Preventing new HIV infections in young women in Sub-Saharan Africa – why is it so difficult?

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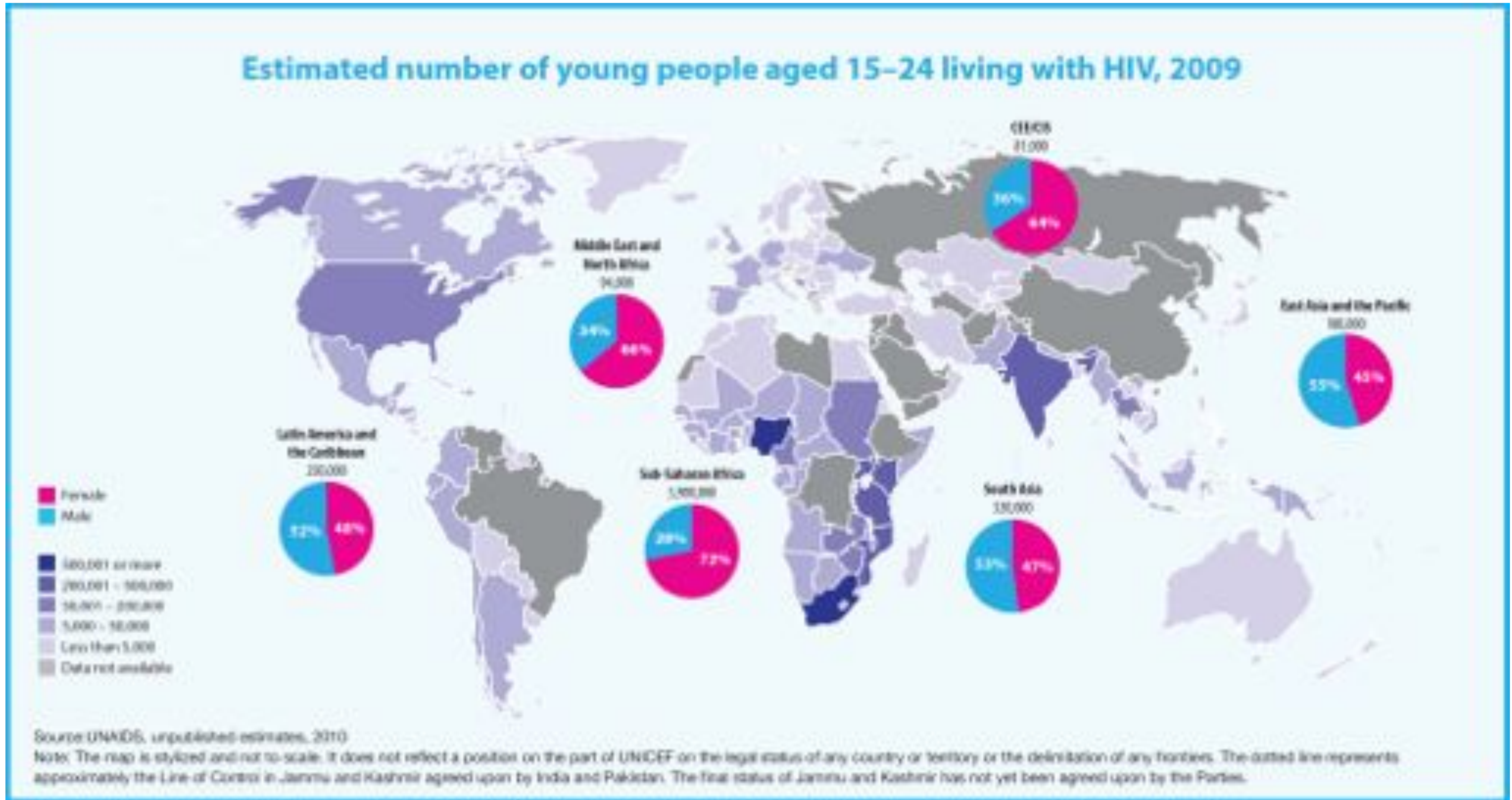
Symposium: When worlds collide – Adolescents and HIV
CROI 2013, Atlanta

STRIVE
Tackling the structural drivers of HIV

Overview

- Review epidemiology of HIV infection in young women in Africa
- Review existing interventions and their success
- Review potential future interventions and options for combination HIV prevention

3.9 million young people in Sub-Saharan Africa aged 15 – 24 years are living with HIV. Three-quarters are young women



Note: Global summary in title from UNAIDS, *Together We Will End AIDS*, 2012

Despite significant progress, HIV incidence in young women in South Africa still high

- **Treatment:** 1.2 million people currently
- **HCT:** 13.2 million counselled and tested in 2011
- **Male condoms**: 492 million distributed in 2010
  - ↑ by 30% in 5 years
- **Voluntary medical male circumcision**: 250,000 in 201
  - ↑ 50-fold from 5190 circumcisions in 2008
- **Preventing mother-to-child transmission**:
  - 92% of HIV+ mothers receive ART prophylaxis
  - Vertical transmission rate in 2011 = 2.7%

Mayosi, Lancet 2012; Rehle, PLOS One, 2010

Despite significant progress, HIV incidence in young women in South Africa still high

- **Treat**
- **HCT:**
- **Male**
  - ↑
- **Volun** n 201
  - ↑
- **Preve**
  - 92
  - Vertical transmission rate in 2011 = 2.7%

