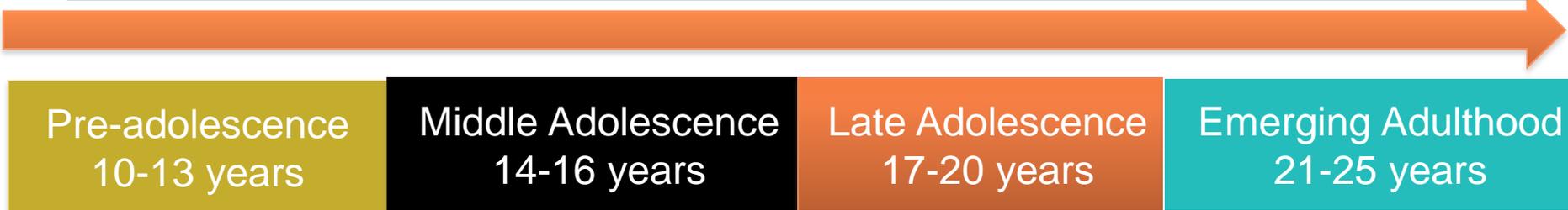
Frontal lobe (executive function)  
ahead of limbic system-

Puberty occurs with much hormonal re-modeling too!

Blakemore S-J, <http://brainposts.blogspot.com/2012/09/the-adolescent-brain-ted-talk-by.html>

# 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



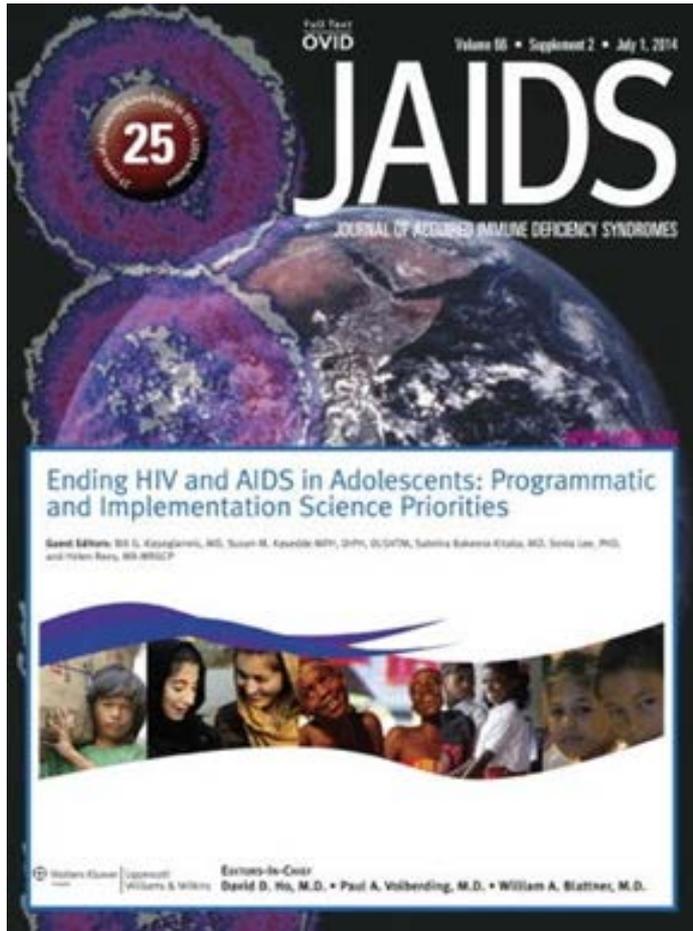
Pre-adolescence  
10-13 years

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
4. Impact and **?** AIDS Investment Frameworks for Adolescents
5. What Programs for Adolescent Girls?
6. Young Key Populations in Asia Pacific
7. Lessons Learned: Scale-Up of Voluntary
8. **QUESTIONS REMAIN**  
Contraceptive Services
9. Lessons Learned From HPV Vaccine Delivery Preventing Sexual Violence and HIV in Children
10. Commentary: Innovations in Programming Operational Research Priorities

# 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†*

		Quality of Evidence		
		A. High quality evidence	B. Moderate quality evidence	C. Low quality evidence
Evidence of Effectiveness	1. Consistently showed effectiveness	<b>A1</b>	<b>B1</b>	<b>C1</b>
	2. Largely, but not consistently, showed effectiveness	<b>A2</b>	<b>B2</b>	<b>C2</b>
	3. Mixed beneficial and ineffective or harmful results	<b>A3</b>	<b>B3</b>	<b>C3</b>
	4. Consistent ineffective or harmful results	<b>A4</b>	<b>B4</b>	<b>C4</b>



# Evidence for Adolescent interventions

	Recommendation			
	Biological Outcomes	Behavioral Outcomes		Knowledge/ Attitudes Outcomes
<i>Interventions Designed Specifically for Adolescents</i>				
1. In-school HIV prevention education	B3	A3		A1
2. Delivery of services in youth centers		B3		
3. Increasing adolescents' use of HIV prevention interventions by making health services more adolescent-friendly		C2	C3 <sup>7</sup>	
4. School-based health services		C3		
5. Community-wide interventions within geographically-defined communities	B2	C2 <sup>B</sup>		
6. Conditional cash transfers to adolescents to stay in school	C1	C1		
7. Conditional cash transfers to adolescents to remain STI-free	C3	C3		
8. Unconditional cash transfers to adolescents	C2	C2		

To date very little biomedical research or programming in adolescents



# 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
- ATN 110: TDF/FTC PrEP: 18-24 yo (200)
- Kenyan MP3 : TDF/FTC PrEP: 15-24 yo (40) F  
Kenya 1 Site. Safety, feasibility, adherence
- CHAMPS-Pluspills : TDF/FTC PrEP : 15-19 yo  
M+F. Safety, adherence, use. 2 sites (150)

Chicago

- Chicago co
- 2/3 of those on PrEP use o
- 70% of the
- Drug dete ongoing Pr

**YO PROTECT**

25,000-27,000

Approximately 1/3 of Chicago's population is on PrEP

IT'S A FACT

ONE PILL A DAY

YOUR MIND ! YOUR BODY !  
TAKE CONTROL !

Project PrEPare

STRONG ! SMART ! SEXY !  
PrEPared !

