Staying Pared Pared



An Update on Injectable Pre-Exposure Prophylaxis







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The views expressed are not necessarily those of HRSA or NIH.

Objectives

- Name the currently available options for preexposure prophylaxis (PrEP) in the United States.
- Outline key clinical trial data supporting the use of long-acting injectables for HIV prevention.
- Identify candidates for PrEP who might benefit from a long-acting, injectable option.
- Describe other long-acting forms of PrEP in the development pipeline.

Two pills are approved for PrEP







Truvada TDF

emtricitabine / tenofovir disoproxil fumarate

Approved in 2012

Proven to protect people during:
Injection drug use
Insertive vaginal sex
Insertive anal sex (topping)
Receptive vaginal sex
Receptive anal sex (bottoming)

Descovy TAF

emtricitabine / tenofovir alafenamide fumarate

Approved in 2019

Proven to protect people during:

Injection drug use Insertive vaginal sex

Insertive anal sex (topping)

Receptive vaginal sex

Receptive anal sex (bottoming)

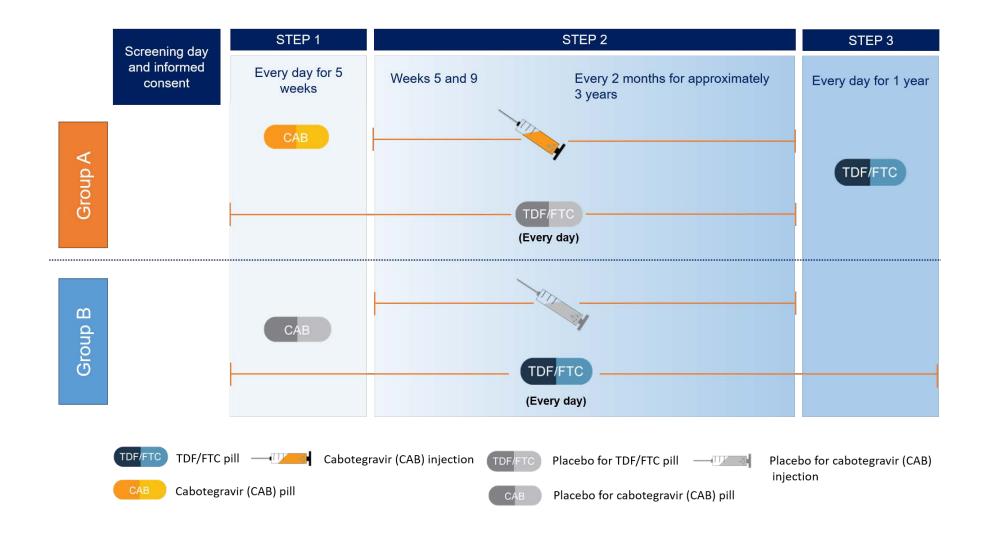
Pregnancy Prevention	HIV Prevention	
Education & behavior modification	Education & behavior modification	
Condoms	Condoms	
Rings	Rings	
Birth control pill & injection	PrEP (oral & injectable)	
"Morning-after pill"	Post-exposure prophylaxis	
Spermicide	Topical microbicides	
Implantable birth control	Broadly neutralizing Abs Implantables	
Vasectomy Tubal Ligation	U=U / TasP Vaccination	

HPTN 083 & 084





Oral FTC/TDF vs Injectable Cabotegravir-LA MSM & TGW (083) and Cisgender Women (084)





Oral FTC/TDF vs Injectable CAB-LA for MSM & TGW

December 2016 - May 2020

4566

at-risk persons (ITT; target N = 5000) 87.5% MSM 12.4% TGW

26

median age (IQR 22-32) 50%

daily FTC/TDF (n=2284)

37%

from US (n=1698)

50%

long-acting injectable CAB (n=2282)

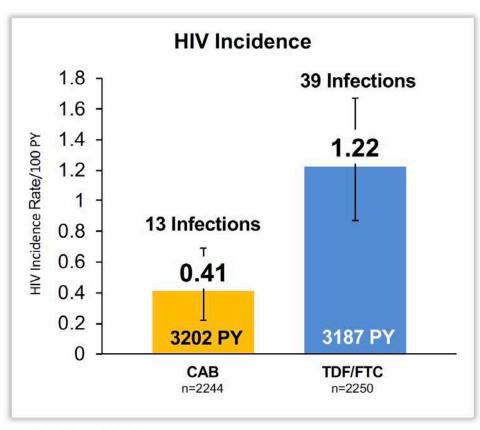
49.8%

of US participants were Black (n=845)



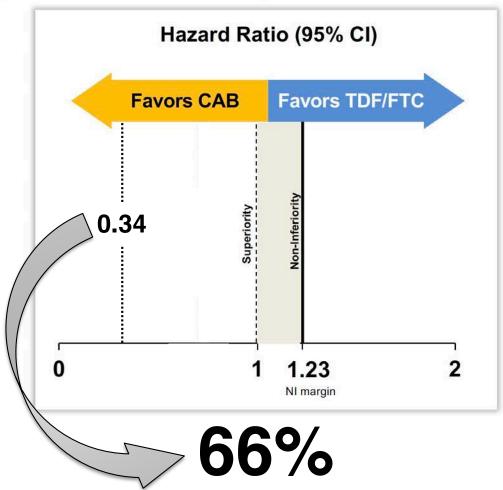
Oral FTC/TDF vs Injectable CAB-LA for MSM & TGW