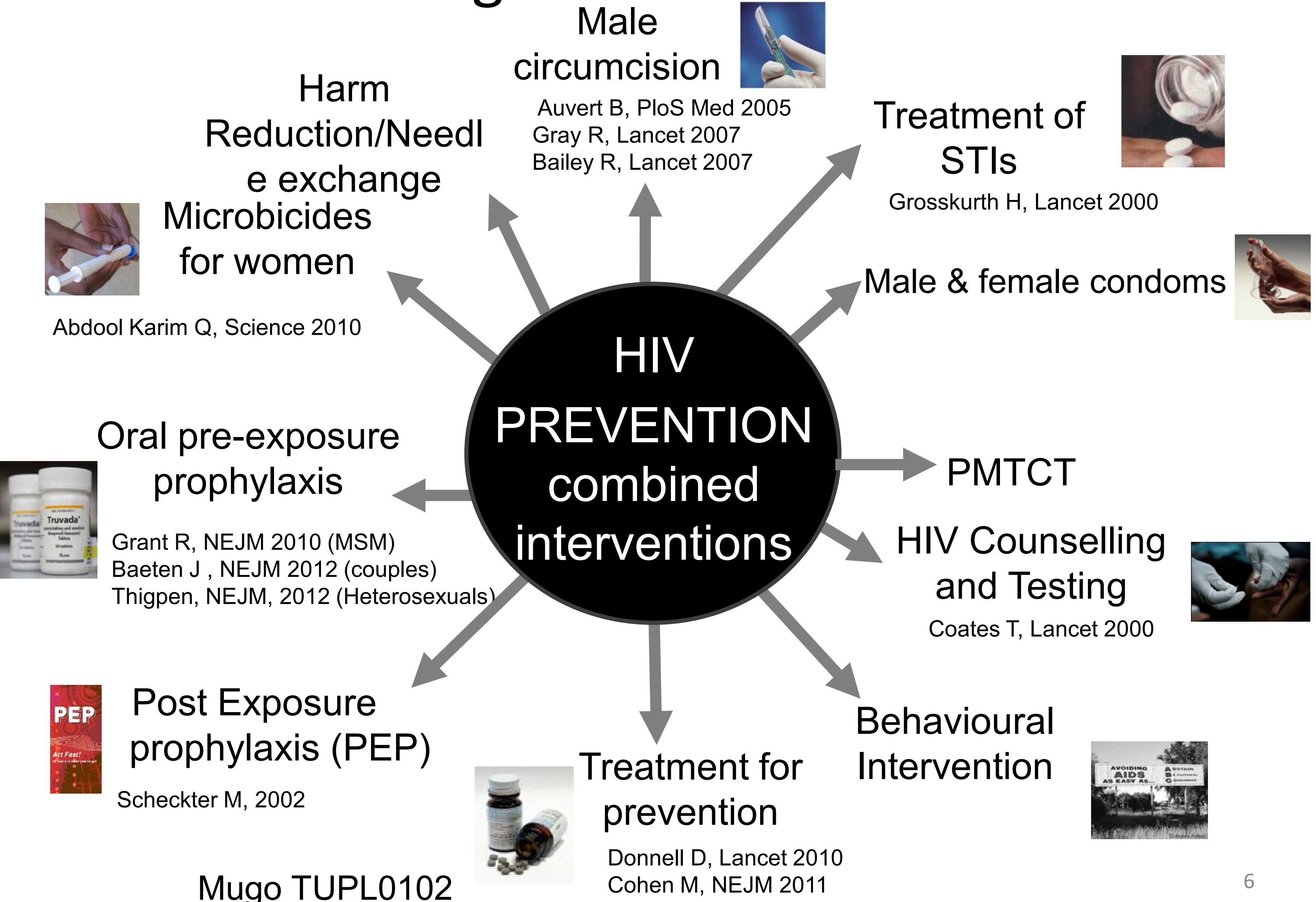
BUT

HIV incidence is 10-fold higher in young women than young men

and the highest of any demographic group in the country

Mayosi, Lancet 2012; Rehle, PLOS One, 2010

Prevention strategies



Lessons learnt from existing HIV prevention strategies

- Existing accepted proven HIV prevention strategies - ABCC:
  - Abstinence
  - Behaviour (Be faithful)
  - Condoms (male & female)
  - Circumcision (Medical Male)

Which of these are prevention tools for *young women* in Africa?

Evidence that behaviour change interventions can reduce HIV infection in adolescents

- 28 studies in sub-Saharan Africa up to August 2008
- 15 in schools, 8 in communities and 5 in both
- 12 RCTs (8 randomising schools, 3 communities, 1 students),

  6 used pre- post-test, 10 quasi-experimental
- Only 3 studies had biological endpoints

Effectiveness of HIV prevention for youth in sub-Saharan Africa: systematic review and meta-analysis of randomized and nonrandomized trials

Kristien Michielsen[a,b], Matthew F. Chersich[a,c], Stanley Luchters[a], Petra De Koker[a], Ronan Van Rossem[b] and Marleen Temmerman[a]

Michielsen, AIDS 2009

Evidence that interventions can change behaviour and reduce HIV infection in adolescents

- 28 studies i ... 008
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- Sex education and condom promotion activities among youth did not increase sexual activity nor promote risky sexual behaviour.
- **But** no large positive changes either.
- No significant reductions in sexual activity, and
- Condom use at last sex only increased significantly among males.

Poor implementation of school-based programmes is common

- Reluctance to talk about condoms in schools, or by teachers
- Non-participation of schools is common in studies or interventions
- Many interventions are based on paradigm that awareness of HIV-risk determines behaviour

Social and cultural norms around adolescent health may limit the success of school-based programmes Wight BMC Pub Health 2012

What have we learnt from these studies?

