

Lessons learnt in operationalising PrEP in the private sector



PrEP:
1. Where are we in 2019?

Muhangwi Mulaudzi

Phomolong Medical Centre, SAHCS

AWACC 29082019

Disclosures



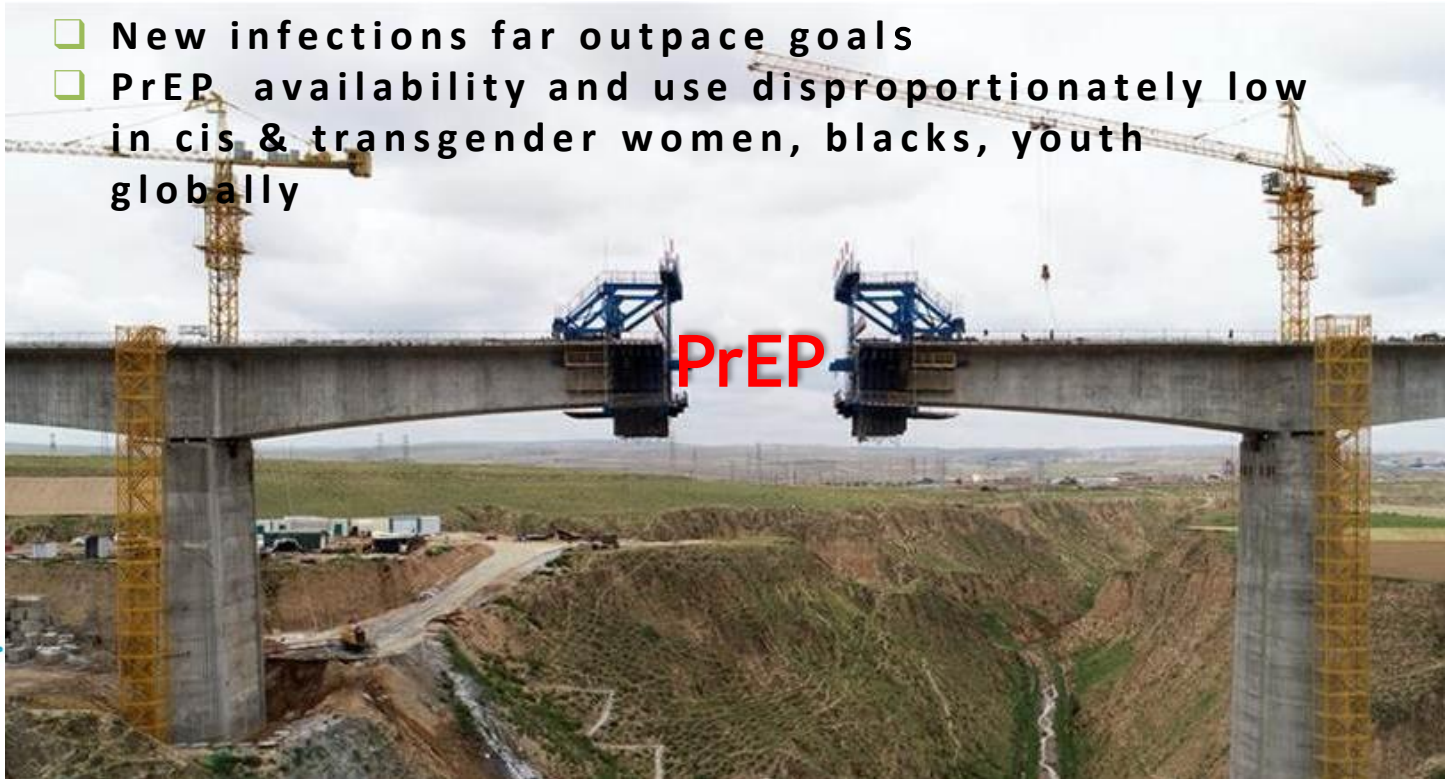
QUESTION 1

Which statement is False:

- a. USA accounts to more than half of people on PrEP worldwide
- b. South Africa is the third country in the world to register Truvada for PrEP.
- c. HIV infections is not decreasing in the 15-24 year olds.
- d. 18000 is the number of people on PrEP in South Africa
- e. F/TAF is as effective as Truvada for PrEP

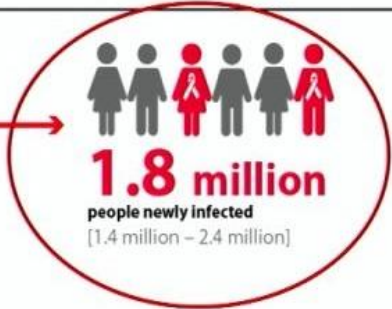
HIV PREVENTION 2019

- ❑ New infections far outpace goals
- ❑ PrEP availability and use disproportionately low in cis & transgender women, blacks, youth globally



Summary of the Global HIV Epidemic (2017)

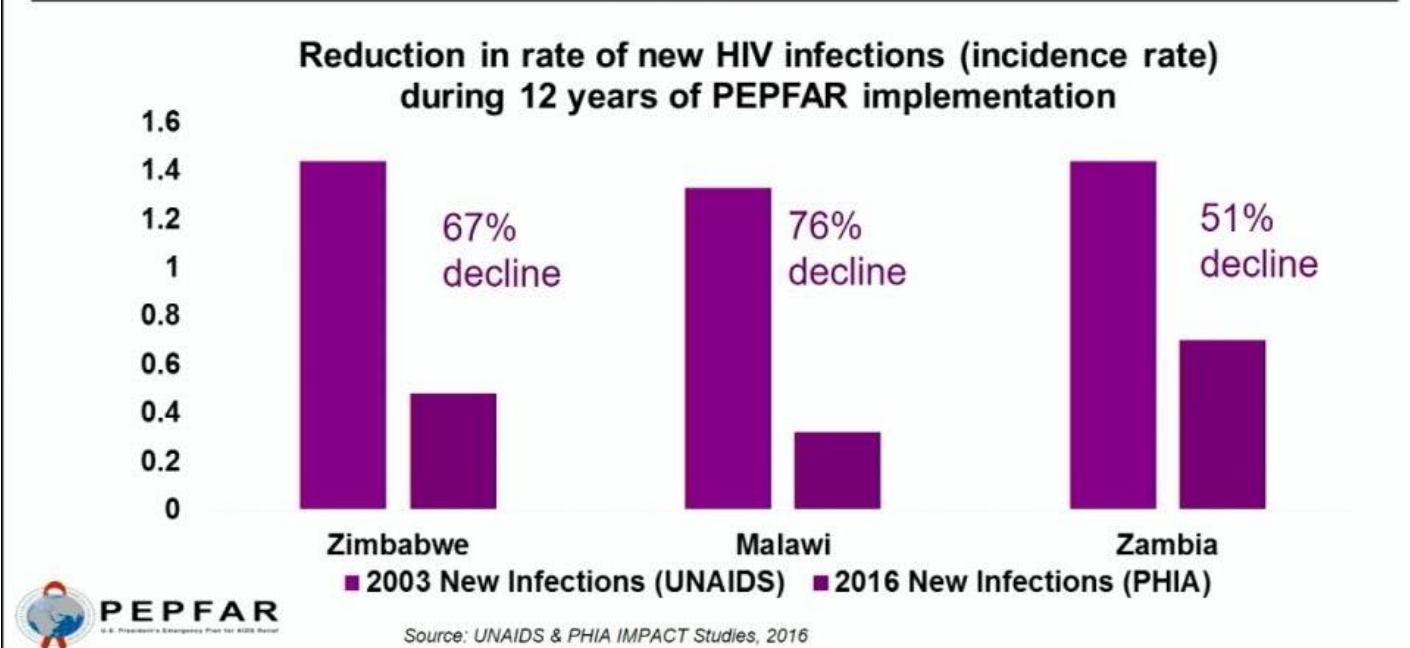
36.9 million
people living with HIV
[31.1 million – 43.9 million]



Source: UNAIDS/WHO estimates

It's time to change the status

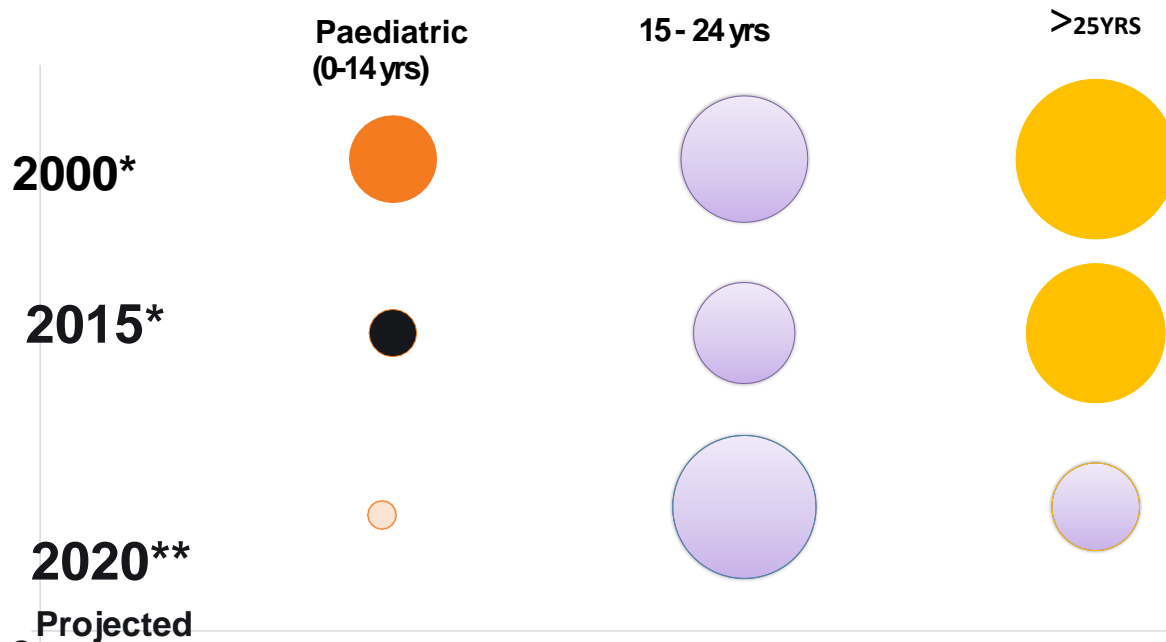
Since the Start of PEPFAR, New HIV Infections Have Declined 51-76%



It's time to change the status

Disproportionate Success in Epidemic Control by Age Group

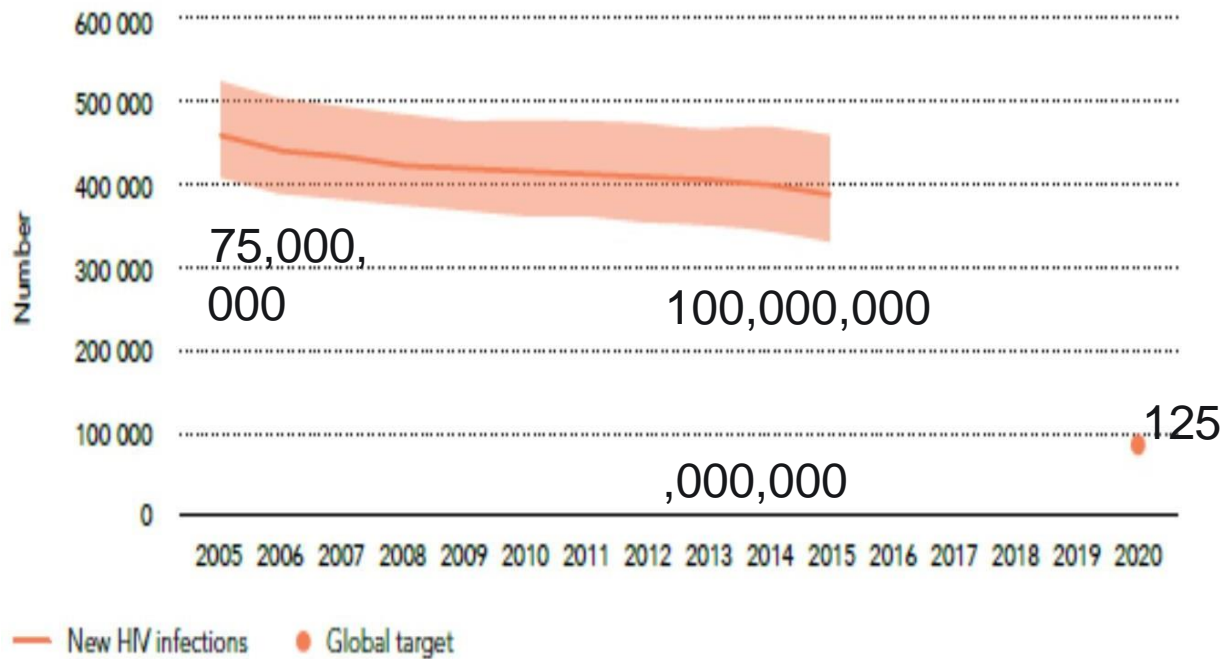
New HIV Infections by Population and Year



Sources: * UNAIDS AIDS info Online Database, 2016; ** 15-24 yrs age group projected based on Africa Development Forum / World Bank 2015, "Africa's Demographic Transition: Dividend or Disaster?"

