

Innovation & New Prevention of HIV (&STDs)



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25 สิงหาคม 2566

Global estimates for adults and children | 2021

People living with HIV

38.4 million [33.9 million–43.8 million]

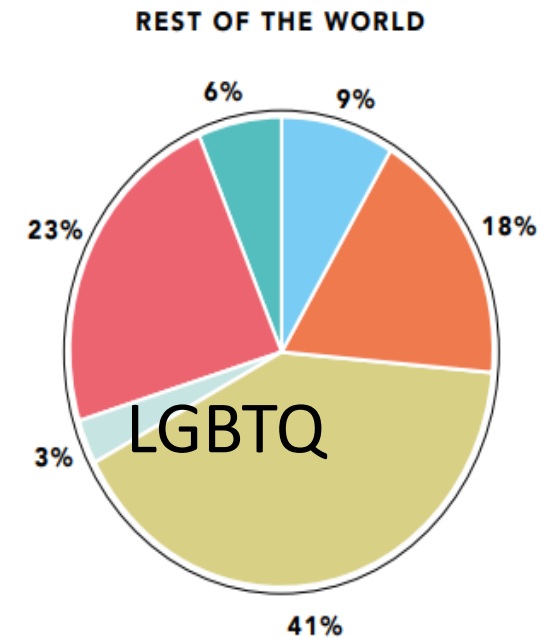
New HIV infections in 2021

1.5 million [1.1 million–2.0 million]

4000 new HIV infections a day
1/3 in young people 15-24 years

Deaths due to AIDS in 2021

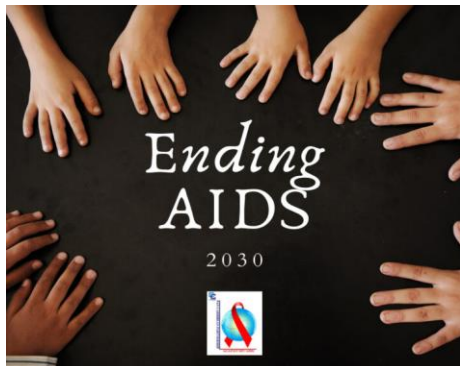
650 000 [510 000–860 00]



- SEX WORKERS
- PEOPLE WHO INJECT DRUGS
- GAY MEN AND OTHER MEN WHO HAVE SEX WITH MEN
- TRANSGENDER WOMEN
- CLIENTS OF SEX WORKERS AND SEX PARTNERS OF KEY POPULATIONS
- REMAINING POPULATION

Source: UNAIDS special analysis, 2022 (see Annex on Methods).

2030 goal of ending AIDS
as a global health threat



Young people have a right to sexual and reproductive health care that meets their needs



Empower youth to protect their health with comprehensive sex education



Invest in high quality, youth-friendly health services



Combat stigma as a barrier to care

- Prevention tools
- Access to sexual reproductive health care: on-line outreach
- Youth-friendly health services

Q1 ท่านเคยให้การป้องกันการติดเชื้อเอชไอวีหรือไม่?

A. เคย

B. ไม่เคย

C. ไม่แน่ใจ

Q2 ในการทำงานของท่าน ท่านได้พบกับ AYA

Adolescent and Young Adult 15-24 ปี เพียงใด?

A. < 10%

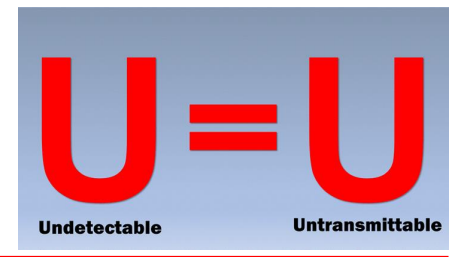
B. 10-25%

C. 25-50%

D. 50-75%

E. >75%

Treatment as Prevention



- Risk of transmission

- Undetectable (HIV RNA < 200 c/ml)
- Suppressed (HIV RNA 200-1000 c/ml)
- Unsuppressed (HIV RNA > 1000 c/ml)

= zero transmission

= almost zero, negligible risk

= can transmit

The risk of sexual transmission of HIV in individuals with low-level HIV viraemia: a systematic review

Laura N Broyles, Robert Luo, Debi Boeras, Lara Voinov

Published online July 23, 2023 [https://doi.org/10.1016/S0140-6736\(23\)00877-2](https://doi.org/10.1016/S0140-6736(23)00877-2)



7762 serodiscordant couples across 25 countries.

- VL < 200 c/mL = no transmission
- VL 200-1000 c/ml = 2 events (long intervals 50,53 days)
- VL > 1000 c/ml = 321 events



HIV testing strategy including HIV-ST



New recommendation

HIV self-testing may be offered as an additional option for testing at facilities (*conditional recommendation, low-certainty evidence*).