- Large trials have not shown significant impacts on HIV incidence
- Many studies show behavioural effects
- Knowledge is a right and an essential precursor to behaviour change, but insufficient in itself
- For meaningful sustained behaviour change, interventions must be combined, of adequate duration and intensity
- Need to address the ability of young women to change sexual behaviour in context of unequal gender power relations & poverty

HCT is a critical entry point for biomedical HIV prevention options

- HIV testing uptake is low amongst young women in SSA

- A review of HIV policy documents in 20 countries showed that only 35% of policies on HIV testing offered details on HIV testing and children

- Even where permissive policies exist, clear international and country-level guidance for testing is required

Wong, 2004

HCT is a critical entry point for biomedical HIV prevention options

Stop HIV tests in schools, Motshekga says

2011-08-04 22:21

the development process

Wong, 2004

Can a pill (or a gel) prevent HIV?

Antiretroviral medication, Uganda

Is daily PrEP suitable for young women?

Study	Population	N	Results
CAPRISA 004 *South Africa*	Women	889	39% [CI = 6-60] efficacy coitally-dependent vaginal TFV gel
Partners PrEP Study *Kenya, Uganda*	Serodiscordant couples	4758	67% [CI = 44-81] efficacy daily oral TDF 75% [CI = 55-87] efficacy daily oral FTC/TDF
TDF2 Study *Botswana*	Men and women	1200	62% [CI = 22-83] efficacy daily oral FTC/TDF
FEM-PrEP *Kenya, S Africa, Tanzania*	Women	1950	Futility of daily oral FTC/TDF 6% [CI = -52-41]
VOICE *South Africa, Uganda, Zimbabwe*	Women	5029	*Oral TFV -48.8%* *Oral TFV/FTC -4.2%* *Daily vaginal TFV14.7%*
FACTS 001 *South Africa*	Women	2900	Coitally-dependent vaginal TFV gel enrolling *Results expected in 2015*

HIV incidence in VOICE trial was high 5.7%, highest in S. African participants

What have we learnt about adherence from PrEP trials

	RR
Age >25	1.66
Married	2.62
Male partner > 28 years	1.49*

Similar findings in other studies – age and partnership status are critical

Marazzo, CROI 2013; Hughes, MTN 2012

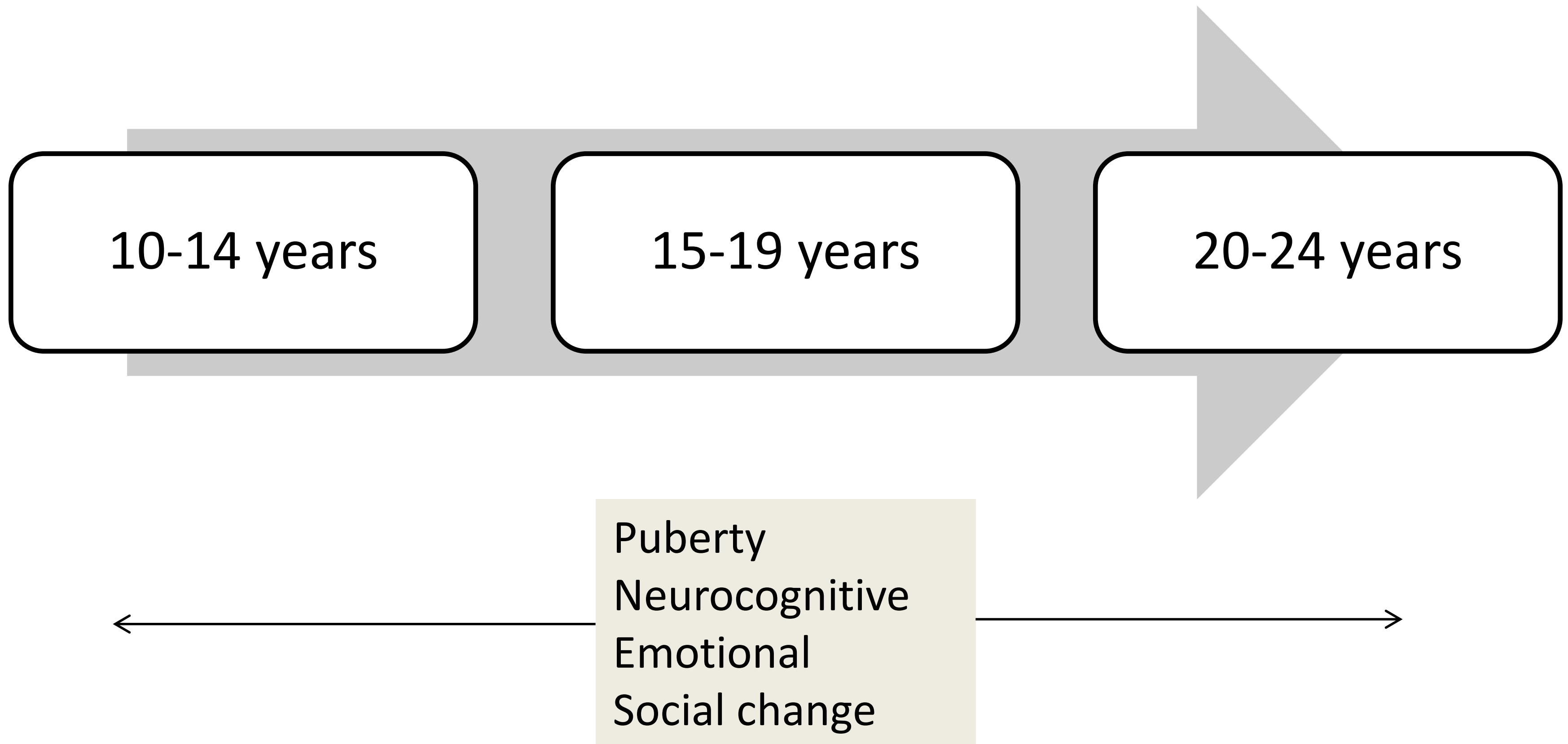
Is daily PrEP suitable for young women?

