

PRE-EXPOSURE PROPHYLAXIS FOR HIV

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Disclosures

None





Objectives

- Background of PrEP
- Importance of PrEP in the Southeast
- Provider and patient barriers to PrEP
- PrEP eligibility
- Taking a sexual history
- PrEP prescribing
 - Counseling
 - Adverse effects
 - Lab monitoring
 - Financial aspects





Post-Exposure Prophylaxis - PEP

- Intended to prevent the establishment of HIV infection AFTER exposure has occurred
- Occupational and non-occupational
- Must be started within 72 hours of exposure and continued for 28 days
- Can reduce risk of HIV infection by >80% after exposure





PEP

Regimen:

- Truvada® (TDF/FTC) + raltegravir OR dolutegravir
- Monitoring includes HIV screening at various intervals
 - Baseline
 - 28 days
 - 3 months
 - 6 months





Table 1. Estimated per-act risk for acquiring human immunodeficiency virus (HIV) from an infected source, by exposure act^a

Exposure type	Rate for HIV acquisition per 10,000 exposures			
Parenteral				
Blood transfusion	9,250			
Needle sharing during injection drug use	63			
Percutaneous (needlestick)	23			
Sexual	÷			
Receptive anal intercourse	138			
Receptive penile-vaginal intercourse	8			
Insertive anal intercourse	11			
Insertive penile-vaginal intercourse	4			
Receptive oral intercourse	Low			
Insertive oral intercourse	Low			
Other ^b				
Biting	Negligible			
Spitting	Negligible			
Throwing body fluids (including semen or saliva)	Negligible			
Sharing sex toys	Negligible			
O server to be a set of the set o				

Source: http://www.cdc.gov/hiv/policies/law/risk.html

^a Factors that may increase the risk of HIV transmission include sexually transmitted diseases, acute and late-stage HIV infection, and high viral load. Factors that may decrease the risk include condom use, male circumcision, antiretroviral treatment, and preexposure prophylaxis. None of these factors are accounted for in the estimates presented in the table.

^b HIV transmission through these exposure routes is technically possible but unlikely and not well documented.





I. What is PrEP





PrEP is primary prevention

It is intended to PREVENT the onset of a disease in those who are AT RISK

It is a concept, fulfilled by medication that has been FDAapproved for this purpose





But what is PrEP, really?

Truvada®



- Fixed dose combination of tenofovir disoproxil fumarate (TDF) 300mg/emtricitabine (FTC) 200mg
- Developed by Gilead
- FDA-approved for use as PrEP for adults on June 6, 2012
- FDA-approved for use as PrEP for adolescents on May 15, 2018
- Generic TDF/FTC approved June 2017 (available September 2020)





And now also...

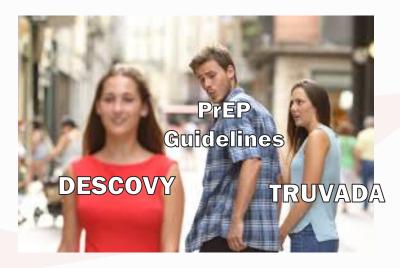
- Descovy®
 - Similar to Truvada®
 - Truvada® = tenofovir disoproxil fumarate (TDF) + emtricitabine
 - Descovy® = tenofovir alafenamide (TAF) + emtricitabine
 - Approved for PrEP October 2, 2019 for non-vaginal sex
 - TAF achieves high intracellular concentrations, but lower (>10-fold) plasma and tissue concentrations than TDF
 - Lower risk of BMD loss and reduced creatinine clearance
 - Can be used in chronic kidney disease (CrCl >30 mL/min)





DISCOVER trial

- 5400 MSM and transgender women
- Randomized to Truvada® vs Descovy®
- Descovy® is non-inferior to Truvada® at 96 weeks
- Adverse events similar
- Descovy® achieved therapeutic levels faster and remained therapeutic longer after discontinuation.



Spinner CD, Brunetta J, Shalit P, et al. DISCOVER study for HIV pre-exposure prophylaxis (PrEP): F/TAF has a more rapid onset and longer sustained duration of HIV protection compared with F/TDF. 10th IAS Conference on HIV Science (IAS 2019), July 21-24, 2019, Mexico City.





Please note:

 While either Descovy® or Truvada® may be used for patient patients, all current national guidelines pertain to Truvada®. For the sake of this talk, I will mainly discuss Truvada®.