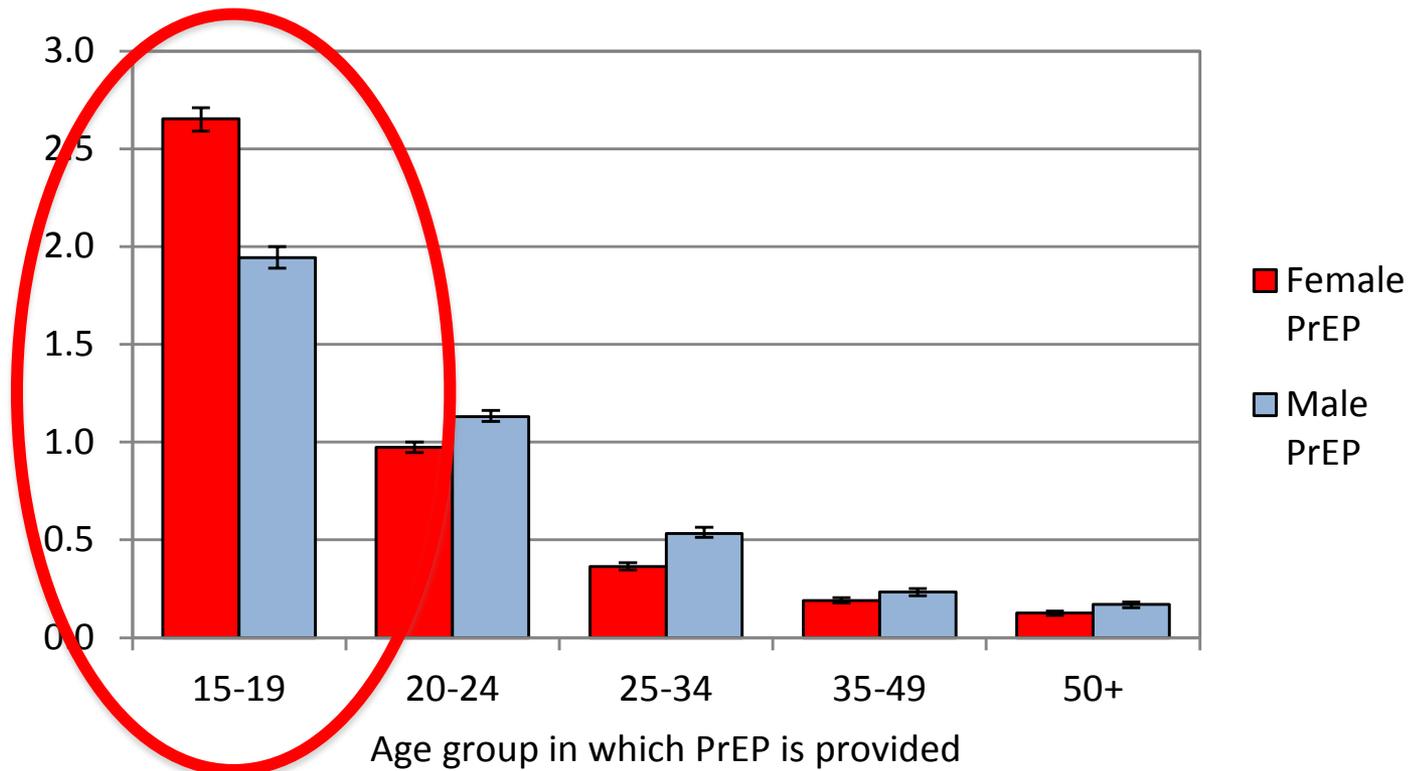
with choice of

ed interest in

usek, CROI, 2014



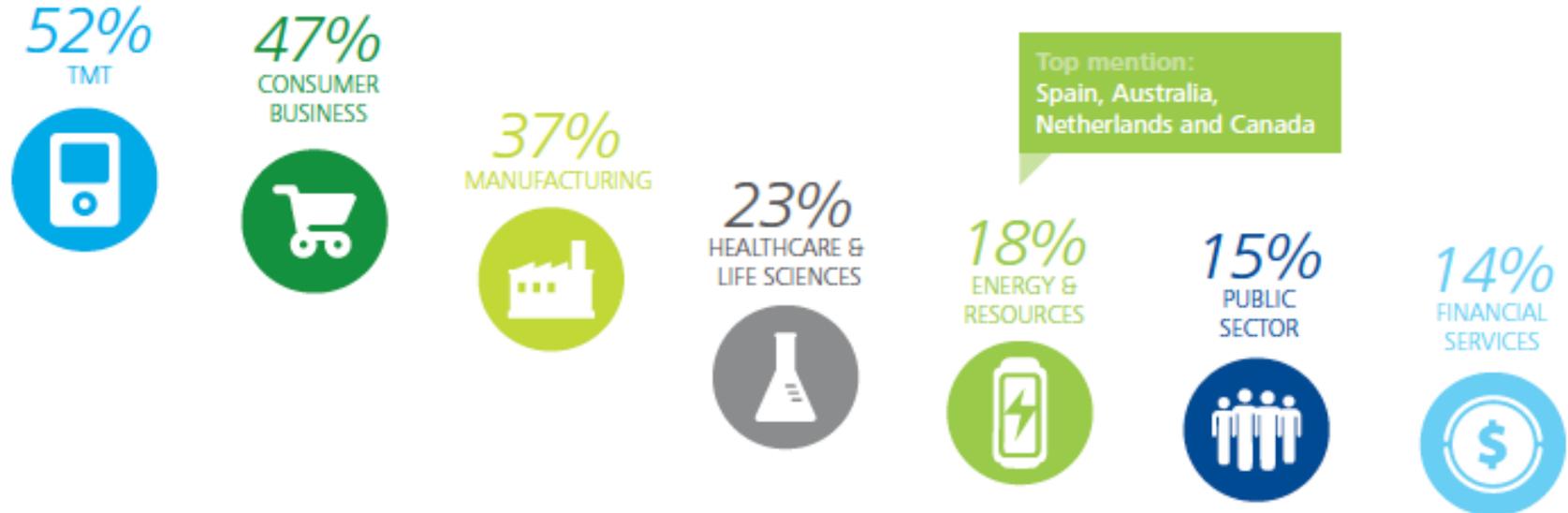
# HIV infections averted per 100 person years of PrEP