	Age	Married/ Stable partner	Efficacy	Adherence (as per drug levels)
CAP 004	24	88%	39% [CI = 6-60]	40%*
Partners PrEP	36	98%	67% [CI = 44-81] TDF 75% [CI = 55-87] FTC/TDF	81%
TDF-2	25	6%	62% [CI = 22-83]	79%
FEM-PrEP	24	31%	6% [CI = -52-41]	26%
VOICE-SA	25	8%	*Oral TFV 1.49 NS*	*28%*
VOICE-Ug	28	50%	*Oral TFV/FTC 1.04 NS*	*29%*
VOICE-Zim	28	94%	*Vaginal TFV 0.85 NS*	*22%*
FACTS			2015	

Slide courtesy of Mitchel Warren, AVAC; Marazzo CROI 2013

HIV prevention in young women in SSA is influenced by **population** and **place**

Adolescence is a period of immense transition



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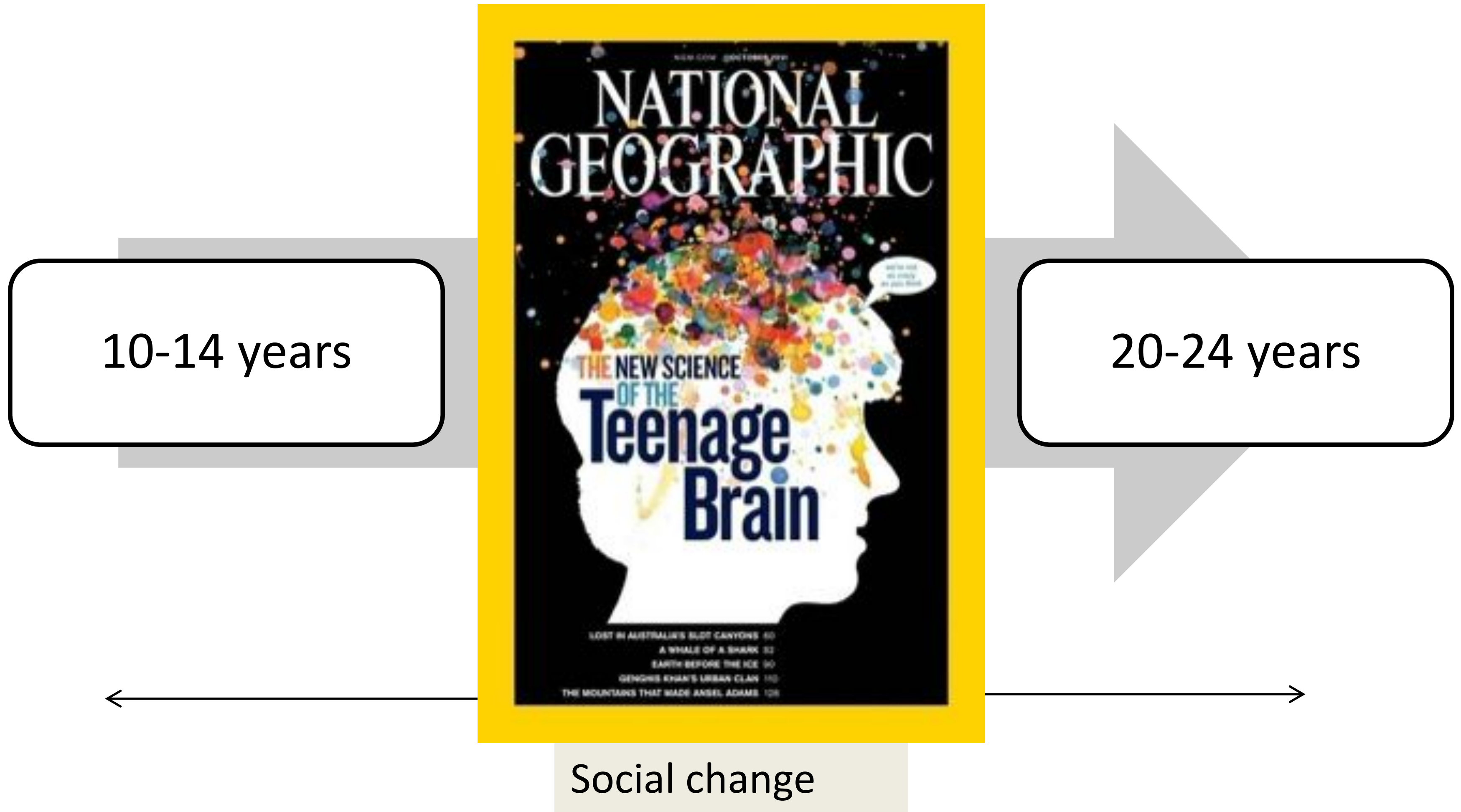
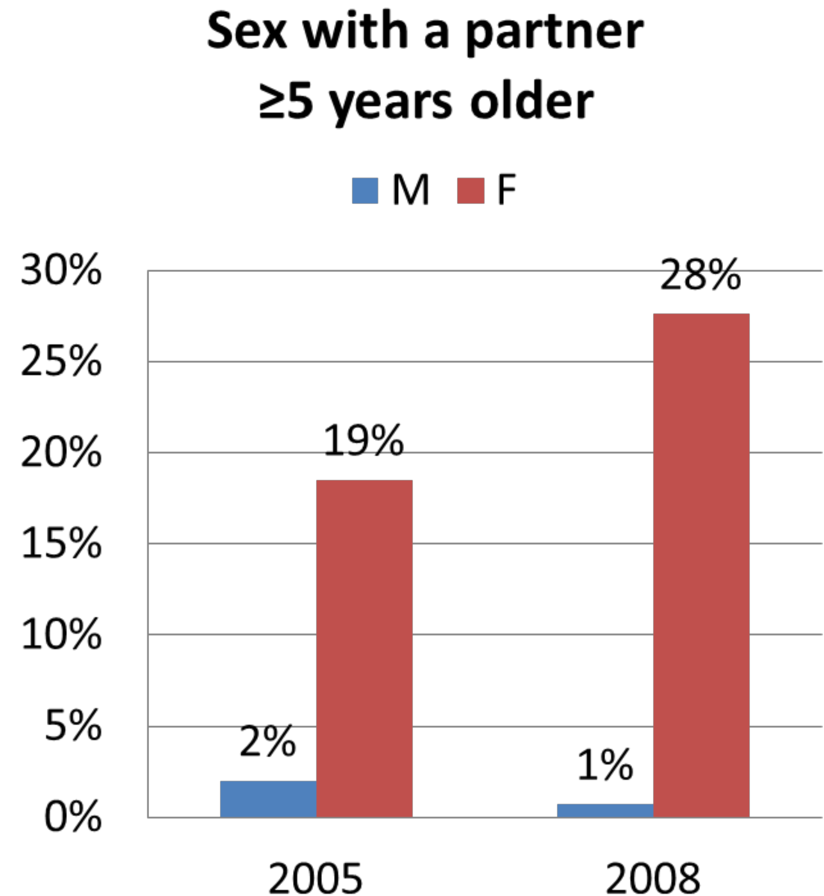


