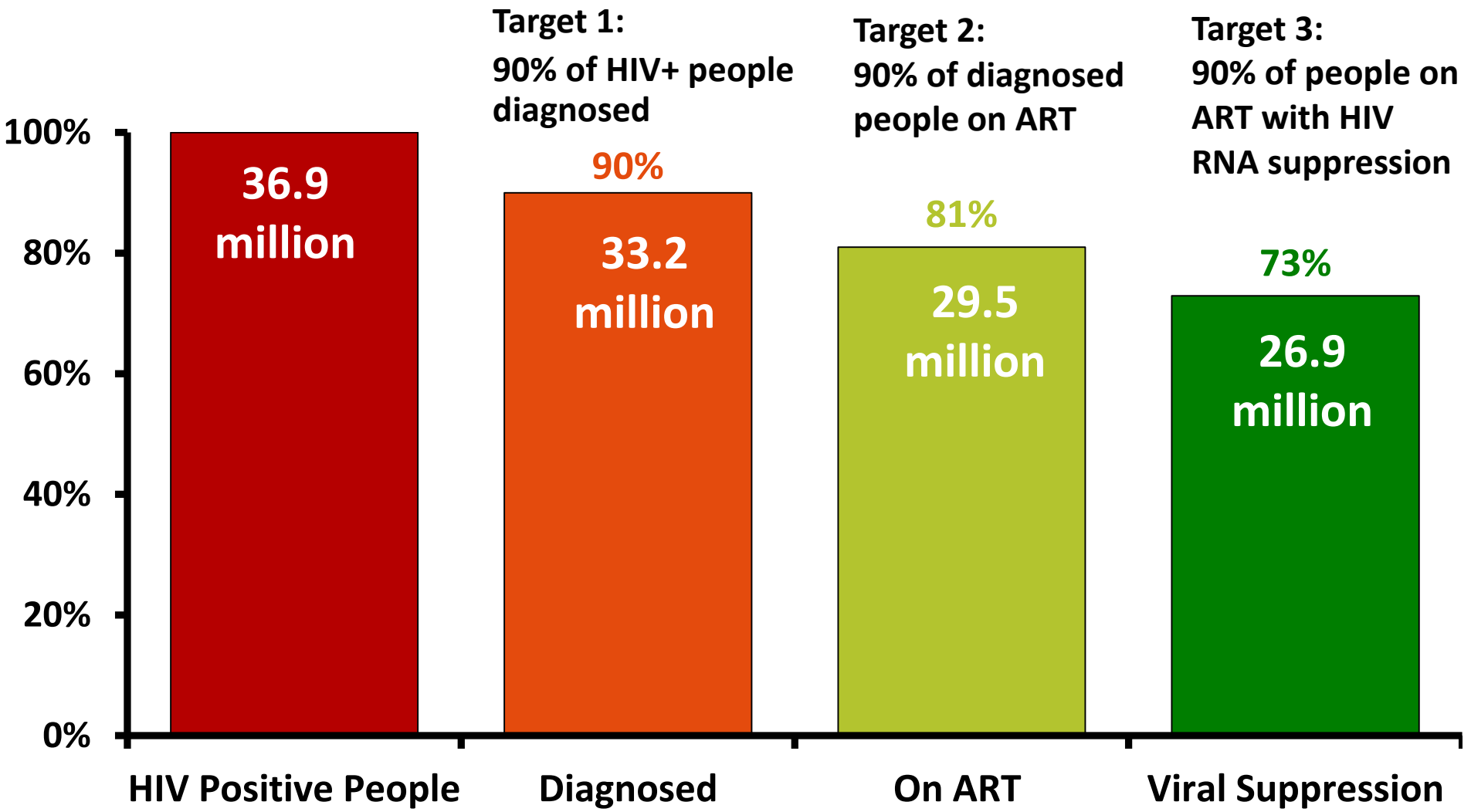
# HIV Prevention Strategies

Yvonne Gilleece
Consultant in HIV
Brighton & Sussex University Hospitals NHS Trust

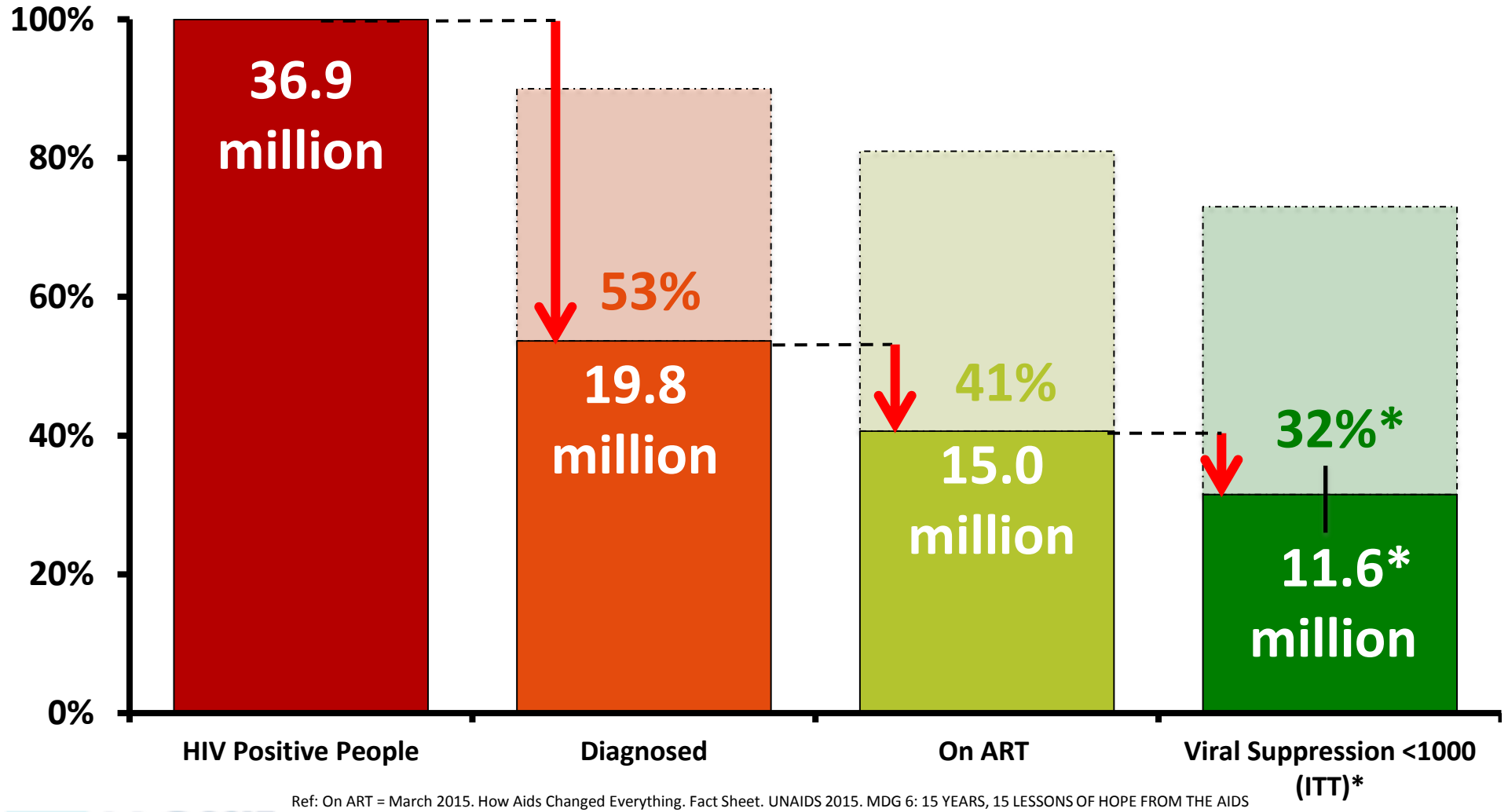
# UNAIDS 90-90-90:
## HIV Treatment Targets for 2020 with Global Estimates (2014)





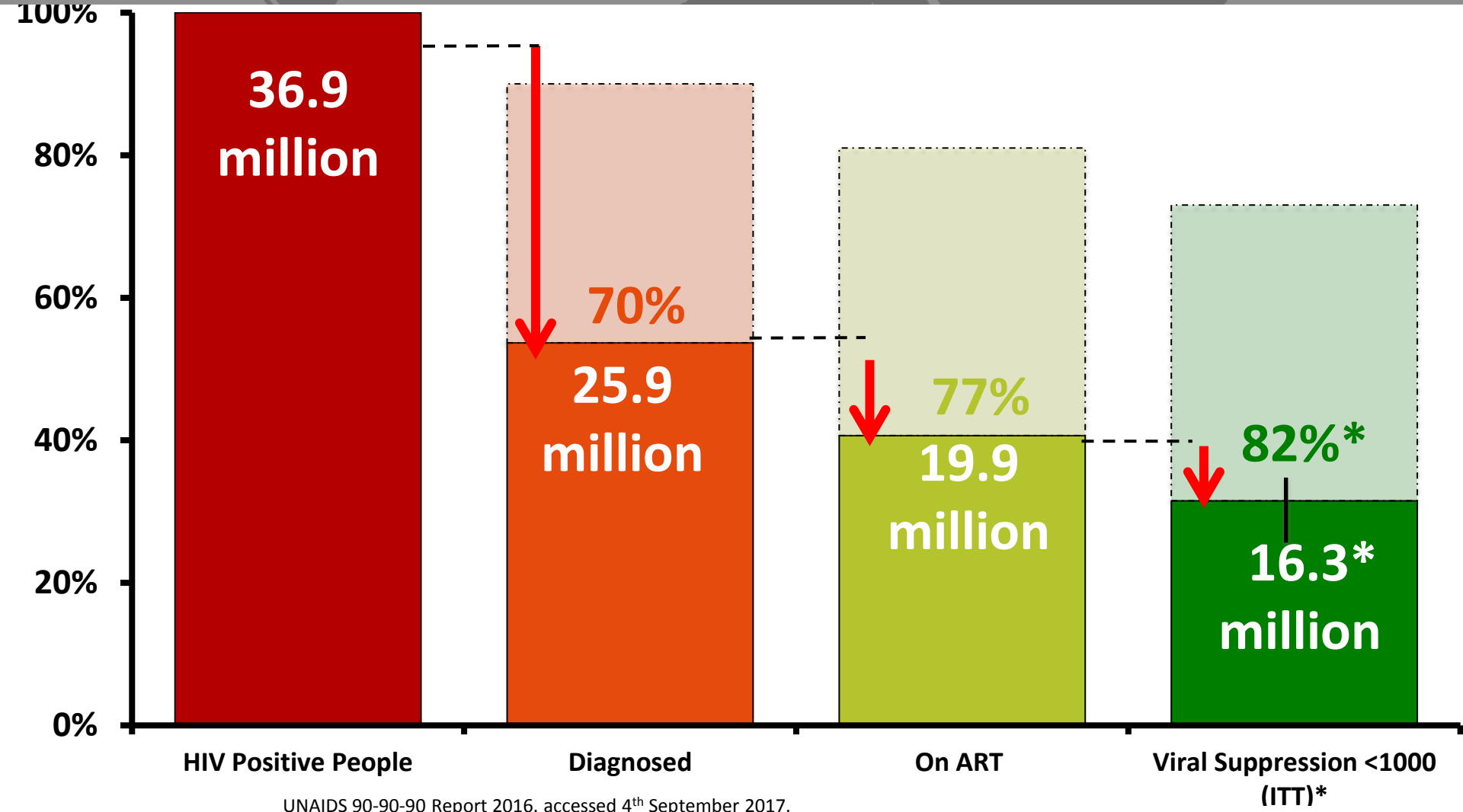

Ref: The Joint United Nations Programme on HIV/AIDS. 90-90-90 An ambitious treatment target to help end the AIDS epidemic. 2014; JC2684 (Numbers as of March 2015) How Aids Changed Everything. Fact Sheet. UNAIDS 2015. MDG 6: 15 YEARS, 15 LESSONS OF HOPE FROM THE AIDS RESPONSE July 2015.

# Global Estimates (2014-15) vs the Gap to reach 90-90-90 Targets



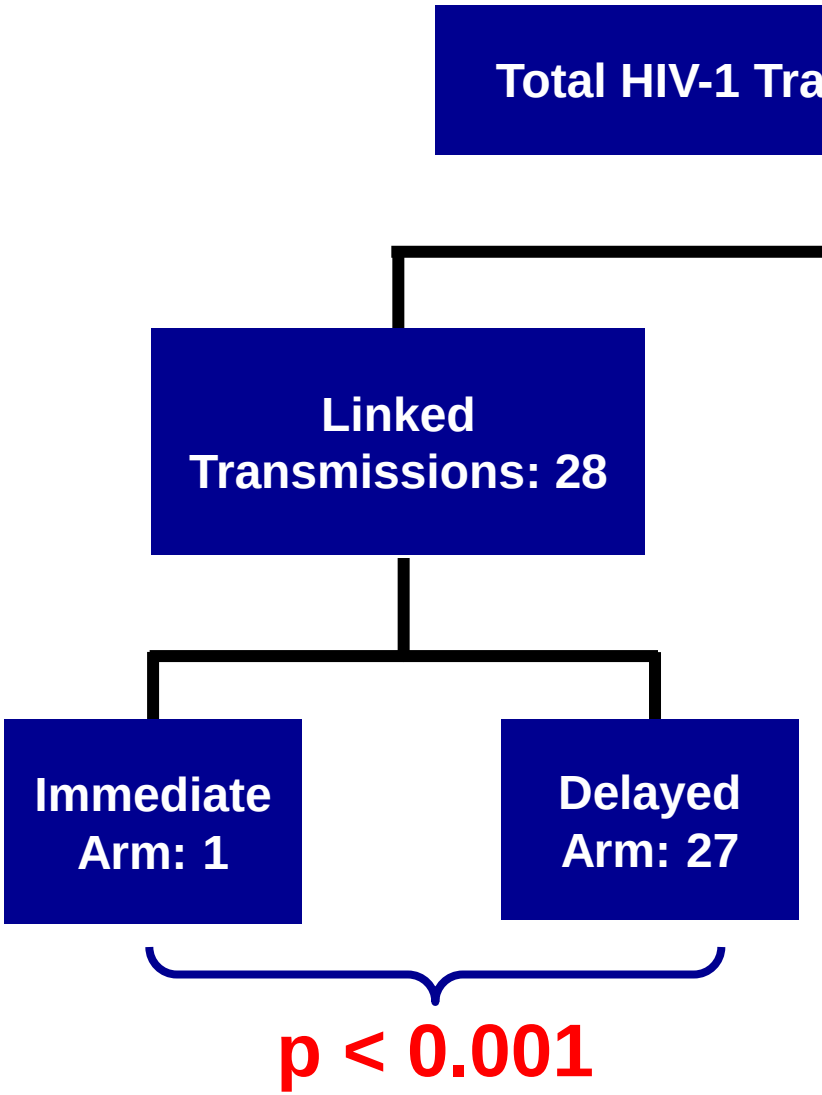

Ref: On ART = March 2015. How Aids Changed Everything. Fact Sheet. UNAIDS 2015. MDG 6: 15 YEARS, 15 LESSONS OF HOPE FROM THE AIDS RESPONSE July 2015. * Average viral suppression% Intention to Treat LMIC rate from a Systematic Review by McMahon J. et al. Viral suppression after 12 months of antiretroviral therapy in low-and middle-income countries: a systematic review." *Bulletin of the World Health Organization* 91.5 (2013): 377-385.