IM CAB-LA was statistically <u>superior</u> to oral FTC/TDF for preventing HIV



CI, confidence interval

52 infections 6389 PY of follow-up

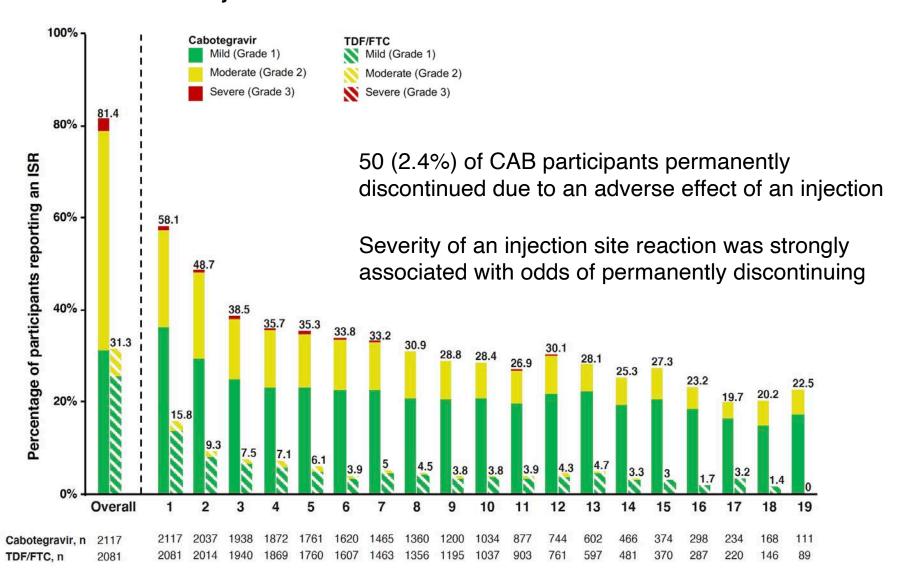


reduced hazard of HIV among CAB recipients, compared with FTC/TDF (95%CI: 18%, 62%; p=0.0005)

Landovitz RJ, et al. AIDS 2020. Abstract OAXLB01 Landovitz RJ, et al. N Engl J Med. 2021 Aug 12;385(7):595-608

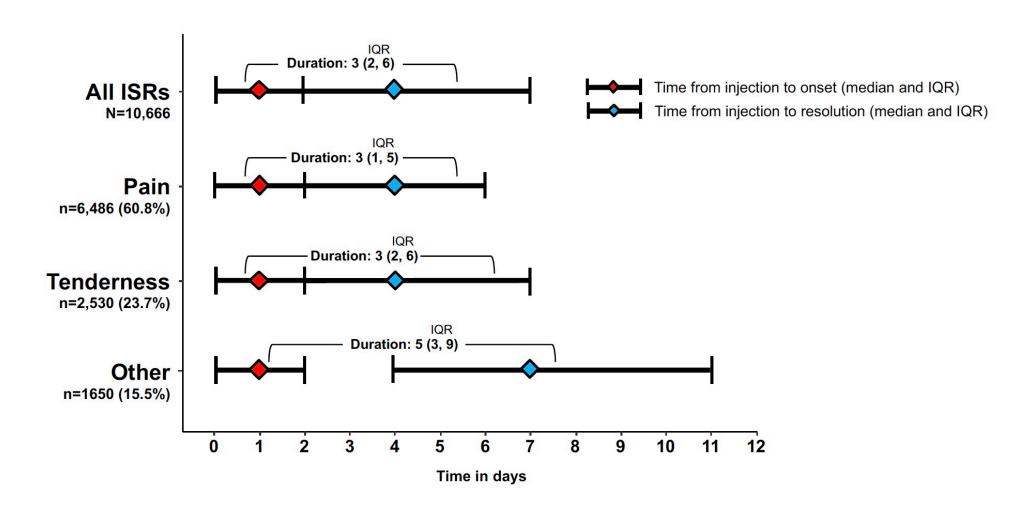


Oral FTC/TDF vs Injectable CAB-LA for MSM & TGW



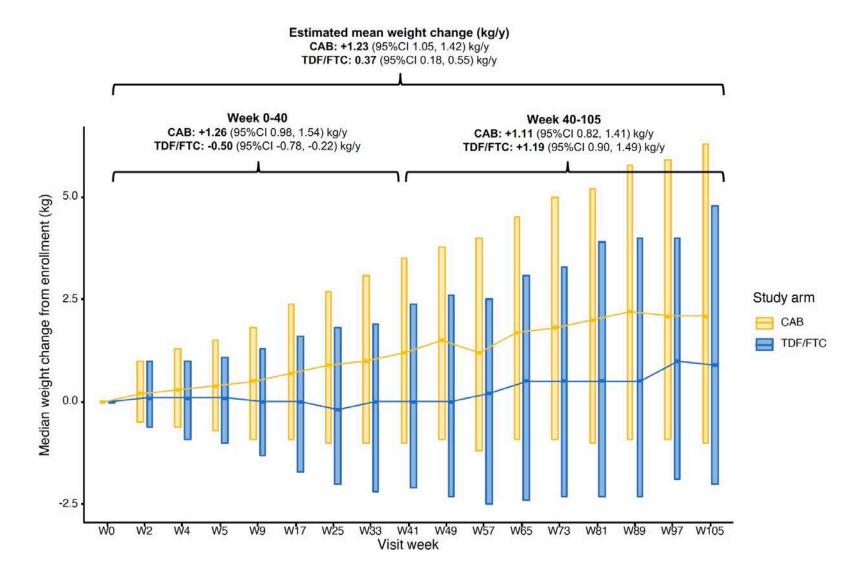


Oral FTC/TDF vs Injectable CAB-LA for MSM & TGW





Oral FTC/TDF vs Injectable CAB-LA for MSM & TGW





Oral FTC/TDF vs Injectable CAB-LA for Cisgender Women

November 2017 – November 2020

3224

at-risk persons
(ITT; target N = 3200)
20 sites in Sub-Saharan Africa

25

median age (IQR 22-30) 50%

daily FTC/TDF (n=1610)

57%

aged 18-25 (n=1837*) 50%

long-acting injecteable CAB (n=1614)

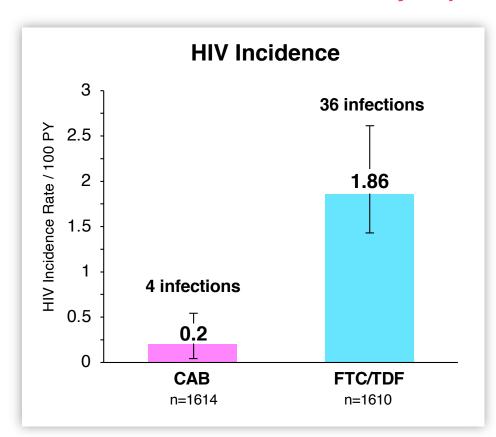
55%

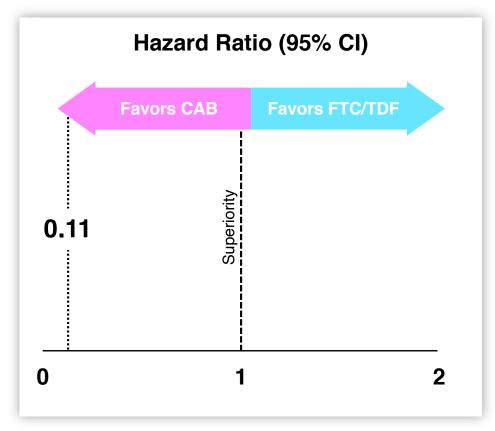
had BMI ≥ 25 (n=1773*)