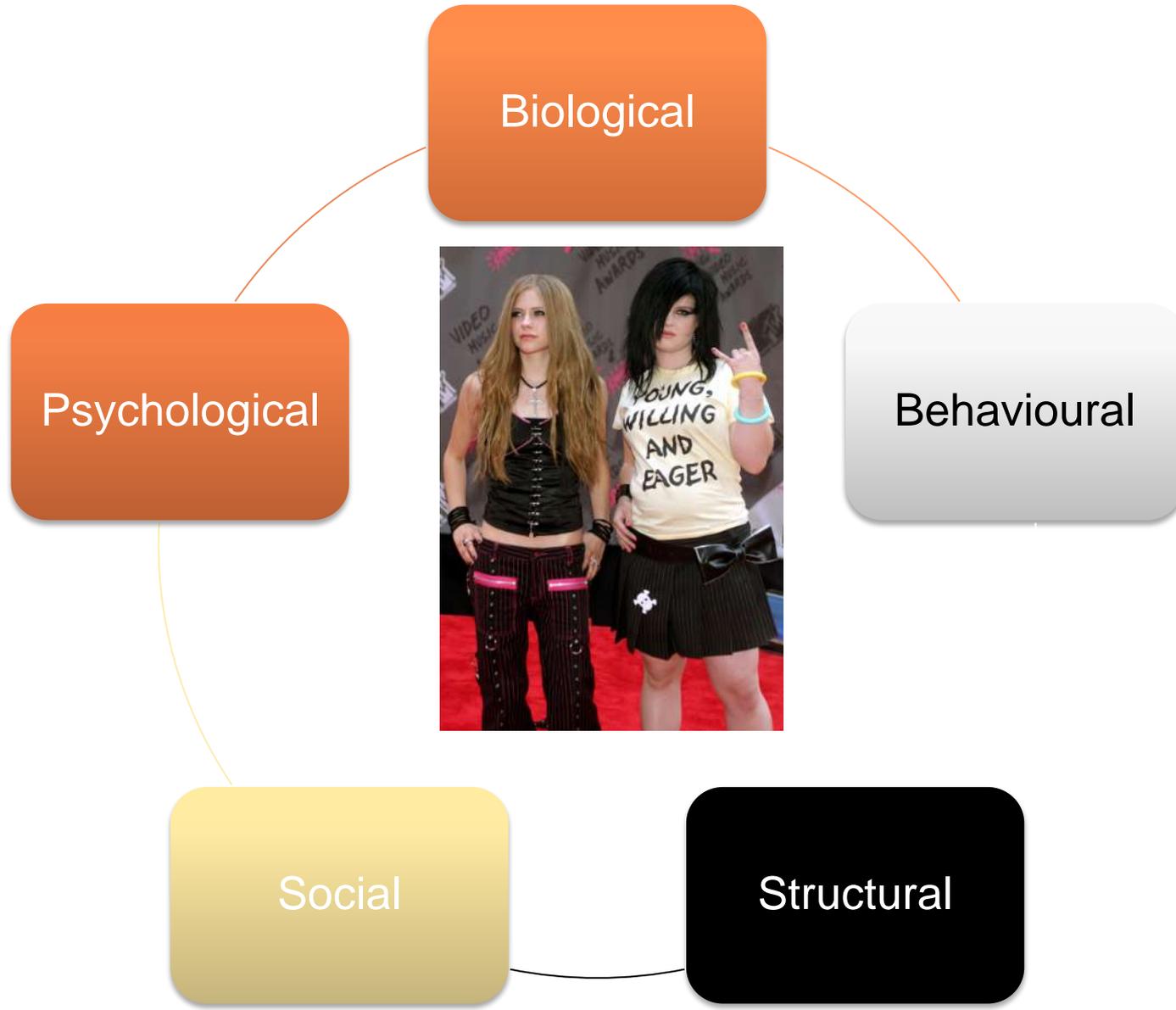
# Millennial Survey

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

Sectors most *responsible* for innovation



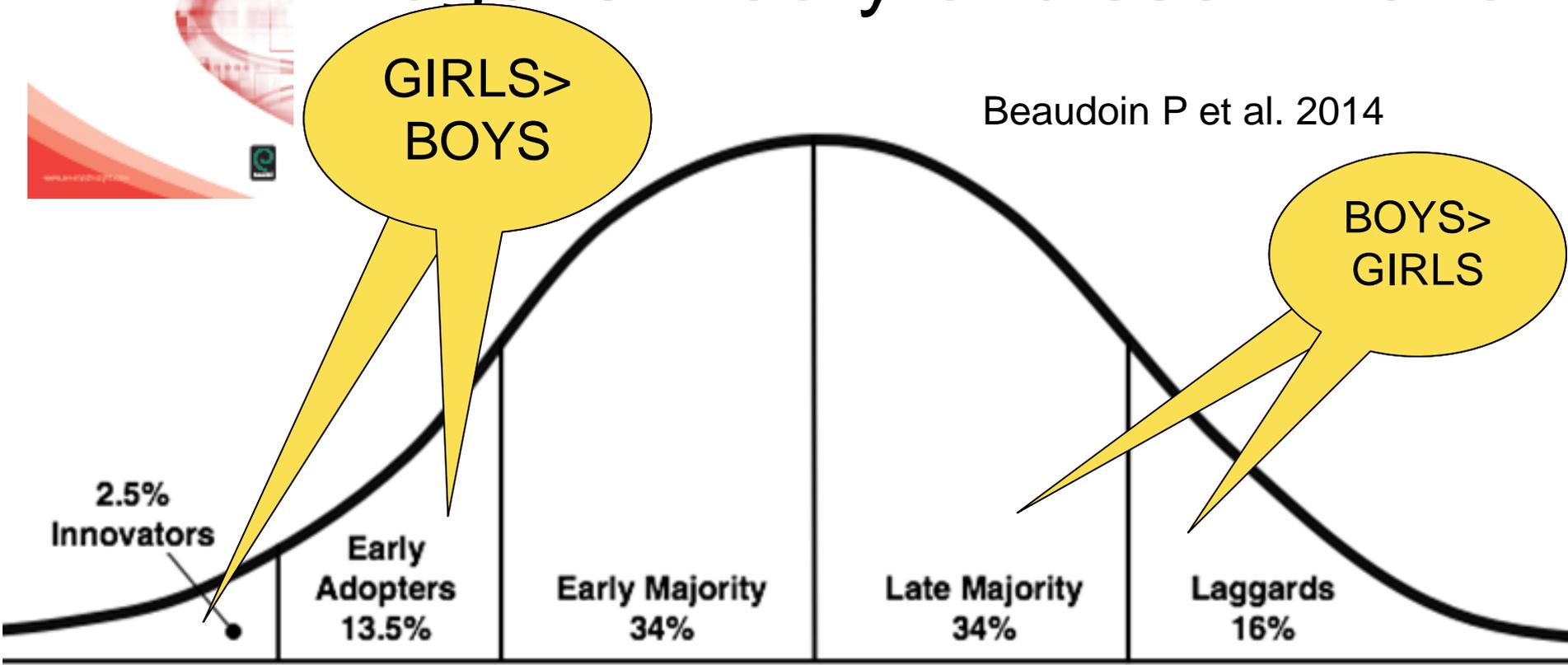
# Youth Opportunities





# Roger's theory of dissemination

Beaudoin P et al. 2014

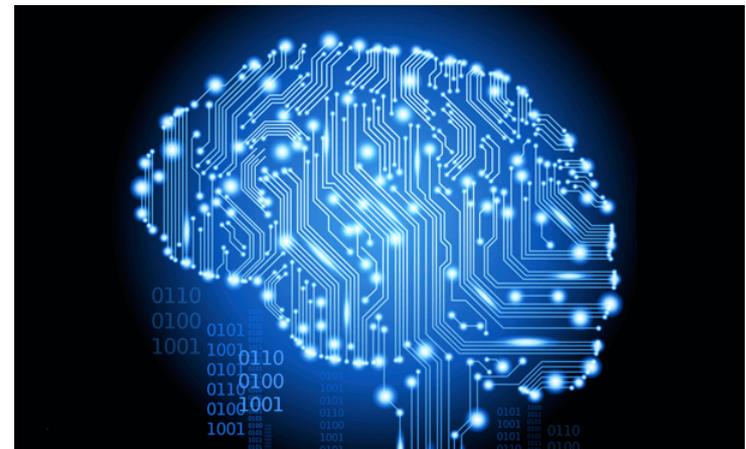


Source: Everett Rogers Diffusion of innovations model

**Adolescents are Early Adopters**

# 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



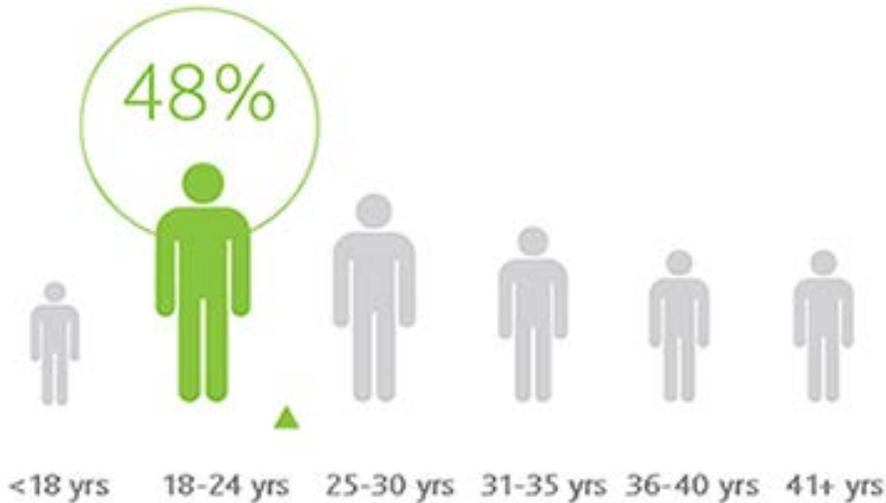
# To get to 50 million people....

- 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



Source: Nielsen Informato Mobile Insights

nielsen



“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.

# Atomo rapid HIV testing device



- 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

1 200 000



Swaziland



South Africa



Rwanda

Galbraith JS JAIDS

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

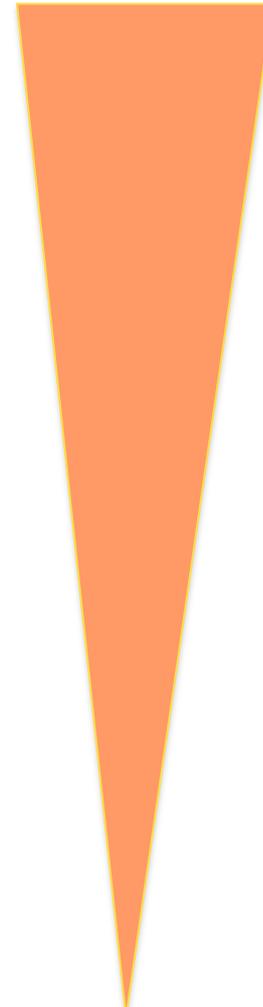
# If we offer it- will they take it “well enough”

**ADHERENCE**



RCTs of  
pre-  
exposure  
prophylaxis  
with antiviral  
agents in  
HIV  
negative