" a highly functional and adaptive period.."

Sawyer, Lancet 2012

High risk sexual behaviour in young South Africans
YRBS 2008

- 38% of learners reported ever having had sex
  - 13% sexual debut <14 years.
  - 41% ≥ 2 lifetime sexual partners
  - 31% practised consistent condom use
  - 19% had been pregnant or made someone pregnant
- 65% had received HIV/AIDS education



YRBS, 2008; HSRC, 2008.

A tale of two countries: Rethinking sexual risk for HIV among young people in South Africa and the United States Pettifor, J Adol H 2011

	South Africa	USA
National HIV prevalence	10.2	<1%
Age of first sex	16.7	16.5
Median number of lifetime partners for	2	5.7
Condom use at last sex	45%	36%
Mean age difference with last sex partner	4	2.6

All risk behaviour differences statistically significant

Context matters: Sex, alcohol and violence

Sex and substance use

- 35% had drunk alcohol in the previous month
- 16% had sex after consuming alcohol,
- 14% had sex after taking drugs, and

Sex and violence

- 10% had ever been forced to have sex
- 9% forced someone else to have sex

YRBS, 2008; Somji ISSTDR 2011

theguardian

South Africa searches for solutions after teenage girl's gang rape and murder

Death of Anene Booysen leads to controversial measures by police seeking to crack down on widespread sexual violence

David Smith Johannesburg
guardian.co.uk, Wednesday 13 February 2013 16.15 GMT

South African singer Tina Schouw holds a poster of murdered rape victim Anene Booysen in Cape Town. Photograph: Sue Kramer/Demotix/Corbis

Lack of educational and employment opportunities for young women

- Poverty pushes young women out of school
- Secondary school completion rates are low, particularly for young women in SSA (< 40%)
- Young people make up 40% of the unemployed globally
  - Young women in low and middle income countries find it more difficult to find work
- Primary driver for transactional sex and sex work in many settings