Oral FTC/TDF vs Injectable CAB-LA for Cisgender Women

IM CAB-LA was statistically superior to oral FTC/TDF for preventing HIV





40 infections 3892 PY of follow-up

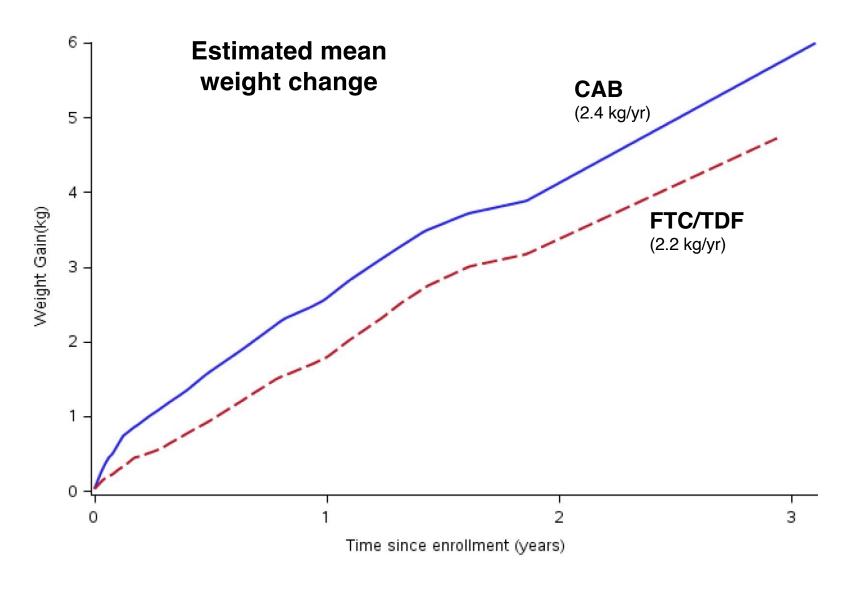
Figures (re)constructed from data presented in Delany-Moretlwe S, et al. R4P 2020. Abstract LB1479

89%

reduced hazard of HIV among CAB recipients, compared with FTC/TDF (95%CI: 69%, 99%; p=0.000027)



Oral FTC/TDF vs Injectable CAB-LA for Cisgender Women



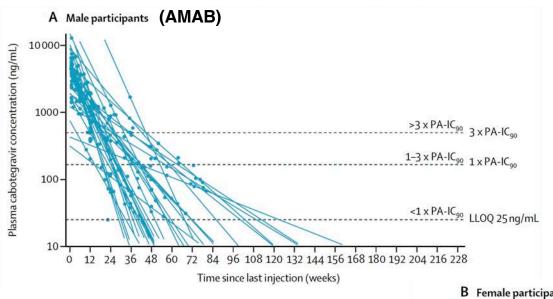
HPTN Cong-acting Injectable For the Epidemic

Oral FTC/TDF vs Injectable CAB-LA for Cisgender Women

	Total (n=50)	CAB (n=29)	FTC/TDF (n=21)
Ongoing (as of Jan 2021)	23	15	8
Known outcomes (n=27)			
Live births	20	10	10
Pregnancy loss			
≥ 37 weeks	0	0	0
20-36 weeks	3	1	2
<20 weeks*	4	3	1
Ectopic	0	0	0
Congenital anomalies (n=27)			
No	23	11	12
Unknown	4	3	1

^{*} includes elective terminations

What about covering the "tail"?



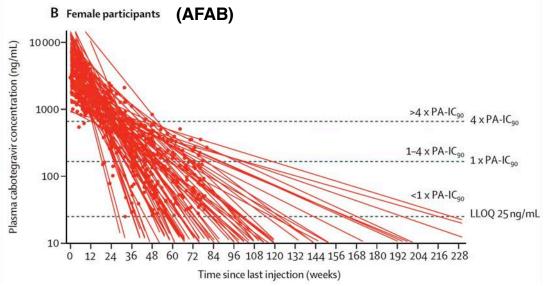
CAB dropped below LLOQ after a median of

10 months

among participants assigned male at birth

15.5 months

among participants assigned female at birth



HPTN 077Landovitz RJ, et al. *Lancet HIV*. 2020;7(7):e472-e481.



Is an oral "lead-in" really necessary?

	TOTAL (n=4566)	TDF-FTC (n=2284)	CAB (n=2282)	p-value
Participants with grade 3+ AEs, n (%)	1490 (32.7%)	766/2282 (33.6%)	724/2280 (31.8%)	
CPK increased	633 (13.9%)	309 (13.5%)	324 (14.2%)	0.51
Creatinine clearance decreased	348 (7.6%)	190 (8.3%)	158 (6.9%)	0.08
Lipase increased	152 (3.3%)	76 (3.3%)	76 (3.3%)	0.99
Creatinine increased	152 (3.3%)	75 (3.3%)	77 (3.4%)	0.87
AST/SGOT increased	122 (2.7%)	69 (3.0%)	53 (2.3%)	0.14
Participants with EAEs and SAEs, n (%)	240 (5.3%)	122 (5.4%)	118 (5.2%)	

11 (0.24%)

7 (0.3%)