**EFFICACY**



**AGE**

**<25 years**

**>25 years**





# ADAPT/HPTN 067 in Cape Town

A comparison of daily and nondaily PrEP dosing in African women.



Desmond Tutu HIV Centre  
Masibambane Ngezandla

# Youth in ADAPT

**Table 3a – Demographics at Randomization, by Arm – Cape Town, South Africa**

	Daily usage	Time-driven usage	Event-driven usage	Total
N randomized	60	59	60	179
Age (years)				
18–20	13 (21.7%)	13 (22.0%)	13 (21.7%)	39 (21.8%)
21–25	18 (30.0%)	14 (23.7%)	18 (30.0%)	50 (27.9%)
26–30	11 (18.3%)	14 (23.7%)	4 (6.7%)	29 (16.2%)
31–35	1 (1.7%)	5 (8.5%)	8 (13.3%)	14 (7.8%)
36–40	9 (15.0%)	5 (8.5%)	10 (16.7%)	24 (13.4%)
>40	8 (13.3%)	8 (13.6%)	7 (11.7%)	23 (12.8%)
Median	25	26	25	26
25th, 75th %tile	21, 37	21, 33	21, 37	21, 37
Min, Max	18, 48	18, 52	18, 48	18, 52

# ADAPT

## Number with detectable plasma levels

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

Weeks on study	Age (yrs)	Daily arm
10	<25	87.0
30	<25	81.3
10	>25	100
30	>25	76.9

>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

PLU  P  LLS



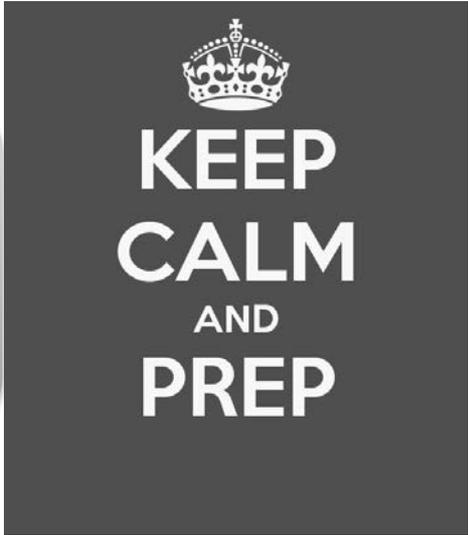
- A Demonstration **Open Label** Study to Assess the **Acceptability, Safety and Use** of Truvada Pre-exposure Prophylaxis in Healthy, HIV-Uninfected Adolescents, **15-19** Years of Age.
- (under IND)