UNAIDS, 2011; Unicef, 2012

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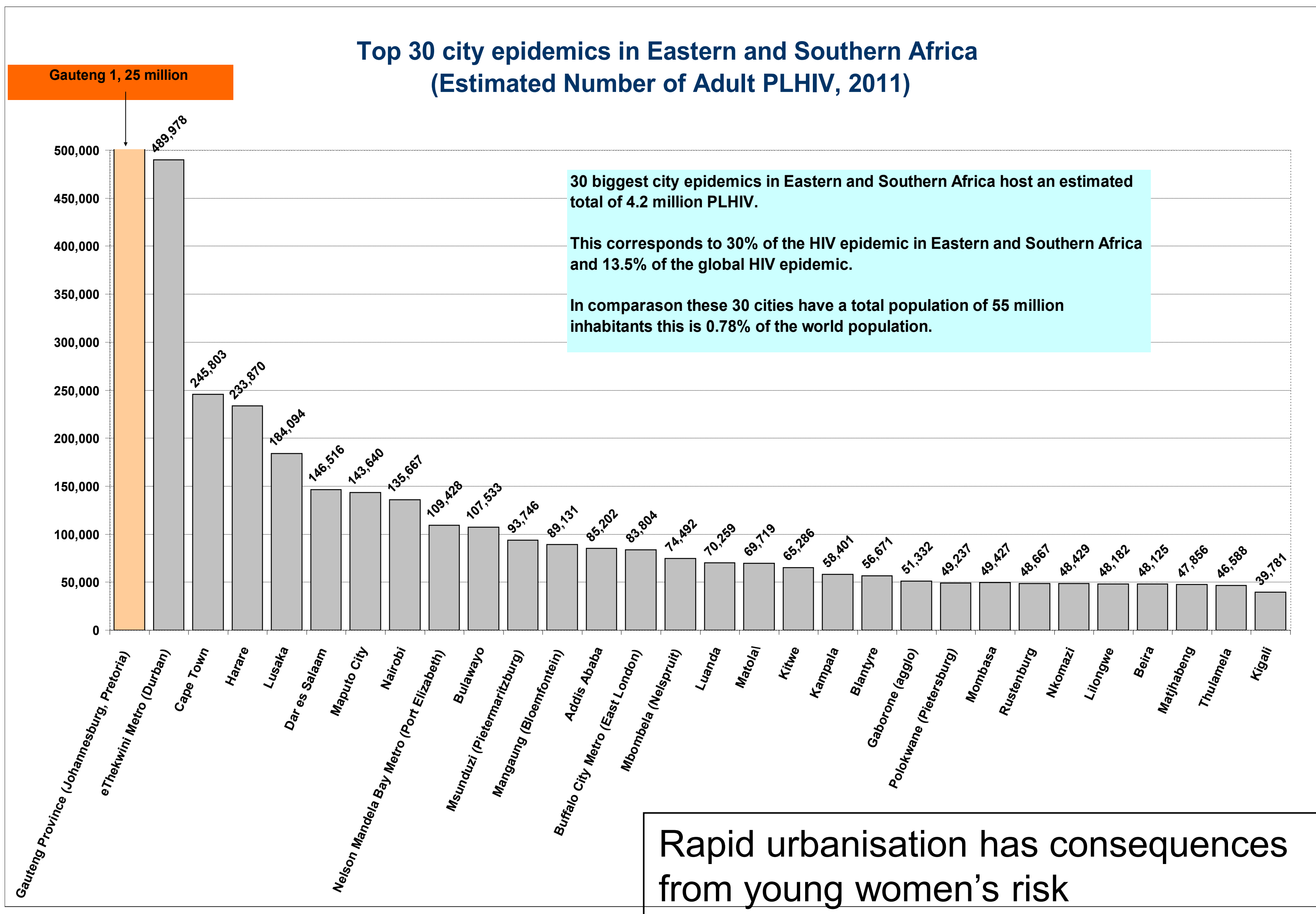
Failure to complete secondary school was associated with a fourfold higher prevalence of HIV infection in young women in South Africa Pettifor IJE 2008

Young men and women are particularly vulnerable to the to the health disparities generated by rapid economic development and urbanisation

Urbanisation leads to concentration of infections in cities



Rapid urbanisation has consequences from young women's risk

Van Renterghem H, IAS 2012; Blum, Lancet 2012.

Young women's health is socially determined

Adolescence and the social determinants of health

Russell M Viner, Elizabeth M Ozer, Simon Denny, Michael Marmot, Michael Resnick, Adesegun Fatusi, Candace Currie

Ecological analyses:

- **National wealth, income inequality and access to education** associated with poor adolescent health outcomes worldwide
- Countries with a greater proportion of **school enrolment** had better health outcomes, including lower HIV prevalence
- Countries with greater **sex inequalities** had poorer health outcomes for both sexes

Investments in adolescent health more generally will have benefits for HIV, and for development more generally

Viner, Lancet 2012

How do these factors combine to increase the vulnerability of young women in SSA to HIV?

Limited livelihood opportunities:

Women's economic dependence on partner

Labour migration, separation of families

Poverty & transactional sex:

young girls have sex with older men to access resources. This seeds HIV into younger age groups