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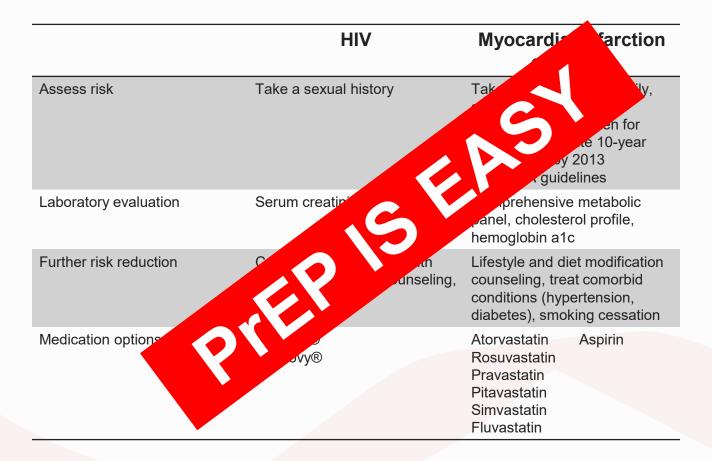
Primary Prevention

	HIV	Myocardial infarction or Stroke	
Assess risk	Take a sexual history	Take a past medical, family, social history, check cholesterol and screen for diabetes, calculate 10-year ASCVD risk by 2013 ACC/AHA guidelines	
Laboratory evaluation	Serum creatinine, HIV screen	Comprehensive metabolic panel, cholesterol profile, hemoglobin a1c	
Further risk reduction	Condom use, sexual health and substance use counseling, STI screening	Lifestyle and diet modification counseling, treat comorbid conditions (hypertension, diabetes), smoking cessation	
Medication options	Truvada® Descovy®	Atorvastatin Aspirin Rosuvastatin Pravastatin Pitavastatin Simvastatin Fluvastatin	





Primary Prevention





PrEP is a PROGRAM

- Not only HIV prevention
- Involves comprehensive sexual healthcare
 - Screening and treatment for STIs
 - Hepatitis A and B vaccination
 - Counseling on STI prevention strategies







Efficacy studies summary

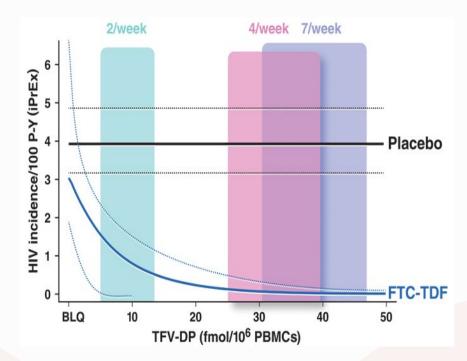
Study	Population	Dosing	Risk Reduction
iPrEX	MSM	Daily	44% (92% with ideal adherence)
TDF2	Heterosexual men and women	Daily	62.2% (100% in open-label extension with regular follow- up)
Partners	Sero-discordant heterosexual couples	Daily	75% (90% with ideal adherence)
Bangkok Tenofovir Study Group	Intravenous drug users	Daily	48.9% (74% with ideal adherence)
IPERGAY	MSM	On-demand	86%







Dosing matters



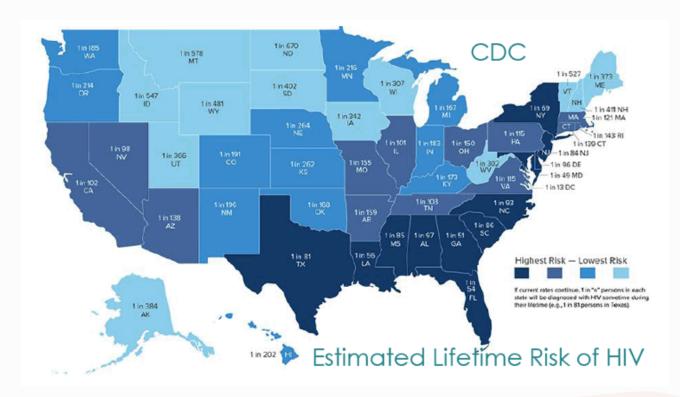
- Using drug concentrations in iPrEX and STRAND, pharmacokinetic models predict:
 - 76% risk reduction with 2 doses/week
 - **96%** with 4 doses/week
 - 99% with 7 doses/week.