# 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

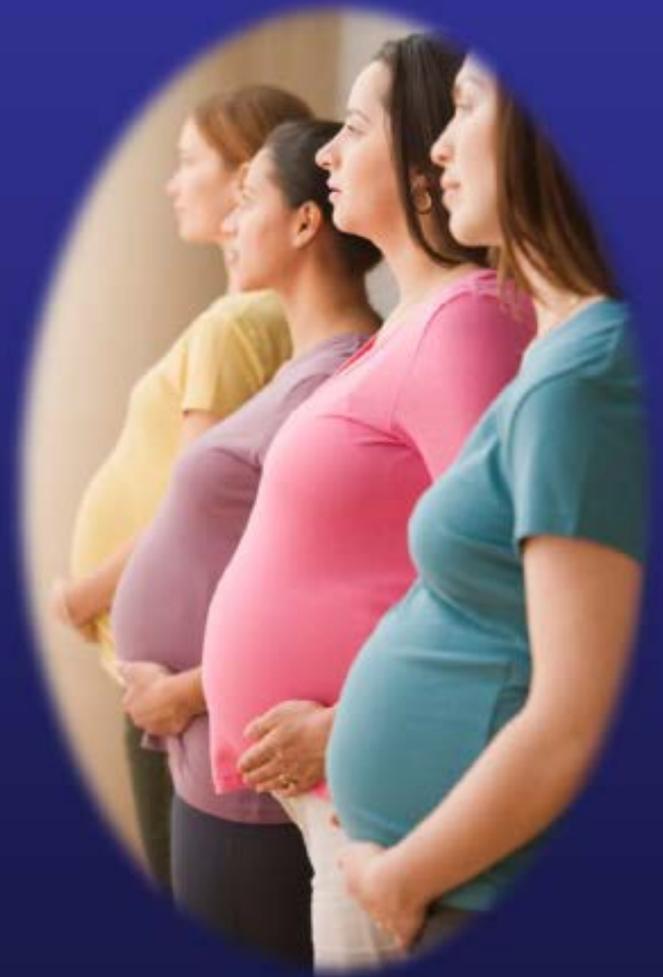


1/3 enrolled : 11 M and 32 F



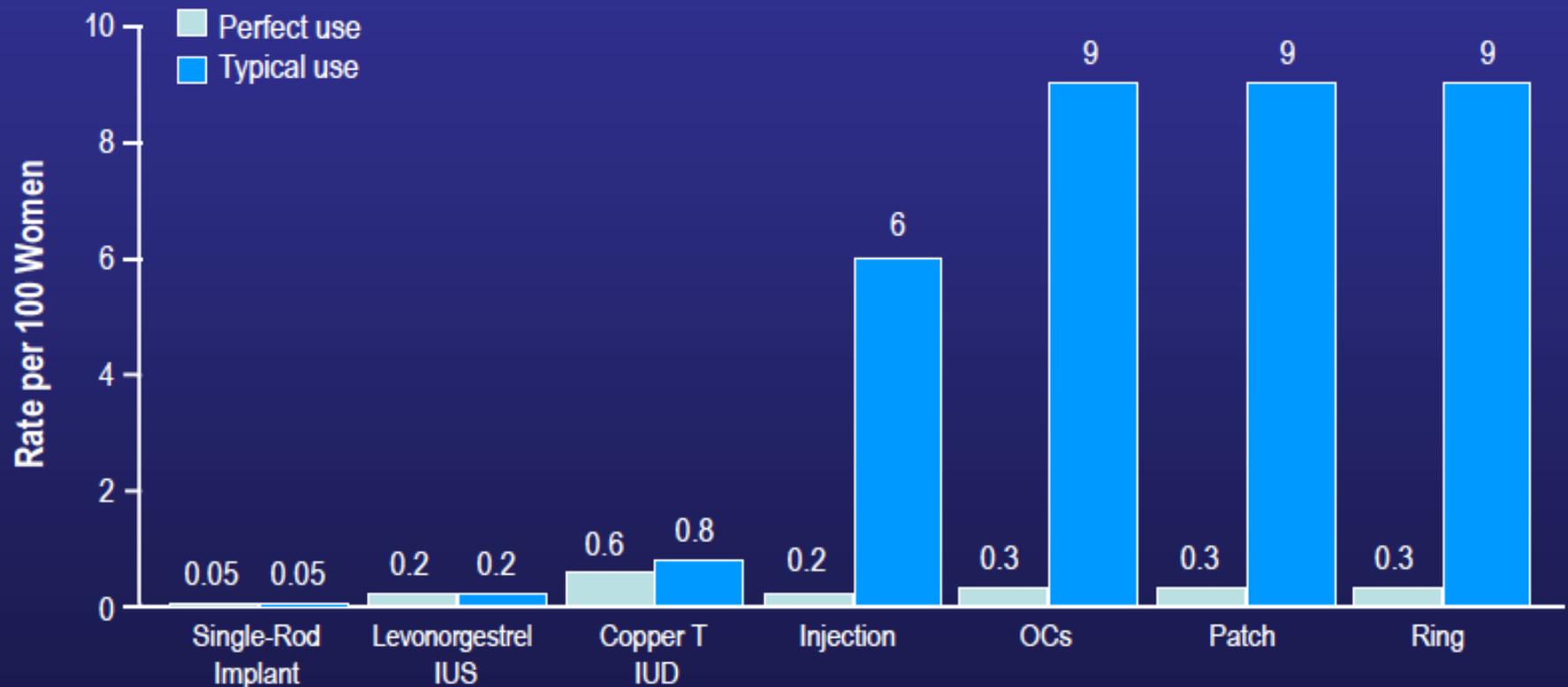
# Unintended Pregnancy Is a Particular Concern in Adolescents Worldwide<sup>1</sup>