# Global Estimates (2016) vs the Gap to reach 90-90-90 Targets



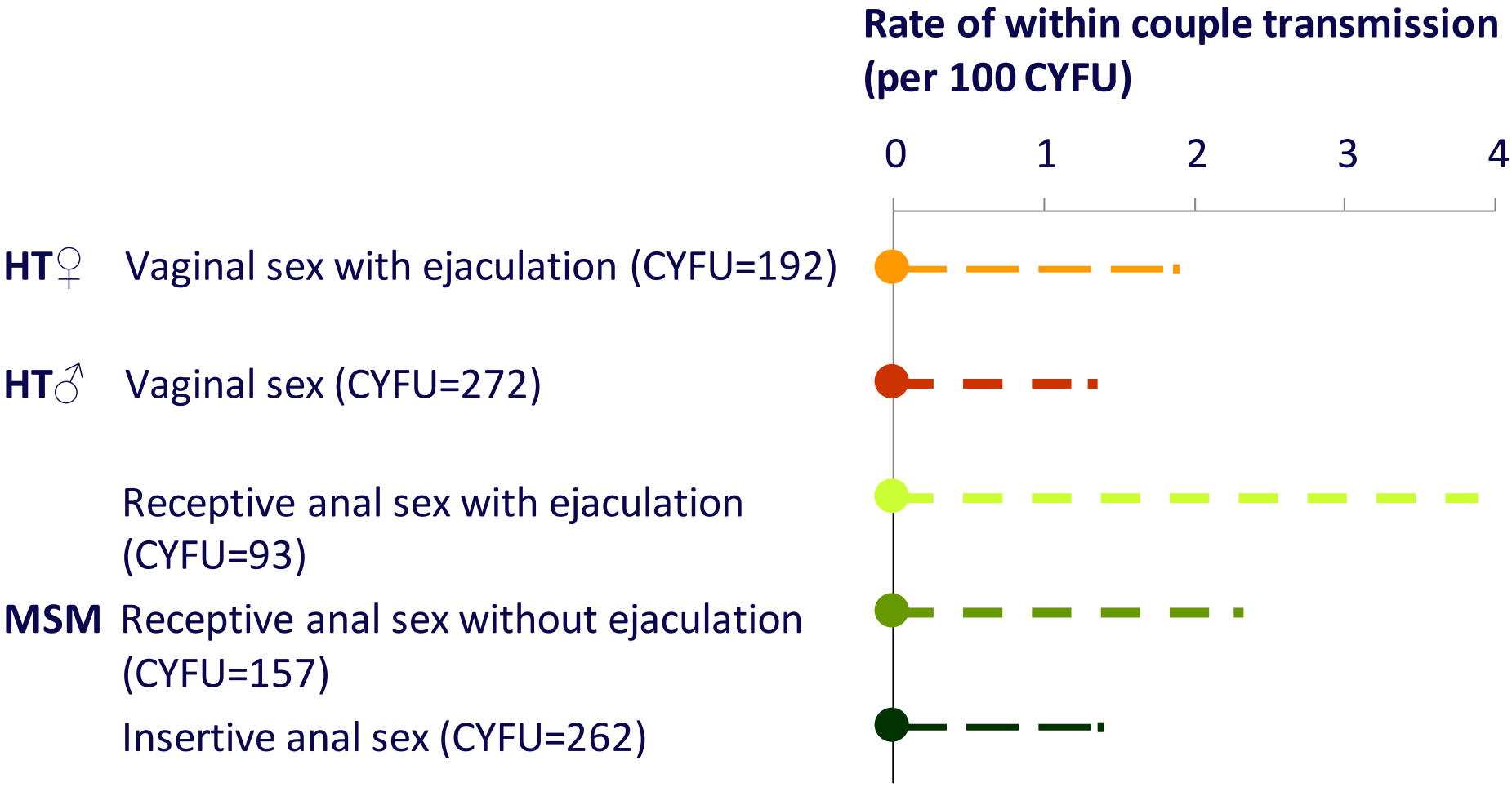

UNAIDS 90-90-90 Report 2016. accessed 4th September 2017.

# HPTN 052: HIV-1 Transmission

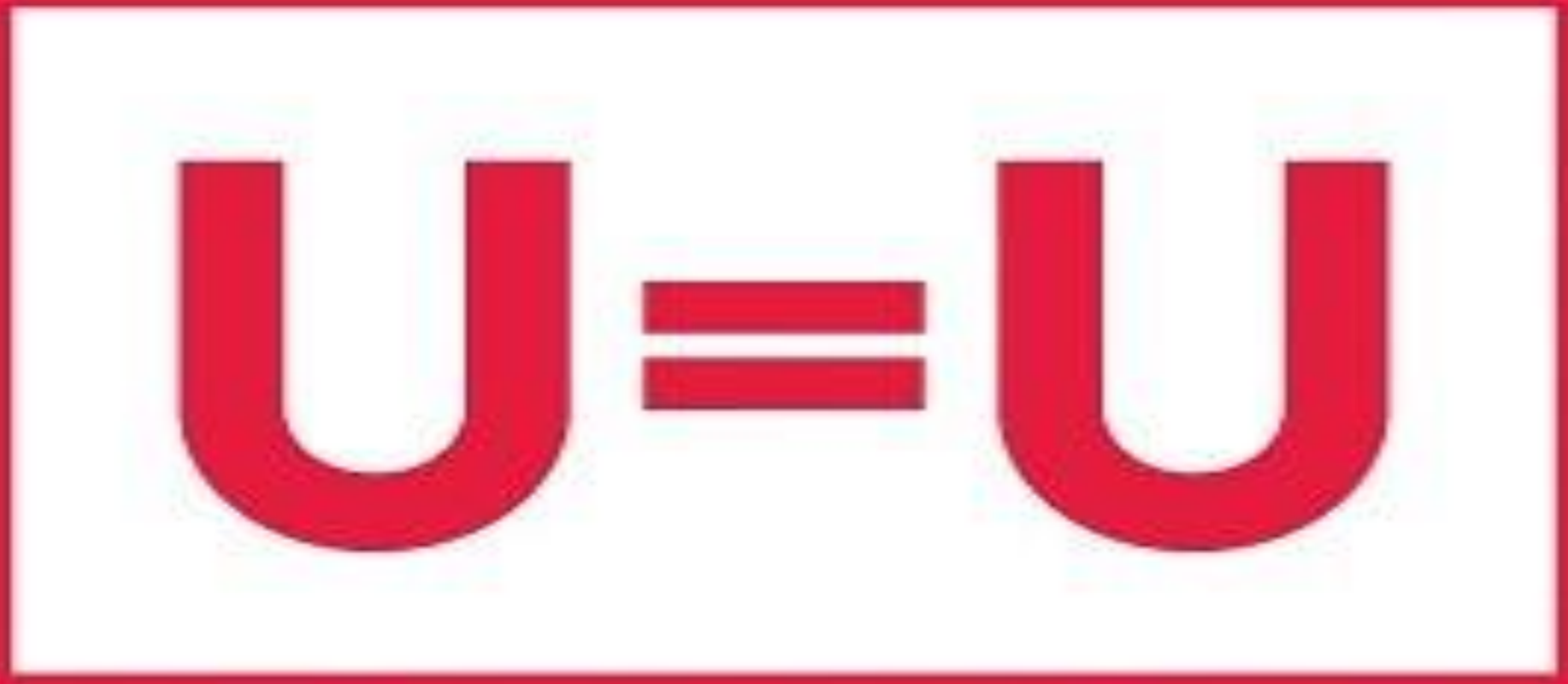



- 18/28 (64%) transmissions from infected participants with CD4 >350 cells/mm$^3$
- 23/28 (82%) transmissions in sub-Saharan Africa
- 18/28 (64%) transmissions from female to male partners

# PARTNER Study: Rate of HIV transmission according to sexual behaviour reported by the negative partner




Rodger, CROI 2014

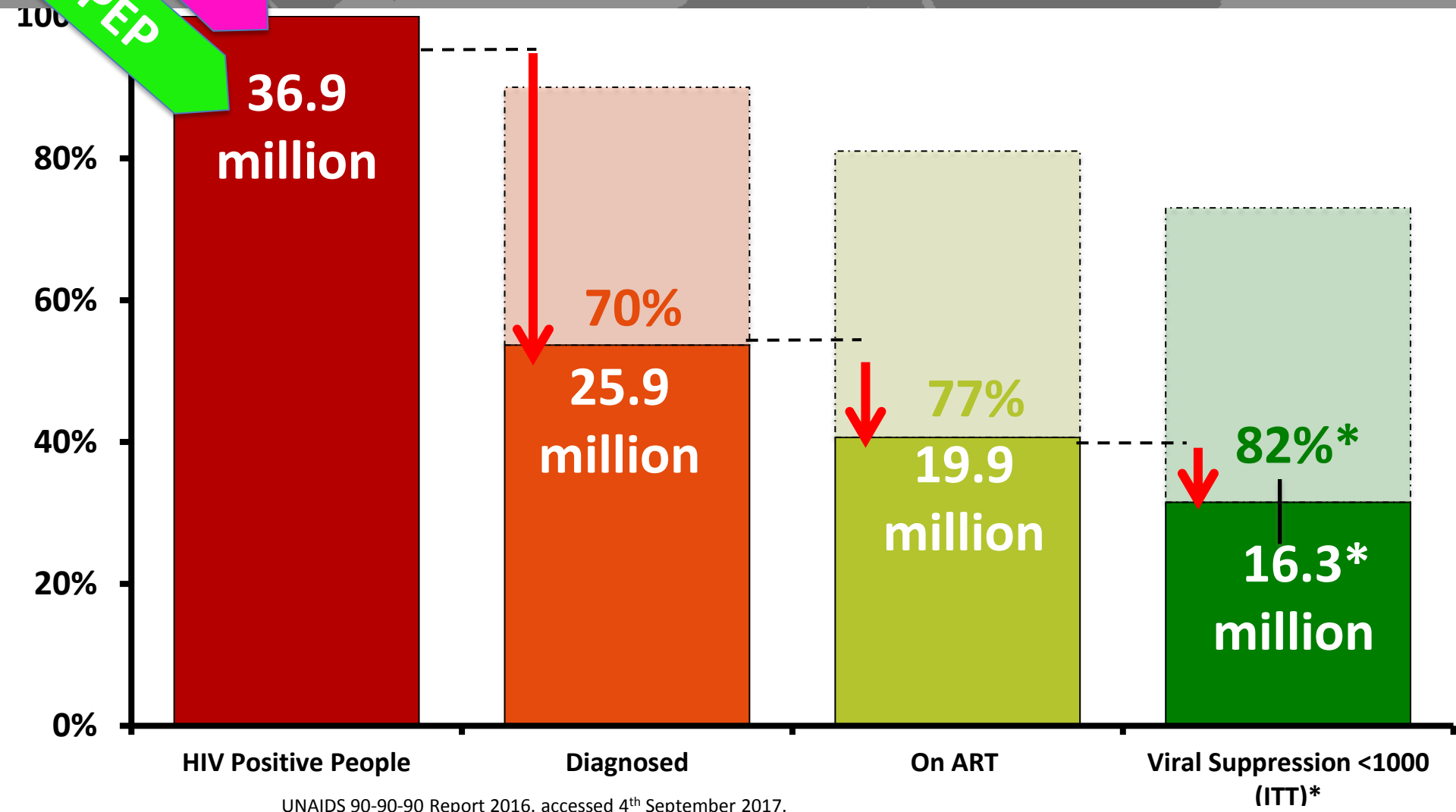



UNDETECTABLE = UNTRANSMITTABLE

# Global Estimates (2016) vs the Gap to reach 90-90-90 Targets

PrEP

PEP

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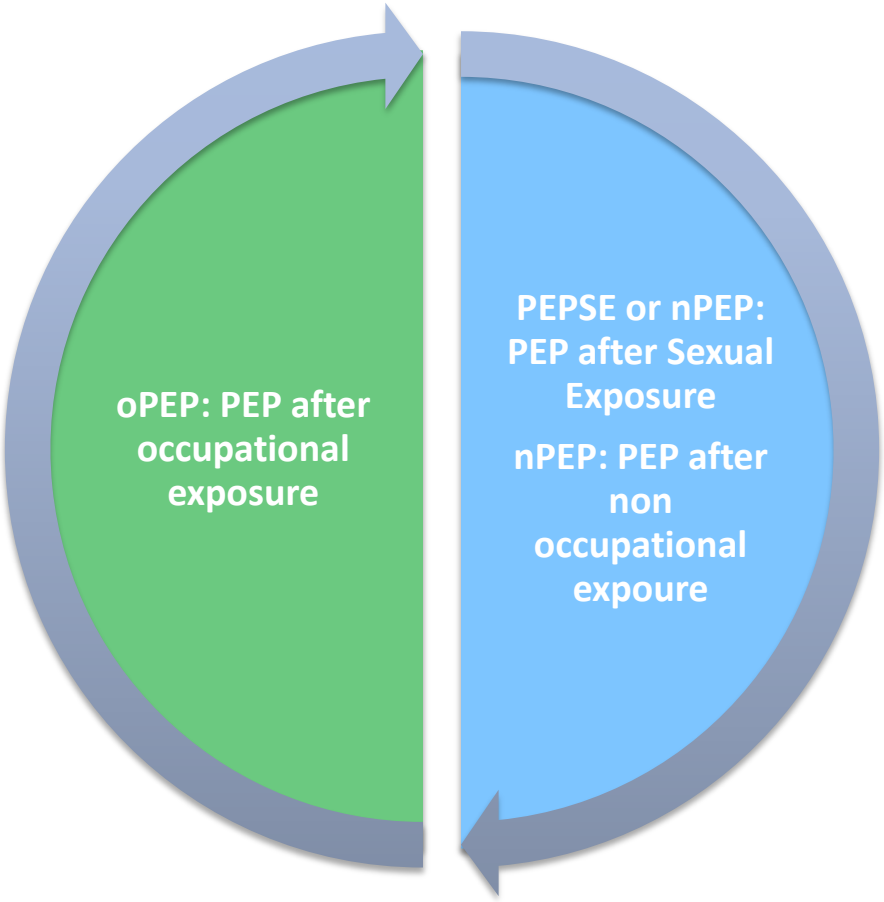
# Post Exposure Prophylaxis
# PEP

# PEP


oPEP: PEP after occupational exposure
PEPSE or nPEP: PEP after Sexual Exposure
nPEP: PEP after non occupational expoure

# What is considered substantial risk?

**Substantial risk**

• Exposure of

- Vagina, rectum, eye, mouth or other mucous membrane, nonintact skin, or percutaneous

contact

• With

- Blood, semen, vaginal secretions, rectal secretions, breast milk, or any body fluid

that is visibly contaminated with

blood

• When

- The source is known to be HIV infected

**Negligible risk**

• Exposure of

- Vagina, rectum, eye, mouth or other mucous membrane, intact or nonintact skin, or percutaneous contact

• With

- Urine, nasal secretions, saliva, sweat, or tears if not visibly contaminated with blood

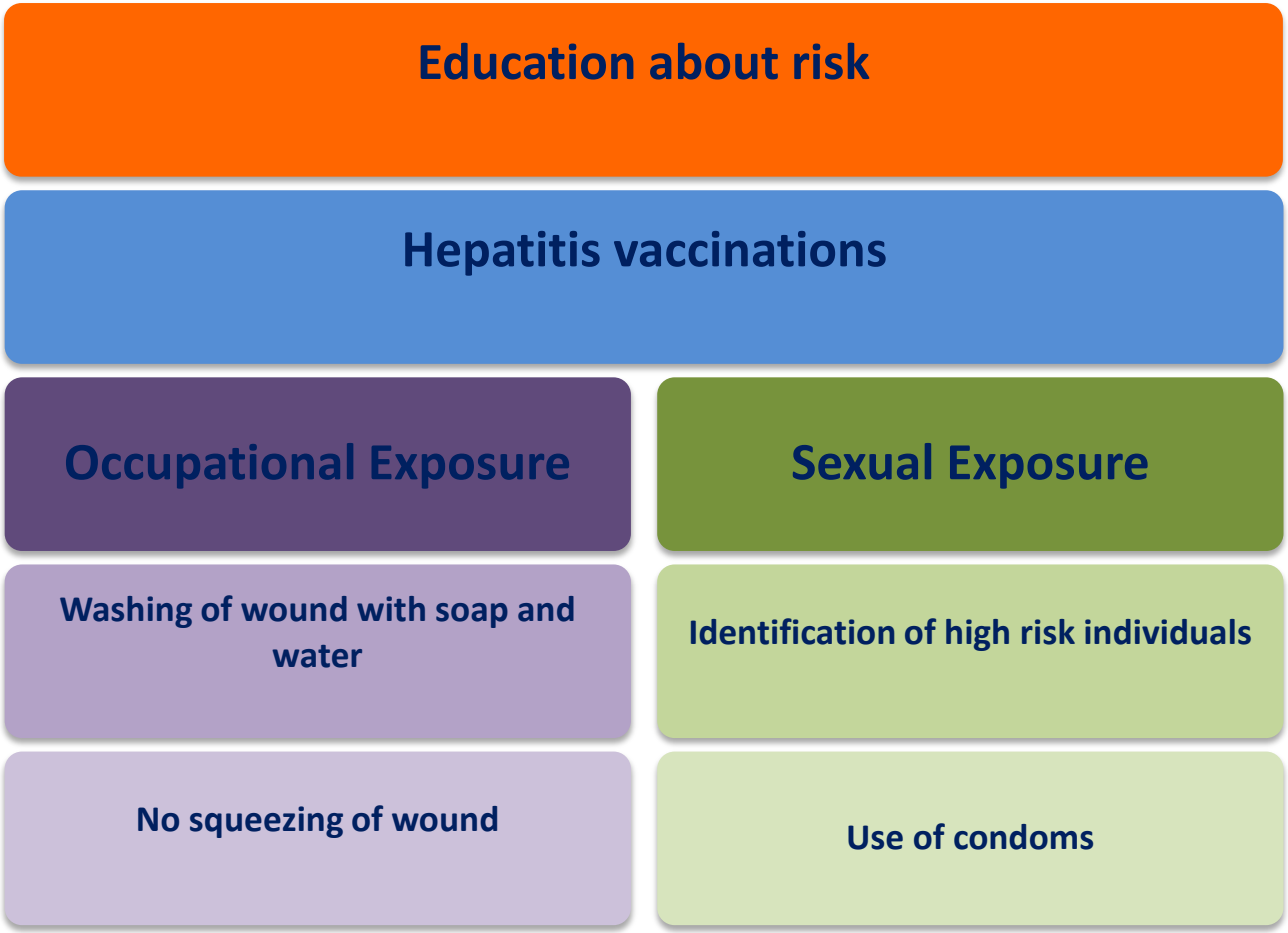
• Regardless

- Of the known or suspected HIV status of the source

# Risk of exposure

| Type of exposure | Estimated risk of HIV transmission |
|---|---|
| Receptive anal intercourse | 1.1 (0.042– 3%) |
| Receptive vaginal intercourse | 0.1 (0.004– 0.32%) |
| Insertive vaginal intercourse | 0.082 (0.011– 0.38%) |
| Insertive anal intercourse | 0.06 (0.06-0.065%) |
| Receptive oral sex | 0.02 (0– 0.04%) |
| Insertive oral sex | 0 |
| Needle-stick injury | 0.3 (0.2-0.5%) |
| Sharing injecting equipment | 0.67% |
| Mucous membrane exposure | 0.63 (0.018-3.47%) |