New recommendation

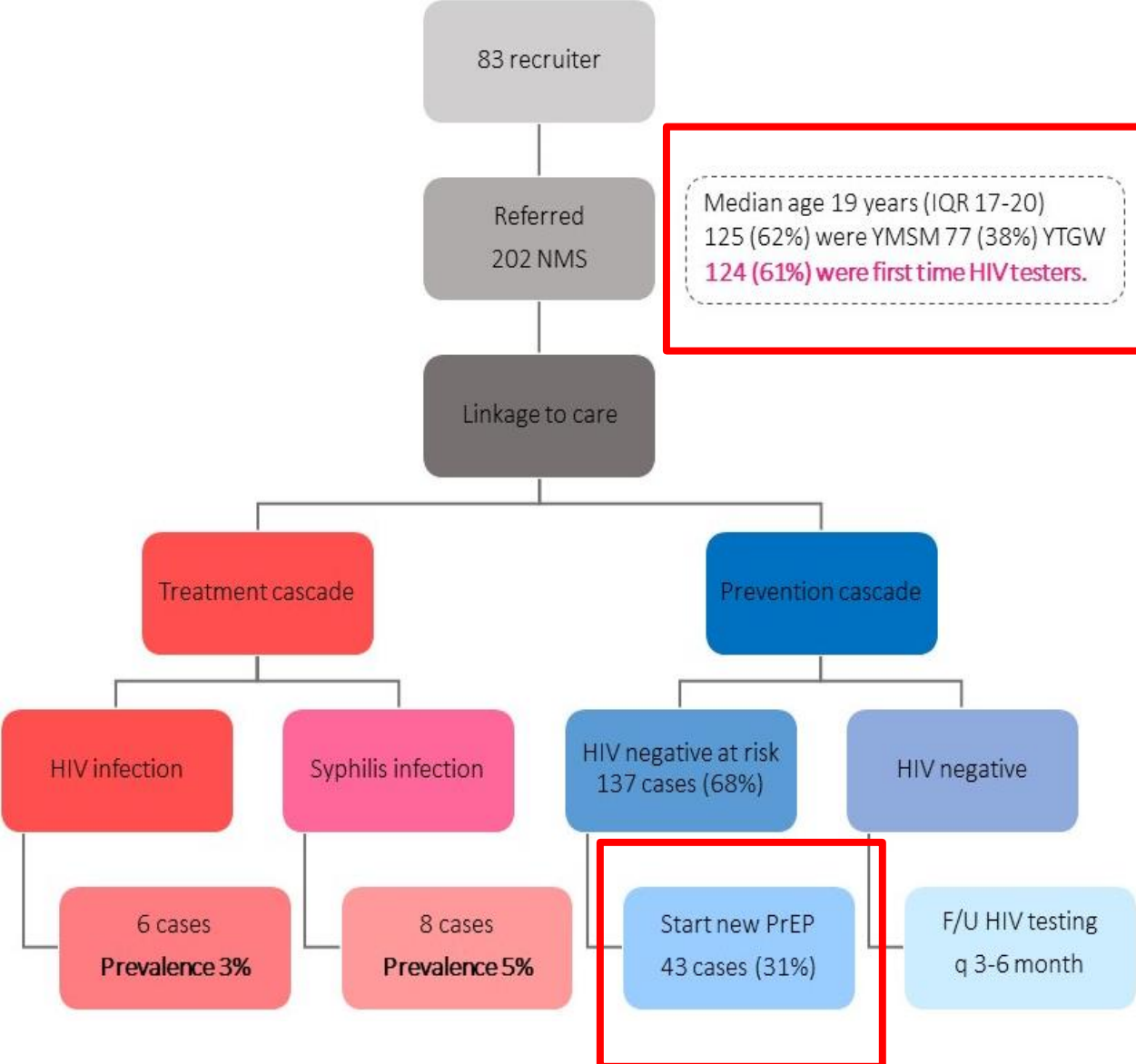
HIV self-testing may be used to deliver pre-exposure prophylaxis, including for initiation, re-initiation and continuation (*conditional recommendation, low-certainty evidence*).

New recommendation

Social network testing approaches may be offered as an additional approach to HIV testing as part of a comprehensive package of care and prevention (*conditional recommendation, low-certainty evidence*).



Adolescent empowerment: Social network strategy



Median age 19 years (IQR 17-20)
 125 (62%) were YMSM 77 (38%) YTGW
124 (61%) were first time HIV testers.

- ◆ HIV negative
- ◆ HIV negative on PrEP
- ◆ HIV positive
- * First time tester
- S Syphilis
- MSM
- TGW
- ◇ Bisexual

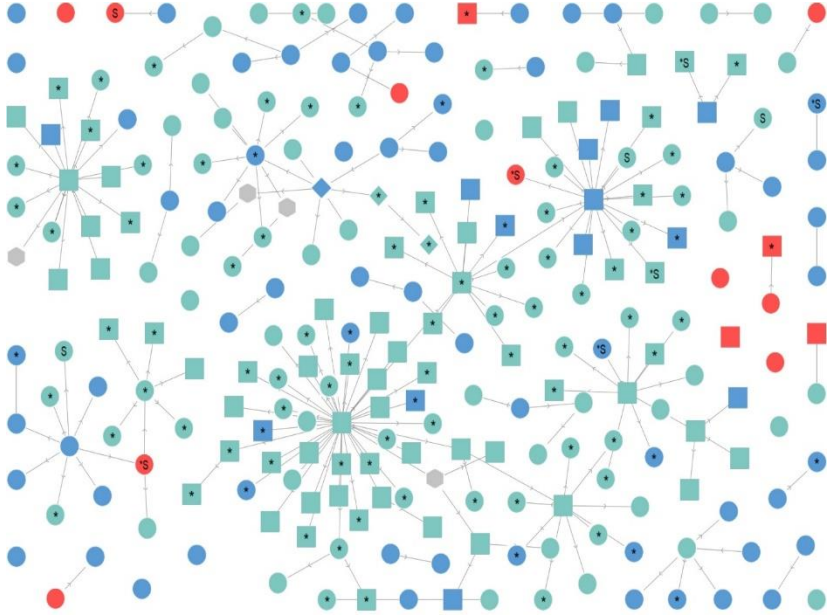
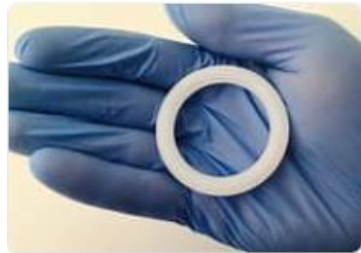


Figure: Social mapping showing recruitment pattern of social network strategy

61% first-time HIV testers
1 out of 3 of those HIV at risk, immediately linked to HIV prevention.