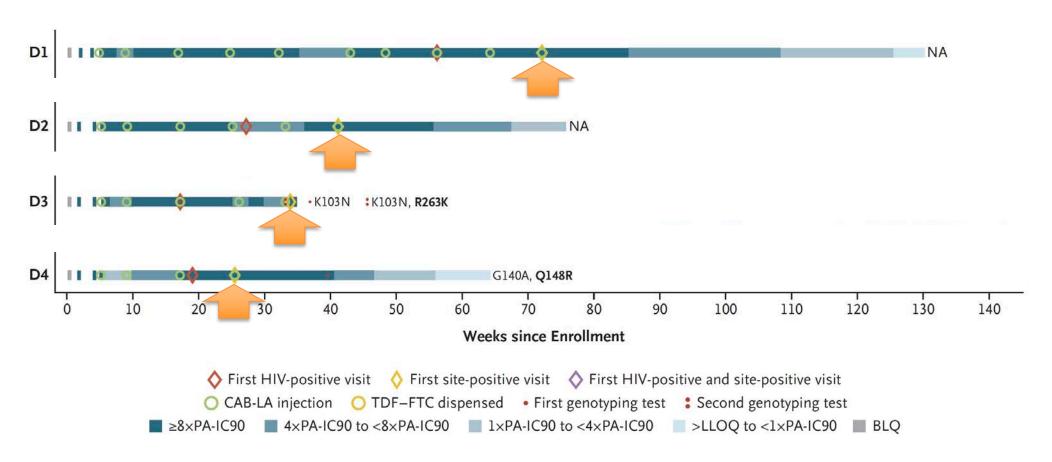
4 (0.2%)

Participant deaths, n (%)



Is Ag/Ab testing sufficient for persons on CAB-LA?

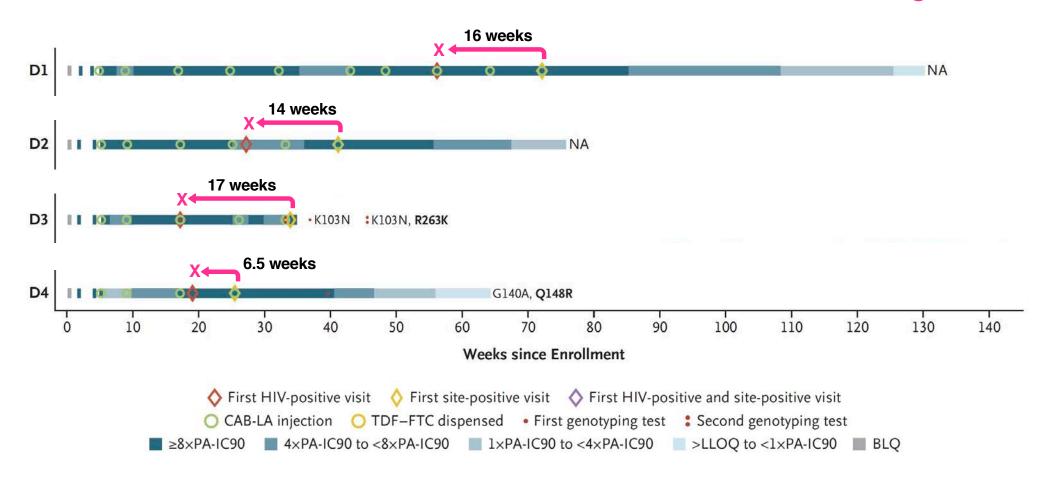
Four infections occurred among participants despite adherence to CAB-LA





Is Ag/Ab testing sufficient for persons on CAB-LA?

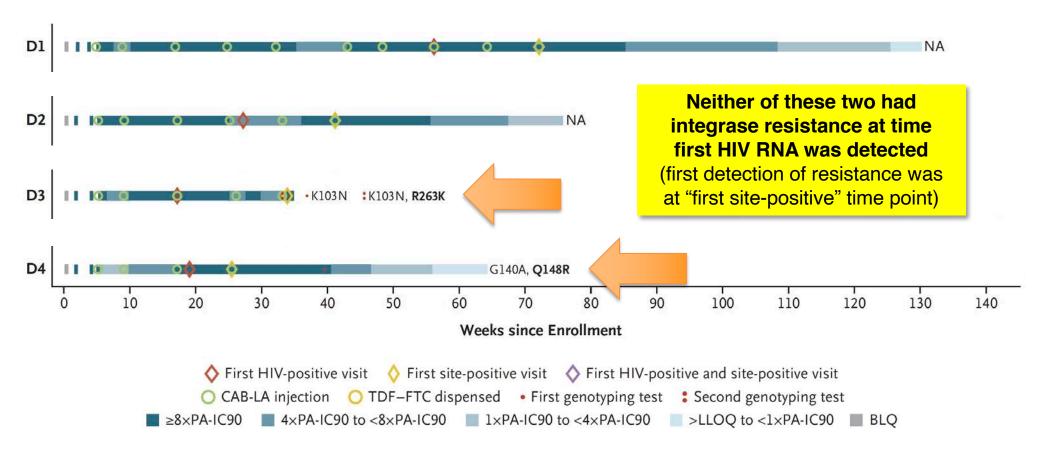
In each case, HIV RNA was detectable SIGNIFICANTLY EARLIER than Ag or Ab





Is Ag/Ab testing sufficient for persons on CAB-LA?

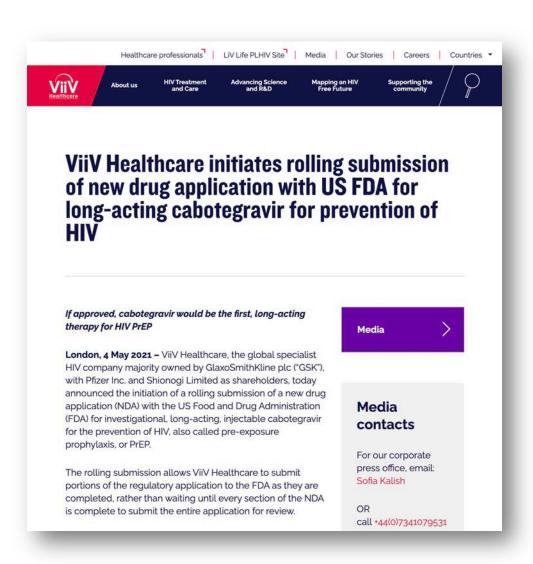
Two of four "breakthrough" infections acquired integrase resistance



What's the timeline for CAB?