PEPFAR
U.S. President's Emergency Plan for AIDS Relief

New HIV infections among young women (aged 15–24 years), global, 2005–2015



Source: UNAIDS 2016 estimates.



<500 000 people
on PrEP

Rosalind Lucy Coleman, UNAIDS 2018

Prevention Gap

PrEP coverage is < 5% of the UNAIDS 2020 target
of

3 million people on PrEP

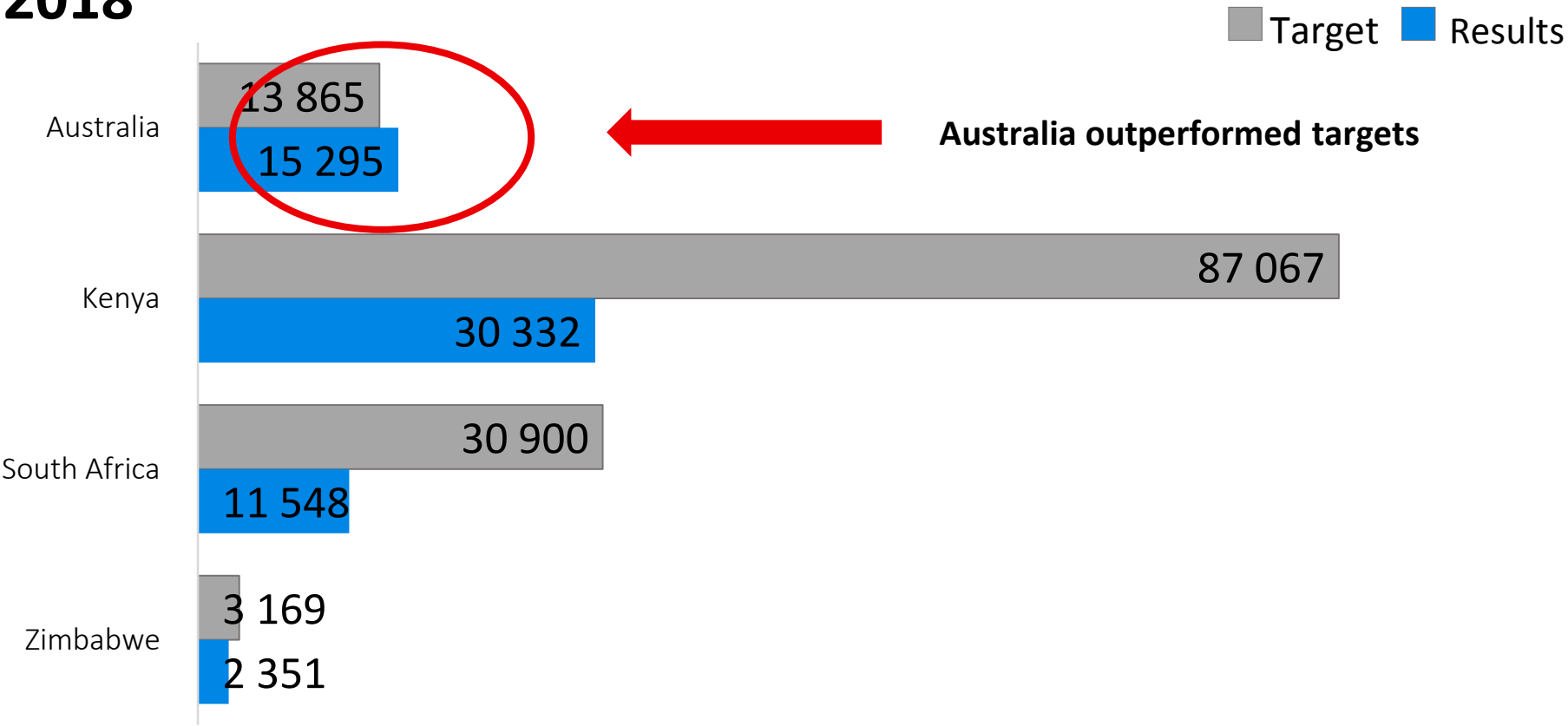
UNAIDS GAP Report 2016

Global Oral PrEP Use by Country February 2019



Oral PrEP Implementation: Progress Against Targets

2018*



*Includes initiation and target data from ongoing demonstration and implementation projects, PEPFAR

Medscheme PrEP Coverage: Aid For Aids (AFA) as of 28 March 2019

- ❑ Total Number of patients ever registered on PrEP by AFA Program
= **259**

- **126** Currently active on PrEP
- **133** Completed (no longer on) PrEP
- **1** Deceased
- **54** were given but left the scheme

- ❑ Number of patients whose PrEP application was in progress: **5**

- ❑ A total **66** PrEP applications declined



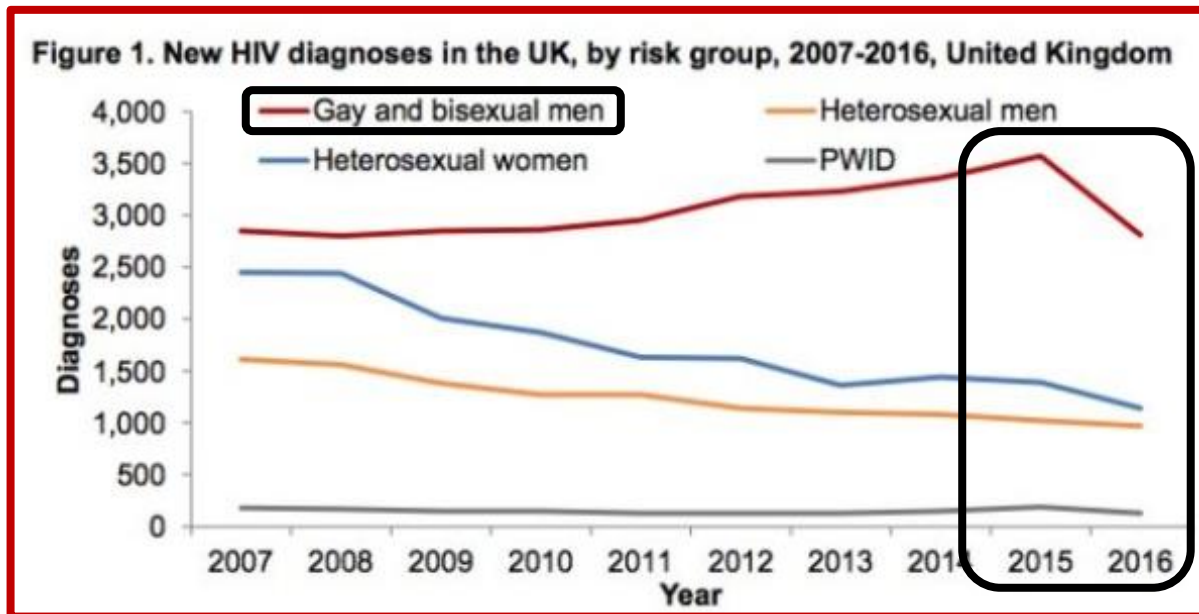
DAILY NEWS 9 January 2017

Massive drop in London HIV rates may be due to internet drugs

80% fall in new HIV diagnoses at Europe's largest sexual health clinic

 Benjamin Butterworth

6th October 2017, 9:44 AM





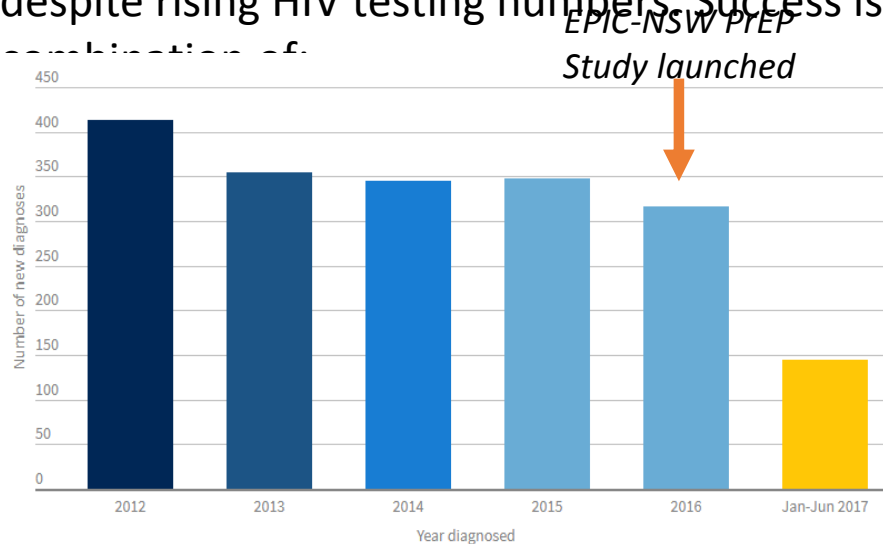
Pictured: NSW Chief Health Officer Dr Kerry Chant releases NSW HIV Second Quarter Data Report 2017 at ACON Health

HIV: NSW 'on track' to virtually eliminate transmission by 2020

By Antonette Collins

Updated 23 Aug 2017, 8:41am

New South Wales at the beginning of 2017 saw the lowest number of new diagnosis among MSM since the HIV epidemic began – despite rising HIV testing numbers. Success is attributed to a



Source: NSW HIV Strategy 2016-2020, April to June 2017 Data Report

- ❖ PrEP – 6,700 enrolled in the EPIC-NSW PrEP study
- ❖ Increased testing
- ❖ Improved linkage to care, notably, these declines were not seen in migrant and indigenous populations – a key focus group going forward

| Ending
| the
| HIV
| Epidemic

GOAL:

75%

reduction in new
HIV infections
in 5 years

and at least

90%

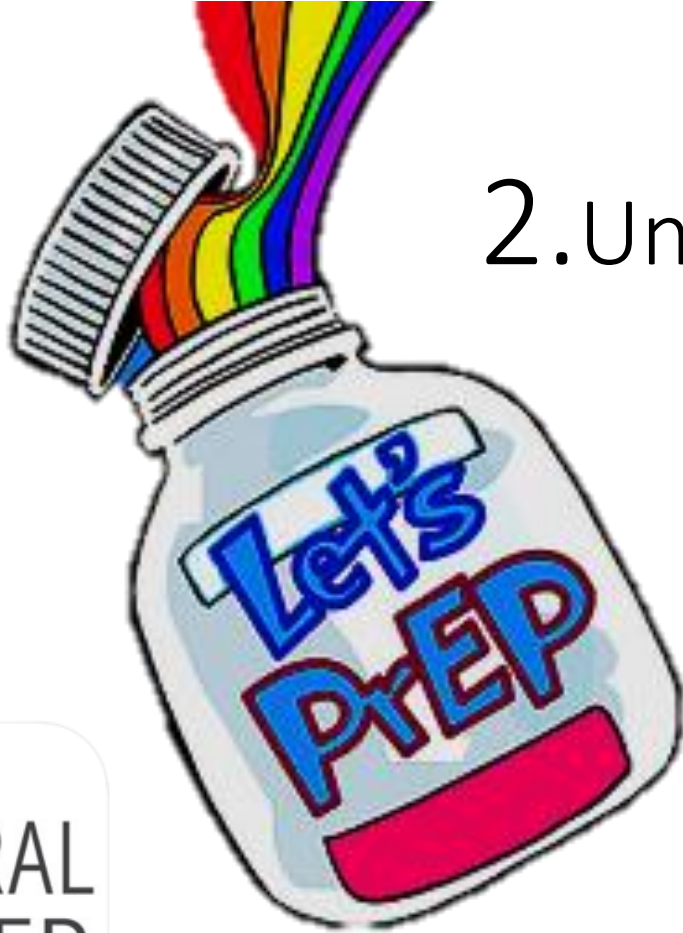
reduction
in 10 years.



www.hiv.gov

PrEP:

2. Unpalatable Issues?



QUESTION 2

WHICH STATEMENT IS FALSE:

- A) PREP IS INDICATED IN PEOPLE UNDER 18 YEARS.
- B) PREP IS INDICATED IN HIV-NEGATIVE PREGNANT WOMEN.
- C) PREP IS CONTRAINDICATED IN TRANSGENDER PEOPLE TAKING HORMONES
- D) PREP IS CONTRAINDICATED IF ACCIDENTALLY EXPOSED TO HIV.

PrEP Works – What we already know



PrEP is a new prevention method in which **people who do not have HIV infection take a pill daily to reduce their risk** of becoming infected.

Effective use = When drug levels in blood are high, HIV protection is consistent and high. The converse is true.....