II. Why PrEP Matters





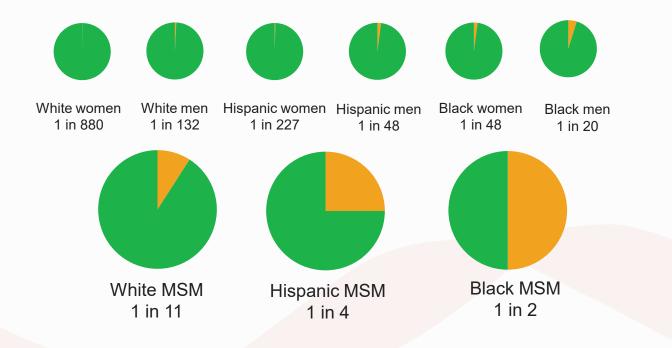
The Southeast remains the region with the highest HIV incidence, which can be markedly reduced with widespread use of pre-exposure prophylaxis (PrEP) among high-risk individuals.







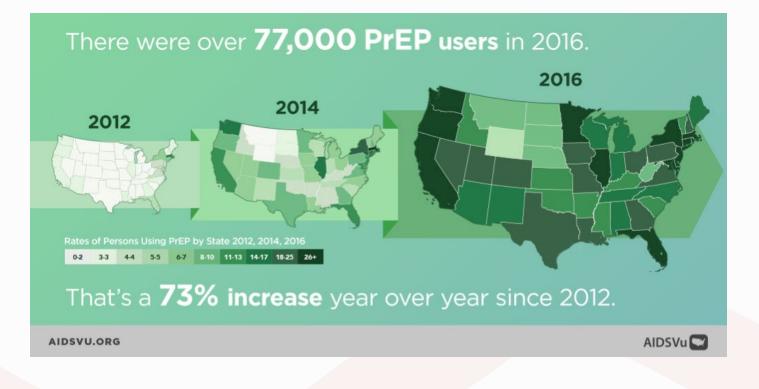
HIV Risk by Race/Ethnicity and MSM





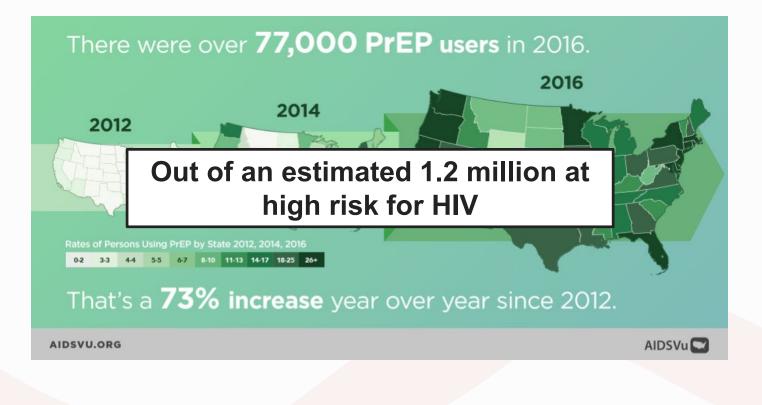








PrEP use







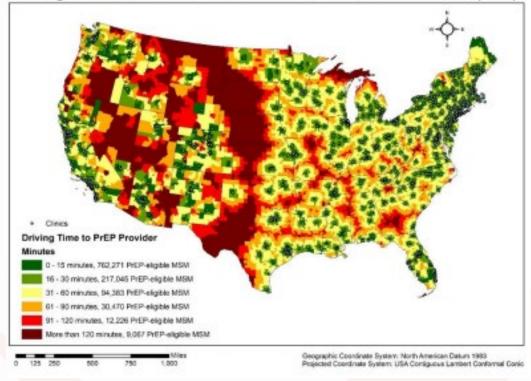






PrEP Deserts

Driving Time to Nearest PrEP Provider for men who have sex with men (MSM)



- Most MSM with reduced geographic access to PrEP providers ("PrEP deserts") reside in the South.
- Over 50% of MSM in the South must drive >60 minutes to a PrEP provider.
- PrEP deserts are generally non-urban areas.