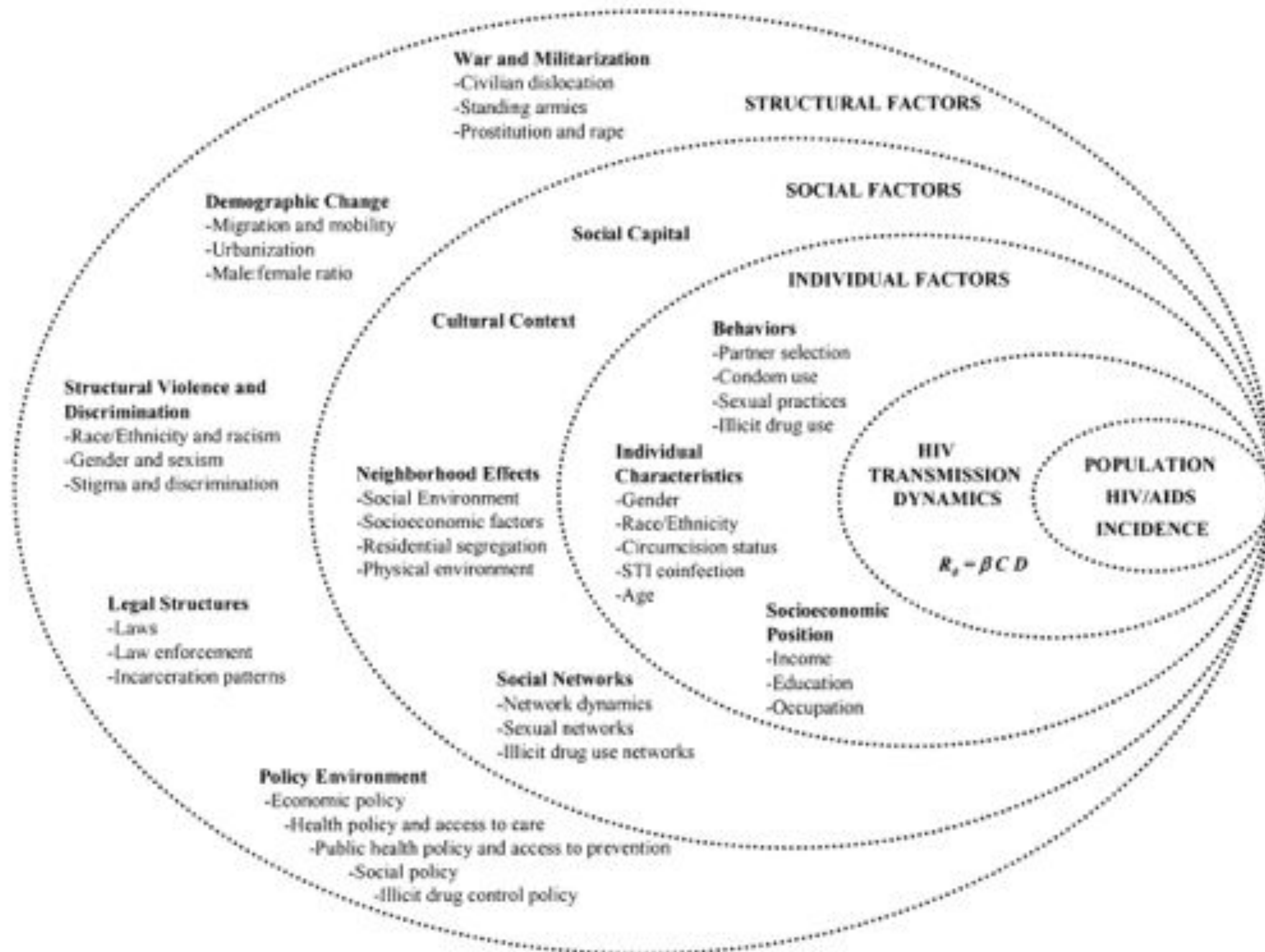
Gender inequality & violence:

women have difficulty negotiating sex or condom use when economically dependent on partner & fear violence

Stigma & discrimination:

prevents those most vulnerable to HIV from accessing or supporting HIV programmes

Building an HIV prevention response for young women requires multiple levels of intervention



Poundstone K E et al. Epidemiol Rev 2004;26:22-35

The Intervention with Microfinance for AIDS & Gender Equity (IMAGE Study)

CT evaluated Combined Microfinance
with participatory training on gender,
iolence & HIV in Limpopo, South Africa

SEF
Small
Enterprise
Foundation

Significant impacts on violence & HIV risk behaviours over 2 years Pronyk, Lancet 2006

Among participants:

- Past year experience of IPV reduced by 55%
- Households less poor
- Improved HIV communication

Among younger women:

- 64% higher uptake HIV testing
- 25% less unprotected sex

No wider community impacts

Zomba cash transfer program, Malawi: Paying girls to stay in school Baird, Lancet 2012

Impacts both on HIV and other outcomes

Investment

Cash transfer scheme to keep girls in school – Zomba, Malawi

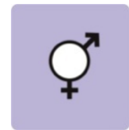
$10/month provided to in and out-of-school girls (13-22 yrs)

(Baird et al., 2010 & 2012)

Outcomes

35% reduction school drop-out rate

40% reduction early marriages



76% reduction in HSV-2 risk

30% reduction in teen pregnancies

64% reduction in HIV risk

Slide courtesy of C. Watts

- To determine whether young women who are randomized to receive cash transfers conditional on school attendance have a lower HIV incidence
- Includes an evaluation of community mobilisation to change gender n
- Currently fully enrolled – results 2014

BMJ

Impact of Stepping Stones on incidence of HIV and HSV-2 and sexual behaviour in rural South Africa: cluster randomised controlled trial

Rachel Jewkes, M Nduna, J Levin, N Jama, K Dunkle, A Puren and N Duvvury

A gender transformative HIV prevention programme

- 13 participatory three hour sessions & 3 peer group meetings
- Sessions on communication, aspects of sexual health, HIV prevention, relationships and gender-based violence

BMJ

Impact of Stepping Stones on incidence of HIV and HSV-2 and sexual behaviour in rural South Africa: cluster randomised controlled trial

Rachel Jewkes, M Nduna, J Levin, N Jama, K Dunkle, A Puren and N Duvvury

33% reduction of herpes simplex type 2 (HSV-2) in men & women.
Did not reduce the incidence of HIV infection among men & women.

Significantly improved number of reported risk behaviours in young men

- Significant reductions in intimate partner violence
- Significantly lower proportion of men reported problem drinking and drug abuse after 12 months
- Decrease in transactional sex with a casual partner after 12 months

No evidence of desired behaviour change in women

- Increase in certain undesirable behaviours e.g. more transactional sex with a casual partner and suggestion of more unwanted pregnancies after two years

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

Stepping Stones and Creating Futures

Preliminary outcomes of a behavioural and structural pilot intervention for young people in urban informal settlements in South Africa - January 2013

Promising three-month preliminary outcomes

- Men and women's levels of work and earnings ↑
- ↑ access to social grants for men and women
- ↑ focus from men and women on their main sexual partner,
  - 23% reduction in transactional sex in the past three months for men
- Women searched for and attempted livelihood activities at a greater rate than at baseline
  - Fewer reported sex for reward
- Men's mental health ↑.