PrEP is protective for HIV **across populations**. It has few significant safety risks and no evidence of behavioural risk compensation.

Fonner et al., AIDS, 2016

PrEP Works – What we already know



PrEP is a new prevention method in which **people who do not have HIV infection take a pill daily to reduce their risk** of becoming infected.

- Drug *resistance* does occur when PrEP is initiated when **already acutely HIV infected** – but the risk of acquiring drug-resistant HIV when on PrEP is low.

PrEP is safe

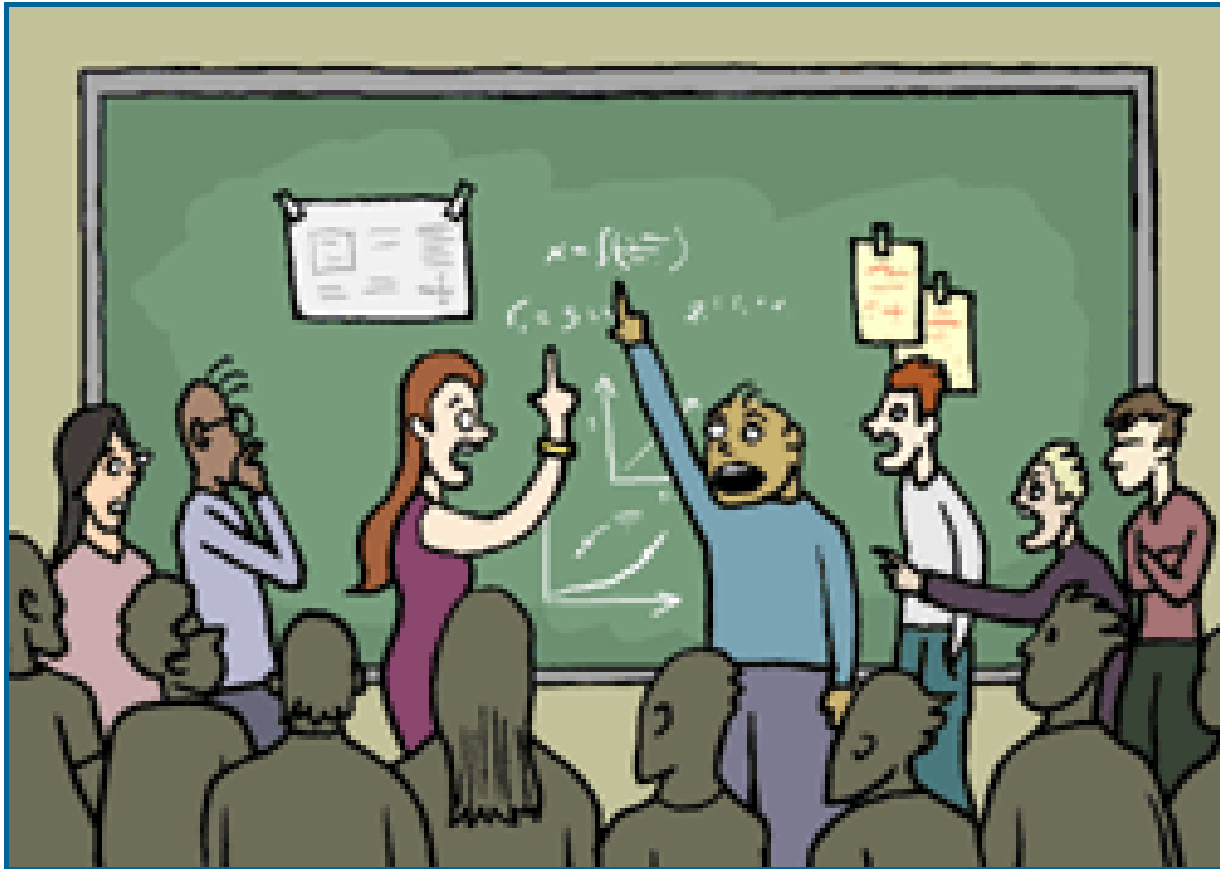
- Rates of death, serious adverse events, and lab' abnormalities (+ renal dysfunction) were **low and not different** between those taking PrEP vs placebo

PrEP is well tolerated

- Side effects were minimal and occurred in minority of people

Fonner et al., AIDS, 2016



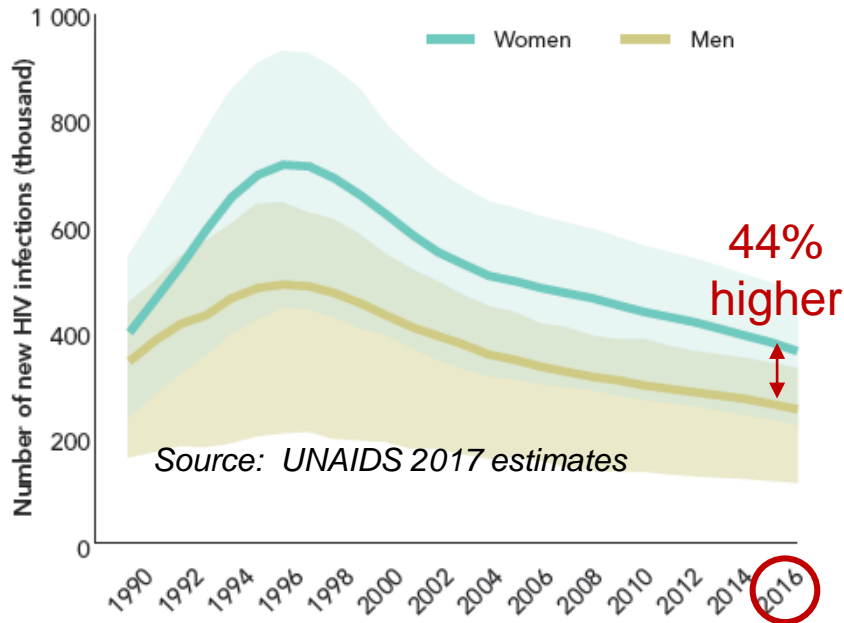


We know PrEP works:

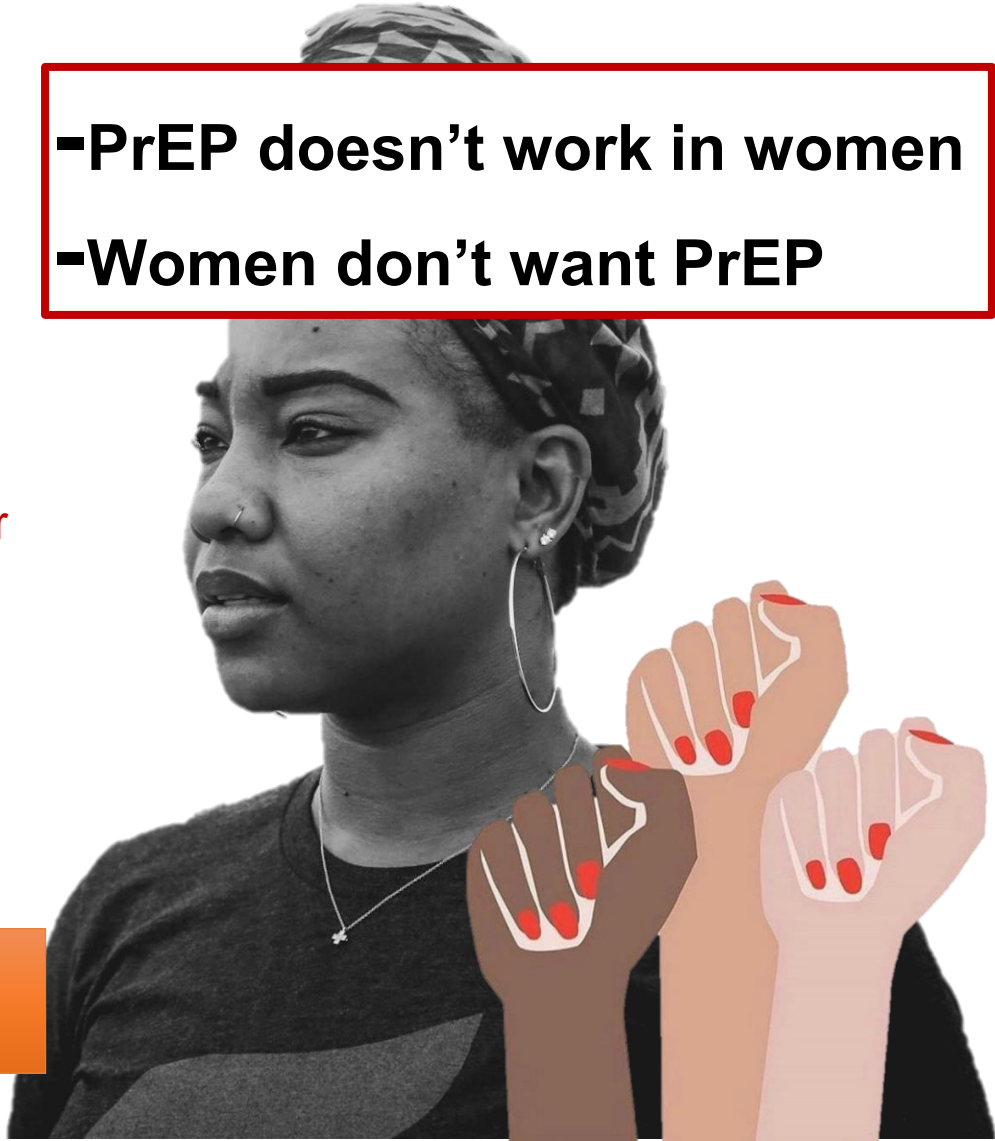
Issues that are worth discussing...

Controversy 1. PrEP is for all populations at risk.....

New HIV Infections, Young People Aged 15-24 Years By Sex, Globally 1990-2016



-PrEP doesn't work in women
-Women don't want PrEP

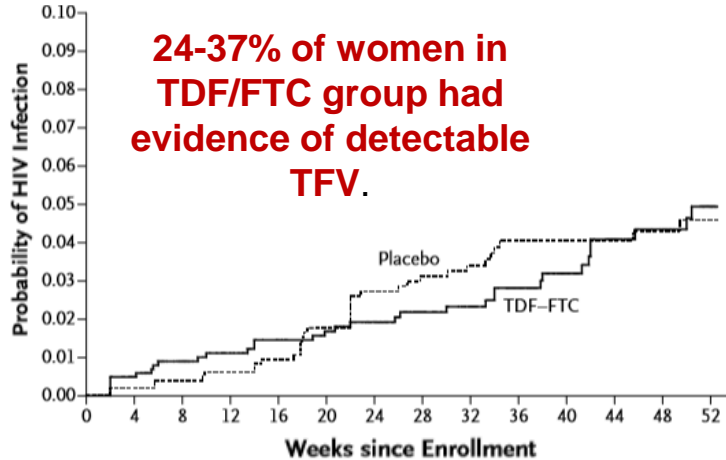


❖ In 2016, there were 900,000 new adult HIV infections in women.



2012: TDF-FTC vs Placebo

2,120 HIV-negative women in Kenya, South Africa, Tanzania

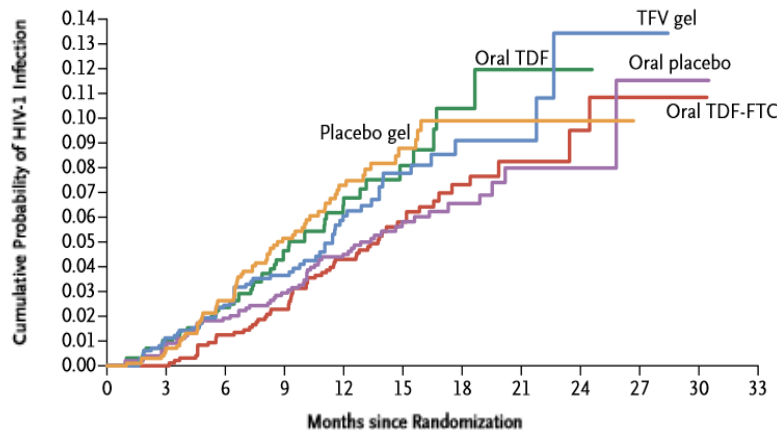


	TDF/FTC	Placebo
# New infections N=68	33	35
Incidence 100 pt-yr	4.7	5.0
Relative reduction: →Overall ITT	6% (0.6-1.5) p=0.81	-



2015: Oral TDF vs TDF-FTC vs Placebo AND TDF gel vs Placebo gel

5,209 HIV-negative women in South Africa, Uganda, Zimbabwe



Oral	TDF*	TDF/FTC	Placebo
# Infected N=173	52	61	60
Incidence 100 pt-yr	6.3	4.7	4.6
Efficacy	-49%	-4.4%	
P value	P=0.07	P=0.81	