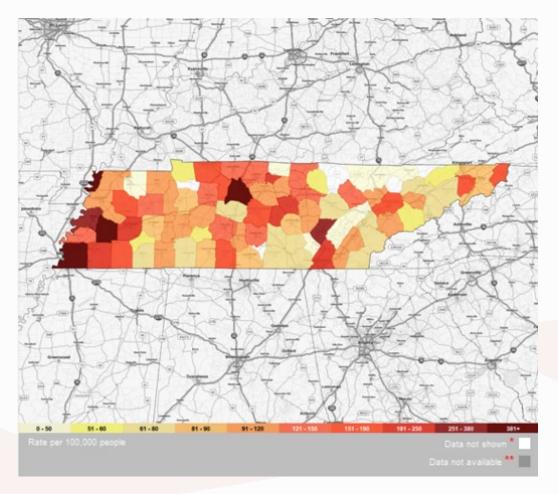
Weiss K, et al. Access to PrEP clinics among US MSM: documenting PrEP deserts. Conference on Retroviruses and Opportunistic Infections, Abstract 1006; March 4–7, 2018, Boston, Massachusetts





Tennessee

HIV risk and location of PrEP providers



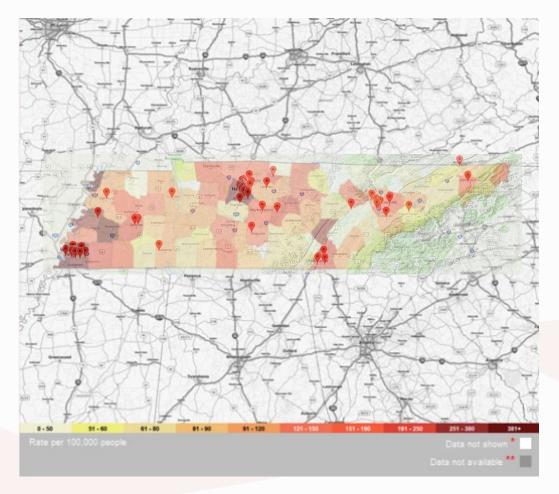


<u>https://aidsvu.org/state/tennessee/</u> https://getpreptn.com/get-pr<mark>ep/#map_top</mark>



Tennessee

HIV risk and location of PrEP providers





<u>https://aidsvu.org/state/tennessee/</u> https://getpreptn.com/get-pr<mark>ep/#map_top</mark>



Barriers to PrEP





PrEP sounds amazing!

So why aren't we using it?







Stigma

A preventative measure against the consequences of sexual activity

... condones sexual activity

... promotes sexual activity

... causes sexual activity







Sexual risk compensation

- PrEP users will engage in higher risk sex than they previously had.
- This increased unsafe sex will undermine prevention efforts.
- Higher rates of bacterial STIs diagnosed among PrEP users may falsely support this.
 - PrEP users are screened for bacterial STIs frequently due to follow-up requirements.
- On a population level, sexual risk compensation is a fallacy.































As a society, we treat HIV-related health care activities differently.

As healthcare providers, we need to accept our responsibility to protect our patients.





III. PrEP eligibility





	Summary of Gui	dance for PrEP Use						
	Men Who Have Sex With Men	Heterosexual Women and Men	Injection Drug Users					
Detecting substantial risk of acquiring HIV infection:	 Sexual partner with HIV Recent bacterial STD High number of sex partners History of inconsistent or no condom use Commercial sex work 	Recent bacterial STD High number of sex partners History of inconsistent or no condom use no condom use History of inconsistent or no condom use no condom use History of inconsistent or no condom use no condom use no condom use History of inconsistent or no condom use no condom use						
Clinically eligible:	 No signs/symptoms of Normal renal function, 	 Documented negative HIV test before prescribing PrEP No signs/symptoms of acute HIV infection Normal renal function, no contraindicated medications Documented hepatitis B virus infection and vaccination status 						
Prescription	Daily, continuing	g, oral doeses of TDF/FTC (Truvada),	≤90 day supply					
Other services:	 Follow-up visits at least every 3 months to provide: HIV test, medication adherence counseling, behavioral risk reduction support, side effect assessment, STD symptom assessment At 3 months and every 6 months after, assess renal function Every 6 months test for bacterial STDs 							
	Do oral/rectal STD testing	 Assess pregnancy intent Pregnancy test every 3 months 	 Access to clean needles/ syringes and drug treatment services 					