New technology

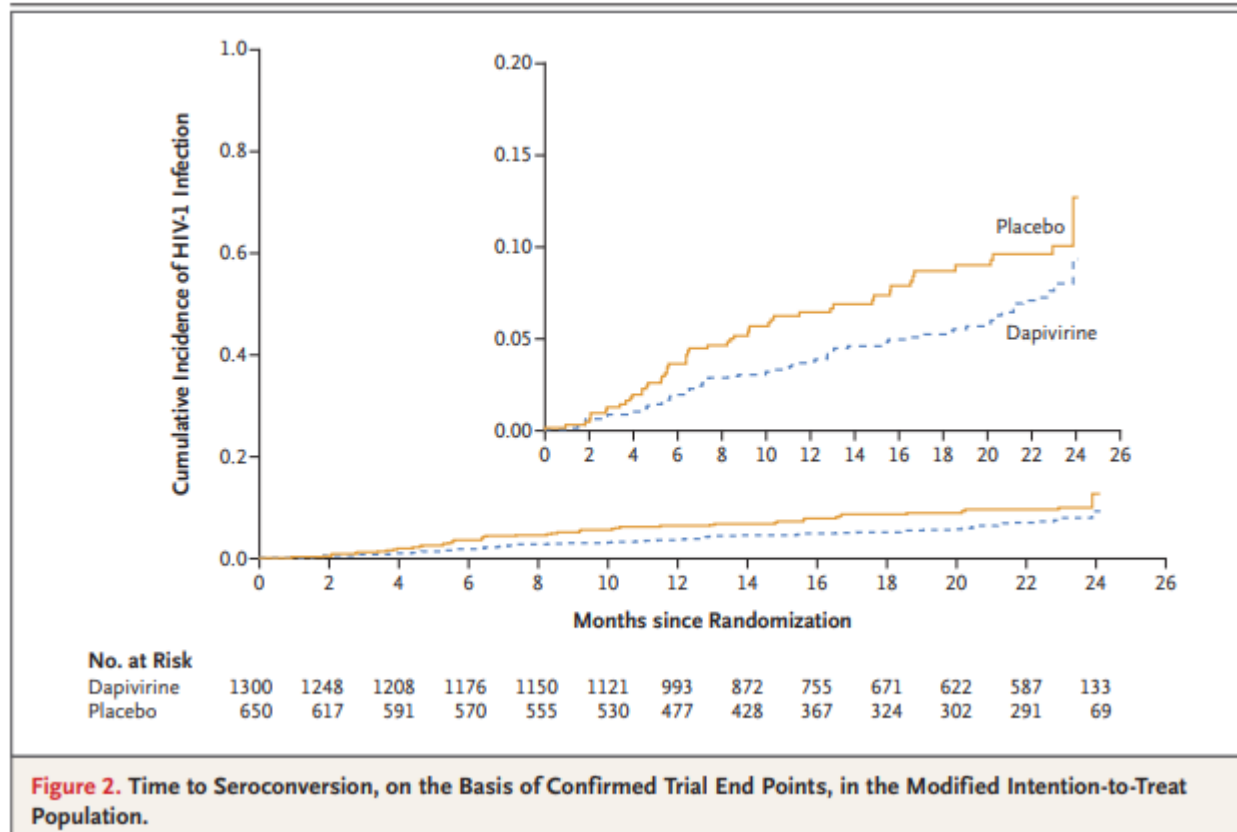
Biomedical HIV intervention



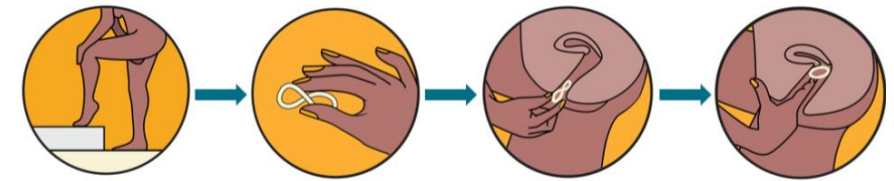
Dapvirine vaginal ring

Ring study (SA, Uganda)