- 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

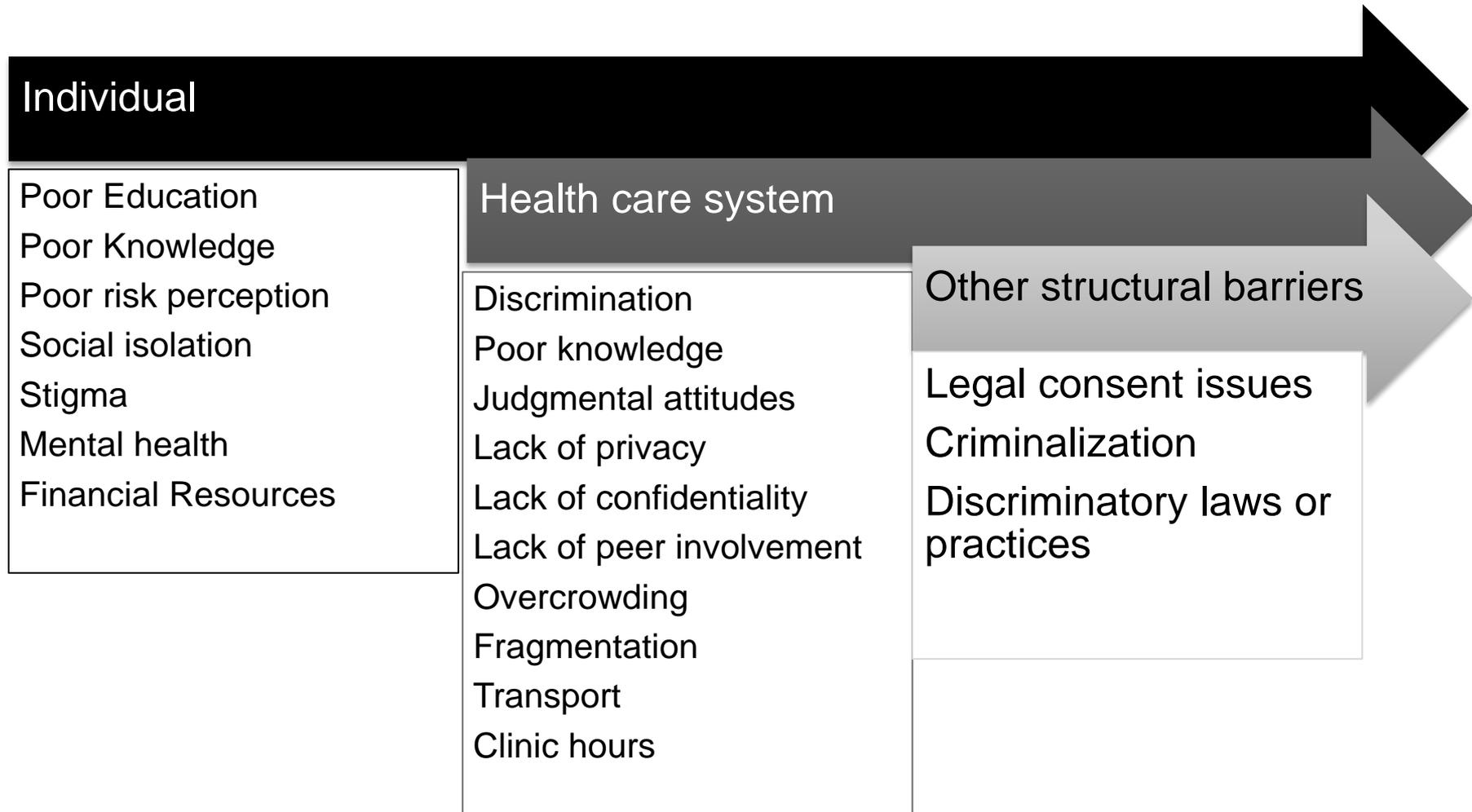
## Failures Within First 12 Months of Use (United States)<sup>1</sup>



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

1. Trussell J. *Contraception*. 2011;83:397-404.

# Barriers to services and care



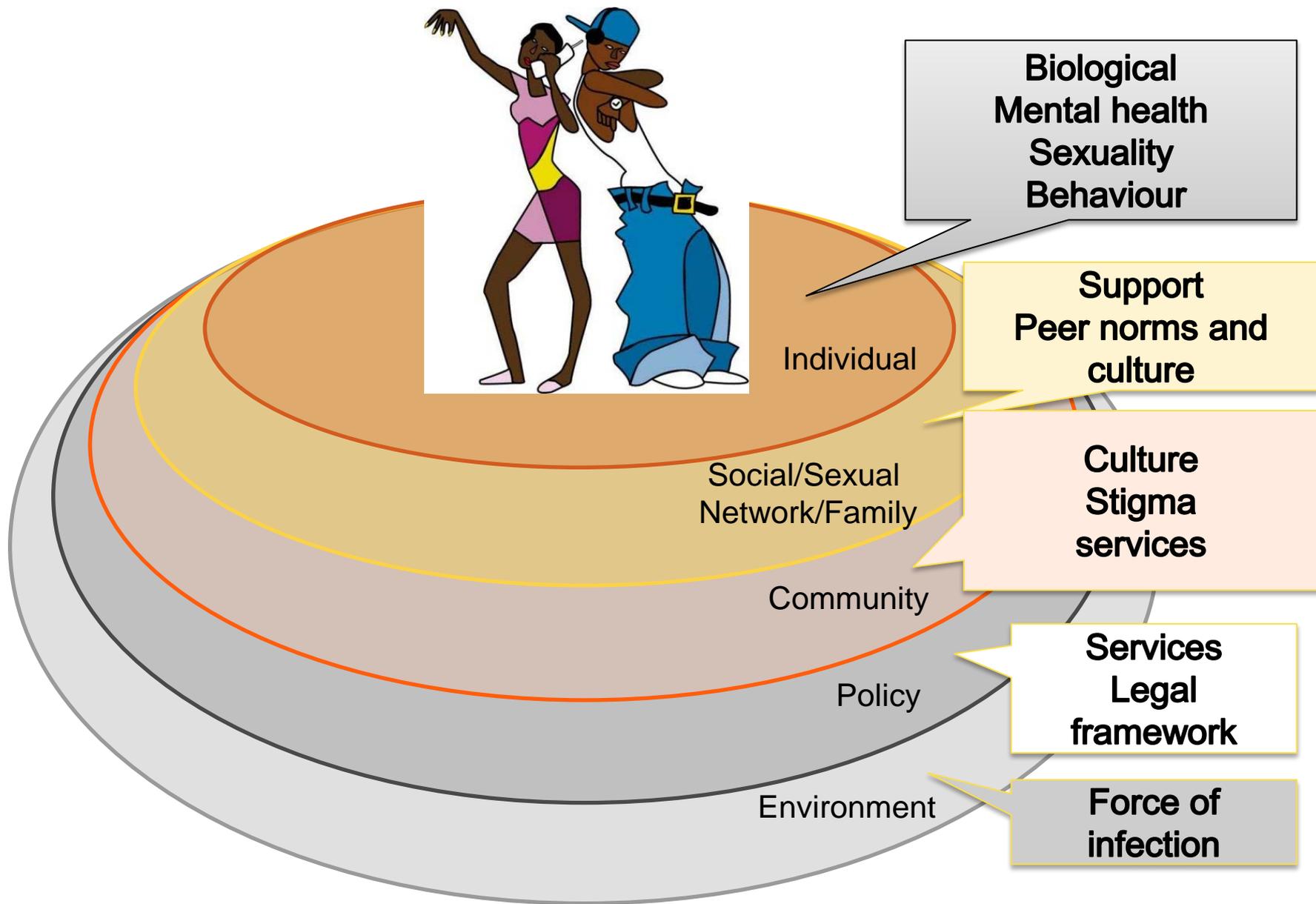
JLO knows.....