# In addition to PEP

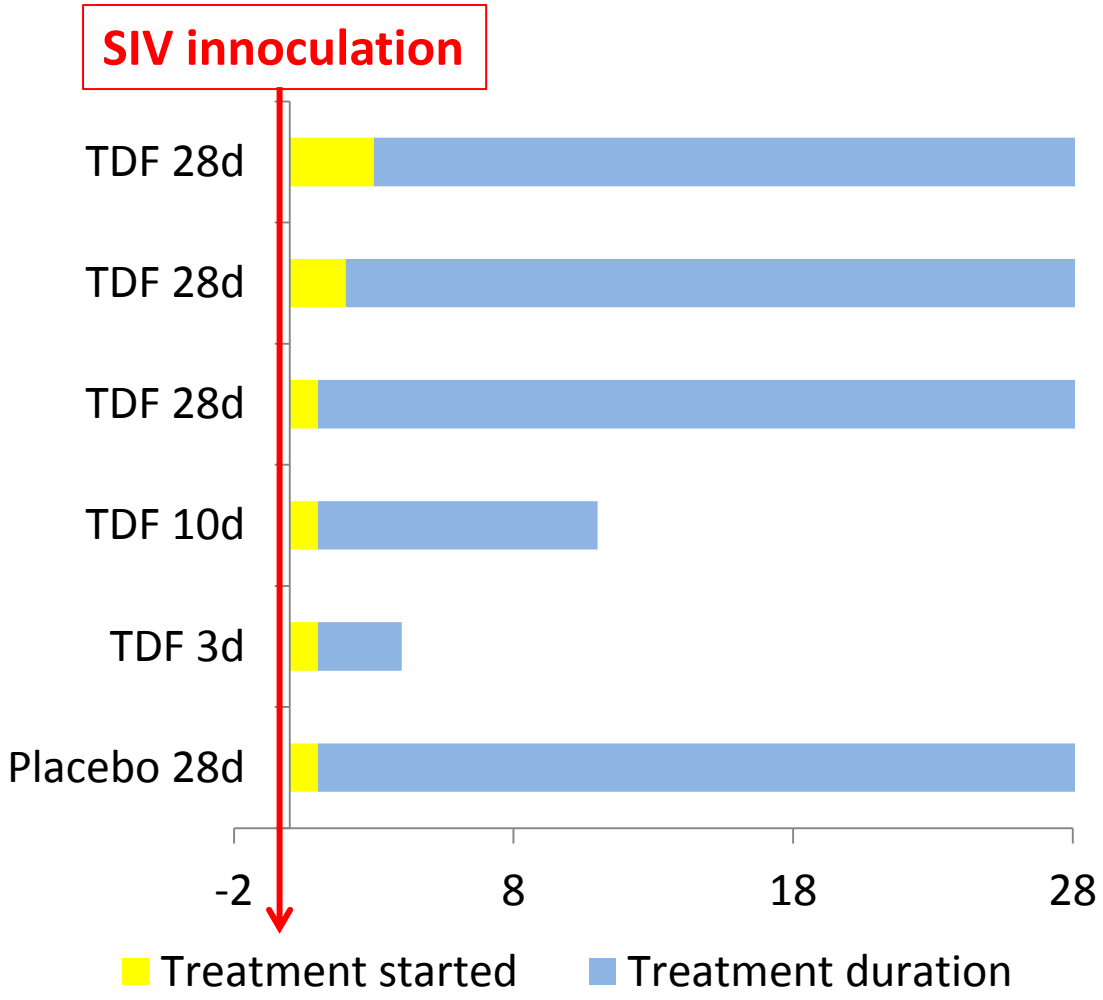


# PEP

- No randomized, placebo-controlled clinical trial of PEPSE has been conducted
- Data relevant to PEPSE guidelines are available from
  - animal transmission models
  - perinatal clinical trials
  - observational studies of health care workers receiving prophylaxis after occupational exposures
  - observational and case studies of PEPSE use

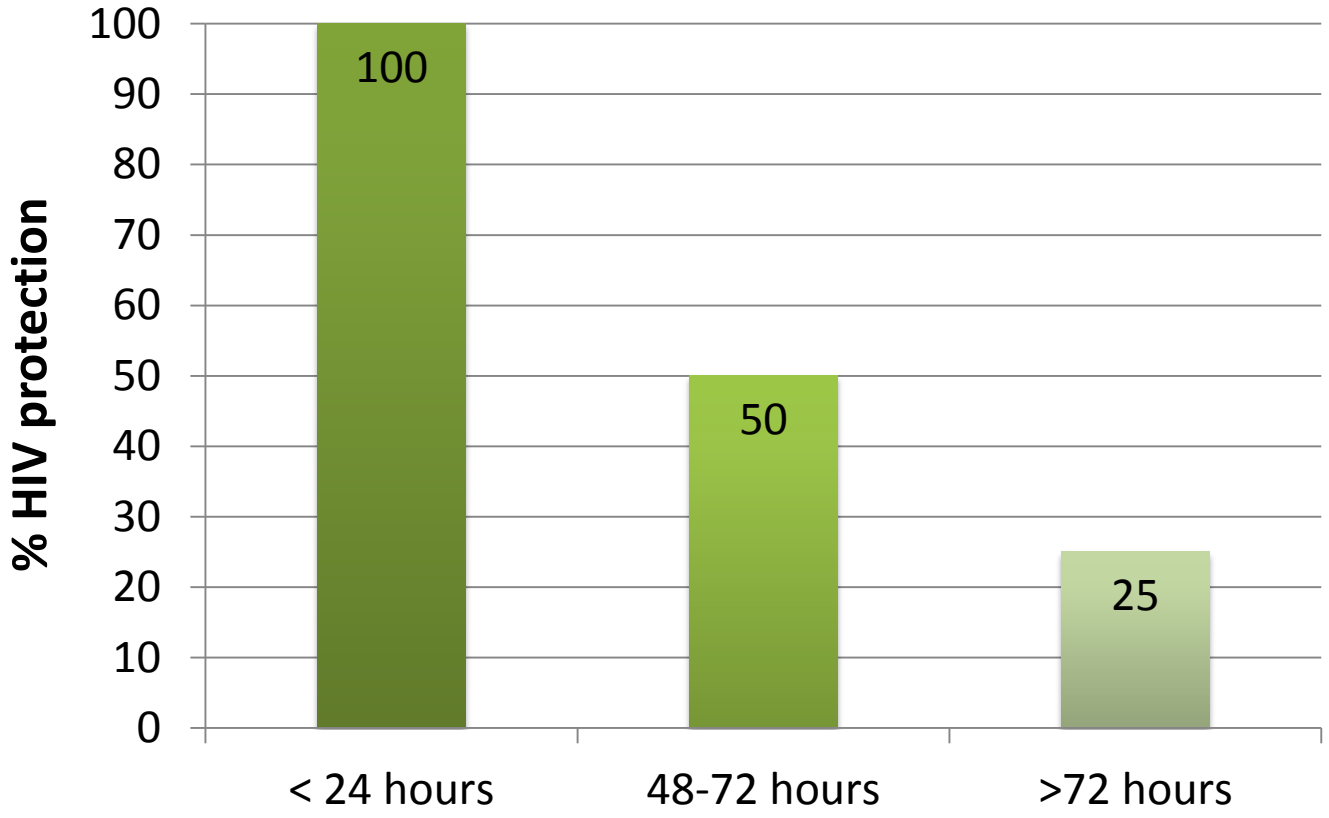
# Effectiveness of Tenofovir PEP in Macaques

- Study Features
- N = 24 macaques
- Randomized to 6 treatment arms
- SIV inoculated intravenously
- SIV dose 10x 50% infective dose
- PEP started at 24, 48, or 72 hours
- PEP duration: 3, 10, or 28 days
- PEP regimen: tenofovir (TDF) SQ
- Analyzed for antibody and viremia




*Tsai CC, Fransen K, Diallo MO et al. J Virol 1998;72:4265–73*

# Macaque animal models – timing of PEP

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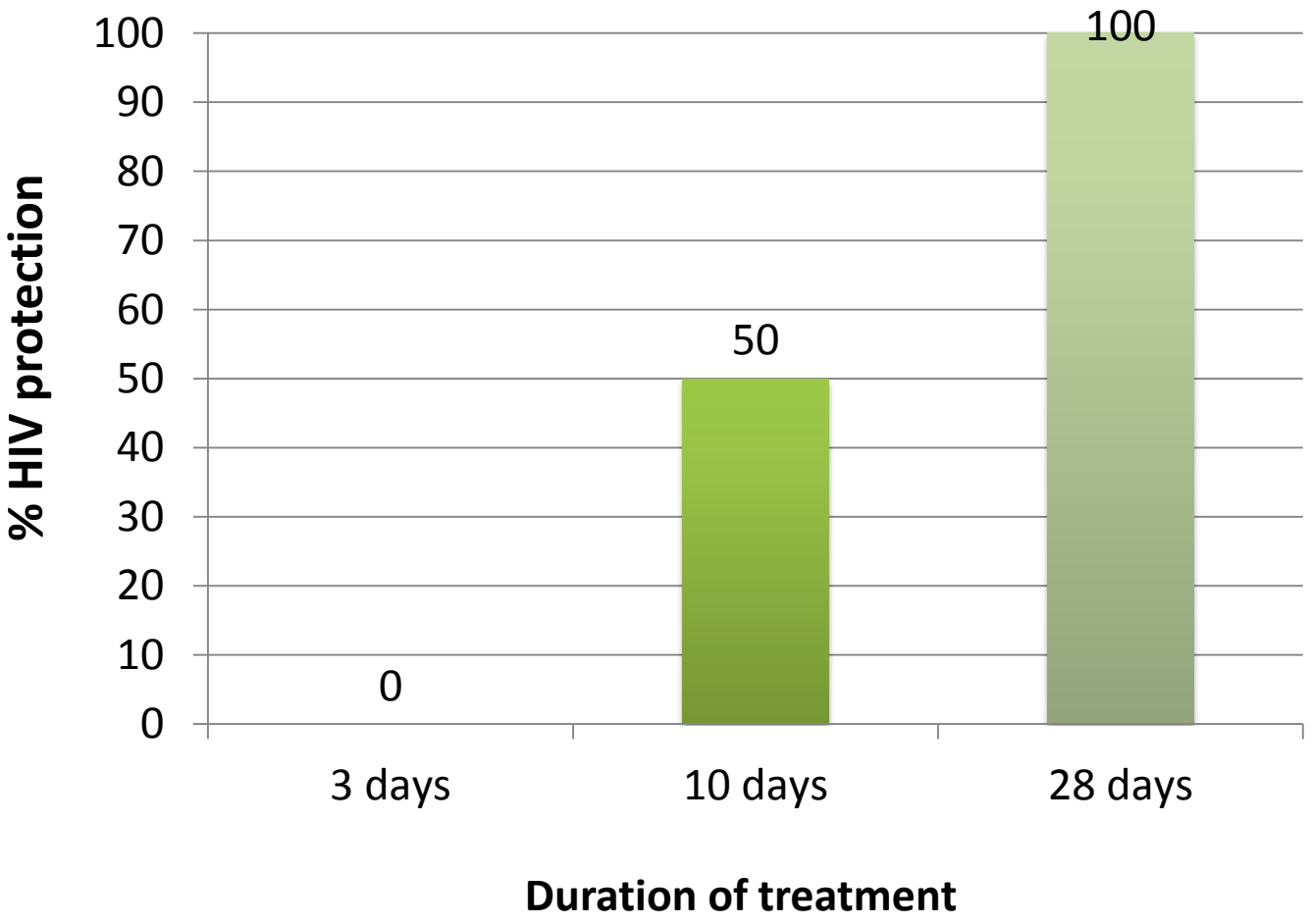
# Macaque animal models – duration of PEP

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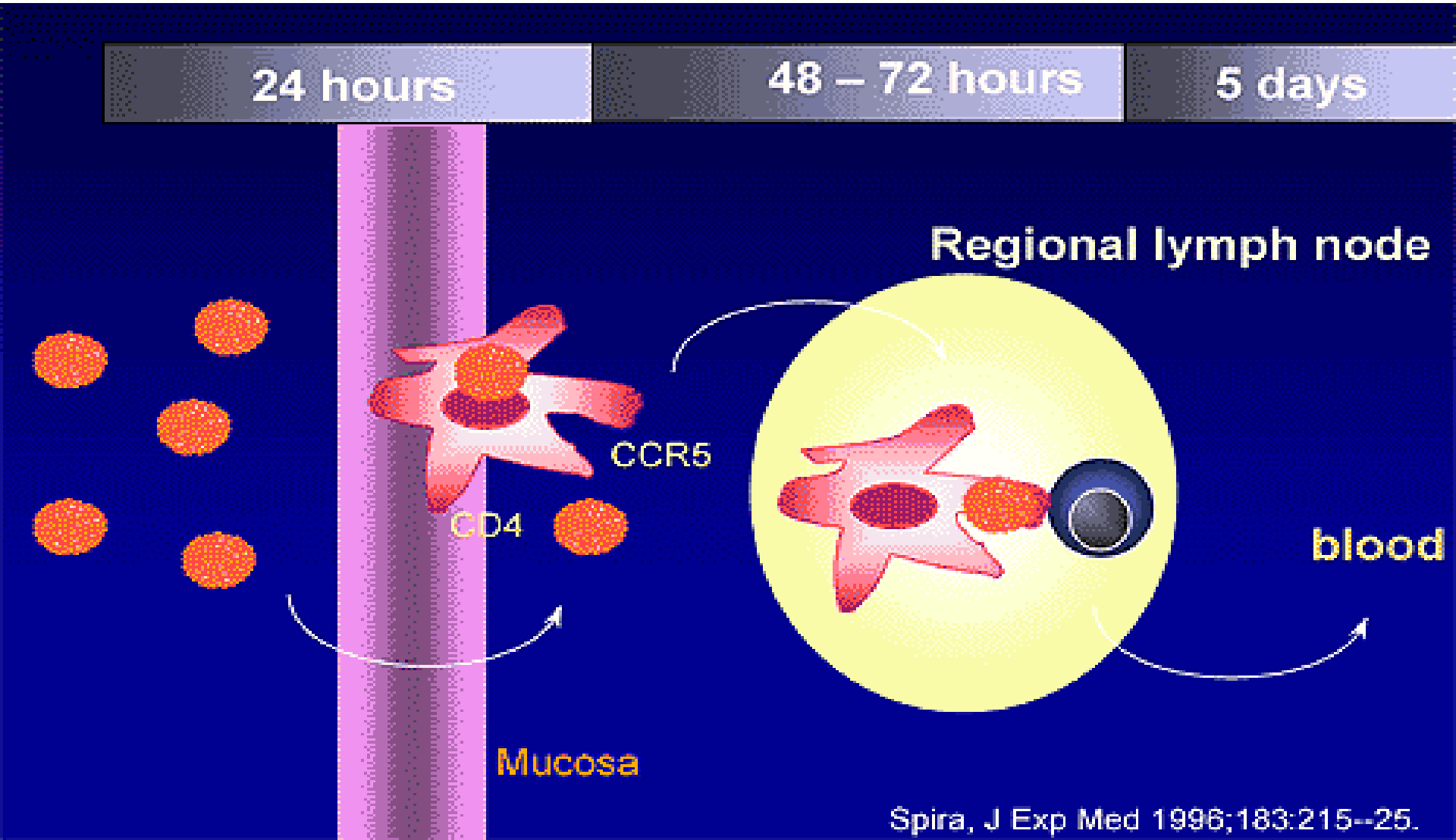
# Dynamics following exposure to HIV