Dapvirine = 6.1 per 100 person-year
 Placebo = 4.1 per 100 person-year



Dapivirine 25 mg
 Self inserted vaginal ring every 4 weeks



Ring insertion and placement



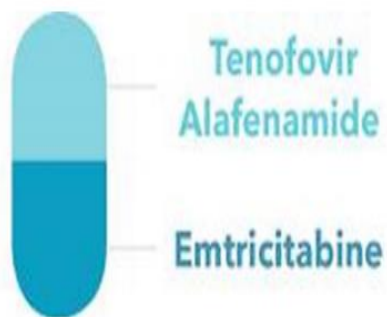
Oral pill for PrEP

Daily PrEP

For risk > 2 times per week, unpredictable sex

TDF/FTC

TAF/FTC

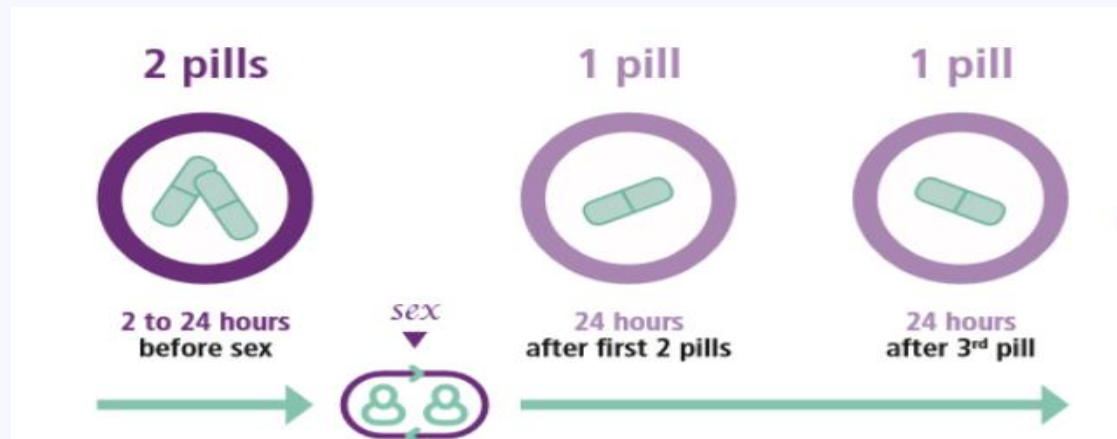


ระยะเวลาที่กินยาเพรีพ จนระดับยาเพียงพอ

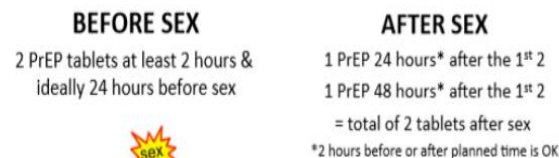
= 2 เม็ด อย่างน้อย 2 ชั่วโมง หรือ 1 เม็ด * 7 วัน