*data censored on date oral TDF arm stopped early

Gender Sub-analysis: 3 major PrEP studies



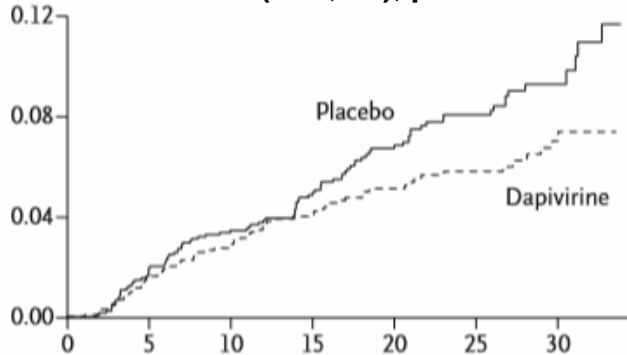
Study	Number participants	% Female	Participant	Relative reduction - ITT
Partners PrEP Study – Kenya, Uganda Baeten JM . NEJM 2012;367:399-410	4,747	38%	Heterosexual men and women	TDF: 67% (44-81) TDF-FTC: 75% (55-87) *Adherence was high
TDF2 Trial* - Botswana Thigpen MC. NEJM 2012;367:423-34	1,219	46%	Heterosexual men and women	TDF-FTC: 62.2% (22-83)
Bangkok Tenofovir Study Choopanya K. Lancet 2013;381:2083-90	2,413	20%	Male and female drug users from treatment centres.	TDF-FTC: 49% (10-72) *Adherence was moderate

Use of a Vaginal Ring Containing Dapivirine for HIV-1 Prevention in Women

J.M. Baeten, T. Palanee-Phillips, E.R. Brown, K. Schwartz, L.E. Soto-Torres, V. Govender, N.M. Mgodli, F. Matovu Kiweewa, G. Nair, F. Mhlanga, S. Siva, L.-G. Bekker, N. Jeenaarain, Z. Gaffoor, F. Martinson, B. Makanani, A. Pather, L. Naidoo, M. Husnik, B.A. Richardson, U.M. Parikh, J.W. Mellors, M.A. Marzinke, C.W. Hendrix, A. van der Straten, G. Ramjee, Z.M. Chirenje, C. Nakabiito, T.E. Taha, J. Jones, A. Mayo, R. Sheckter, J. Berthiaume, E. Livant, C. Jacobson, P. Ndase, R. White, K. Patterson, D. Germuga, B. Galaska, K. Bunge, D. Singh, D.W. Szydio, E.T. Montgomery, B.S. Mensch, K. Torjesen, C.I. Grossman, N. Chakhtoura, A. Nel, Z. Rosenberg, I. McGowan, and S. Hillier, for the MTN-020-ASPIRE Study Team*

Trial sites in South Africa, Uganda, Zambia, Zimbabwe, Malawi

27% reduction
(CI 1, 46), p=0.046



ASPIRE 2016

A Study to Prevent Infection with a Ring for Extended Use



Dapivirine Ring vs Placebo Ring

TOPICAL PrEP

2016



Trial sites in South Africa, Uganda

N Engl J Med 2016;375:2133-43.

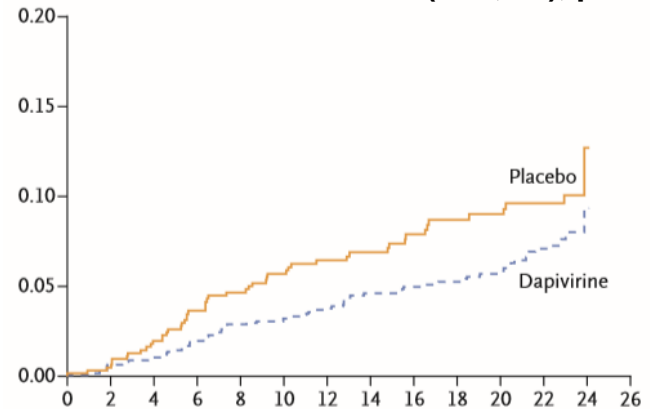
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Safety and Efficacy of a Dapivirine Vaginal Ring for HIV Prevention in Women

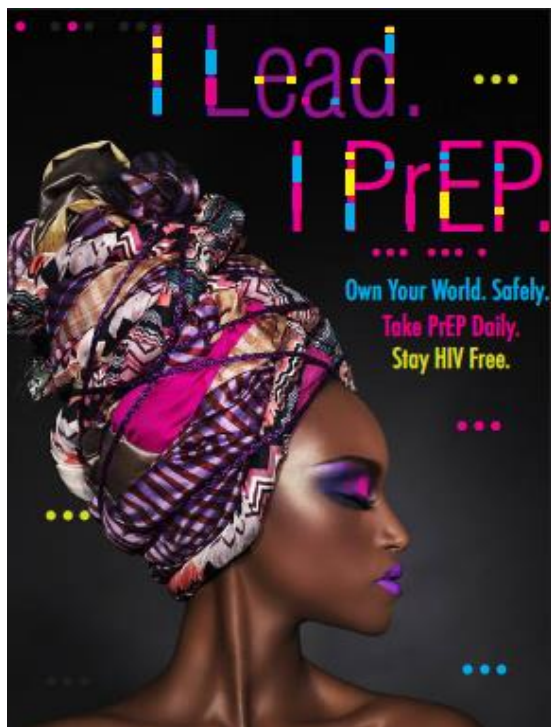
A. Nel, N. van Niekerk, S. Kapiga, L.-G. Bekker, C. Gama, K. Gill, A. Kamali, P. Kotze, C. Louw, Z. Mabude, N. Miti, S. Kusemererwa, H. Tempelman, H. Carstens, B. Devlin, M. Isaacs, M. Malherbe, W. Mans, J. Nuttall, M. Russell, S. Ntshele, M. Smit, L. Solai, P. Spence, J. Steytler, K. Windle, M. Borremans, S. Ressler, J. Van Roey, W. Parys, T. Vangeneugden, B. Van Baelen, and Z. Rosenberg, for the Ring Study Team*

31% reduction
(CI 1, 52), p=0.04



Open label PrEP for Women?

32 FTC/TDF PrEP Demonstration Projects
Seroconversion Rates By Sex/Gender



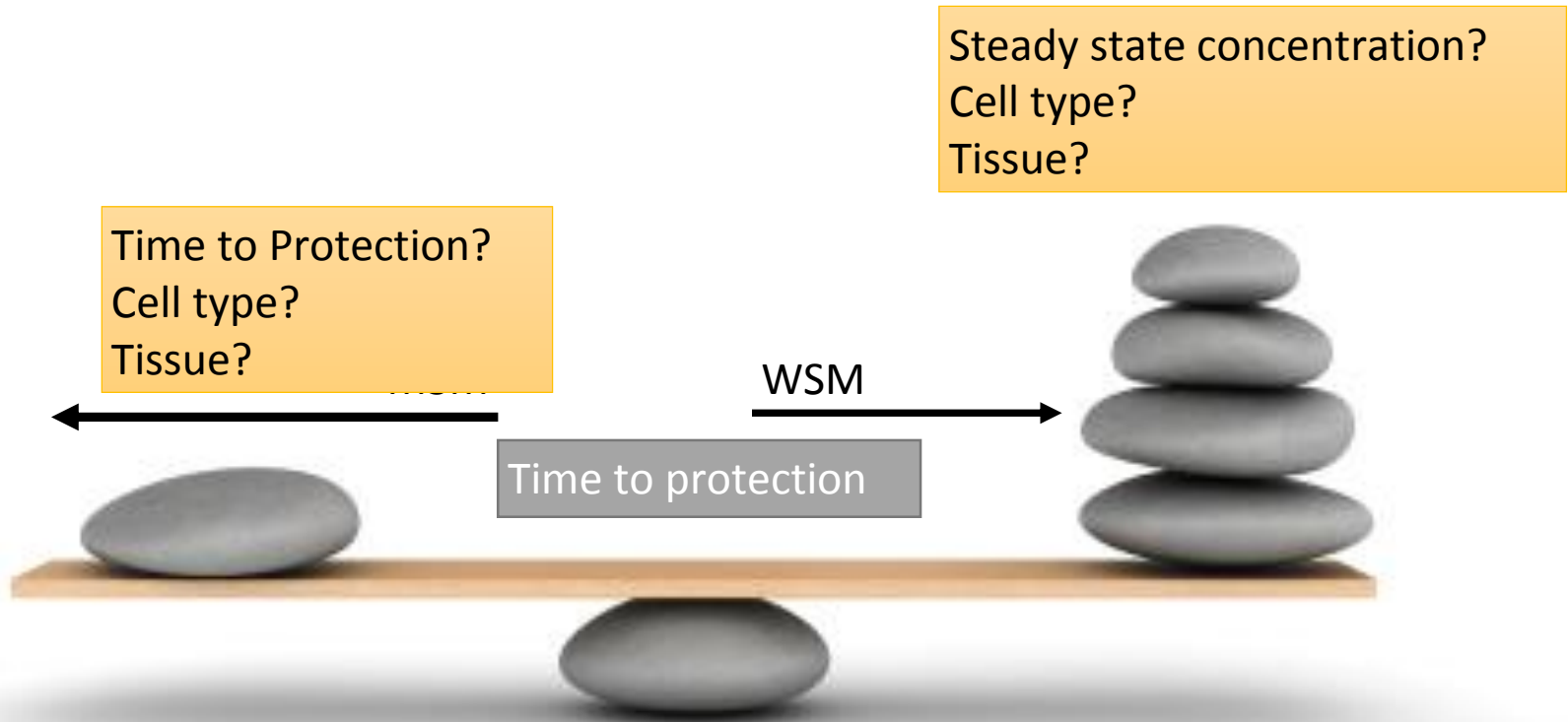
	Men n=7002	Women n=1388	Transgender Women* n=76
*Includes genderqueer, androgynous designations. McCallister, ASM Microbe 2016, Abs 371LB.			
Total exposure, p-y	6214	788	48
Number of HIV-1 seroconversions	64	2	1
Rate/100 p-y (95% CI)	1.03 (0.80-1.32)	0.25 (0.03-0.92)	2.07 (0.05-11.52)

ADAPT HTVN 067: An open label of oral PrEP use by 170 women in Cape Town, South Africa.

- **Majority of women** took oral PrEP when made available, In an open label study out to 30 weeks

Controversy 2. PrEP takes time to work

Modeling studies



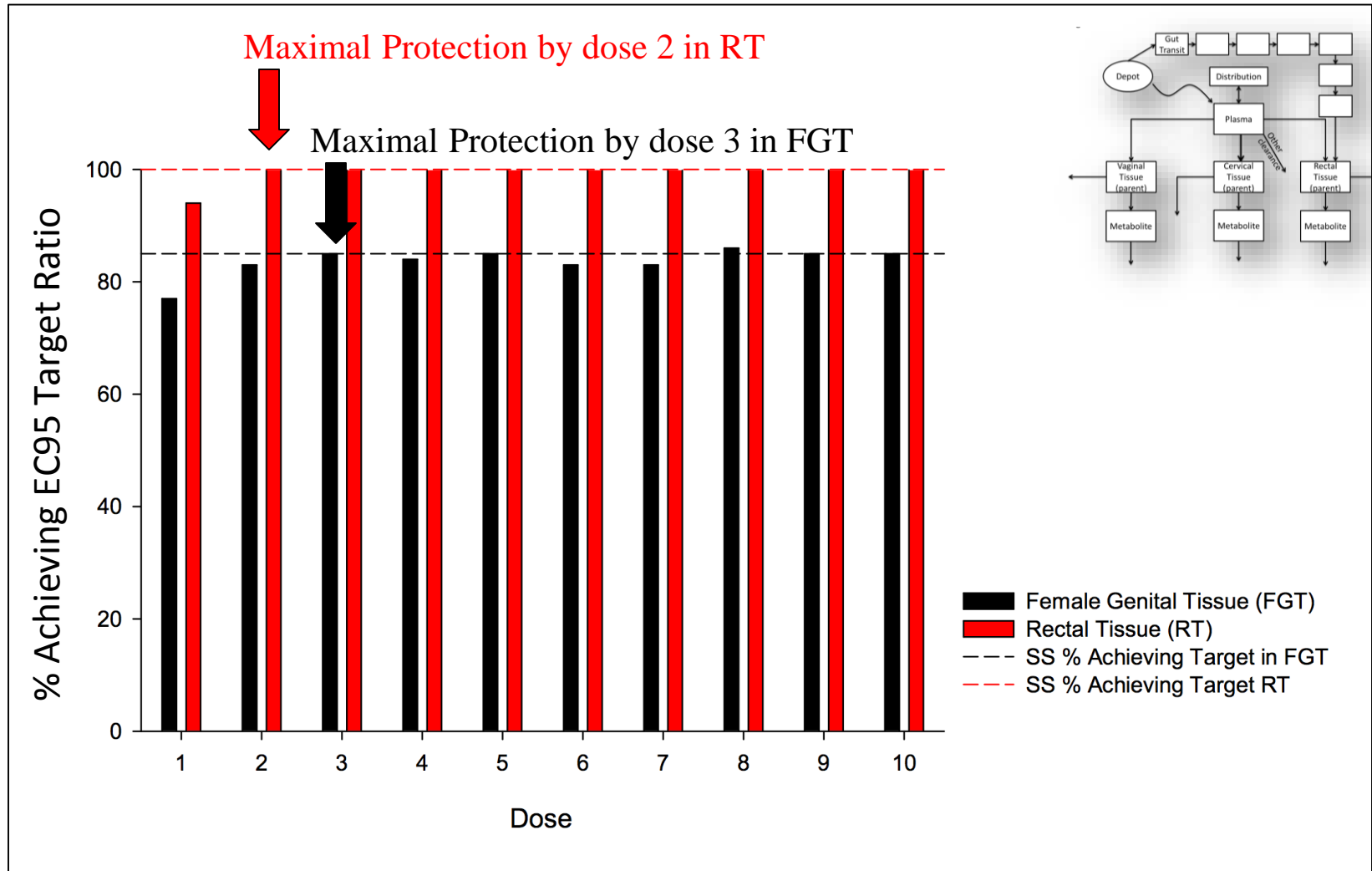
Anderson: PMID: 23226529, 25202923,
11000253