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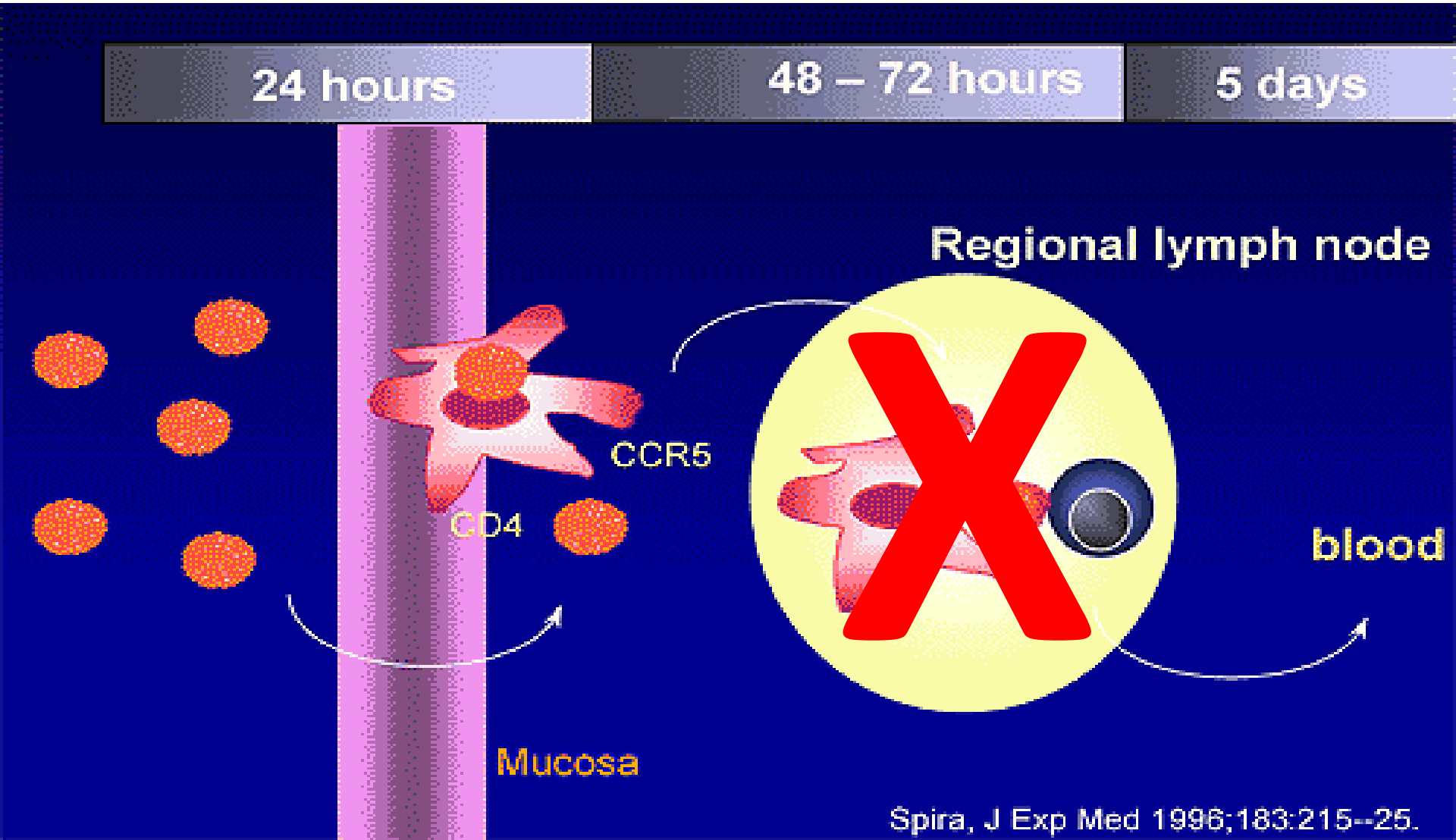
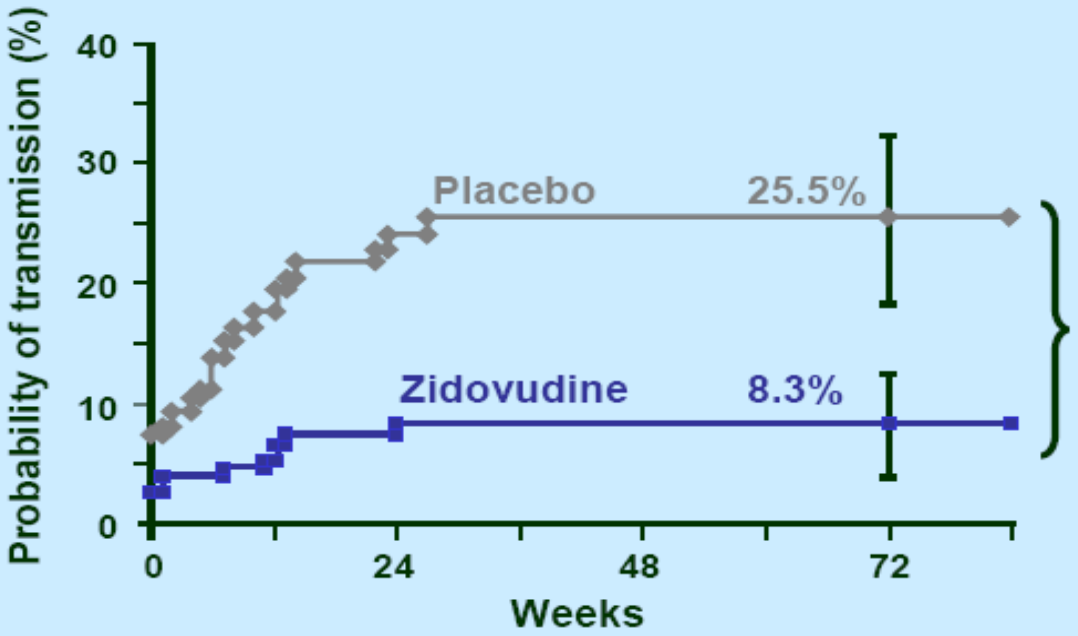


# Zidovudine significantly reduces MTCT

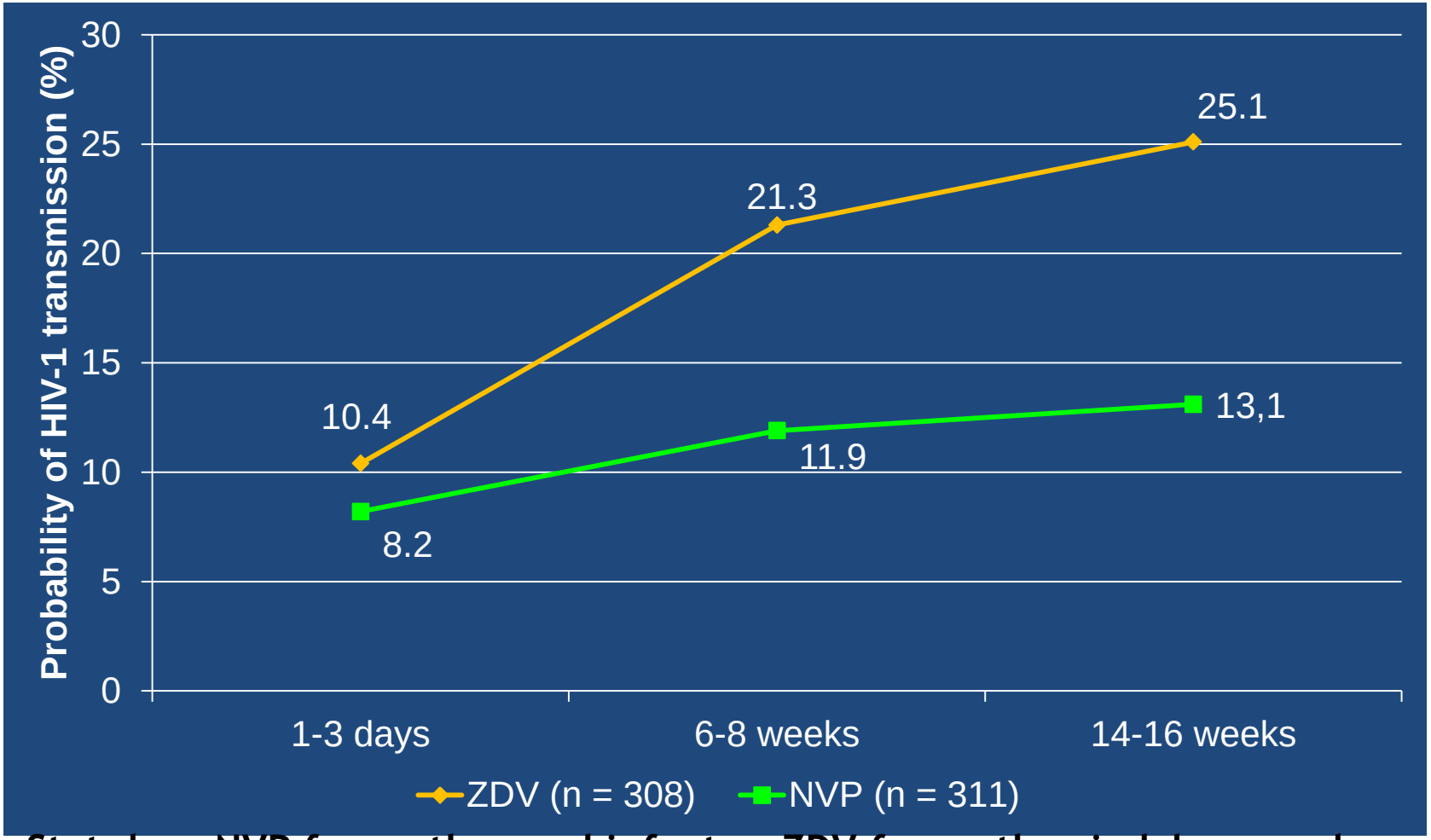
## PACTG 076 Study




| | | | | |
|---|---|---|---|---|
| Placebo (n) | 183 | 84 | 42 | 37 |
| Zidovudine (n) | 180 | 105 | 51 | 43 |

Connor EM *et al. NEJM* 1994;331:1173–1180

# HIVNET 012: HIV transmission
# Intrapartum/postpartum nevirapine vs zidovudine




**Stat dose NVP for mother and infant vs ZDV for mother in labour and neonate 1/52**

*Adapted from Guay et al. Lancet 1999;354:795–802.*

# Occupational PEP (oPEP)

- A retrospective case-control study
- Zidovudine (ZDV) prophylaxis vs nothing for health care workers with percutaneous exposure to HIV
- Demonstrated an 81% (95% CI = 48%–94%) reduction in the odds of HIV transmission among who received oPEP
- The first study to describe the efficacy of oPEP

Cardo DM, Culver DH, Ciesielski CA, et al. A case-control study of HIV seroconversion in health care workers after percutaneous exposure. *New Engl J Med.* 1997;337(21):1485-1490.

# MSM PEPSE study Brazil

- 2-year prospective study in Brazil
- 200 seronegative MSM at high risk of HIV were provided with
  - education regarding PEPSE
  - a 4-day starter pack with instructions to initiate its use for a suspected eligible exposure
  - a follow-up 24-day pack (to complete a 28-day course) but only for those men with eligible exposures
  - 68/200 MSM initiated PEPSE
  - Adherence to PEPSE medications was estimated on the basis of questions at the 28-day visit and remaining pill counts
  - The entire 28-day PEPSE regimen was completed by 89% of men with eligible exposures including 1 participant who seroconverted
  - Ten of 11 seroconversions occurred among men who did not initiate PEPSE despite risk exposure

Schechter M, do Lago RF, Mendelsohn AB, et al. Behavioral impact, acceptability, and HIV incidence among homosexual men with access to postexposure chemoprophylaxis for HIV.
*J Acquir Immune Defic Syndr.* 2004;35(5

# PEPSE failure in Men who have Sex with Men (MSM)

- 49 seroconversions were reported after PEPSE use based on case reports and 6 studies of 1535 MSM

- Common findings
  - Ongoing sexual risk
  - Seroconversion occurred long after PEPSE was completed: 91-168 days and >180 days
  - Already HIV positive at presentation

Terzi R, Niero F, Iemoli E, Capetti A, Coen M, Rizzardini G. Late HIV seroconversion after non-occupational postexposure prophylaxis against HIV with concomitant hepatitis C virus seroconversion. *AIDS.* 2007;21(2):262-263.
Donnell D, Mimiaga MJ, Mayer K, Chesney M, Koblin B, Coates T. Use of non-occupational post-exposure prophylaxis does not lead to an increase in high risk sex behaviors in men who have sex with men participating in the EXPLORE trial. *AIDS Behav.* 2010;14(5):1182-1189..
Sonder GJB, Prins JM, Regez RM, et al. Comparison of two HIV postexposure prophylaxis regimens among men who have sex with men in Amsterdam: adverse effects do not influence compliance. *Sex Transm Dis.* 2010;37(11):681-686.
16.):519-525.

# Tenofovir-Emtricitabine (TDF-FTC) plus Raltegravir for PEPSE

- 100 participants enrolled at Fenway Health
- 98% male, 83% MSM, mean age 33 yrs
- Prescribed TDF-FTC plus raltegravir for PEPSE
- 85/100 had 3-months follow-up
- None were HIV infected
- 57% finished the regimen as prescribed
- Comparable to historic controls (AZT-3TC or TDF-FTC + PI/r)
- Biggest limitation = missed second dose of raltegravir by 27%
- Well tolerated and fewer side effects than historic controls

*Mayer K, et al. J Acquir Immune Defic Syndr. 2012;59(4):354-359.*

# Considerations of PEP

- Adherence
- Side effects
- Missed doses
- Prescribed medication
- Toxicity
- Cost
- Impact on sexual behaviour



# PEPSE and sexual behaviour

- UK nonoPEP Study:
  - 77% reported reduced high-risk activity with casual partners
- Brazil:
  - Baseline: 57% reported high-risk behaviour; 24 months: 40%
- San Francisco:
  - 74% reported reduction in high-risk behaviour; 10% reported an increase

Benn et al, BHIVA 2006; Schecter et al, JAIDS 2004; Roland et al, CID 2005

# EACS PEP Guidelines


- Rapid testing of the source person for HCV and HIV (if HIV-status unknown) recommended
- If source person HIV-positive on ART, order resistance testing if HIV-VL detectable
- Individualise PEP according to the source's treatment history and previous resistance tests
- For sexual exposure, if HIV-positive source has documented undetectable HIV-VL, PEP is no longer recommended
- PEP to be started ideally < 4 hours after the exposure and no later than 48/72 hours
- Duration of PEP: 4 weeks
- PEP regimens: TDF/FTC (alternative: ZDV/3TC) + RAL bid, or + DRV/r qd or + LPV/r bid. TDF/FTC + DTG qd may be also considered as an alternative.

- Full sexual health screen in case of sexual exposure
- Follow-up: HIV serology + HBV and HCV, pregnancy test (women) within 48 hours of exposure
- Re-evaluation of PEP indication by HIV expert within 48-72 hours
- Assess tolerability of PEP regimen
- Transaminases, HCV-PCR and HCV serology at month 1 if source person HCV-positive (observed or suspected)
- Repeat HIV serology after 2 and 4 months, syphilis serology after 1 month if sexual exposure

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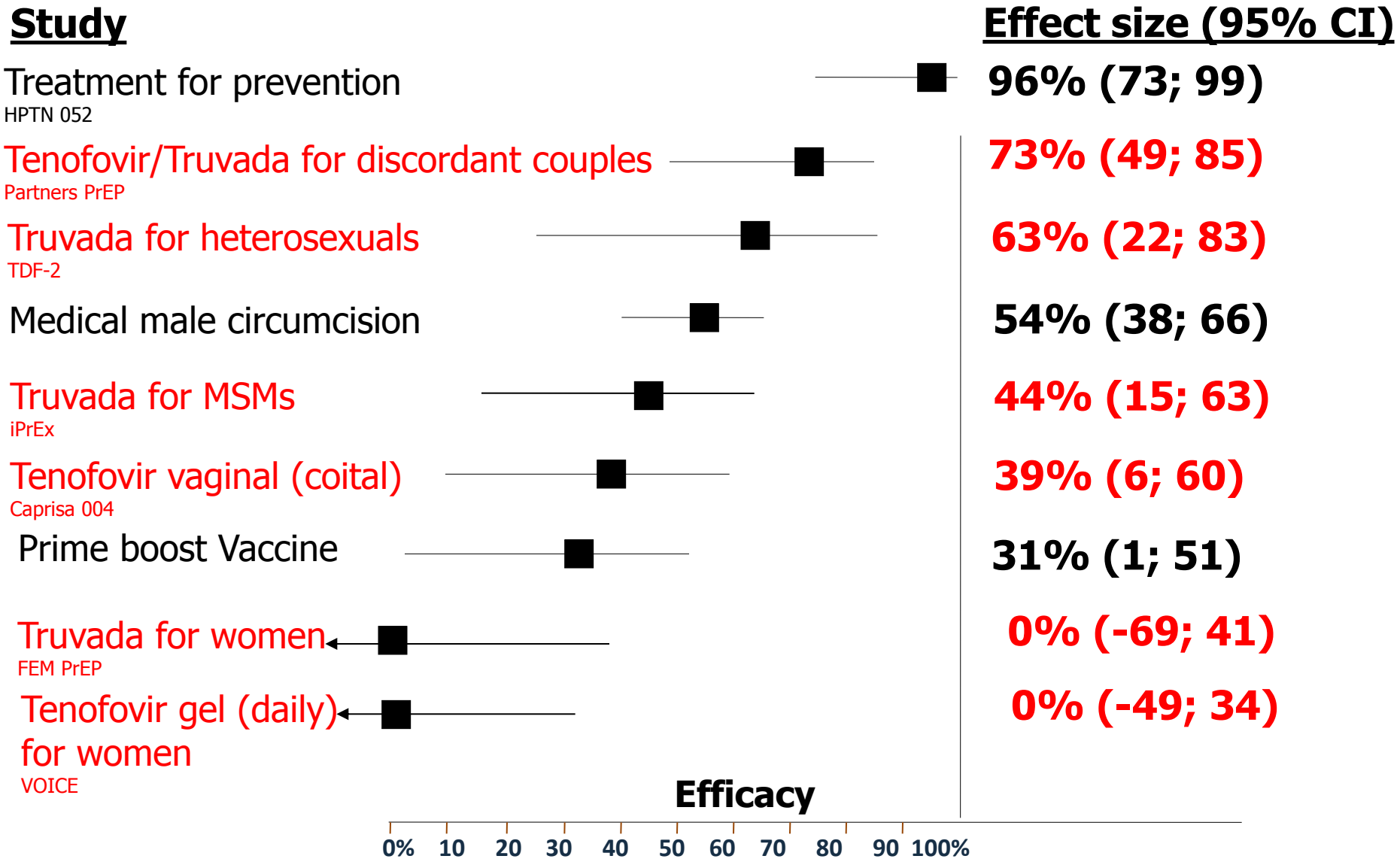
# Assess need for PrEP