การหยุดกินยาเพรีพ = 2 วันหลังจากมีเพศสัมพันธ์ครั้งสุดท้าย

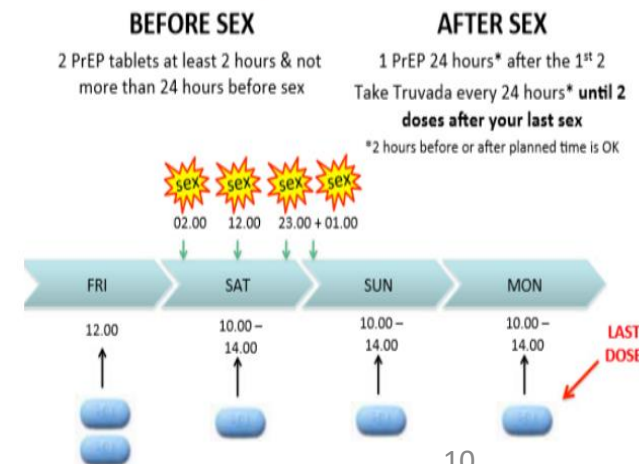
On-Demand 2-1-1

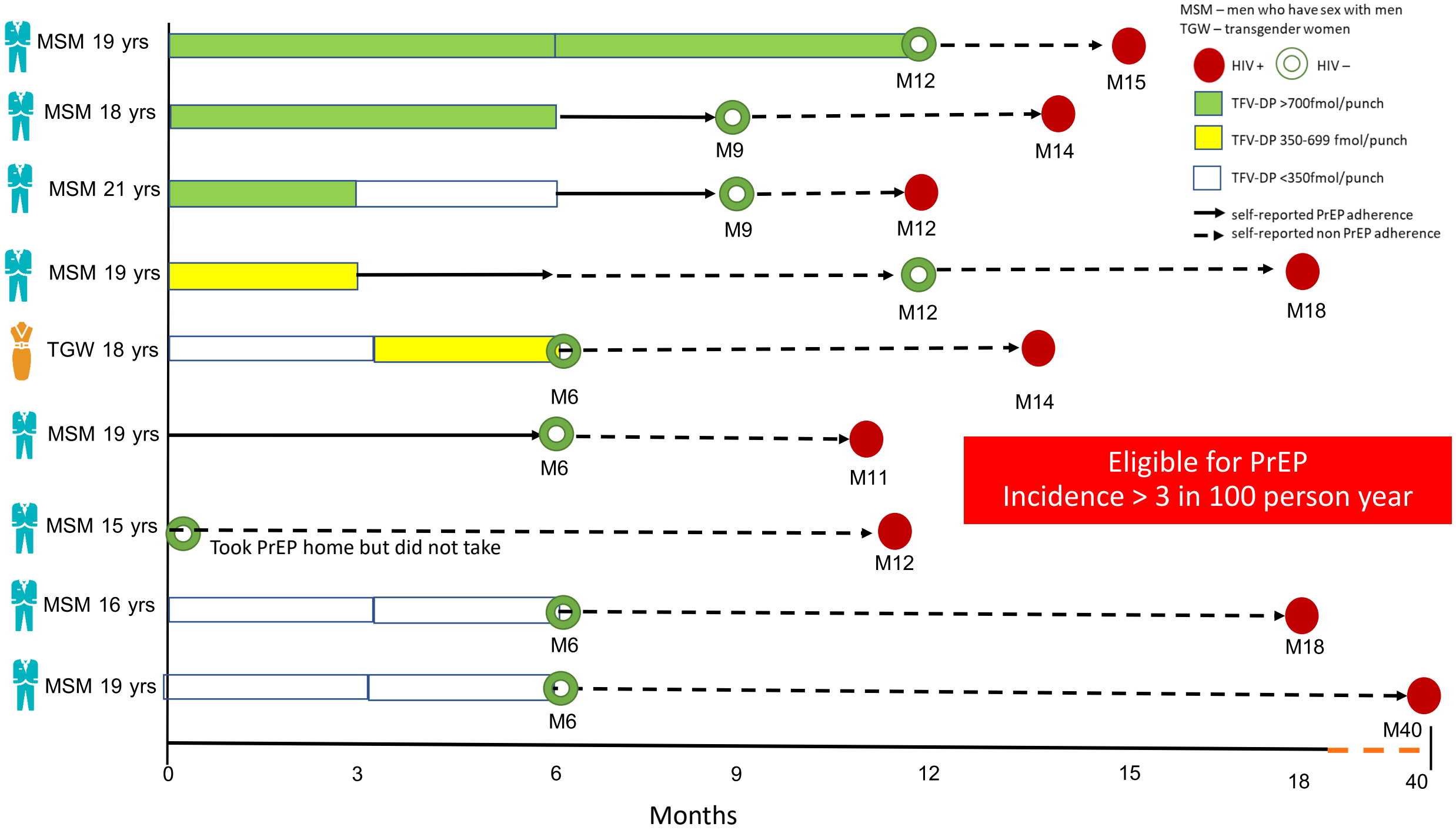


1. On-demand dosing: If you have sex once a week



2. On-demand dosing: Sex several times over a few days

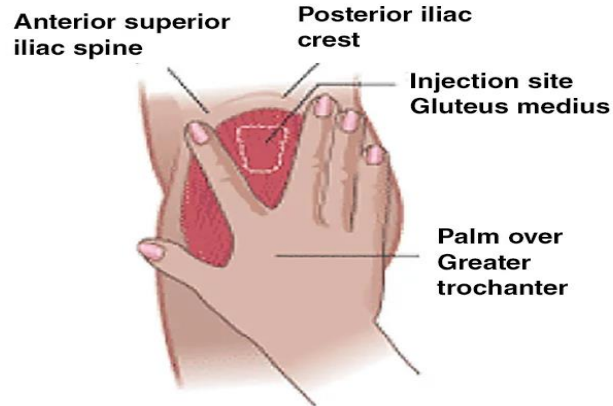




Cabotegravir



Ventrogluteal Site



Lenacapavir



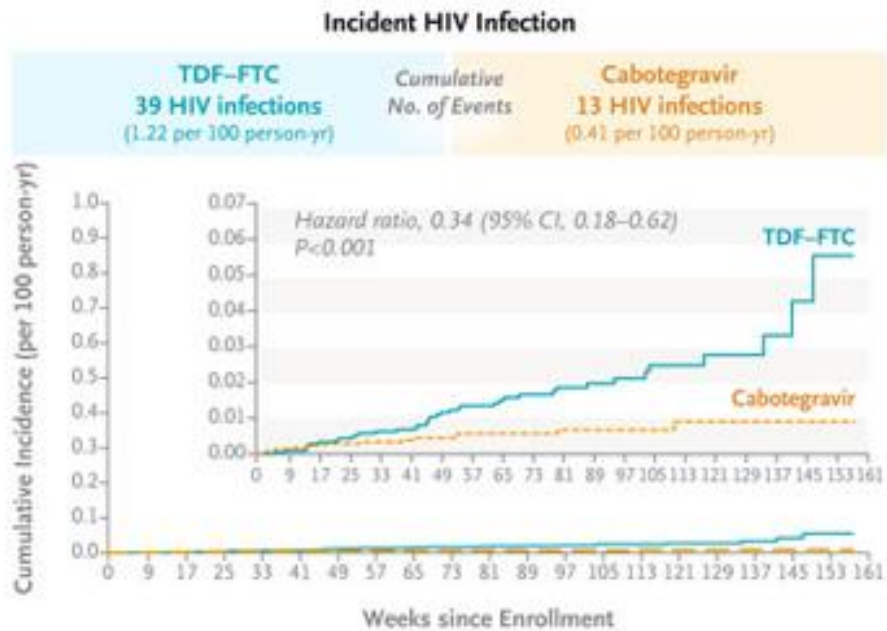
SUNLENCA 4-Tablets™ blister pack contains 4 tablets
(Lenacapavir 300mg/tab)



Long acting injectable: Cabotegravir

HPTN 083

TDF/FTC = 1.2 per 100 person-year
 Cabotegravir = 0.4 per 100 person-year
600 mg, given IM q 8 weeks