- FDA submission opened May 2021
- Final elements submitted to FDA in summer 2021
- Typical timeline is 6 months from final submission to decision

(so Jan/Feb 2022 at latest)



Draft for Public Comment

US Public Health Service

PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES-2021 UPDATE

A Clinical Practice Guideline



Cabotegravir may be "especially appropriate" for HIV-uninfected persons at risk of HIV acquisition* who:

> have significant renal disease

have had difficulty with adherent use of oral PrEP

prefer bimonthly (every 8 week) injections over daily oral dosing

> *no distinction made in draft for sexual vs parenteral exposures (i.e., PWID)

Draft for Public Comment

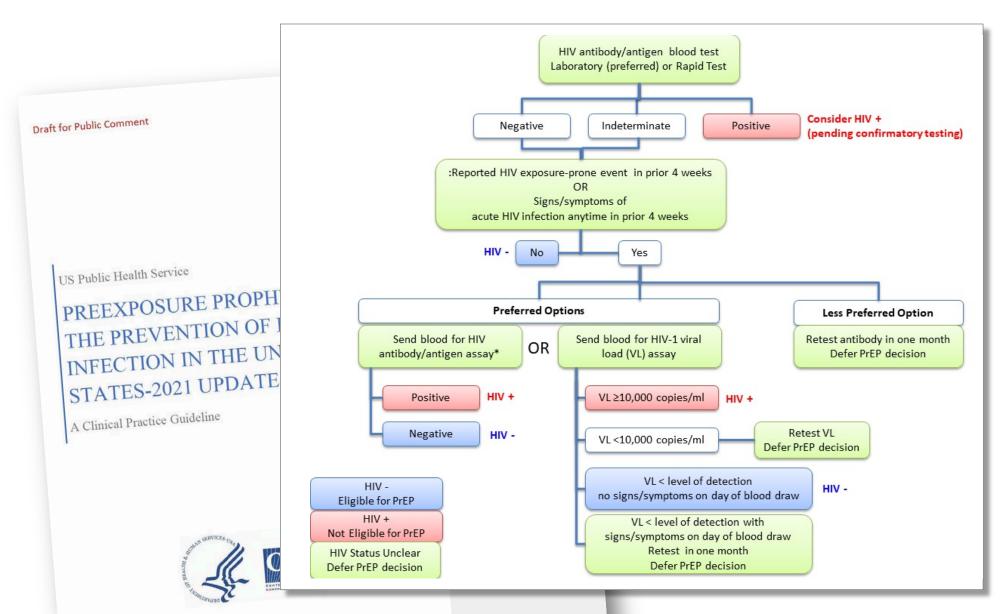
US Public Health Service

PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES-2021 UPDATE

A Clinical Practice Guideline

"Because of the long duration of drug exposure following injection, exclusion of acute HIV infection is necessary with the most sensitive test available, an HIV-1 viral load assay.... within 1 week prior to the initiation visit."





Draft for Public Comment

US Public Health Service

PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES-2021 UPDATE

A Clinical Practice Guideline



"[T]he following tests are NOT indicated before starting CAB injection or for monitoring patients during its use: creatinine, eCrCl, hepatitis B serology, lipid panels, liver function tests."

Draft for Public Comment

US Public Health Service

PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES-2021 UPDATE

A Clinical Practice Guideline



Follow-up visit one month following the first injection is recommended.

After initial follow-up at one month, injections are every 8 weeks thereafter.

There is no option for self-administration.

Draft for Public Comment

US Public Health Service

PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES-2021 UPDATE

A Clinical Practice Guideline



The tail should be addressed, up-front.

Persons initiating CAB must be informed of risks of HIV acquisition and ARV resistance during the tail.

Effective HIV prevention option(s) should be offered for persons stopping CAB, within 8 weeks of last injection - with follow-up for another 12 months.

What's in the pipeline?

Long-acting options are the goal...

NIAID is funding research on 4 types of long-acting HIV prevention.

INTRAVAGINAL RING (IVR)



Polymer ring inserted into the vagina releases antiretroviral drug over time.

IMPLANT



Device implanted in the body releases antiretroviral drug over time.

INJECTABLE

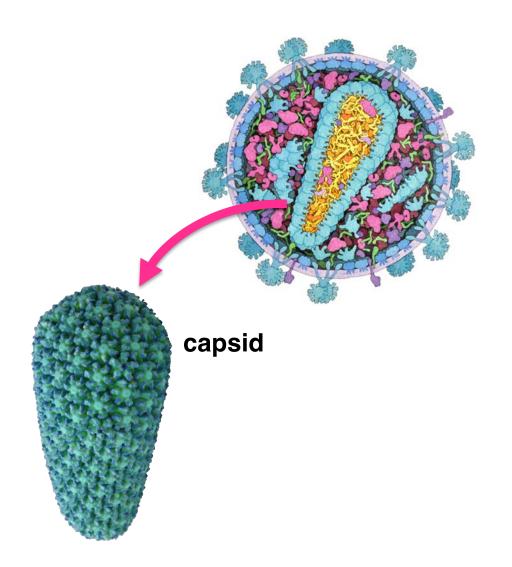


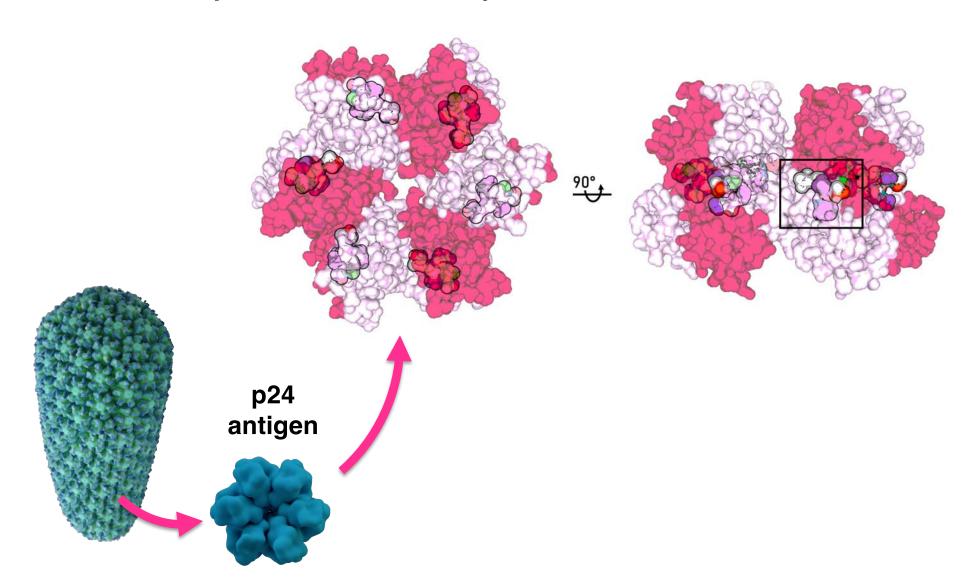
Long-acting antiretroviral drug is injected into the body.