Louissaint, et al. AIDS Res Hum Retrovir 2013;
Patterson, et al. STM 2011

Steady state in Oral Truvada dosing

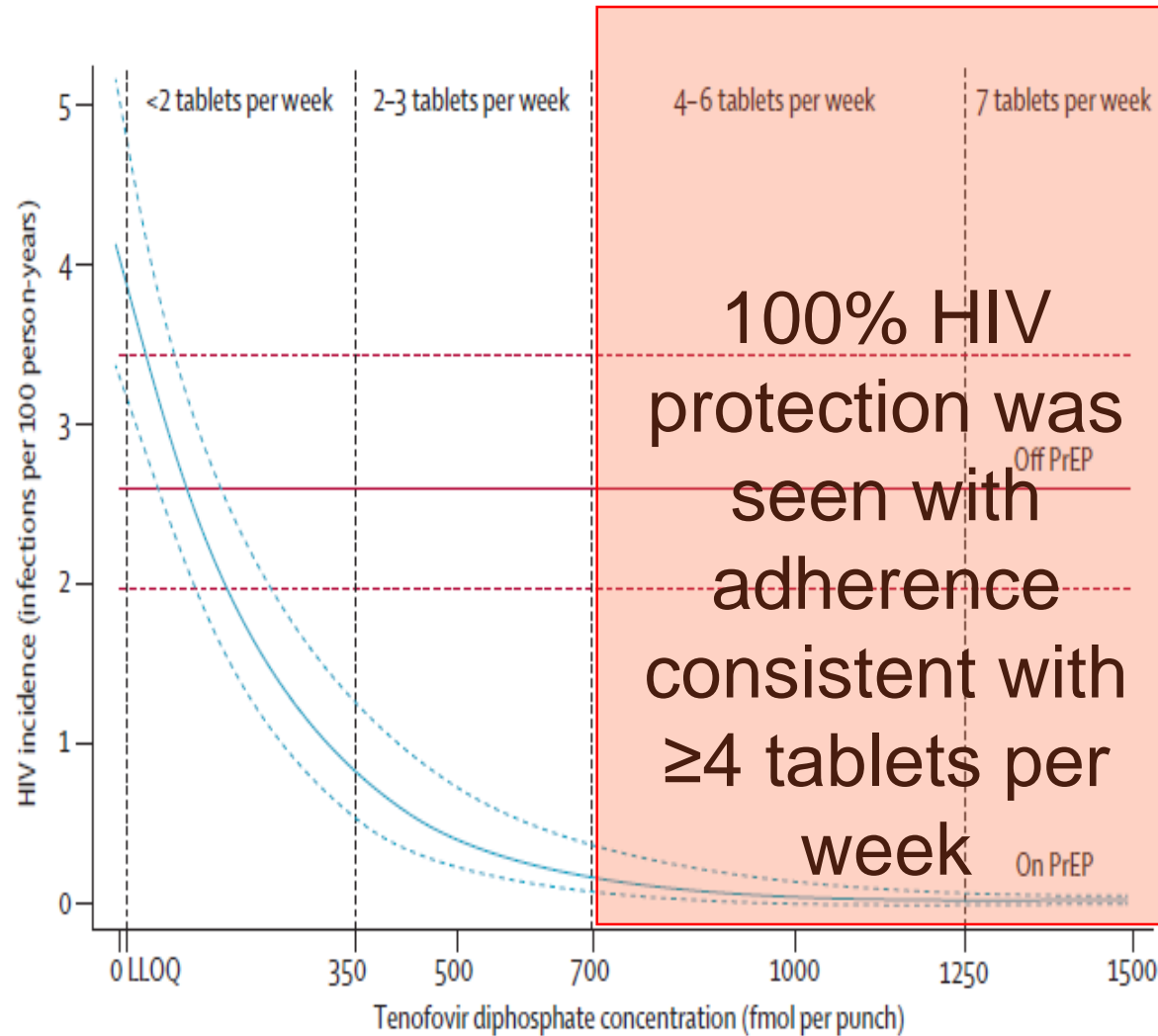
Time To Maximal Protection; Daily Dosing with Truvada®

Cottrell et al J Infect Dis. 2016 Jul 1;214(1):55
Slide courtesy: Angela Kashuba



Anal Mucosa: Fewer doses still effective

iPrEx OLE



Daily and non-daily pre-exposure prophylaxis in African women (HPTN 067/ADAPT Cape Town Trial): a randomised, open-label, phase 2 trial *Lancet HIV*. 2018 Feb;5(2):e68-e78. doi:10.1016/S2666-5264(17)30001-9

Linda-Gail Bekker, Surita Roux, Elaine Sebastian, Ntando Yoku, K Rivet Amico, James P Hughes, Mark A Marzinko, Craig W Hendric, Peter L Anderson, Vanessa Ehtarur, Michael Starmatz, James F Rooney, Estelle Piwovar-Manning, Susan H Eshleman, Laura McKinstry, Maoji Li, Bonnie J Dye, Robert M Grant, on behalf of the HPTN 067 (ADAPT) study team

Optimal Timing of PrEP For Women

TDF-FTC
Daily



vs time-driven (2x/wk + post sex)
vs event-driven (pre-post sex)

- Randomized 178 sero-negative women to oral daily (n=59), time-driven (twice weekly+post-sex) (n=59), or event-driven (pre-post sex) (n=60) PrEP.

	Daily PrEP	Time-driven PrEP	Event-driven PrEP
Coverage sex act	75%	56%	51%
Adherence	75%	65%	53%
TFV detected if sex reported past week	68%	58%	41%
Seroconversions	0	2	2

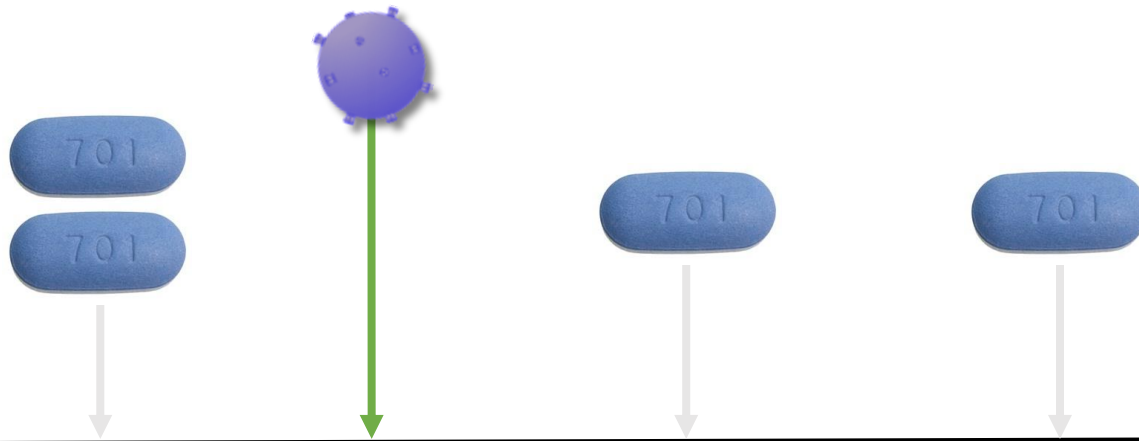
- **Daily dosing** resulted in good adherence (higher drug levels) & better **coverage** of sex acts, compared to intermittent use.
Daily dosing may foster better habit formation and provide the most forgiveness for missed doses at observed adherence levels.

WHO's take on PK

- 7 days for women, heterosexual men and MSM , based on PK and an expert meeting.
- <https://www.who.int/hiv/pub/prep/appropriate-medicine-prep/en/>
- the PK experts actually thought 7 days was conservative! It important to harmonize across populations so that messages are clear for providers.
- Stopping 'rules' : 28 days. As we know they are based on PEP for which there is no evidence for this 28 days – it was just a best guess at the time. We again we know no one 'adheres' to this...

On demand PrEP vs Daily

HIV Exposure Event



Time

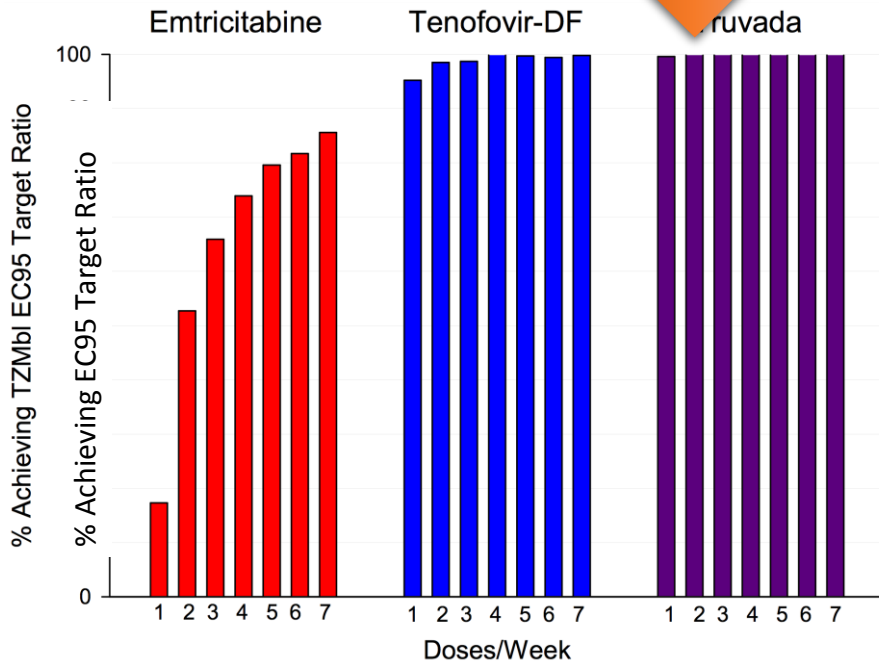
2 tabs 2-24 hours before sex (or 1 pill if most recent dose taken between 1-6 days prior)

1 tab 24 and 48 hours after the last pre-sex dose

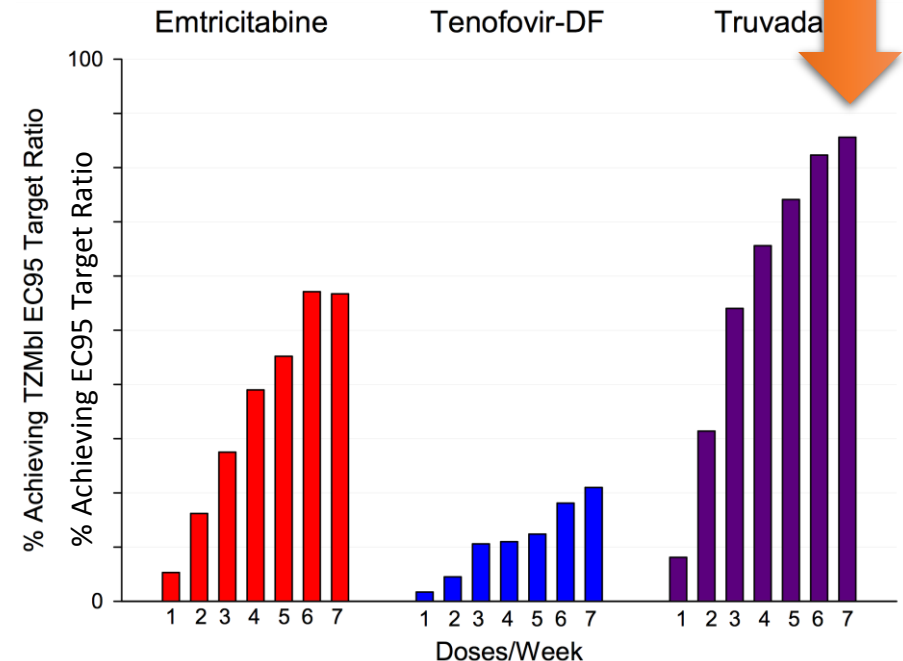
Achieving steady state in Rectal vs FGT.