Landovitz RJ. N Engl J Med 2021; 385:595-608

HPTN 084

TDF/FTC = 1.8 per 100 person-year
 Cabotegravir = 0.2 per 100 person-year

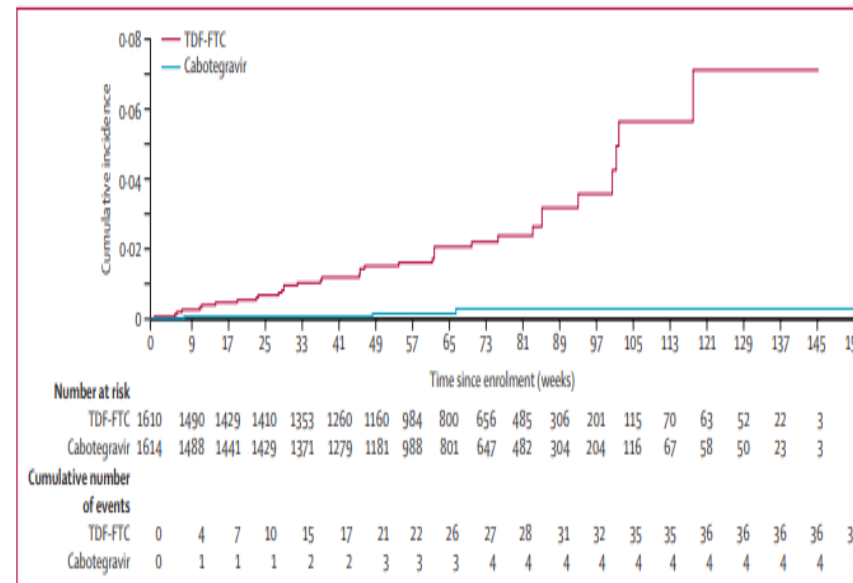


Figure 3: Cumulative HIV incidence by study group
 Kaplan-Meier estimates of HIV infection are shown. Four HIV infections were observed in the cabotegravir group (HIV incidence 0.20 per 100 person-years [95% CI 0.06-0.52]) and 36 in the TDF-FTC group (1.85 per 100 person-years [1.3-2.57]). Participants in the cabotegravir group had an 88% lower risk of HIV infection than those in the TDF-FTC group (hazard ratio 0.12 [0.05-0.31]; p < 0.0001). TDF-FTC=tenofovir disoproxil fumarate plus emtricitabine.

Delany-Moretlwe S et al. Lancet 2022; 399: 1779-89



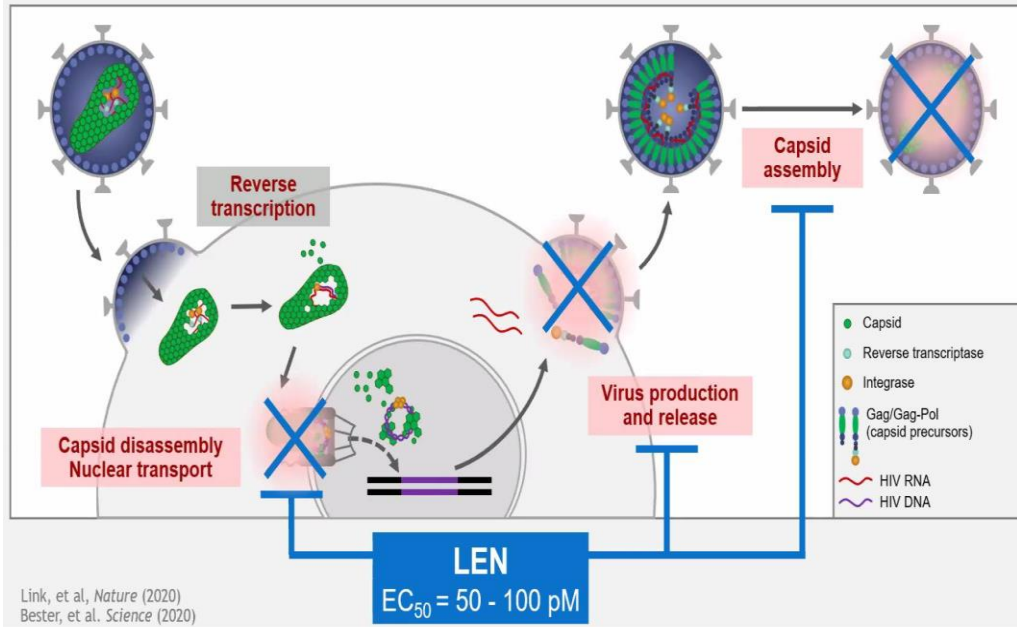
July 2022



Lenacapavir for HIV prevention (Phase III clinical trial)

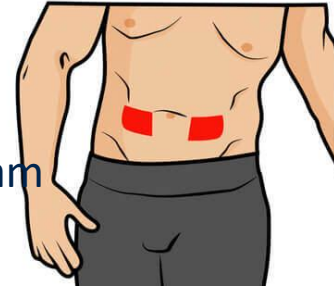
Lenacapavir: a novel HIV capsid inhibitor