# Pre Exposure Prophylaxis
# PrEP

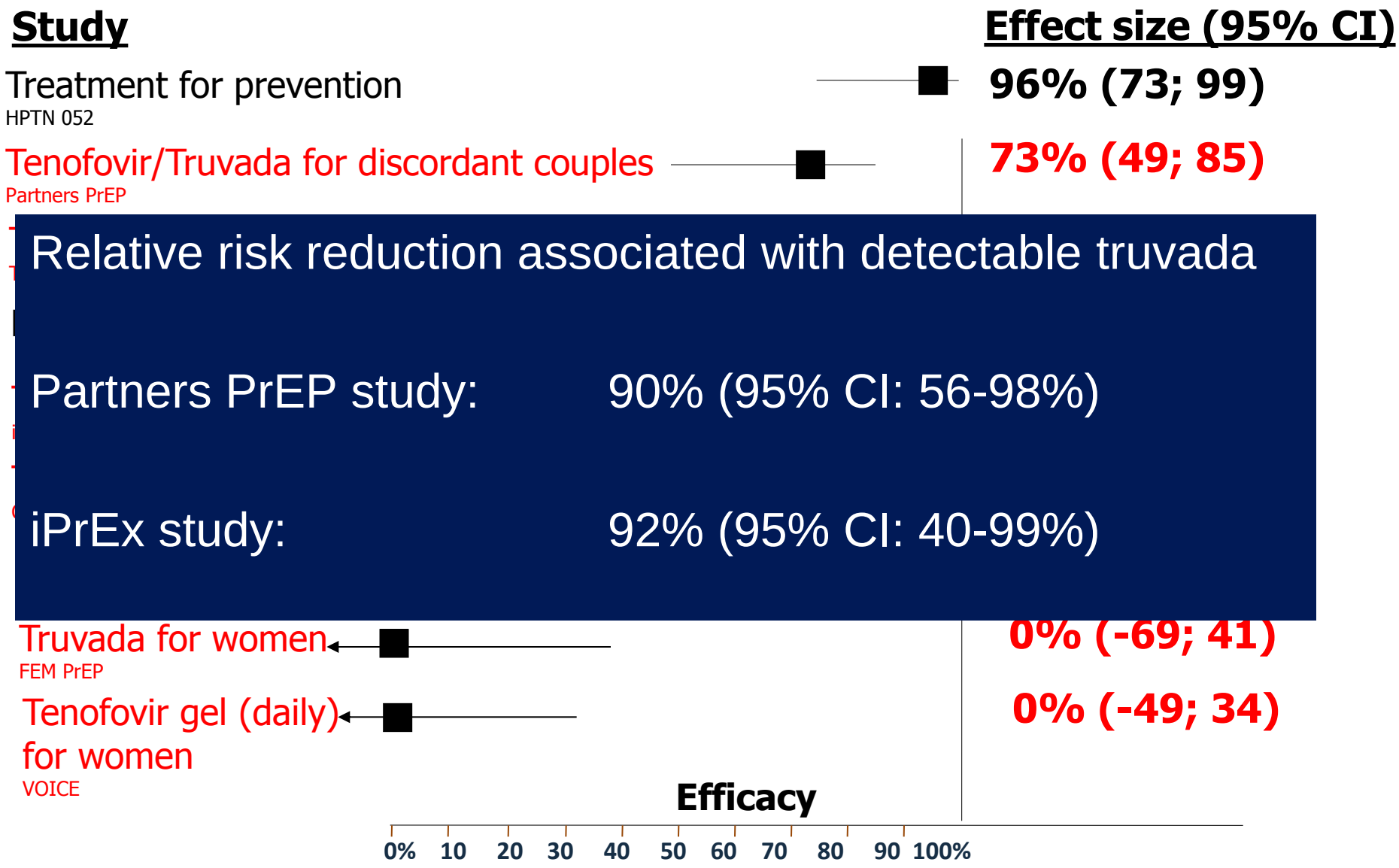
# Recent Prevention Trials



# Summary of earlier Oral PrEP studies

| | Risk Group | Setting | n | Reduction in HIV Transmission |
|---|---|---|---|---|
| iPREX | MSM and transsexual women | US, Brazil, Peru, Ecuador, S Africa, Thailand, China | 2499 | 42% (MITT) |
| FemPREP | Heterosexual women | Kenya, South Africa,Tanzania. | 1951 | 0% (5% transmission in Truvada and placebo arms) |
| Partners PrEP Study | Heterosexual men and women | Kenya, Uganda | 4736 | 62-73% |
| TDF-2 | Heterosexual men and women | Botswana | 1219 | 78% |

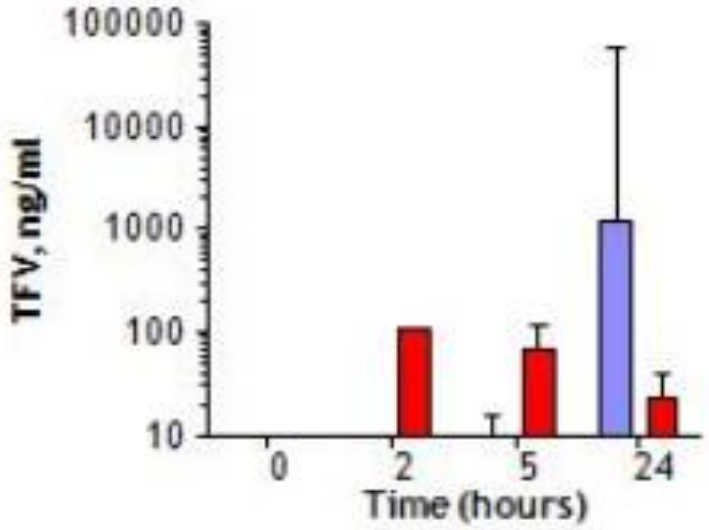
# Recent Prevention Trials - Adherence

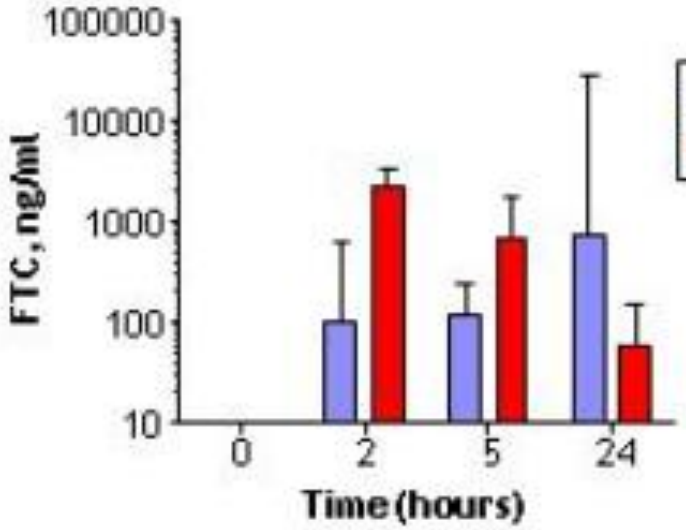


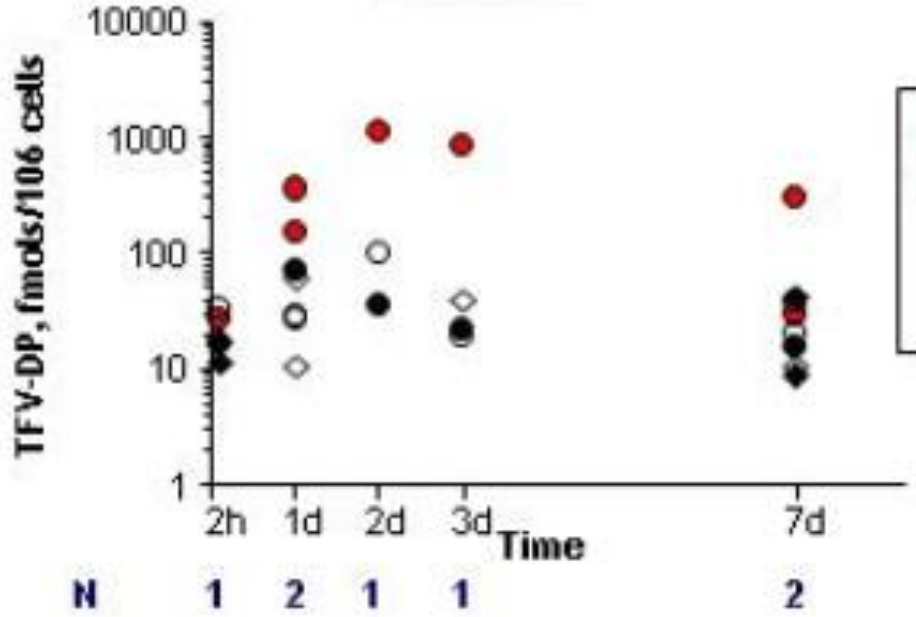
# How do we know oral PrEP is effective?

- Animal studies
- Major PrEP trials
  - PROUD
  - Ipergay
  - iPREX OLE

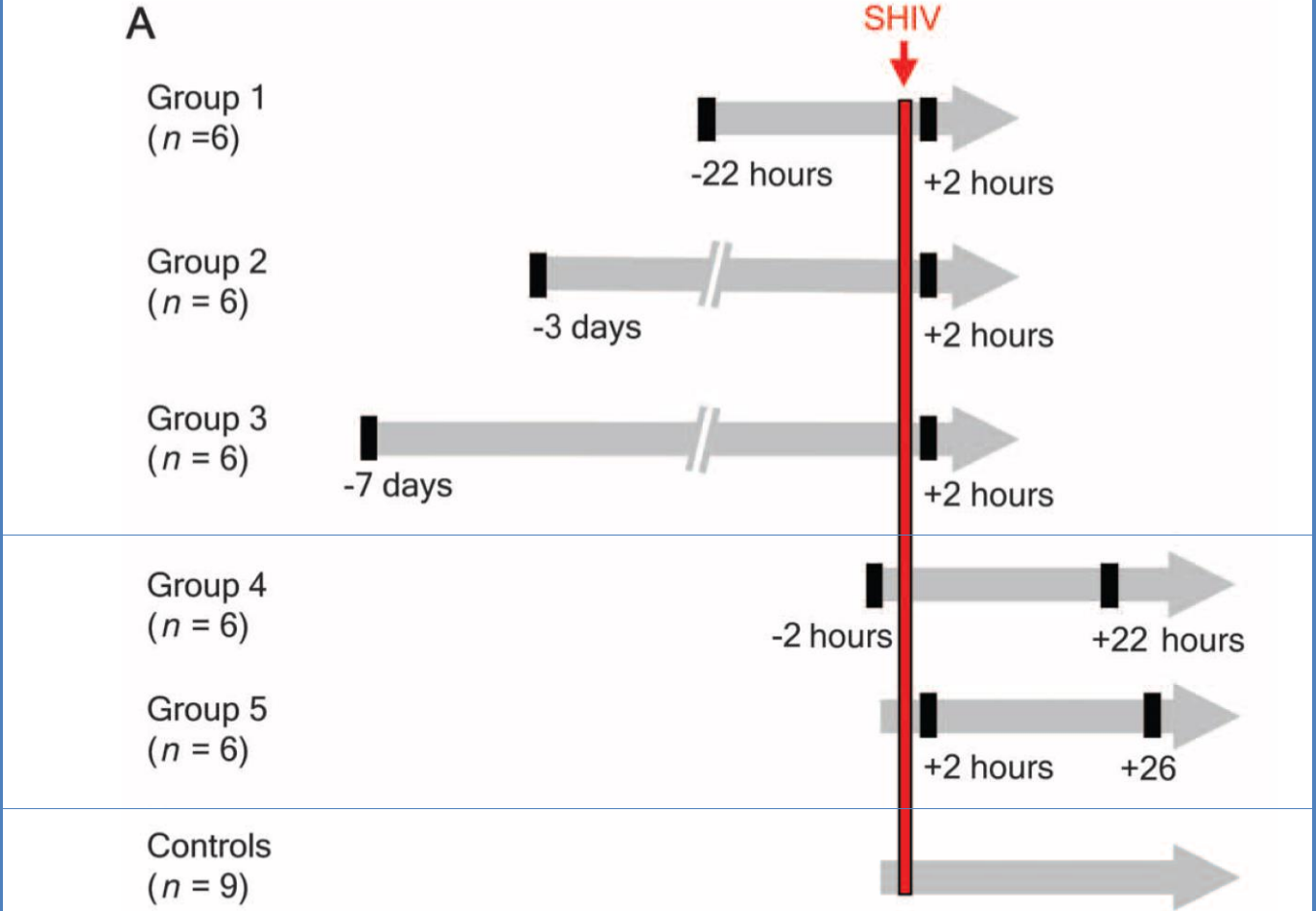
# Local and systemic drug concentrations after oral administration of Truvada



# Efficacy of intermittent PrEP with Truvada in the repeat low-dose macaque model: design




Slides courtesy of Gerardo Garcia-Lerma*1 CROI 2010 Paper # 83

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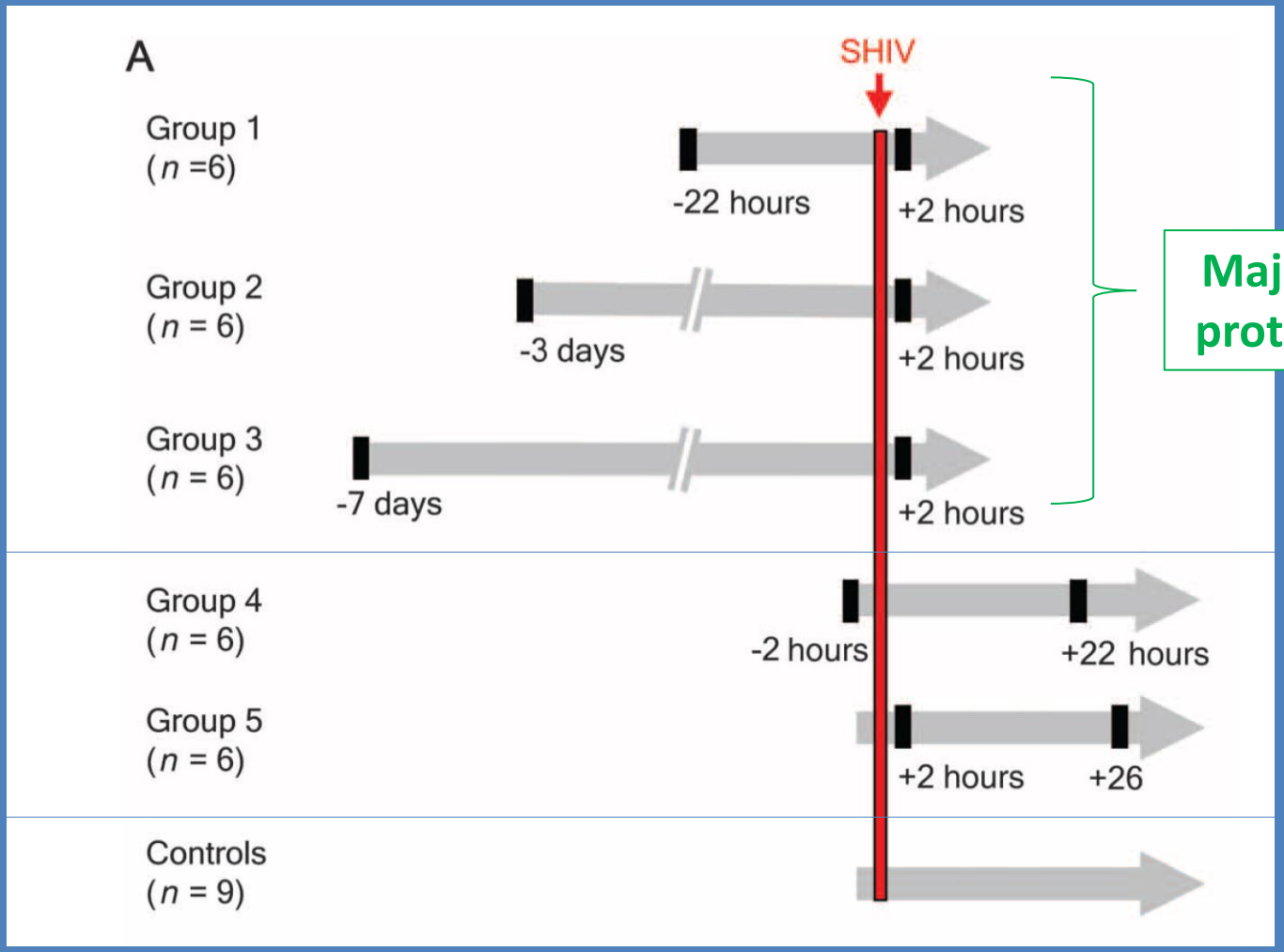