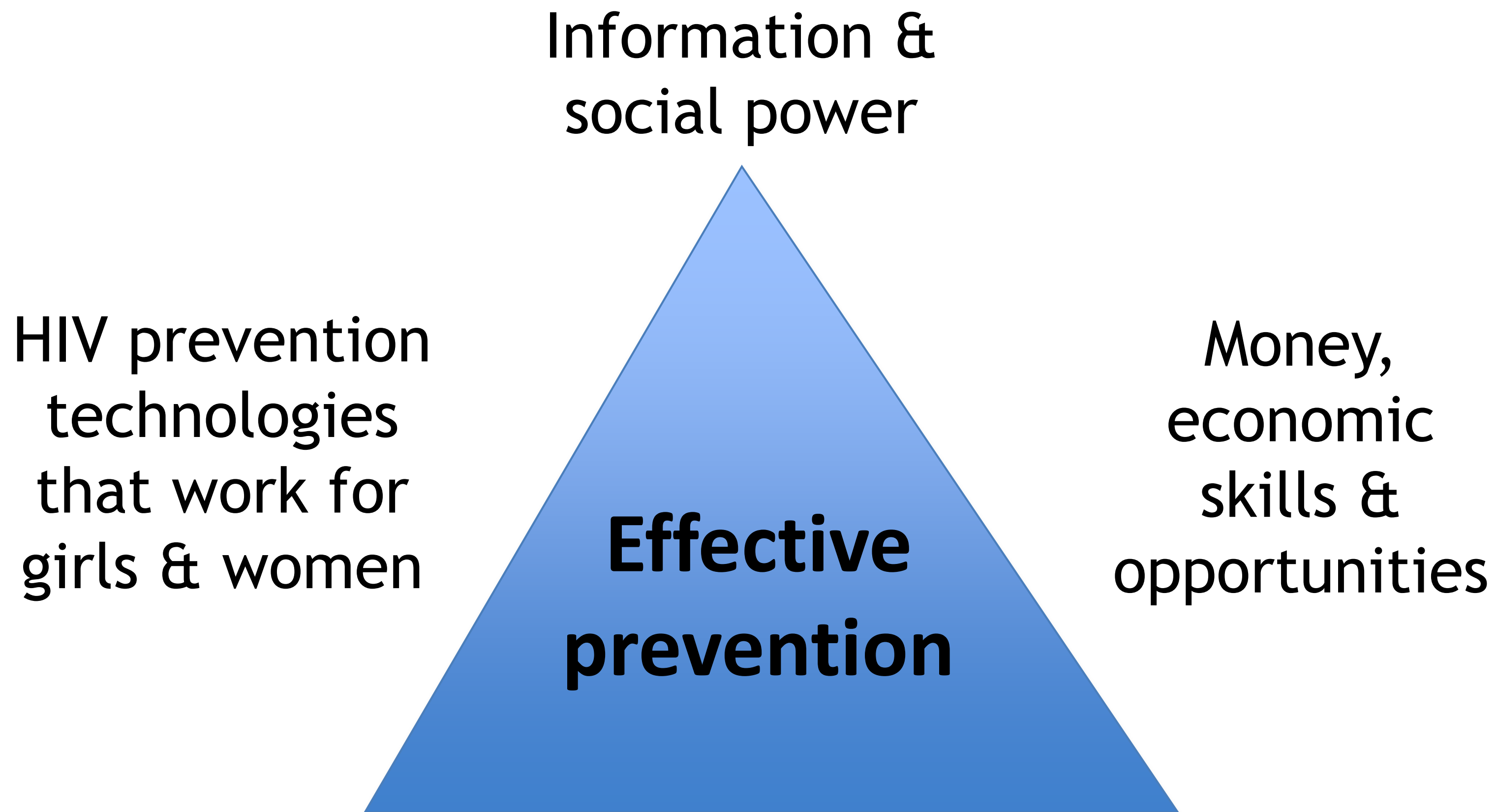
Further evaluation for longer term benefit and impact on HIV pending

New frontiers: mobile technology

Mobile phones have been used with success to deliver health and educational interventions, to collect data to monitor programmes, and to deliver cash .

Wirelesstechnology.com; Dietrich, personal communication; Lester, Lancet 2010; Levine, Am J Pub Health, 2008;

Building an effective response for young women in Sub-Saharan Africa



Adapted from: Brady, Martha. Population Council, 2005

“Medicine is a social science, and politics is nothing else but medicine on a large scale.

Medicine, as a social science, as the science of human beings, has the obligation to point out problems and to attempt their theoretical solution: the politician, the practical anthropologist, must find the means for their actual solution...

The physicians are the natural attorneys of the poor, and social problems fall to a large extent within their jurisdiction.”

Rudolf Virchow

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David Ross
Lee Fairlie

- http://strive.lshtm.ac.uk

STRIVE
Tackling the structural drivers of HIV

Panel discussion

- What options do we have for HIV prevention in young women in various settings?
- Do we have evidence for interventions that address structural factors in young women?
- What are others experiences of combining interventions for young women?
- What age should we be targeting?
- Where should these interventions be delivered e.g. clinics, schools, communities
- Should we be targeting boys as well as girls? What about older men?
- How can we support the uptake of biomedical interventions?