LEN blocks several steps of HIV replication with high potency

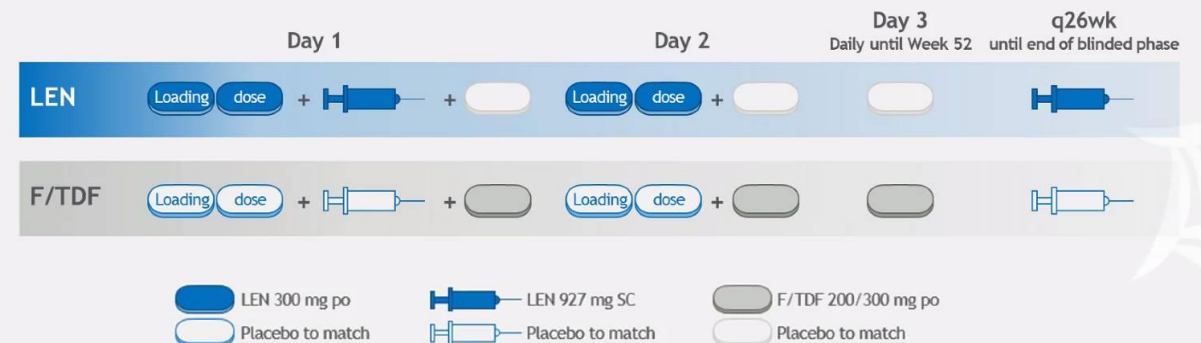


PURPOSE1: 5,000 women in South Africa /Uganda

PURPOSE2: 3,000 MSM/ Trans in LATAM/Thai/Vietnam



Randomized phase Study drug administration



ClinicalTrials.gov Identifier: NCT04925752

DPP: Dual Prevention Pill oral PrEP + oral contraception

- Viatris developing **co-formulated tablet with 28-day regimen** (TDF/FTC, oral PrEP + LNG/EE, combined oral contraception (COC))
- **Different color pills** for 21 vs. 7 days (dark pink and light peach, respectively)
- **Packaging will be wallet pack** with tear-off weekly sheets with instructions on them
- Pill color, packaging, brand names **validated with women**
- **Branding/secondary packaging** will have women's lifestyle feel
- Longer term, Population Council/Medicines360 to **develop F/TAF-based DPP**

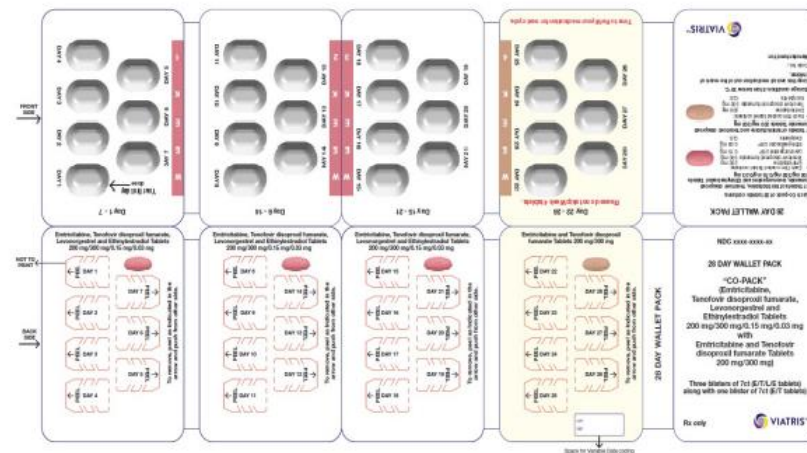
Viatris plans to file for regulatory approval with US Food & Drug Administration in early 2024

MPT = multipurpose prevention technology

Figure 1: Proposed DPP tablet colors



Figure 2: Illustrative mock-up of DPP packaging by Viatris



Jessica Rodrigues, AVAC July 2022

Rectal microbicide

A randomized trial of safety, acceptability and adherence of three rectal microbicide placebo formulations among young sexual and gender minorities who engage in receptive anal intercourse (MTN-035)

MTN017: reduced glycerin formulation of tenofovir gel
MTN-026 MTN-033: Gel based on dapivirine
MTN 039: tenofovir and elvitegravir rectal insert

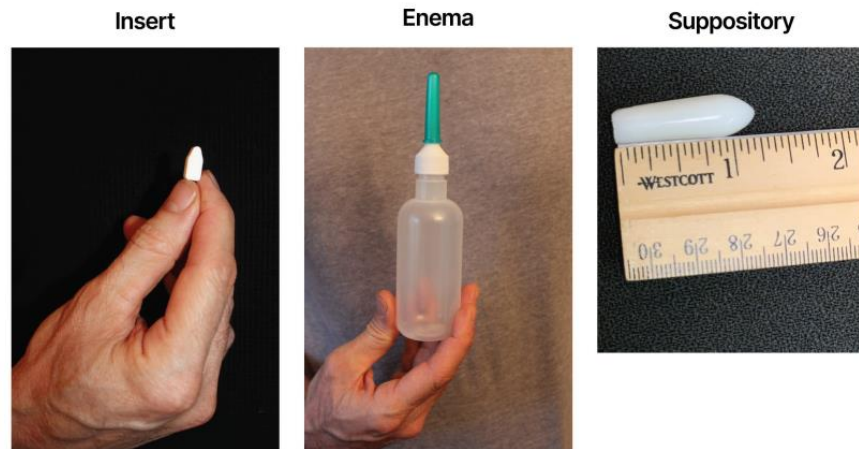


Fig 2. MTN-035 placebo study products.
<https://doi.org/10.1371/journal.pone.0284339.g002>

Table 4. Acceptability and adherence by study product.

	Acceptability			Adherence		
	Rectal Insert	Suppository	Rectal Enema	Rectal Insert	Suppository	Rectal Enema
Percentage with High Acceptability/Adherence and 95% Confidence Interval	72% (65%, 78%)	66% (59%, 73%)	73% (66%, 79%)	75% (69%, 81%)	74% (68%, 80%)	83% (77%, 88%)
Participants with high acceptability/adherence by site						
Birmingham, USA	21/29 (72%)	19/29 (66%)	23/29 (79%)	26/29 (90%)	22/29 (76%)	24/29 (83%)
Blantyre, Malawi	24/29 (83%)	21/29 (72%)	26/29 (90%)	23/29 (79%)	16/29 (55%)	20/29 (69%)
Chiang Mai, Thailand	25/30 (83%)	21/30 (70%)	13/30 (43%)	25/30 (83%)	30/30 (100%)	29/30 (97%)
Johannesburg, South Africa	22/27 (81%)	21/27 (78%)	20/28 (71%)	10/27 (37%)	14/27 (52%)	18/28 (64%)
Lima, Peru	18/26 (69%)	18/26 (69%)	23/25 (92%)	22/26 (85%)	19/26 (73%)	22/25 (88%)
Pittsburgh, USA	17/30 (57%)	16/30 (53%)	23/30 (77%)	20/30 (67%)	23/30 (77%)	26/30 (87%)
San Francisco, USA	16/30 (53%)	16/30 (53%)	15/30 (50%)	24/30 (80%)	24/30 (80%)	26/30 (87%)