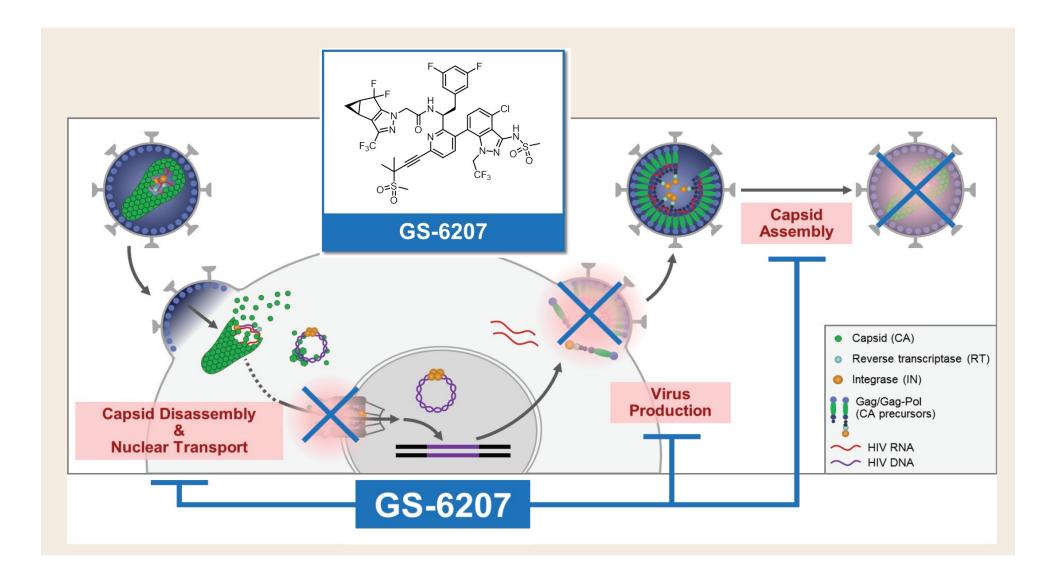
ANTIBODY

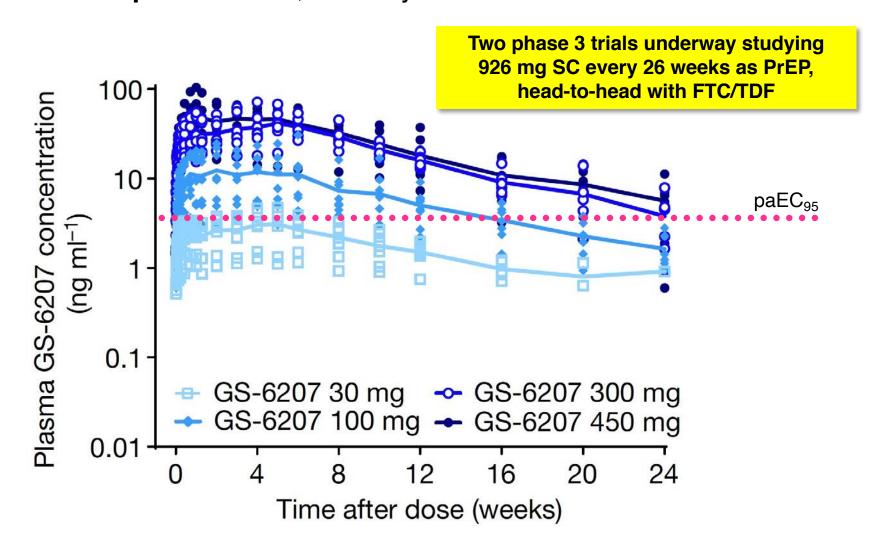


Antibody is infused or injected into the body.