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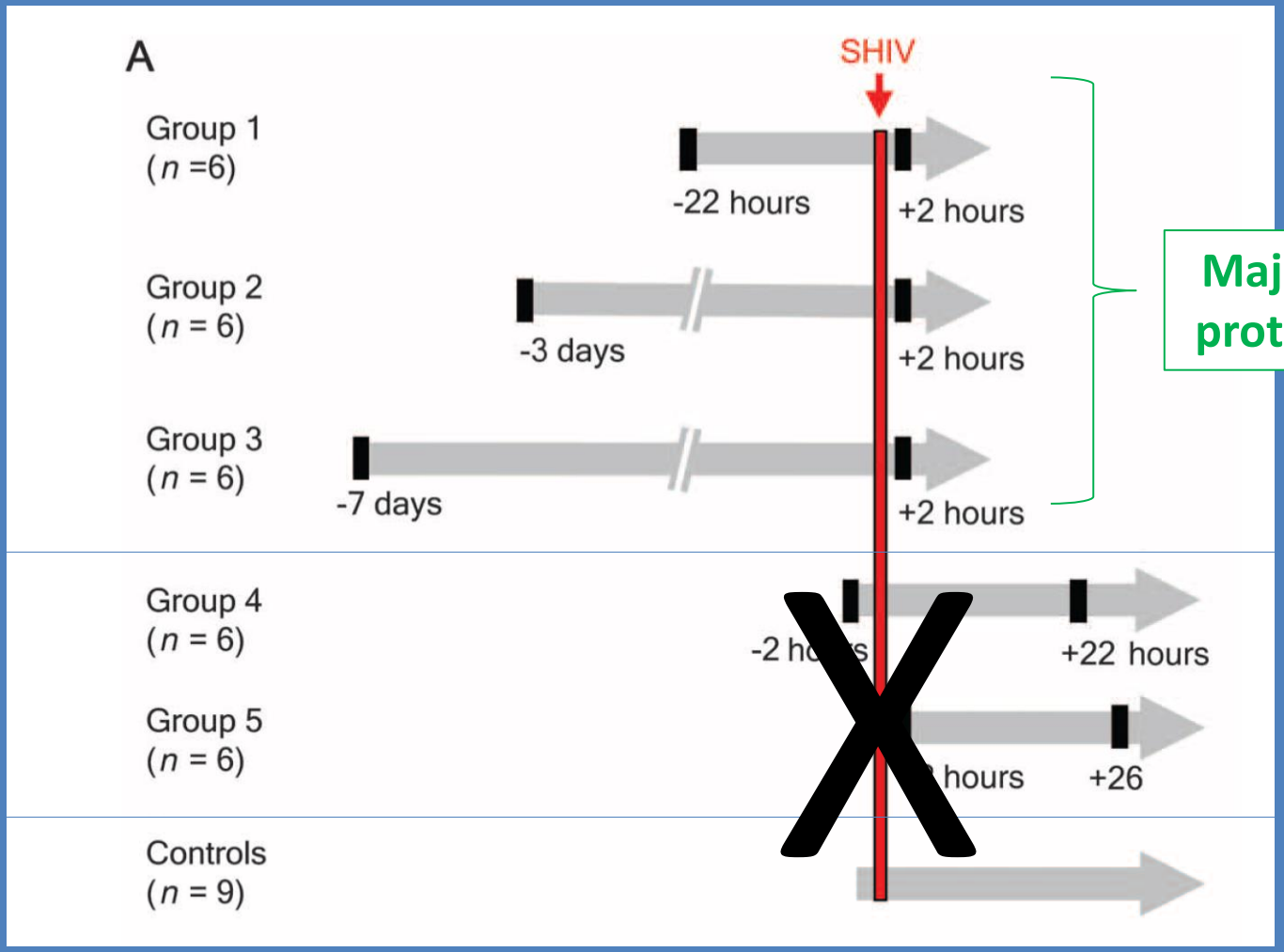


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Public Health England

PROUD

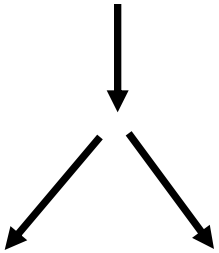
MRC Clinical Trials Unit

# Pragmatic Open-Label Randomised Trial of Pre-Exposure Prophylaxis: the PROUD study

- **To determine whether PrEP worked as well as iPrEx in this setting (44% reduction in HIV)**
- **Possibility that effectiveness might be less in real world**

# PROUD Pilot

MSM reporting UAI last/next 90 days



Truvada **NOW**

**N= 267**

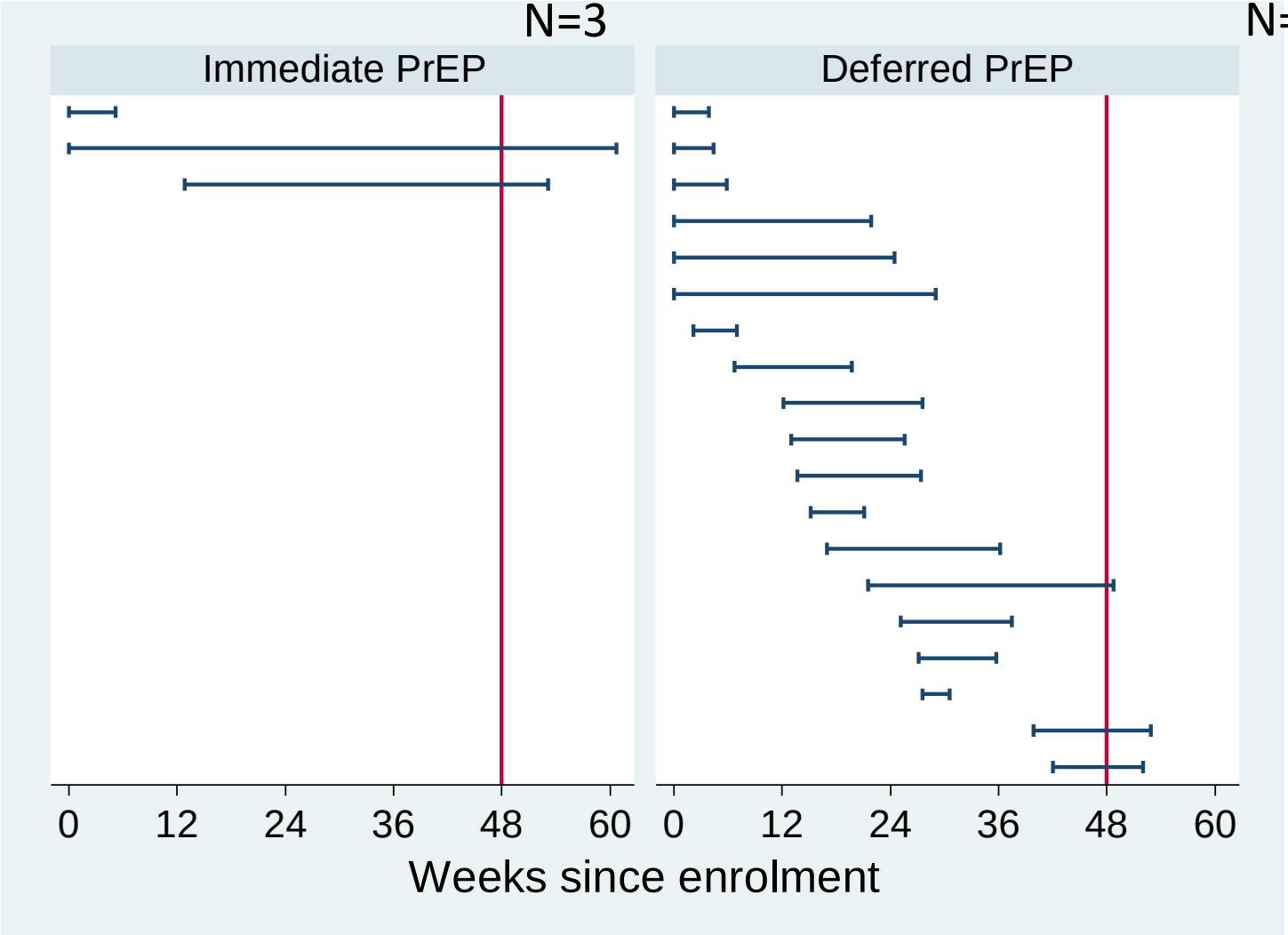
Truvada **AFTER 12M**

**N=256**

Follow **3 monthly** for up to 24 months

Main endpoints in Pilot: HIV infection in first 12 months

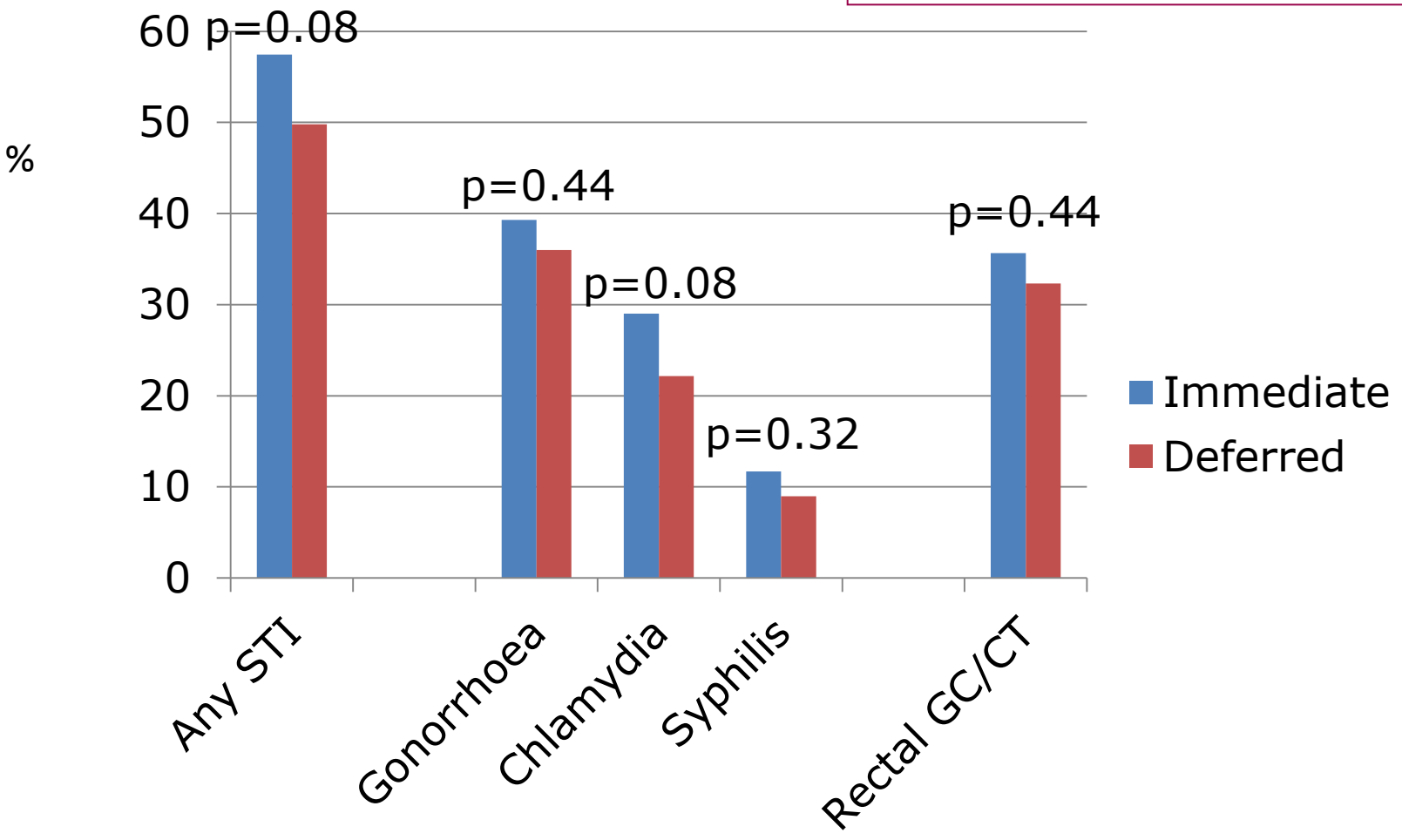
# PROUD: new HIV infections




**86% reduction in HIV Transmission**

# PROUD: STIs

**Caveat**
Number of screens differed between the groups:
e.g. Rectal gonorrhoea/chlamydia 974 in the IMM group and 749 in the DEF



ipergay
ANRS
Intervention Préventive
de l'Exposition aux Risques
avec et pour les Gays

www.ipergay.fr

# Study Design

**Double-Blinded Randomized Placebo-Controlled Trial**

- HIV negative high risk MSM
- Condomless anal sex with ≥ 2 partners within 6 m

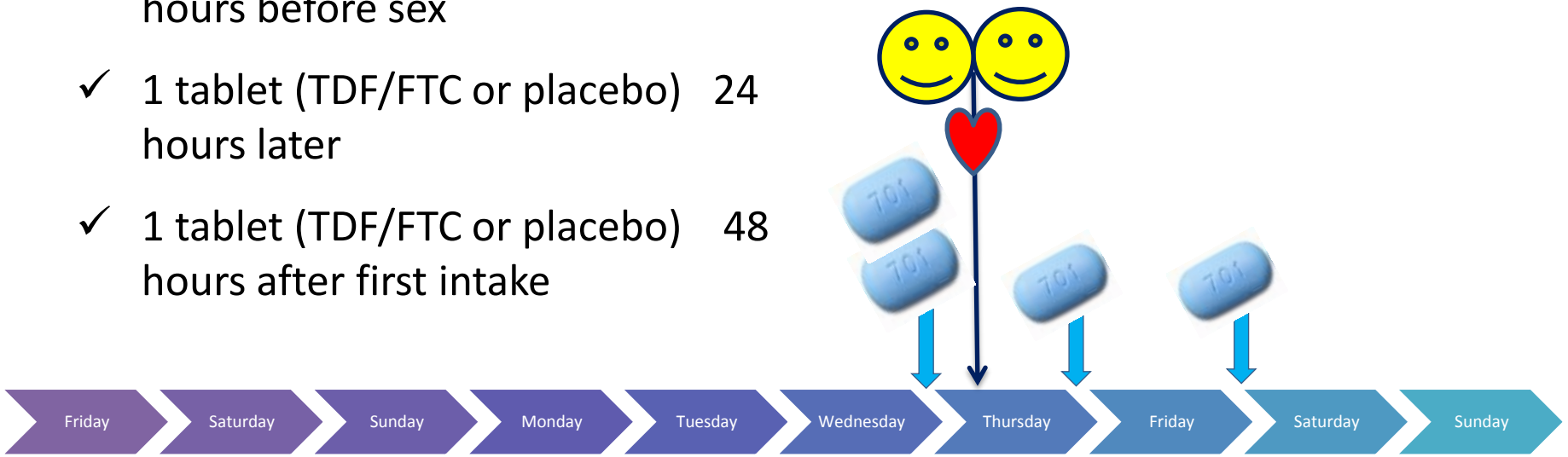
→ **TDF/FTC before and after sex**
**N=199**