Cottrell et al J Infect Dis. 2016 Jul 1;214(1):55
Slide courtesy: Angela Kashuba

Colorectal Tissue



Female Genital Tract



iPrEx OLE= ↓ HIV incidence by 90% with
2 Truvada doses per week

Partners PrEP= ↓ HIV incidence by 90%
with 7 Truvada doses per week

Anderson et al. Sci Transl Med Sep 12, 2012; 4(151): 151ra125.

Donnell D et. al. JAIDS. 2014;66(3):340-348.;

Controversy 3: PrEP isn't safe in Pregnancy and Breast feeding

*For partners of HIV-positive people who wish to **conceive**,*

OR

*For HIV-negative women who fall pregnant but remain at high-risk of contracting HIV during **pregnancy** and while **breastfeeding***



HIV in pregnancy



- HIV acquisition during pregnancy and immediately following pregnancy remains high.
- In South Africa, the maternal HIV incidence rate was 10.7 per 100 person years (PY), and 12.4 per 100 PY in urban health facilities in 2013.
- In a recent meta-analysis, MTCT risk was significantly higher among women with incident vs. chronic HIV infection in the postpartum period (OR 2.9) or in pregnancy/postpartum periods combined (OR 2.3)

- Drake AL, et al. Incident HIV during pregnancy and postpartum and risk of mother-to-child HIV transmission: a systematic review and meta-analysis. PLoS Med. 2014 Feb 25;11(2):e1001608.
- Moodley D, et al. Incident HIV infection in pregnant and lactating women and its effect on mother-to-child transmission in South Africa. J Infect Dis. 2011 May 1;203(9):1231-4.
- Moodley D, et al. High HIV incidence during pregnancy: compelling reason for repeat HIV testing. AIDS. 2009 Jun 19;23(10):1255-9

PrEP'd while Conceiving? Protection for discordant couples who want to conceive. **Bridge PrEP**



High-risk for sero-discordant couples:

- **China:** 5-fold ↑ odds of seroconversion in those desiring to conceive a child (Tang, 2016, PLoS One)
- **Kenya:** 1.8-fold ↑ relative risk of seroconversion in couples in whom pregnancy occurred (Brubaker et al., 2011, HIV Med)

PrEP is protective: Swiss study of 46 discordant couples using timed intercourse with PrEP (Vernazza *et al.*, 2011, AIDS)

- 75% of couples achieved natural conception
- None of the female partners seroconverted for HIV.

Not conceiving? PrEP was found to not reduce the effectiveness of hormonal contraceptives in preventing pregnancy in the Partners PrEP study. It was concluded that PrEP is safe to use in conjunction with hormonal birth control. *Murnane et al., CROI Poster Abstract 2014*

PrEP'd in Pregnancy?

Significant TDF *exposure in utero* occurs: no

Low Birth Weight <2500 g, Comparative Studies

We support development and implementation of strategies that can be adopted in diverse settings to support HIV affected persons to achieve reproductive goals including increased access to ART and PrEP.....etc.

Consensus statement Matthews L Aids Behav 2017

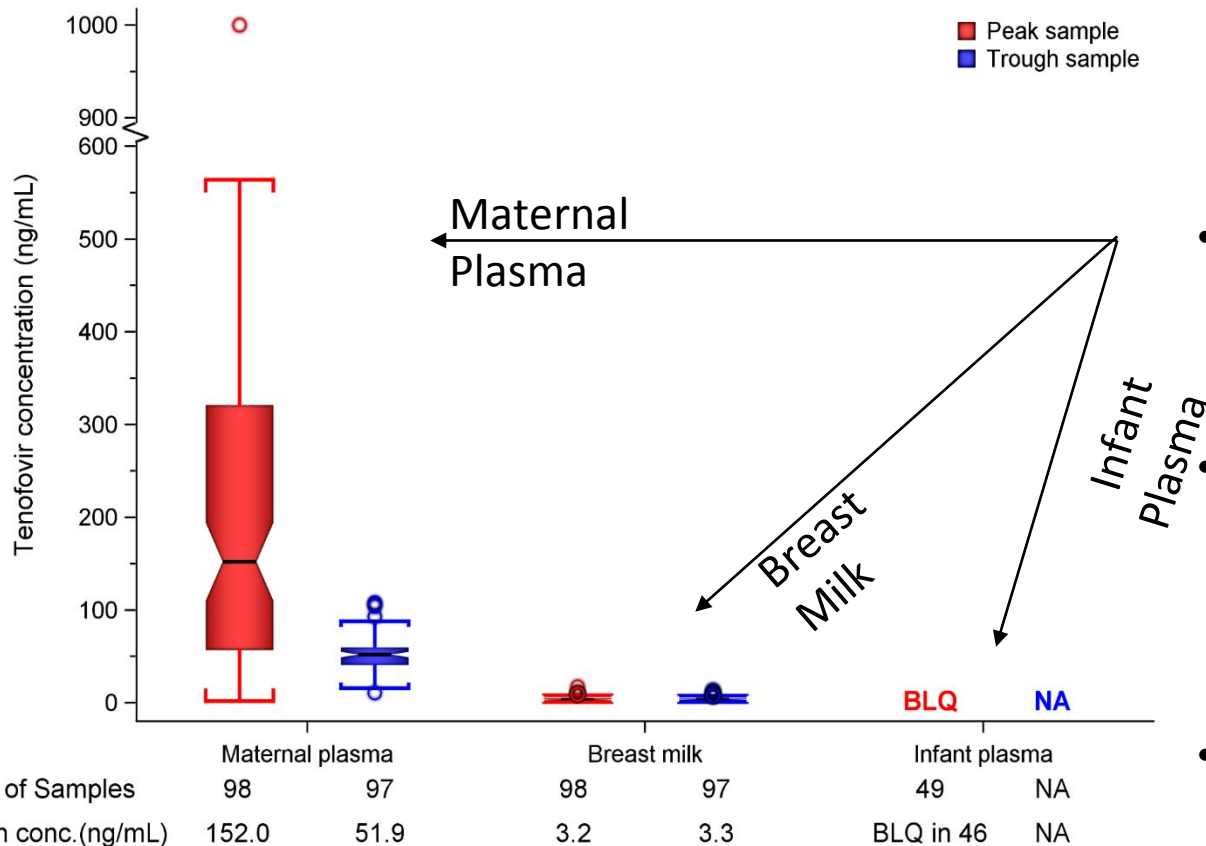
increased neonatal mortality risk with tenofovir exposure

- Need to assess *infant growth/bone effects*

Challenge: considered **SAFE, but** limited studies (16) in HIV-uninfected women + low adherence in PrEP studies

WHO: *“PrEP may be offered and continued during pregnancy in women at substantial risk of HIV acquisition”*

PrEP'd while breastfeeding?



- Transfer of tenofovir from maternal plasma to breast milk is **limited**
- Infant exposure was found to be **>200 times lower** than the proposed infant therapeutic dose
- Tenofovir was **not** detected in 94% of infant plasma samples

Source: Mugwanya et al., 2016

It is predicted that oral PrEP is **safe** for breastfeeding, HIV-uninfected women.

PrEP in Pregnancy and Birth Outcomes

Heffron R et al. CROI 2017, Seattle, WA. Poster 934

- Partners PrEP demonstration project (N=334) Kenya/ Uganda; 30 pregnancies/30 women on PrEP.
- Comparison group Partners PrEP Trial placebo women (N=621); 85 pregnancies/79 women on placebo.

	PrEP-exposed	PrEP-unexposed	OR (95%CI)
Preterm	0	5 (7.7%)	0.4 (0.2, 3) P=0.4
Pregnancy loss	5 (16.7%)	20 (23.5%)	0.8 (0.3, 2.5) P=0.7
Birth defect	0	5 (7.7%)	Fishers exact p=0.3

**adjusted for maternal age at enrollment*

- No difference infant growth at 6-12 months.

WHO recommendations:

- <https://www.who.int/hiv/pub/toolkits/prep-preventing-hiv-during-pregnancy/en/>
- **Continuation on PrEP during pregnancy and BF.** Woman taking PrEP who subsequently becomes pregnant and remain at substantial risk of HIV infection
- **PrEP as part of PMTCT.** Pregnant or breastfeeding HIV-woman living in a setting with high HIV incidence who are at substantial risk of HIV acquisition
- **PrEP for safer conception.** Women with HIV+ partners but not virally suppressed, or status unknown for safer conception

Controversy 4. PrEP isn't a good option for adolescents.

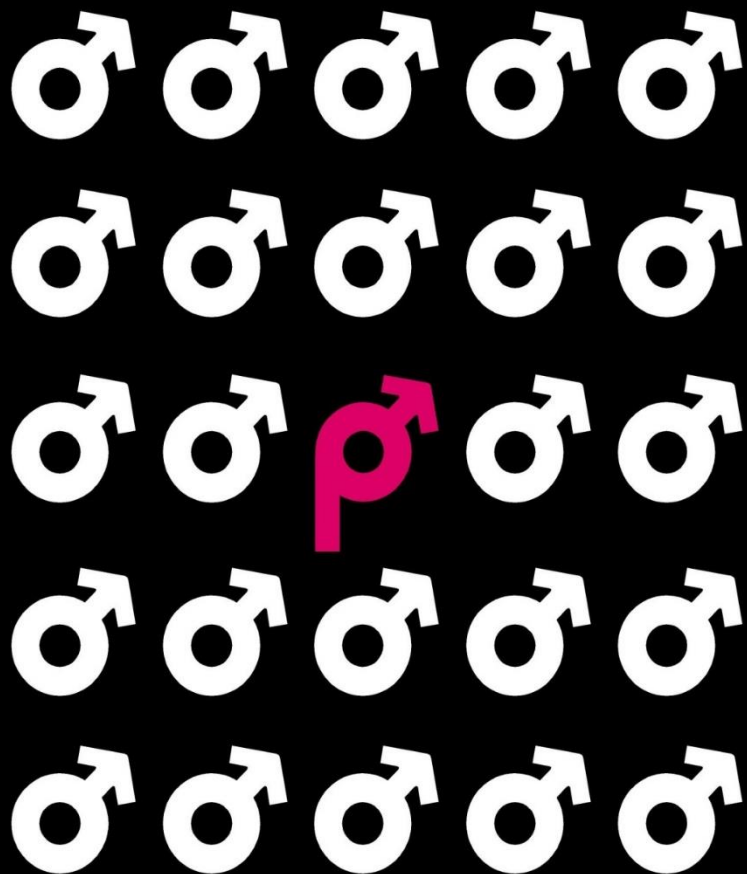
610 000 people aged 15-24 years were infected with HIV in 2016

Almost 2000 were **young women** in South Africa

32% of new infections occurred outside Africa



PrEP for Adolescents? Now FDA approved!



CAN A PILL A DAY
PREVENT
HIV?

FOR INFORMATION ON THIS NEW AND
EXCITING **HIV PREVENTION STUDY**

SMS "Info" at no cost to 30060 or
e-mail MCMHP@hiv-research.org.za

All participants will be compensated for their time and transport.