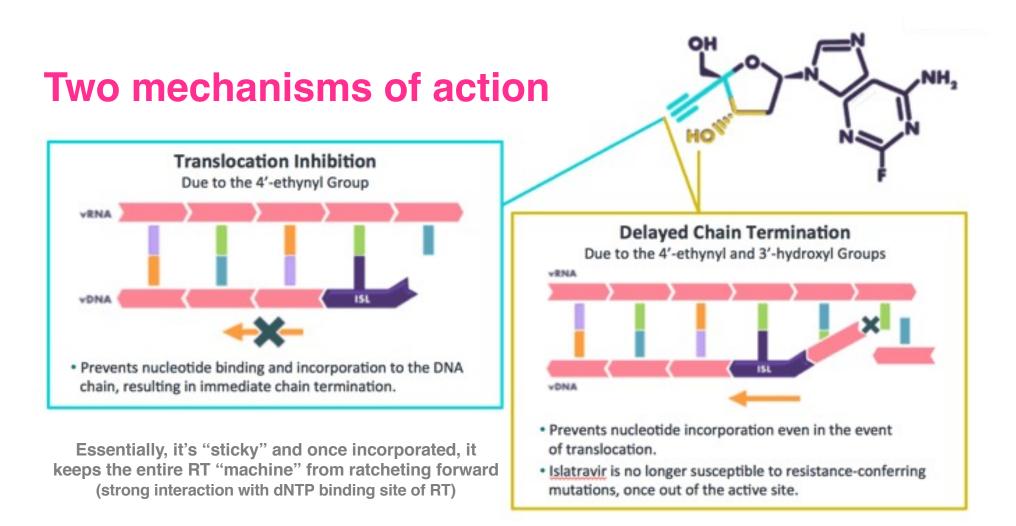




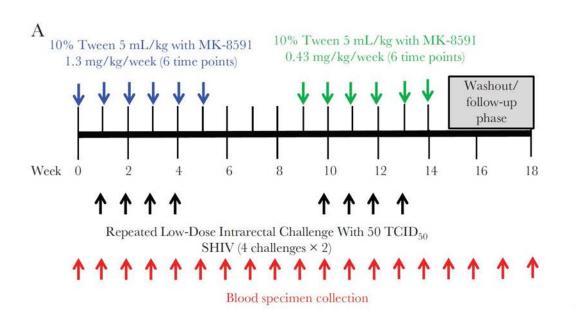


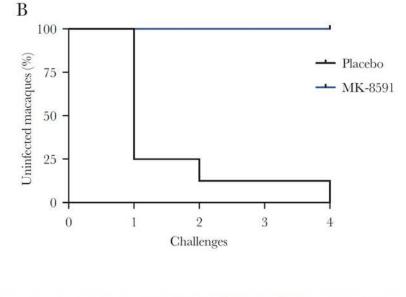
Islatravir

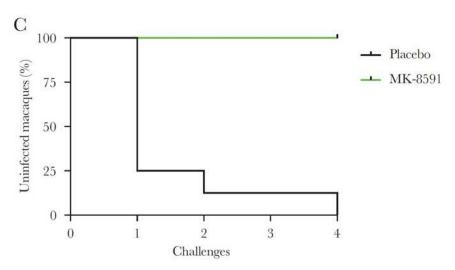
First-in-class nucleoside reverse transcriptase **translocation** inhibitor NRTTI Formerly known as MK-8591 or EFdA

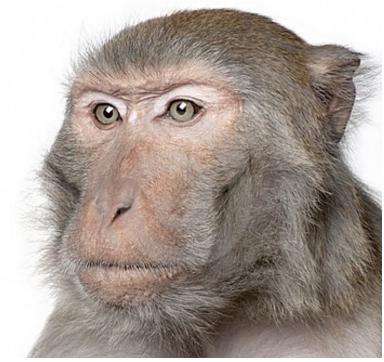


Islatravir PO once weekly protects macaques



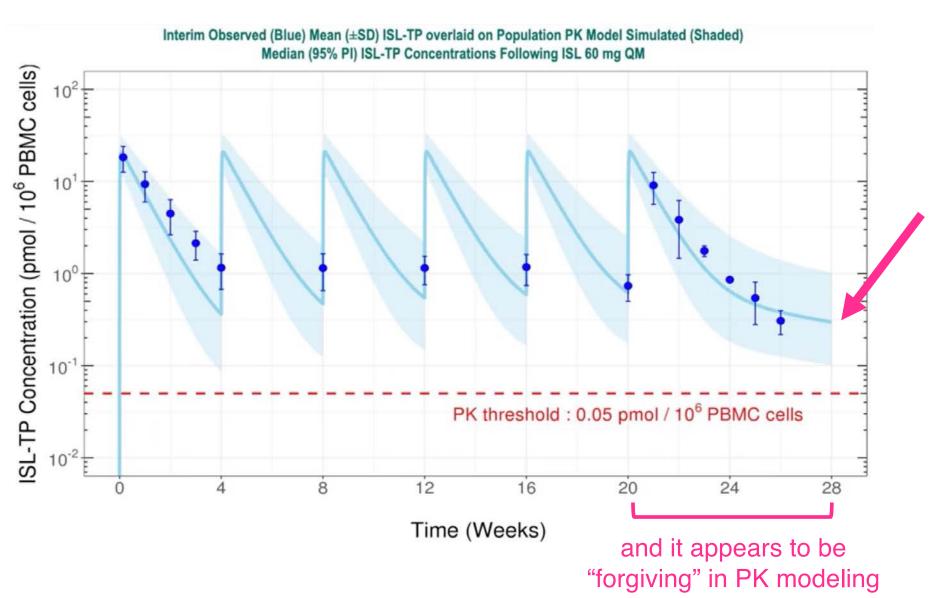






Markowitz M, et al. J Infect Dis. 2020;221(9):1398-1406

Islatravir PO once monthly maintains levels



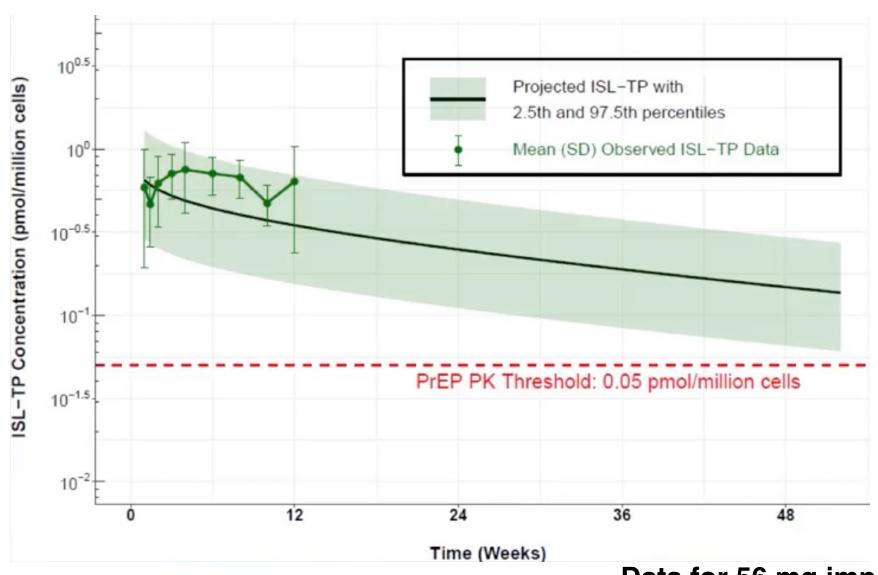
Islatravir prototype similar to Nexplanon





https://www.sfaf.org/collections/beta/islatravir-a-potential-prep-hiv-drug-now-being-tested/