→ **Placebo before and after sex**
**N=201**

- Follow-up visits: month 1, 2 and every two months thereafter

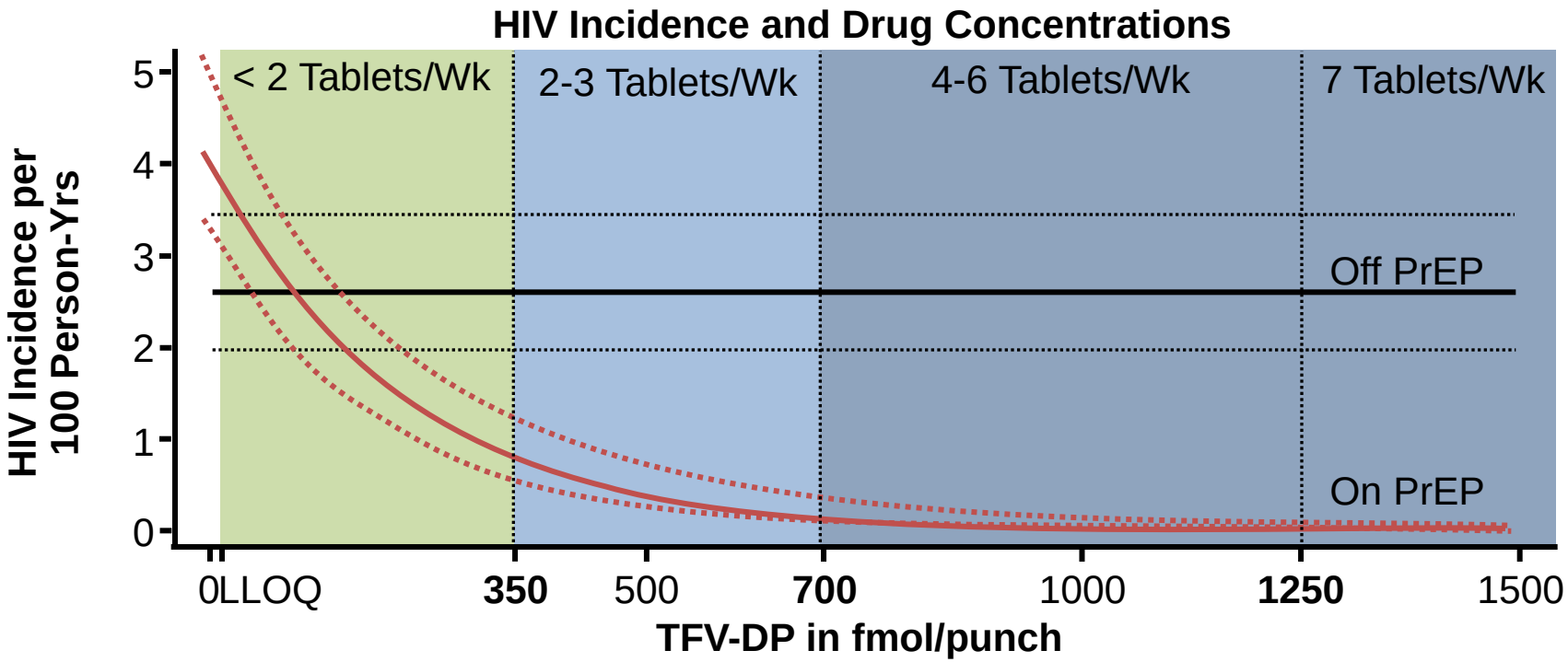
# Ipergay : Event-Driven iPrEP

- ✓ 2 tablets (TDF/FTC or placebo) 2-24 hours before sex
- ✓ 1 tablet (TDF/FTC or placebo) 24 hours later
- ✓ 1 tablet (TDF/FTC or placebo) 48 hours after first intake




86% reduction in HIV infections in PrEP arm

# iPrEX OLE: 100% Adherence With Daily PrEP Not Required to Attain Full Benefit

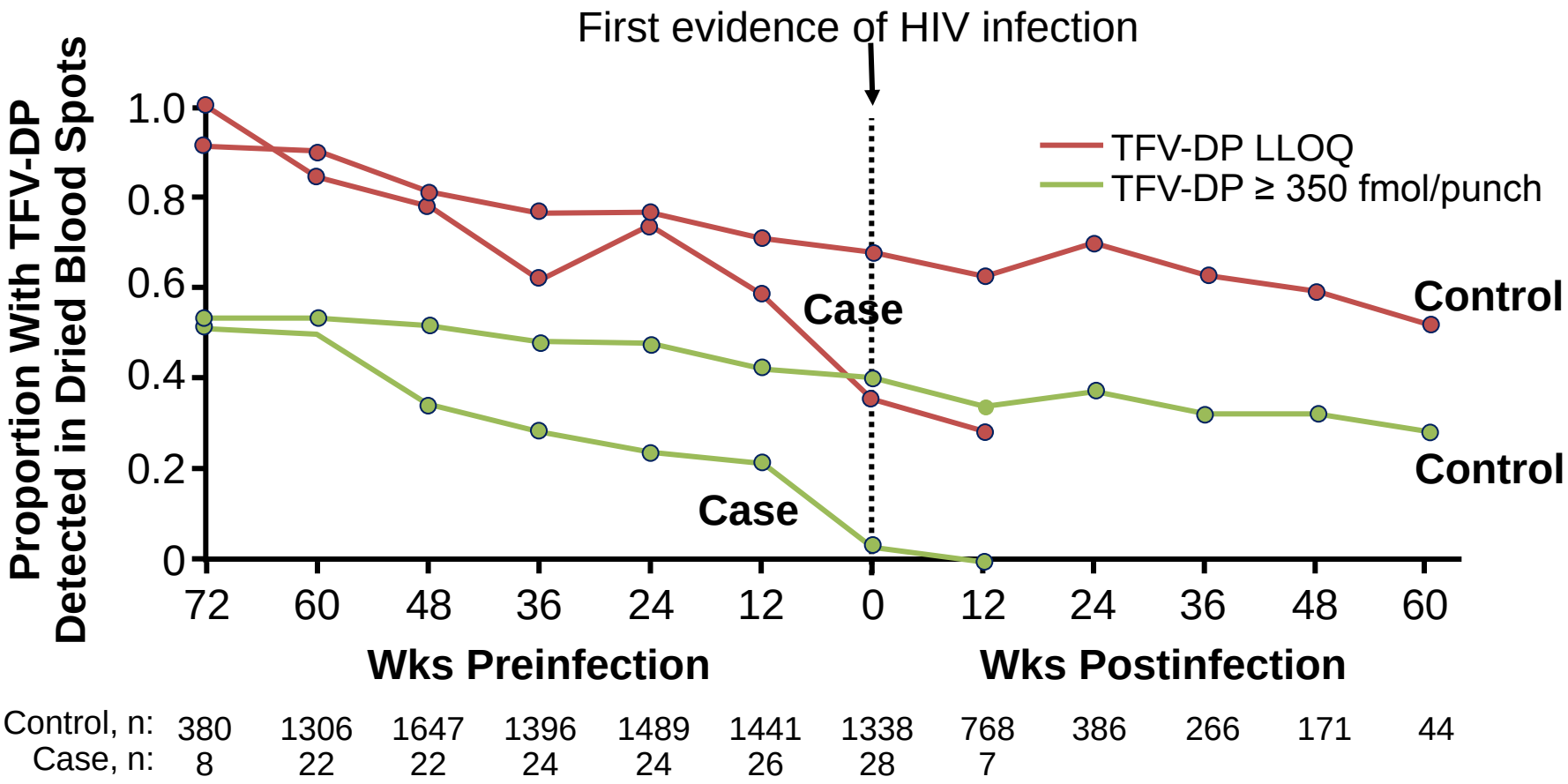



| | | | | |
|---|---|---|---|---|
| Follow-up,% | 26 | 12 | 21 | 12 |
| **Risk Reduction,%** | **44** | **84** | **100** | **100** |
| 95% CI, % | -31 to 77 | 21 to 99 | 86 to 100 (combined) | |

- TFV-DP: tenofovir diphosphate (measurable tenofovir in dried blood spots)

Grant R, et al. AIDS 2014. Abstract TUAC0105LB. Graphic used with permission.

# iPrEX OLE: HIV Infection Occurred During Periods of Nonadherence




Grant R, et al. AIDS 2014. Abstract TUAC0105LB. Graphic used with permission.

# Missed Doses

**PROUD**

- Take as soon as remember if within 12 hours. May mean 2 doses in 1 day
- Remind if misses 5 days drug levels fall to concerning level
- Discuss resistance

**IPERGAY**

- If not taken double dose before sex, as soon as possible: should take within 12 hours of sex
- If they missed the second dose/third dose they should take TRUVADA if they are within 3 days of the missed dose

# PrEP is Recommended in

- HIV neg patients with rectal STIs or syphilis in preceding year
- HIV neg patients taking 2x PEP in year
- HIV neg who report condomless sex in context of chem-sex
- HIV neg who report multiple episodes of condomless sex with unknown HIV status who request PrEP
- Patients vaccinated for hepatitis B

# Case Report: Multiclass Resistant HIV Infection Despite High Adherence to PrEP

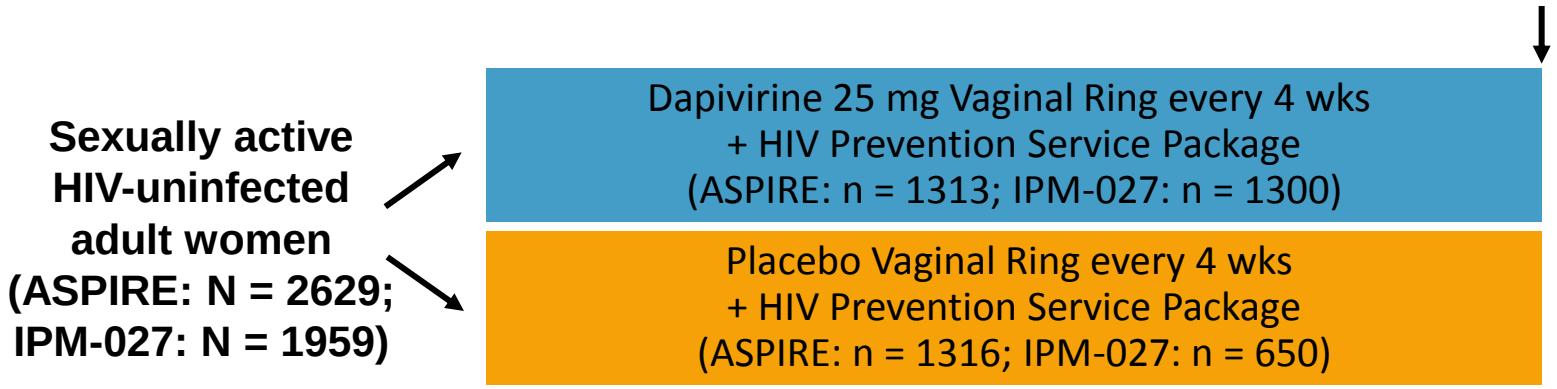
- 43-yr-old MSM acquired multiclass resistant HIV-1 infection following 24 mos of oral once-daily TDF/FTC PrEP
- Pharmacy records, blood concentration analyses, and clinical history support recent and long-term adherence to PrEP
- PrEP failure likely result of exposure to PrEP-resistant, multiclass resistant HIV-1 strain

| Drug Class | Mutations Detected on Day 7 Following p24-Positive Test | Estimated Fold-Change in $IC_{50}$ or Change in Response (Drug) |
|---|---|---|
| NRTI | 41L, 67G, 69D, 70R, 184V, 215E | 1.9x (ABC), 61x (3TC), 38x (FTC), 1.3x (TDF) |
| NNRTI | 181C | 43x (NVP) |
| PI | 10I | No relevant change |
| INSTI | 51Y, 92Q | Reduced (RAL), resistant (EVG), reduced (DTG) |

Knox DC, et al. CROI 2016. Abstract 169aLB.

# MTN-020/ASPIRE & IPM-027: Dapivirine Vaginal Ring for HIV Prevention in Women

- Silicone elastomer vaginal matrix ring containing NNRTI dapivirine 25 mg; ring replaced every 4 wks
- Randomized, double-blind phase III trials
  - MTN-020/ASPIRE[1,2]: Malawi, South Africa, Uganda, Zimbabwe
  - IPM-027 (The Ring Study)[3]: South Africa, Uganda
  - Primary endpoints: efficacy and safety




1. Baeten JM, et al. CROI 2016. Abstract 109LB.
2. Baeten JM, et al. N Engl J Med. 2016;[Epub ahead of print].
3. Nel A, et al. CROI 2016. Abstract 110LB.

# MTN-020/ASPIRE & IPM-027: Efficacy and Safety of Dapivirine Vaginal Ring

- Efficacy for HIV prevention similar in both studies
- No clinically relevant safety differences between arms

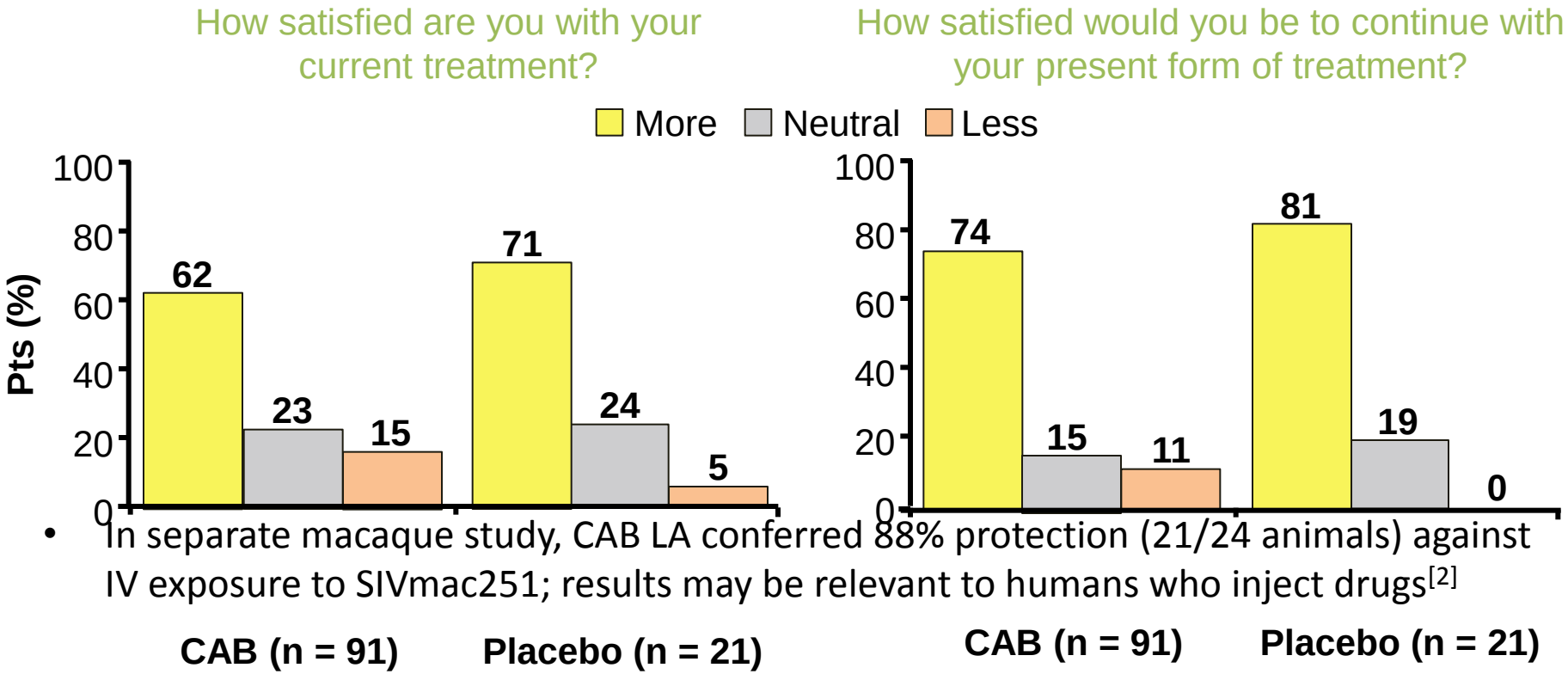
| Outcome | ASPIRE[1,2]: 15 Sites | | ASPIRE[1,2]: 13 Sites* | | The Ring Study[3] | |
|---|---|---|---|---|---|---|
| | Dapivirine (n = 1308) | Placebo (n = 1306) | Dapivirine (n = 1198) | Placebo (n = 1197) | Dapivirine (n = 1300) | Placebo (n = 650) |
| HIV infections, n | 71 | 97 | 54 | 85 | 77 | 56 |
| HIV incidence (per 100 PYs) | 3.3 | 4.5 | 2.8 | 4.4 | 4.1 | 6.1 |
| **HIV protection efficacy, %** | **27 (*P* = .046)** | | **37 (*P* = .007)** | | **31 (*P* = .040)** | |
| ▪ **Among women older than 21 yrs** | - | | **56 (*P* < .001)** | | **37 (*P* = .10)** | |

*Excludes 2 sites with low adherence.


1. Baeten JM, et al. CROI 2016. Abstract 109LB.
2. Baeten JM, et al. N Engl J Med. 2016;[Epub ahead of print].
3. Nel A, et al. CROI 2016. Abstract 110LB.