Prevention of bacterial STIs: doxycycline PEP

Doxycycline 200 mg within 72 hr after condomless sex

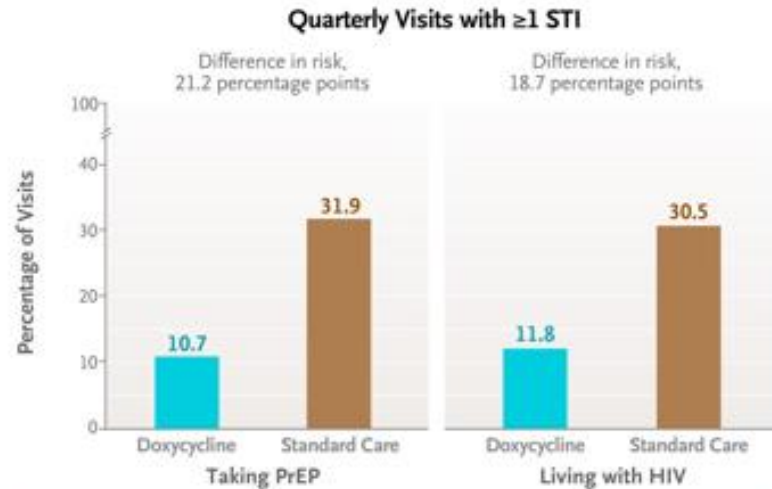


Population

- PrEP user (n 432, median age 36 yr)
- PLHIV (N=209, median age 42 yr)

Sexual pattern: median 9 partners in 3 month

History of STIs in past 12 months: GC (68%), CT (58%), Sy (20%)



STIs	Doxy		Doxy	
Gonorrhea	9.1%	20.2%	8.9%	20.3%
C.trachomatis	1.4%	12.1%	3.9%	14.8%
Syphilis	0.4%	2.7%	0.7%	2.3%

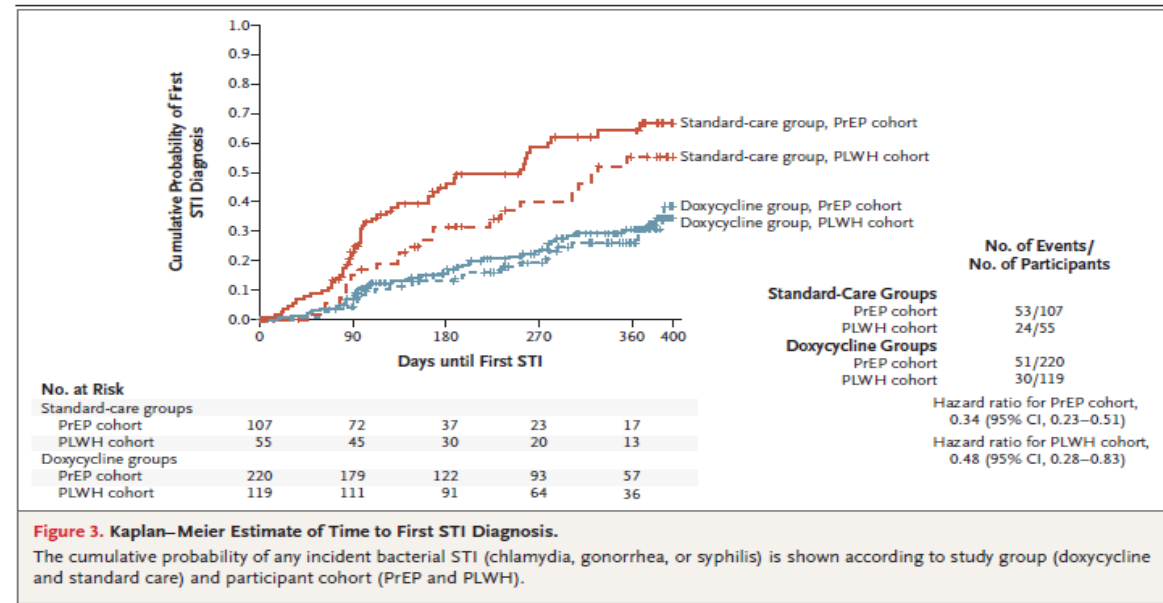


Figure 3. Kaplan–Meier Estimate of Time to First STI Diagnosis.

The cumulative probability of any incident bacterial STI (chlamydia, gonorrhea, or syphilis) is shown according to study group (doxycycline and standard care) and participant cohort (PrEP and PLWH).

Communication of HIV prevention

Put people first approach, empowerment

Communications have shifted from risk to empowerment framing

There has been a **significant shift in communications for OCP/PrEP from risk-based motivations, towards more positive motivations such as empowerment, relationship building and choice.**



Take home message: HIV/STDs prevention

- **Say** zero transmission: Treatment as Prevention
- **Offer** more HIV testing in different settings, include HIV-self test
- **Provide** “pre-exposure prophylaxis” for HIV/STIs
 - Condom
 - Antiretroviral drugs: once daily, event-driven, long acting injectable
 - Antibiotics: DoxyPEP ?
 - Microbicide: dapivirine ring, rectal microbicide
- **Service delivery:** on-line, on-site comprehensive care /collaborative care