Islatravir-eluting implants may last up to a year

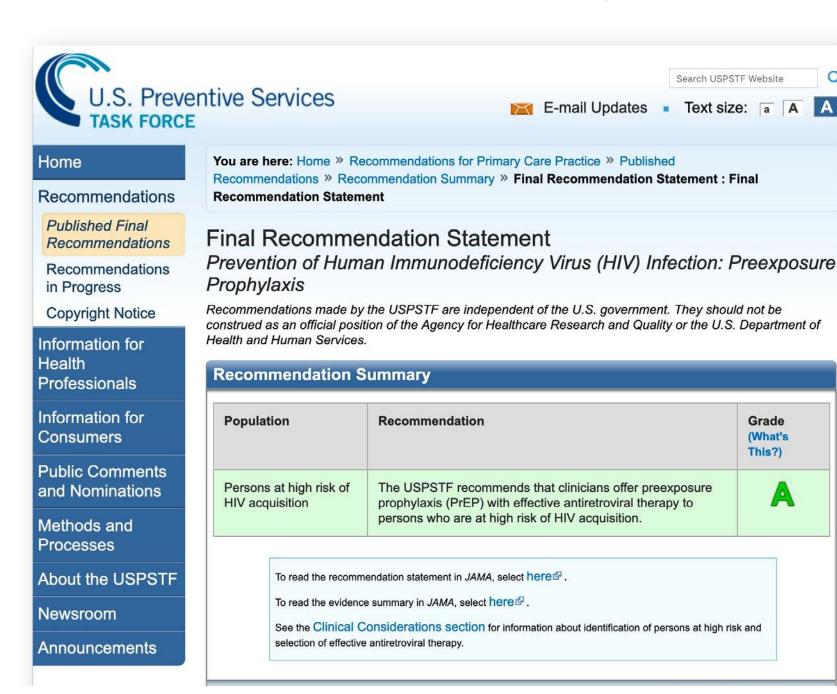


Data for 56 mg implant

One final note...

USPSTF recommends PrEP, June 2019

Q



What impact did this have on access?



August 2015 | Fact Sheet

Preventive Services Covered by Pr the Affordable Care Act

A key provision of the Affordable Care Act (ACA) is the requirement that private insurance plans cover recommended preventive services without any patient cost-sharing.¹ Research has shown that evidence-based preventive services can save lives and improve health by identifying illnesses earlier, managing them more effectively, and treating them before they develop into more complicated, debilitating conditions, and that some services are also cost-effective.2 However, costs do prevent some individuals from obtaining preventive services (Figure 1). The coverage requirement aims to remove cost barriers.

Cost barriers to men
Share of w
Women All
Insured
Uninsured
Less than 200% FPL
200% FPL or greater
Men All
Insured
Uninsured
Less than 200% FPL
200% FPL or greater
NOTE: Among women and m
statistically significant differs
SOURCE: Kateer Family Found

ACA REQUIREMENTS FOR COVERAGE OF PRE

Under Section 2713 of the ACA, private health plans must p and may not impose cost-sharing (such as copayments, dec these services. ³ These requirements apply to all private pla and self-insured plans in which employers contract admin exception of those plans that maintain "grandfathered" sta "grandfathered," plans must have been in existence prior t changes to their coverage (for example, increasing patient

"A key provision of the Affordable Care Act (ACA) is ... private insurance plans cover recommended preventive services without any patient cost-sharing. ... Insurers now must cover evidence-based services for adults that have a rating of "A" or "B" in the current recommendations of the [USPSTF]"

contributions). In 2014, 26% of workers covered in employer specific plans, 4 and it is expected that over time almost all plans will lose their grandfathered status.

The Biden admin removed ambiguity in July '21

https://www.nastad.org/resource/nastad-prep-coverage-brief-prepservices-covered-no-cost-sharing



NASTAD PrEP Coverage Brief: PrEP Services Covered with No Cost-Sharing

Pre-exposure prophylaxis (PrEP) – a once daily antiretroviral medication taken to prevent HIV – is an incredibly effective HIV prevention tool. In light of its effectiveness and safety, in June, 2019, the US Preventive Services Task Force (USPSTF) gave PrEP an "A" grade recommendation, noting that "the USPSTF concludes with high certainty that the net benefit of the use of PrEP to reduce the risk of acquisition of HIV infection in persons at high risk of HIV infection is substantial." This fact sheet will walk through the coverage and cost-sharing requirements for public and private payers that come with

What Does a USPSTF Grade A Recommendation Mean for Coverage and Cost

The Affordable Care Act (ACA) requires commercial health plans and Medicaid expansion programs to cover select preventive services including any service with a Grade A or B from the USPSTF - without costsharing, which means that these services must be covered before any deductible and without coinsurance or a copayment. 1 Now that PrEP has a Grade A recommendation from USPSTF, most commercial health plans and Medicaid expansion programs must cover PrEP without cost sharing as of January 1, 2021.

The list of preventive services that must be covered without cost-sharing is based on the recommendations of several expert bodies, including the USPSTF, which is an independent, volunteer panel of national experts in prevention and evidence-based medicine. The USPSTF works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, and preventive medications. In addition to PrEP, there are other sexual health services that have a USPSTF A or B grade, including screening for HIV, chlamydia, gonorrhea, HBV, HCV, and Syphilis. A list of preventive services is available at healthcare.gov/preventive-care-benefits

What Plans Must Cover PrEP without Cost Sharing? All non-grandfathered commercial health plans are required to cover PrEP services without cost sharing. This includes individual marketplace plans, and small and large group employer-sponsored plans. In addition, state Medicaid expansion coverage programs, including Basic Health Plans, must also cover PrEP without cost sharing.

By 17 September 2021, nongrandfathered health plans will be required to cover PrEP services without cost-sharing (before deductible and without coinsurance or copayment).

- Marketplace plans
- Employer-sponsored plans
- Medicaid
- Medicare provider & lab services

¹ A summary of Section 2713 in the context of HIV, hepatitis, and STI prevention is available at cdc.gov/nchhstp/highqualitycare/preventiveservices

PrEP is defined as the <u>service</u>, not the drug

https://www.nastad.org/resource/nastad-prep-coverage-brief-prepservices-covered-no-cost-sharing



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What's covered?

- HIV testing every 3 months
- Baseline hepatitis B screening
- Baseline and periodic hepatitis C screening
- Creatinine assessments
- Pregnancy testing
- STI screening from exposed anatomical sites
- Adherence counseling
- Medications approved for PrEP

¹ A summary of Section 2713 in the context of HIV, hepatitis, and STI prevention is available at cdc.gov/nchhstp/highqualitycare/preventiveservices

One extra step is needed: modifier 33

https://www.nastad.org/resource/nastad-prep-coverage-brief-prepservices-covered-no-cost-sharing



NASTAD Prep Coverage Brief: Prep Services Covered with No Cost-Sharing

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Just to be on the safe side, append modifier 33 to these encounters!

"When the primary purpose of the service is the delivery of an evidence-based service in accordance with a [USPSTF] A or B rating in effect and other preventive services identified in preventive services mandates ... the service may be identified by adding 33 to the procedure."

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Questions?

Please email me!

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