COMING 01-07-08

MCMHP@hiv-research.org.za

MOTHER CITY MEN'S HEALTH PROJECT
Time to Stand Up



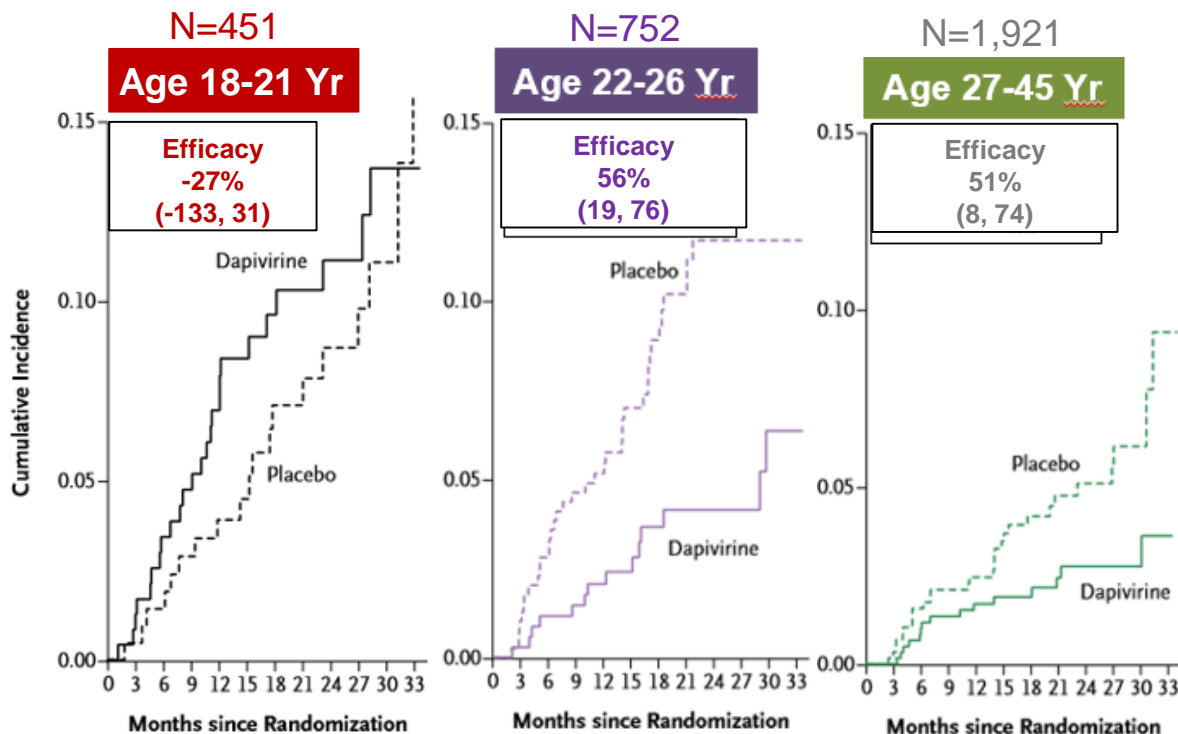
MOTHER CITY MEN'S HEALTH PROJECT
Time to Stand Up





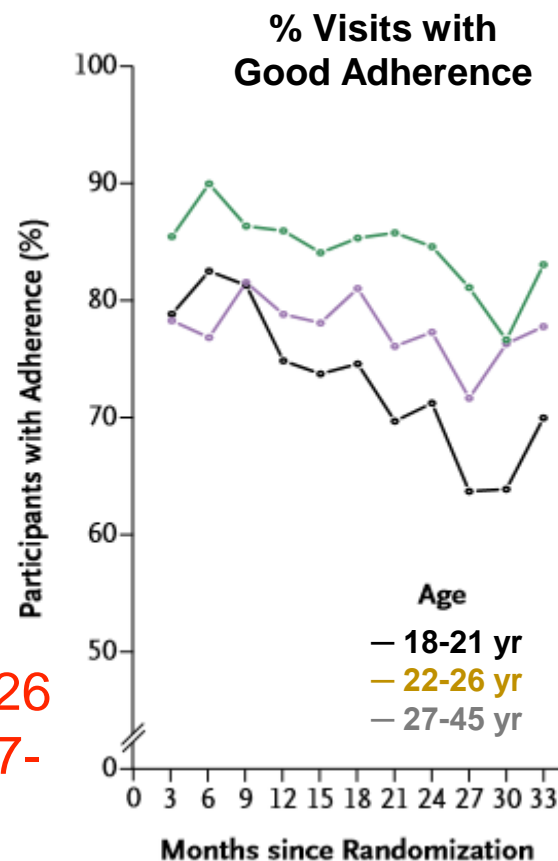
Lack of Efficacy Restricted to Adolescent Age Group

Baeten J et al. *NEJM* 2016;375:2121-32



Definition "Good Adherence":

- High plasma DPV >95 pg/mL
- Low ring DPV <23.5 mg



Association of Adherence with Age

Adherence was significantly lower among young women aged 18-21 yrs

→ compared to women 18-21 years, women 22-26 yrs had 1.6-fold higher adherence and women 27-45 yrs had 4.1-fold higher adherence

Daily and non-daily pre-exposure prophylaxis in African women (HPTN 067/ADAPT Cape Town Trial): a randomised, open-label, phase 2 trial Lancet HIV. 2018 Feb;5(2):e68-e78. d

Linda-Gail Bekker, Surita Roux, Elaine Sebastian, Ntando Yolo, K Rivet Amico, James P Hughes, Mark A Marzinko, Craig W Hendrix, Peter L Anderson, Vanessa Elharrar, Michael Stirratt, James F Rooney, Estelle Phwovar-Manning, Susan H Eshleman, Laura McKinstry, Maoji Li, Bonnie J Dye, Robert M Grant, on behalf of the HPTN 067 (ADAPT) study team

Open Label PrEP: Age and Adherence



- There was no difference in adherence as measured by TFV detection in plasma by randomized group by age ≤ 25 years vs > 25 years

Pt Reporting Sex in Previous Week with Detectable TFV Levels by Age

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

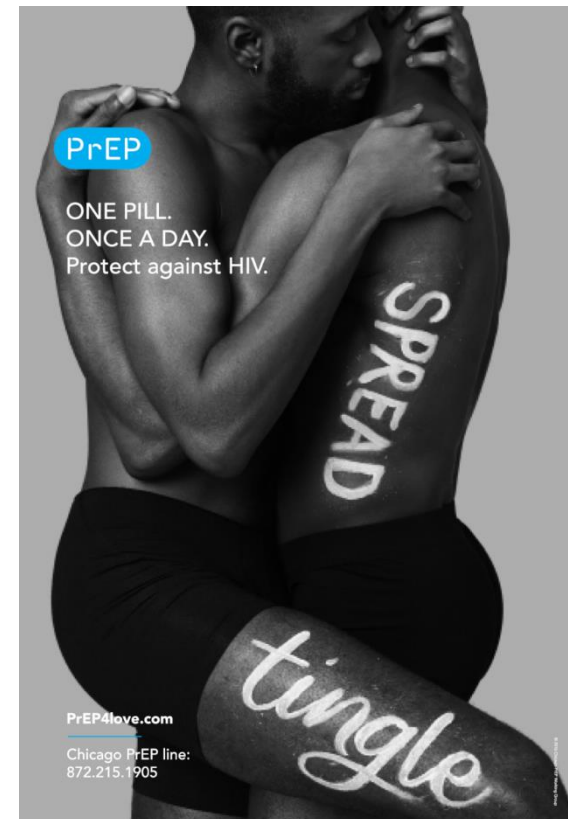
>40 ng/ml in plasma means a tablet was taken in last 24 hours


ATN 113 (Project PrEPare)

Designed to explore the safety, acceptability, and feasibility of PrEP among young MSM at risk for HIV infection (United States, 300 HIV-negative young MSM, aged 15-17 years).

Results released July 2016:

- The majority of participants **achieved protective drug levels** during monthly visits
- BUT **adherence decreased** with quarterly visits.
- HIV incidence was still high despite PrEP provision, suggesting high background incidence.
- **Regulatory approvals for youth under 18 years** are required to foster support for youth-friendly settings that will optimize PrEP use.



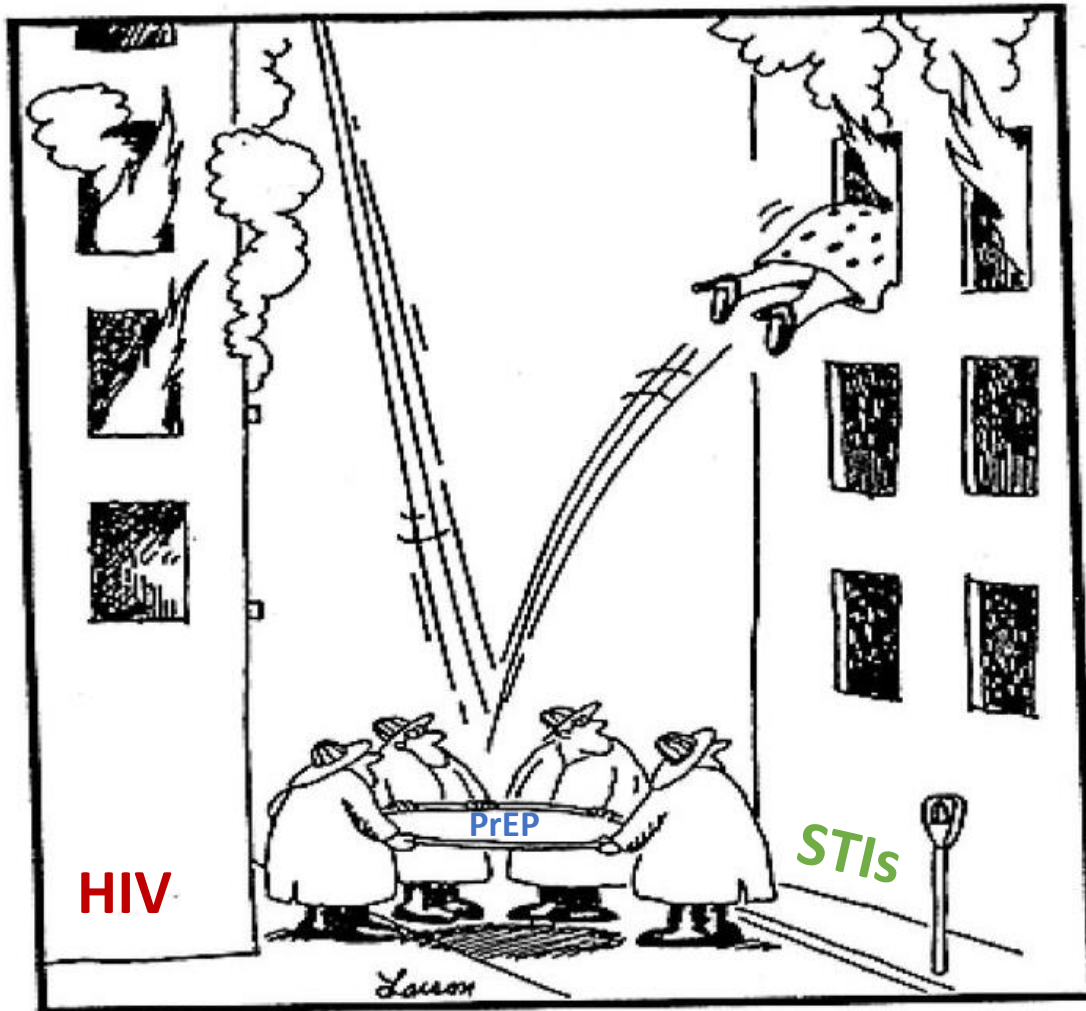
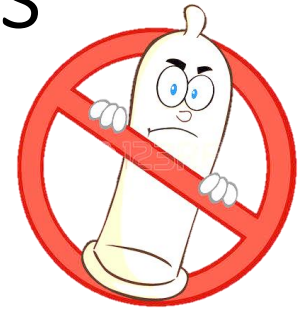


For the first time in
my life – I own my
sexuality

Its like a pregnancy
pill- if you take a pill
you don't get
pregnant.....if you
take PrEP you wont
get HIV.

Personal Control
Part of a movement

Controversy 5: PrEP causes STIs

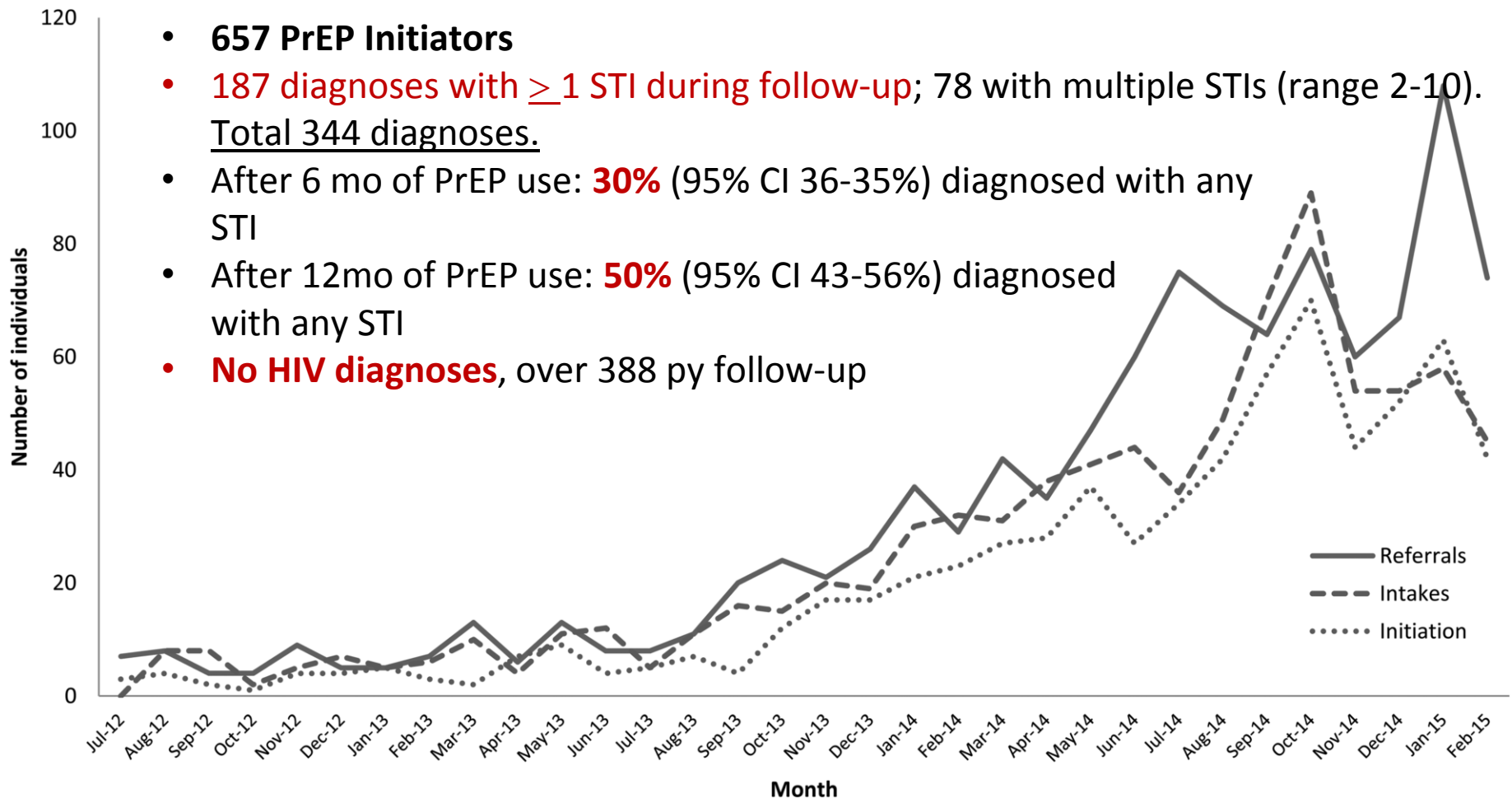


Mixed results for PrEP on risk compensation and impact on STI incidence.