# Youth friendly?

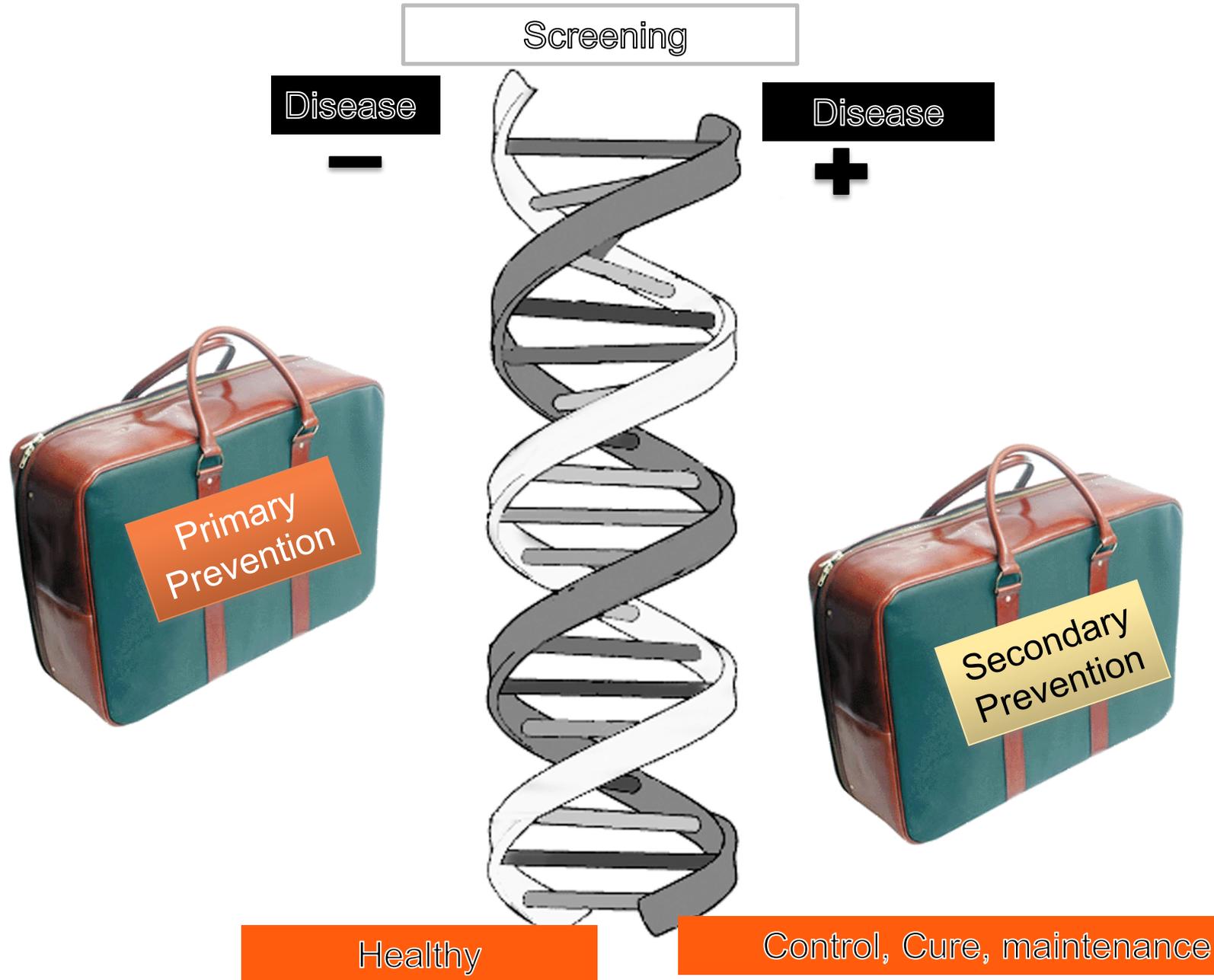
- Non judgmental
- Staff know-how
- Less fragmentation
- Staff continuity
- Flexi hours
- Affordable
- Peer involvement
- Relaxed
- Psychosocial support
- Other services available





Socioecological Framework and levels of Risk.....

# Adolescent Double Helix Cascade





**Shared experiences**

Social networks

Sexual networks

School

Sports

Community venues

**Youth centres**

Drop in centres

Concerts

Public transport

Church

Taverns

Individual

Network/Family

Community

Policy

Environment

**Shared spaces**

Social networks

Sexual networks

School

Sports

Community venues

**Youth centres**

Drop in centres

Concerts

Public transport

Church

Taverns

**Socioecological Framework and levels of RISK ENGAGEMENT.....**



Screening

Disease -

Disease+

Bundle age and venue specific interventions

Share  
exper  
Social  
Sexu  
Scho  
Sports

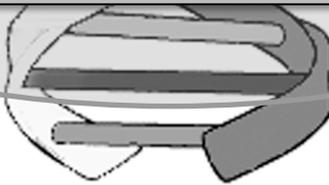
Sports

Public transport  
Church  
Taverns

Public transport  
Church  
Taverns

Healthy

Control, Cure





The DTHF Youth Centre, Kommetjie



# What have we achieved?

# LOTS OF FUN AND SURFING





Accessible  
 Efficient  
 Friendly  
 Tailored  
 Funky  
 Comprehensive  
 One STOP Shopping

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

ignite

Ty

Kenneth

Ayria

Skola

shuga

a story of fast guys and hungry girls.....

TV base

www.shuga-the.org/ignite

NOW SHOWING ON TV

Leo

Violet

Sindi

Virginia

Partnership with:

UNICEF

Media

SK

SFT

Arcades

SPW

CHAMP

# Youth messaging....

# Youth marketing....

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THE BRANDS

Red Bull

PRODUCTS GENERATE

IDEAS

TRENSCAPE 2011

28 JUNE 2011 / FREE REPORTS

TRENSCAPE 2011 - discusses the 15 most bonded and relevant trends for the next 12 months (5MB)...