# ÉCLAIR: Patient Satisfaction With IM Therapy vs Oral Phase

- Pt satisfaction assessed by questionnaire at Wk 18 of IM treatment; asked pts to compare satisfaction of current IM vs past oral therapy[1]

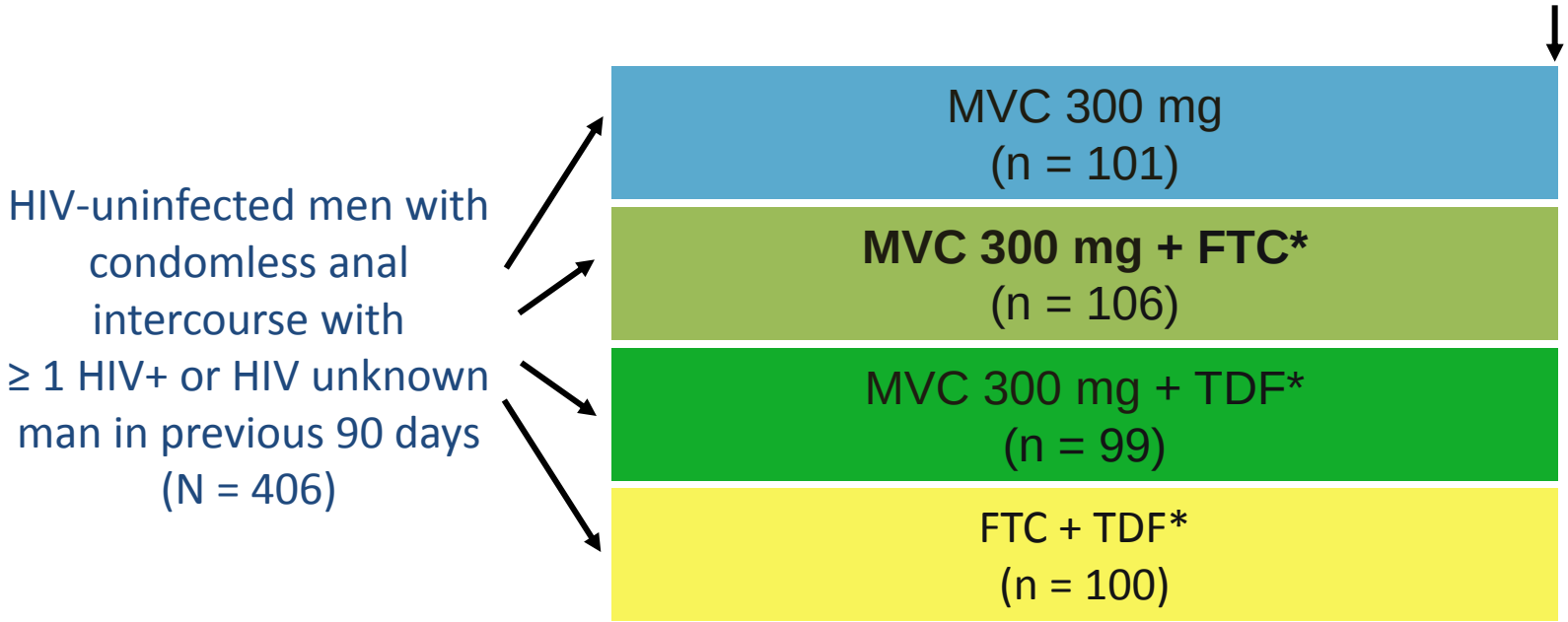



- In separate macaque study, CAB LA conferred 88% protection (21/24 animals) against IV exposure to SIVmac251; results may be relevant to humans who inject drugs[2]

1. Markowitz M, et al. CROI 2016. Abstract 106. 2. Andrews CD, et al. CROI 2016. Abstract 105. Reproduced with permission.

# HPTN-069/A5305: Maraviroc-Based PrEP for MSM

- Randomized, double-blind phase II trial
  - Primary endpoints: safety (grade ≥ 3 AEs), tolerability (rate/time to discontinuation of study drug)




*Standard dosing.

Gulick R, et al. CROI 2016. Abstract 103.

# HPTN-069/A5305: Safety, Tolerability, and Efficacy

- 67 grade 3/4 AEs; rates similar across arms
- 9% discontinued study drug early
  - Rates of study drug discontinuation (*P* = .6) and time to permanent discontinuation (*P* = .6) similar across arms
- 5 new HIV infections occurred during study for annual incidence rate of 1.4% (95% CI: 0.8-2.3); all R5 tropic; no transmitted drug resistance

| Age (Yrs), Race of Newly Infected Pt | Study Arm | First HIV+ Test, Wk | HIV-1 RNA, c/mL | Plasma Drug Conc. at Seroconv. Visit (ng/mL)* |
|---|---|---|---|---|
| 20, black | MVC + TDF | 4 | 122,150 | MVC: 0† TDF: 0 |
| 61, Asian | MVC alone | 16 | 981 | MVC: 145 |
| 21, mixed race | MVC alone | 24 | 106,240 | MVC: 0† |
| 35, white | MVC alone | 32 | 13,626 | MVC: 6.7 |
| 36, black | MVC alone | 48 | 52,191 | MVC: 0.7 |

*Anticipated predose steady-state MVC concentration: 32 ng/mL. †Undetectable plasma drug concentrations at every study visit.

# I Want PrEP Now

Home | About PrEP | How To Get PrEP | Buy PrEP Now | PrEP Abroad | News | About Us / Donate

## Buy PrEP Now

### Where to buy PrEP online, now, in the UK

So far we have independently verified 4 different companies who reliably sell PrEP that you can trust. For full details on our independent verification process, click here.


**United Pharmacies UK** (£44 per month) Buy Now

United Pharmacies UK is our personally recommended supplier of PrEP, you do not need to upload a prescription after purchasing and they have some of the cheapest prices on the internet. In addition to independently verifying their product, we also use United Pharmacies to buy PrEP ourselves. The only minor issue is that due to running out of stock, orders occassionally have a delay of around 1 - 2 weeks.

1 months supply = £45.79 per month.
3 months supply = £41.69 per month, (£125.07 in total).
Delivery to the UK costs £6.75 and takes 7 - 14 business days.

**All Day Chemist** (£42 per month) Buy Now

All Day Chemist also does not ask you to upload a prescription to buy PrEP. Their website operates in US dollars but w
converted the prices below to make them easier to compare. We have had many anecdotal reviews of All Day Chemis
are a popular choice for many PrEP users. Again, we have fully verified their sales process and reliability of their drugs
especially with All Day Chemist, see below for information on rare but potential import taxes.

1 month supply = £36.26
3 months supply = £108.78
Delivery to the UK costs £16.45 and takes 7 - 14 days

**In House Pharmacy** (£78 per month) Buy Now

In House Pharmacy does not ask you to upload a prescription for PrEP but their prices are higher than most other selle
the others we have fully verified that they are a reliable supplier of PrEP.

1 month supply = £83.93
3 months supply = £234.63
Delivery to the UK is free and takes 10 - 21 days

**Aids Drugs Online** (£59 per month) Buy Now

We have ourselves made a purchase from Aids Drugs Online with no problems. However they do require you to upload
prescription before they dispatch your order. See here for more info on prescriptions. Their website also operates in US
and they ship from Singapore. ADO have the most paperwork out of any of the sellers listed, which takes 2 - 3 busines
process before they will dispatch your order.

Remember - Aids Drugs Online will not dispatch your order unless you have a prescription!

1 month supply = $104.98 (US dollars) (around £68)
3 month supply = $260.48 (US dollars) (around £168.40)
Delivery costs $15.00 and takes 7 - 14 business days after your prescription has been checked, which takes 2 - 3 bus

### Our Verification Process

Many people including doctors question if you can trust medications that are bought online. If you haven't placed an o
before you may not trust the company or be able to tell if they are operating legitimately. You may also not have the me
testing the drugs you buy from them to make sure that they are genuine and working as they should.

One of the key objectives of this website is to try to assist with the above concerns. All of the PrEP that we list on this w
made by Cipla and has been officially approved by the United States Food and Drug Administration (US FDA). We do
PrEP supplier until we have had a first hand account from someone we know (or even tested personally ourselves) tha
process was smooth, easy and reliable. Then most importantly, the drugs purchased from each website have been tes
customer, by taking a test which detects the levels of active Tenvir-EM / Tenofovir (PrEP protection) in the blood. The 4
buy PrEP listed on this site have gone through and passed this process. These sellers are tried, tested and reliable. W
currently working with a few HIV organisations to establish some offical support and a statement on this.

There are numerous other online pharmacies that sell PrEP. If we have not listed them here then this is for the simple fact that we have not been able to personally verify them yet, not because we have had a negative experience with them.

If you have bought PrEP from any other websites and been able to verify your purchase with a blood test then please let us know on iwantprepnow.co.uk@gmail.com so that we investigate and add other reputable sites to our list for everyone else to use.

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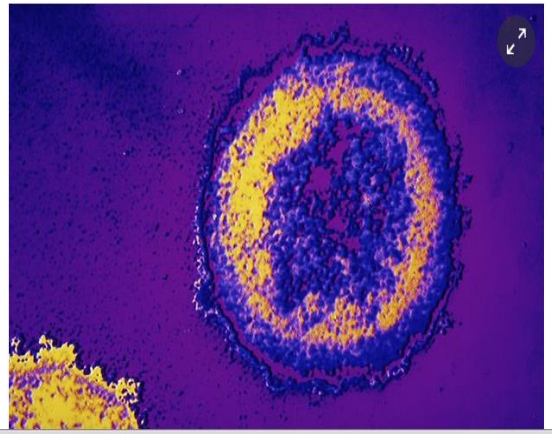
Aids and HIV

# NHS can fund 'game-changing' PrEP HIV drug, court says

NHS England to appeal against judgment ruling it has legal power to fund drugs that are highly effective in preventing HIV



Sarah Boseley Health editor

Tuesday 2 August 2016 11.07 BST

Shares 6,268

Save for later

Most popular

'Someone punched him

# PrEP is acceptable

- PrEP publications 2016/17 mainly on willingness to take PrEP
  - Transgender women Argentina
  - Black MSM Chicago
    - Apart from a small group who believe in a conspiracy theory
  - MSM China
    - On demand but not daily
  - ChemSex MSM US
    - On demand prior to chems use, but not daily
  - Long Acting Injectible PrEP
    - Acceptable if efficacious

# Limited awareness of pre-exposure prophylaxis among black men who have sex with men and transgender women in New York city

- STAR Study, which recruited black MSM/TGW in New York City for HIV testing and linked HIV-infected individuals into care from July 2012 to April 2015
- 1673 participants
  - median age was 43 years
  - 25% were under age 30
  - 85.8% reported having insufficient income for basic necessities at least occasionally
  - 54.8% were homeless
  - 71.3% were unemployed

*Garnett M[1], Hirsch-Moverman Y[1,2], Franks J[1], Hayes-Larson E[1,2], El-Sadr WM[1,2], Mannheimer S[1,2,3]. AIDS Care. 2017 Aug 9:1-9*

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- Awareness of PrEP was reported among **18.2%** of participants
- PrEP awareness was associated with
  - younger age (adjusted odds ratio [aOR] 0.87, per 5 years)
  - gay identity (aOR 2.46)
  - higher education (aOR 1.70)
  - more frequent past HIV testing (aOR 3.18)
  - less HIV stigma (aOR 0.61)
  - less hazardous/harmful alcohol use (aOR 0.61)
  - more sexual partners (aOR 1.04, per additional partner in past 30 days)

*Garnett M[1], Hirsch-Moverman Y[1,2], Franks J[1], Hayes-Larson E[1,2], El-Sadr WM[1,2], Mannheimer S[1,2,3]. AIDS Care. 2017 Aug 9:1-9*

# How Much Do We Know about Drug Resistance Due to PrEP Use?

- Will widespread use of PrEP outside well controlled trial conditions result in increased drug resistance?
- A survey of expert virologists with questions about biological assumptions regarding drug resistance due to PrEP use
- For comparability, 50% PrEP-coverage of and 90% per-act efficacy of PrEP in preventing HIV acquisition are assumed in all simulation

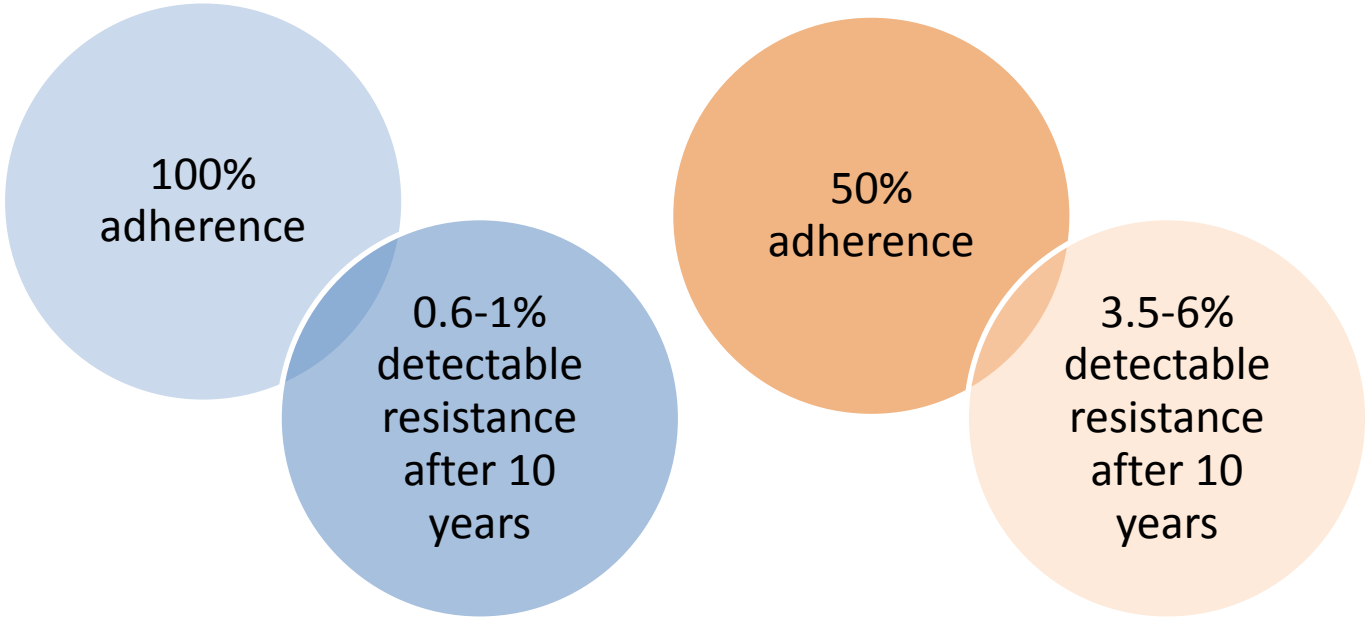
*Dimitrov DT, Boily MC, Hallett TB, Albert J, Boucher C, Mellors JW, Pillay D, van de Vijver DAMC. PLoS One 2016;11(7):e0158620*

# Virologists disagreed!

**20-180 days** — Time until resistance emergence in infected PrEP users with breakthrough HIV infections

**25-90%** — The efficacy of PrEP against drug-resistant HIV

**10-75%** — The likelihood of resistance acquisition upon transmission




KEY POINT

- 17–23% infected individuals could virologically fail treatment as a result of past PrEP use or transmitted resistance to PrEP with moderate adherence

# EACS PrEP Guidelines

- PrEP can be used in adults at high-risk of acquiring HIV infection.
- Recommended in HIV-negative men who have sex with men (MSM) and transgender individuals who are inconsistent in their use of condoms with casual partners or with HIV-positive partners who are not on treatment
- A recent STD or use of post-exposure prophylaxis may be markers of increased risk for HIV acquisition.
- May be considered in HIV-negative heterosexual women and men who are inconsistent in their use of condoms and likely to have HIV positive partners who are not on treatment
- PrEP is a medical intervention that may not provide full protection against acquiring HIV, does not protect against other STDs and should be used in combination with other preventive interventions, including the use of condoms.
- PrEP should be supervised by a doctor, experienced with sexual health and use of HIV medicines, possibly as part of a shared care arrangement.
- The following procedures are recommended:
- Documented negative fourth generation HIV test prior to starting PrEP.
- During PrEP, this test should be repeated every 3 months, and PrEP should be stopped immediately in case of early clinical signs of HIV seroconversion or a positive HIV diagnostic test and the person referred for evaluation to an HIV unit.

# EACS PrEP Guidelines

- Before PrEP is initiated, HBV serology status should be documented.
- If HBsAg positive see Clinlical Management and Treatment of HBV and HCV Co-infection in HIV-positive Persons.
- Counsel that PrEP does not prevent other types of STD; screen for STD (including HCV) when starting PrEP and regularly during use of PrEP.
- Counsel that PrEP may impact renal and bone health
- Check renal function and bone mineral density according to guidelines on TDF use.
- Counsel that PrEP, like other prevention methods, only works when it is taken. Adherence counselling is recommended.
- Counsel that PrEP can be prescribed long term but that each consecutive PrEP prescription should be for a period of maximum 3 months (90 tablets) to ensure appropriate monitoring.
- 3. PrEP regimen
- TDF/FTC 300*/200 mg 1 tablet qd. For MSM with high-risk sexual behavior PrEP may be dosed ‘on demand’ (double dose of drug 2-24 hours before each sexual intercourse, followed by two single doses of drug, 24 and 48 hours after the first drug intake). If dosed ‘on demand’, the total dose per week should not exceed 7 tablets.
- In certain countries TDF is labelled as 245 mg rather than 300 mg to reflect the amount of the prodrug (tenofovir disoproxil) rather than the fumarate salt (tenofovir disoproxil fumarate).

NEW! EACS online PrEP course

# Summary HIV Prevention Strategies

- TasP is key
- PEP and PrEP are highly effective
- Assessment of risk
- Part of risk reduction strategy
- Regimens well tolerated
- Newer agents/methodologies being assessed for PrEP
- Studies ongoing in heterosexual populations
- Clear guidelines on management and follow-up
- Essential part of HIV and Sexual Health Care