No New HIV Infections With Increasing Use of HIV PrEP in a Clinical Practice Setting

— Kaiser Permanente Volk J 2015

- **657 PrEP Initiators**
- **187 diagnoses with ≥ 1 STI during follow-up**; 78 with multiple STIs (range 2-10). Total 344 diagnoses.
- After 6 mo of PrEP use: **30%** (95% CI 36-35%) diagnosed with any STI
- After 12mo of PrEP use: **50%** (95% CI 43-56%) diagnosed with any STI
- **No HIV diagnoses**, over 388 py follow-up





An increase in the prevalence of diagnosed STI cases but with HIV reduction

(Ken Mayer, OFID, 2017)

PrEP'd for STI's?

PreP attracts individuals who are prone to risky behaviours.

STIs were with us before the HIV epidemic, before condoms and before PrEP.

While PrEP is a solution for HIV prevention it is not the solution for STI's.



On the one hand:

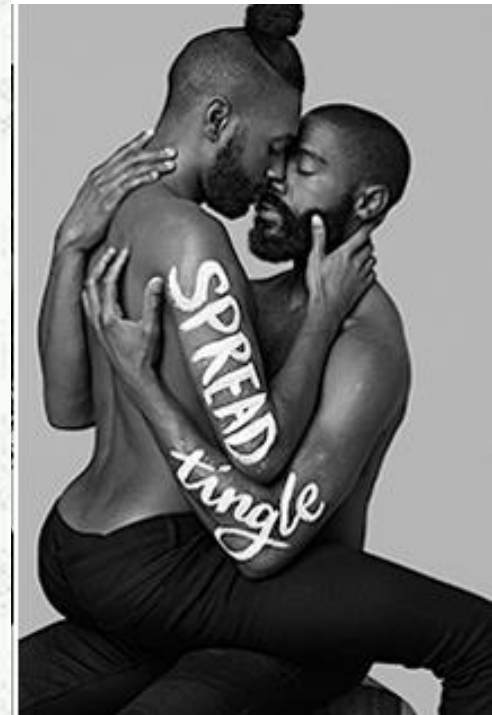
PrEP shouldn't exist outside of a package :

Testing, Contraception, Condoms, STI screening and treatment

ON THE OTHER:

IT HAS THE POTENTIAL TO ENHANCE STI SCREENING AND HEALTHY SEXUAL/REPRODUCTIVE HEALTH PRACTICES.

Controversy 6: PrEP is a medical intervention



Medicalisation of HIV prevention **or** Positive promotion of a new lifestyle choice?

PrEP

ONE PILL.
ONCE A DAY.
Protect against HIV.

Prevention is a lifestyle

Taking the pain out of prevention



**PrEP
FOR YOUR
WILD TIME
WITH A
BEAR,
WITH 1 PILL A DAY.**

If you're on the hunt for a wild time with a burly bear, then you should consider taking PrEP. PrEP (Pre-exposure prophylaxis) is a revolutionary HIV prevention strategy for Men who have Sex with Men.



NEW WAYS TO PREVENT HIV

Daily

Emergency

PrEP

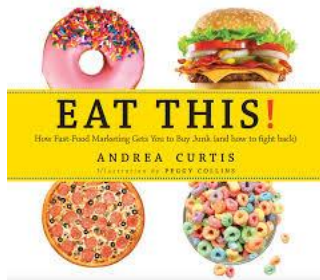
&

PEP



Getting PrEP right by eliminating strategies that promote failure.

Steps to reposition PrEP for Success.



“The Sell” : Focus on Safety, not Risk: Frame PrEP positively and as an empowerment tool to maximise SRH and wellness.



‘The brand” : Implement Universal PrEP: Don’t profile PrEP. Brand PrEP as something for everyone who thinks they may benefit from it.



‘Product Placement” : Offer PrEP in the context of comprehensive, patient-centered care: PrEP needs to be integrated, with other prevention products and with other relevant services.



Engage- Who?

If we direct prevention
to those “at risk” within a specific KP

Then who is “at risk”?

And if not now at risk.....why not tomorrow?

Young people are in transition.....

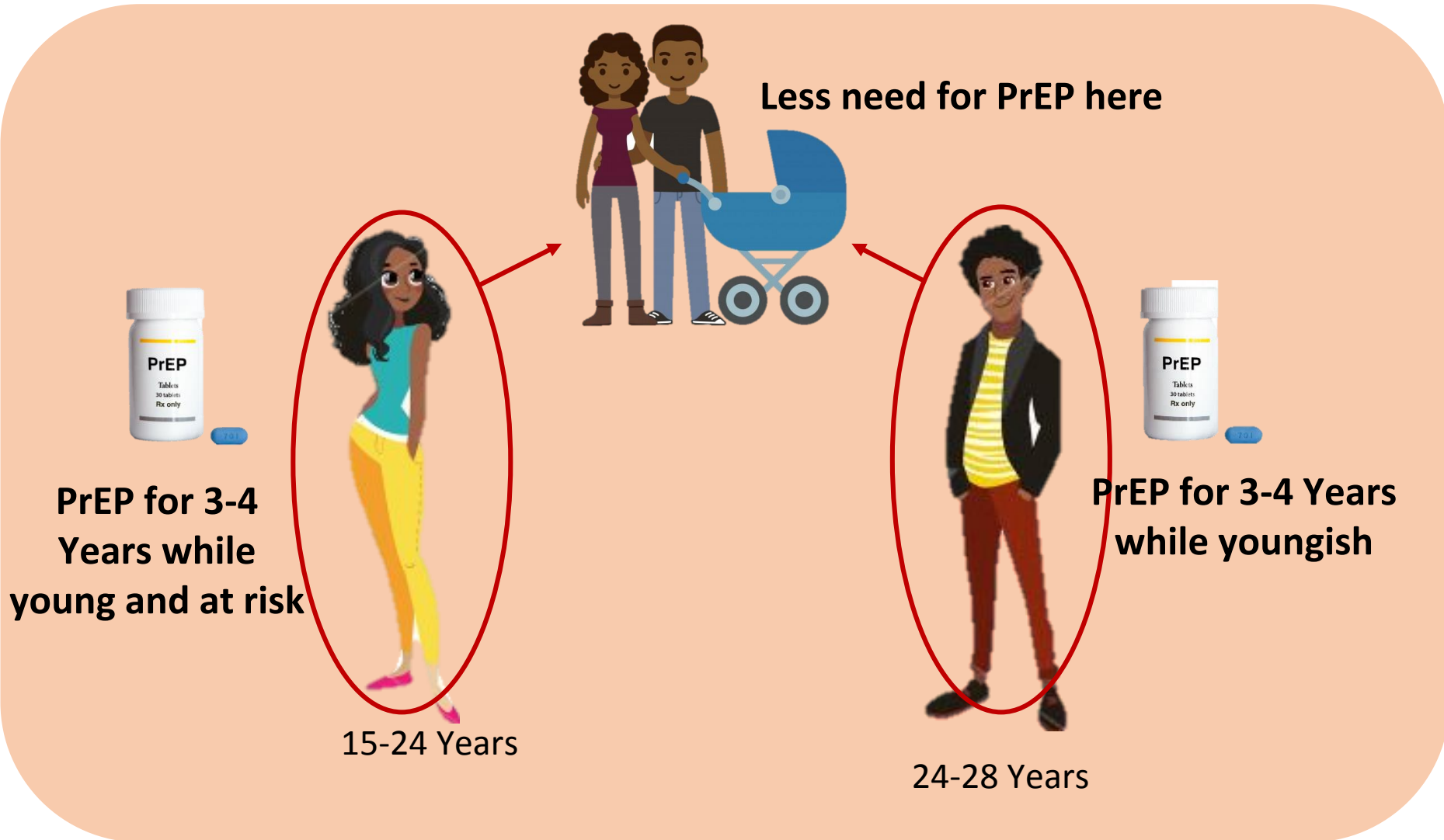
- May “transition” to a risky profile
- May move in and out of a risky profile
- May not fully identify as a risky individual

“ At Risk” mantle may
be desirable or deniable

Will profiling
(rationing) alienate
our key population
and reduce our
impact?

PrEP is seasonal

If PrEP can be implemented at certain periods as a **prevention intervention**
May be reduced need for treatment & prevention during later stages of life:



Other issues

- Same day Start?
- Other drugs?

New Biomedical Approaches

Upcoming efficacy trial results: The future of HIV prevention



Vaginal ring



Oral PrEP



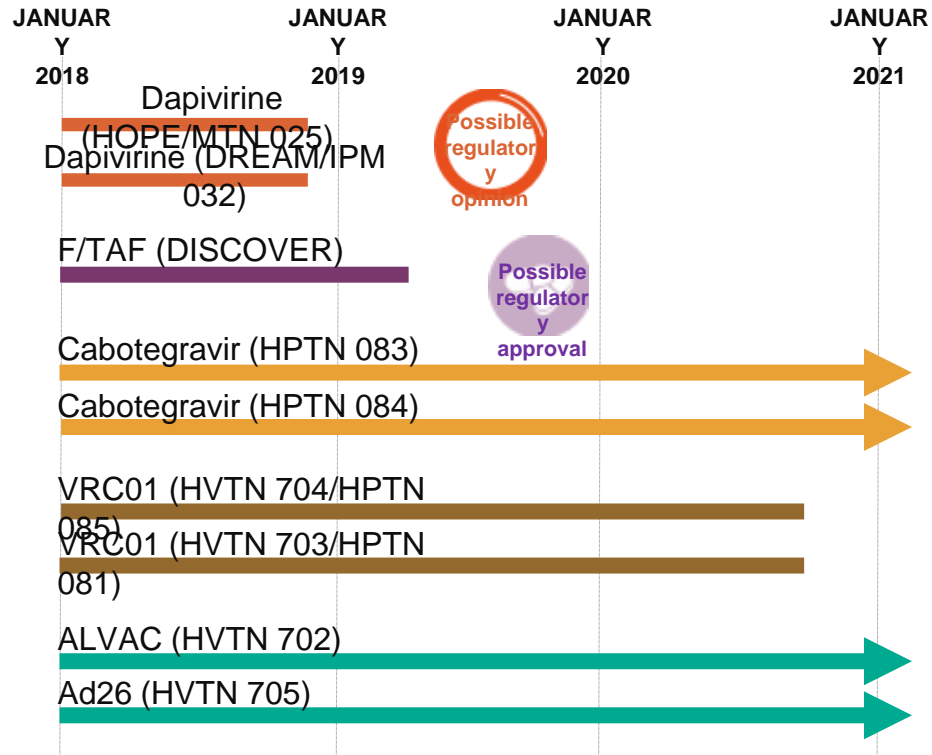
Long-acting injectable



Antibody



Preventive HIV vaccine



Visit www.avac.org/pxrd for trial status updates.

— Open-label

- - - Randomized controlled

QUESTION 3

WHICH STATEMENT IS FALSE:

- A) PREP IS INDICATED FOR DISCORDANT COUPLES
- B) PREP IS CONTRAINDICATED IN PEOPLE WHO ARE HIV POSITIVE
- C) PREP IS CONTRAINDICATED IN PEOPLE WHO ARE BREASTFEEDING
- D) PREP IS INDICATED FOR WHO INJECT DRUGS

Many thanks to:



Linda-Gail Baker
SAHCS
Phomolong Medical Centre
Staff