DOWNLOAD

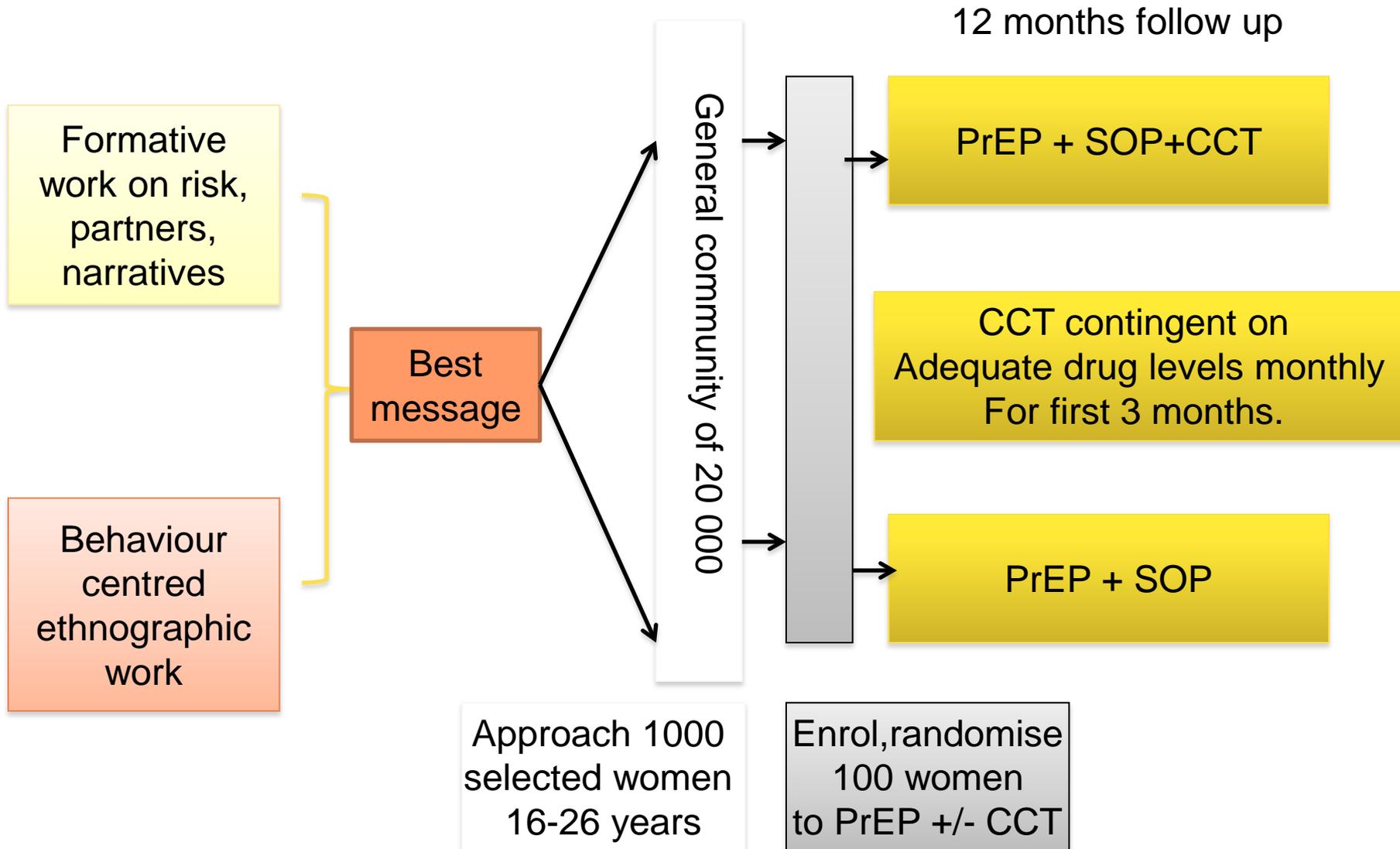
Digilogue - Social media and the Youth

28 JUNE 2011 / FREE REPORTS

Digilogue - Social media and the Youth (7.6MB)...

DOWNLOAD

# 3 Ps for Prevention : Partners, PrEP and Payment.

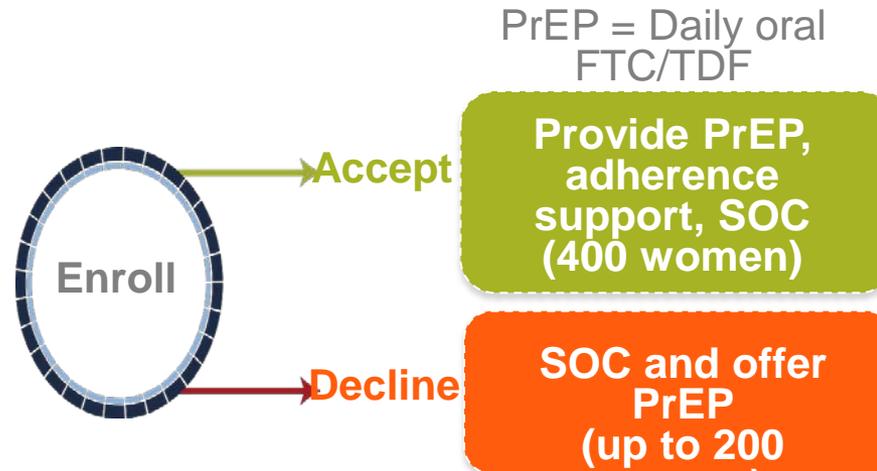


**Target Enrollment**

- 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**

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



**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.

# YOUTH CAB:



The Future  
Fighters



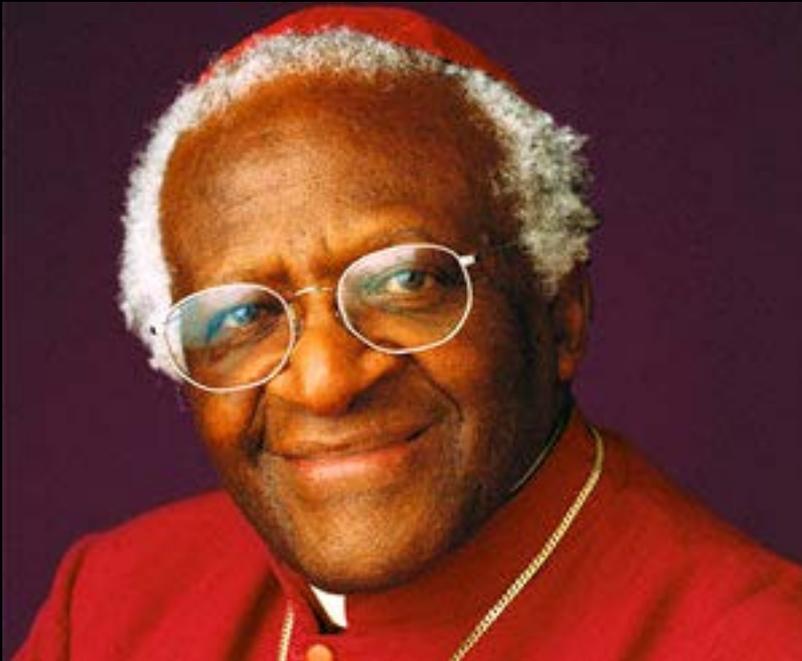
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# HAPPY BIRTHDAY Arch!!!

84 yrs 7 October



“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

in loving memory of

NICKY KILLA

25 May 1958 - 22 September 2015



# Thanks



**Robin Wood and the DTHF/DTHC Family**

**MTN: Sharon, Ian and team**

**Connie and Jared**

**Kai Jones**

**IDM: Val Mizrahi and team**

**DTHF Adolescent Division –**

Katherine Gill, Thola Bennie, Millicent Atujuna,

**PHRU Adolescent Division:** Glenda Gray, Janan Diedrichs

**Mobile services:** Philip Smith, Tutu Teen Truck and Tester Teams

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(Wish studies. )

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**Future Fighters (Youth CAB, DTHF)**

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**Adolescents and their Families**

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