Source: US Public Health Service. Preexposure prophylaxis for the prevention of HIV infection in the United States -2014: a clinical practice guideline.



https://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf http://www.gilead.com/~/media/Files/pdfs/medicines/hiv/truvada/truvada_medication_guide.pdf

	Men Who Hav	e Sex With Men	Heterosexual Women and Men	Injection Drug Users	
Detecting substantial risk	 Sexual p 		HIRI-MSM	Risk Index*	
of acquiring HIV infection:	 Recent b High nur 	1	How old are you	<18 years	score 0
	partners		today (yrs)?	18–28 years	score 8
	 History of 			29-40 years	score 5
	no condi			41–48 years	score 2
	 Commer 			≥49 years	score 0
		2	How many men have	>10 male partners	score 7
			you had sex with	6-10 male partners	score 4
Clinically eligible:	• Do		in the last 6 months?	0-5 male partners	score 0
	• No	3	In the last 6 months,	1 or more times	score 10
Protociation	• Noi • Doi		how many times did you have receptive anal sex (you were	0 times	score 0
Prescription			the bottom) with a man?		
Other services:	• Foll	4	How many of your male	>1 positive partner	score 8
	 HIV 	0000	sex partners were	1 positive partner	score 4
	side		HIV positive?	<1 positive partner	score 0
	• At 3	5	In the last 6 months,	5 or more times	score 6
	• Eve		how many times did	0 times	score 0
	Do oral/re		you have insertive anal sex (you were the top) with a man who was HIV positive?		
ource: US Public Health Service. P	reexposure proph	6	In the last 6 months, have	Yes	score 5
			you used methamphetamines such as crystal or speed?	No	score 0
		7	In the last 6 months,	Yes	score 3
			have you used poppers (amyl nitrate)?	No	score 0
				Add down entries in right column to calculate total score	Total score†

*To identify sexually active MSM in their practice, we recommend clinicians ask all their male patients a routine question: "In the past (time) have you had sex? (if yes), with men, women, or both?"

†If score is 10 or greater, evaluate for PrEP or other intensive HIV prevention services; If score is 9 or less, provide indicated standard HIV prevention services.



https://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf

	Men Who Have	Sex With Men	Heterosexu	ual Women and Men Injection Drug Users
Detecting substantial risk	 Sexual p 	50 1.7		HIRI-MSM Risk Index*
of acquiring HIV infection:	 Recent b High nur 	1	How old an	re you <18 years score 0
	partners		today	· ·
	 History d 			
	no condi			Medication Guide
	 Commer 			TRUVADA® (tru-VAH-dah)
		2	How ma	(emtricitabine and tenofovir disoproxil fumarate)
			you h	tablets
Clinically eligible:	• Do		in the	Read this Medication Guide before you start taking TRUVADA and each time you get a refill. There may be new information. This information does not take the place of talking to your healthcare provider about your medical condition or
	- No	3	In the las	your treatment.
	• Noi • Doi		how n did yo	This Medication Guide provides information about two different ways that TRUVADA may be used (see the Medication Guide section "What is TRUVADA?" for important information about how TRUVADA may be used):
	00		anal s	to treat Human Immunodeficiency Virus-1 (HIV-1) infection, and
Prescription			the bo	 to reduce the risk of getting HIV-1 infection in adults who are HIV-negative
Other services:	• Foll	4	How ma	HIV is the virus that causes AIDS (Acquired Immune Deficiency Syndrome).
	• HIV		sex pa	What is the most important information I should know about TRUVADA?
	side		HIV F	If you also have hepatitis B virus (HBV) infection and take TRUVADA, your hepatitis B may become worse if you
	• At 3	5	In the las	 stop taking TRUVADA. Do not stop taking TRUVADA without first talking to your healthcare provider.
	• Eve		how n	 Do not run out of TRUVADA. Refill your prescription or talk to your healthcare provider before your TRUVADA is all
	 Do oral/re 		you h	gone.
			sex (y with a	 If your healthcare provider stops TRUVADA, your healthcare provider will need to watch you closely for several months to check your hepatitis B infection, or give you a medication to treat hepatitis B.
			HIV F	Tell your healthcare provider about any new or unusual symptoms you may have after you stop taking TRUVADA.
ource: US Public Health Service. P	reexposure proph	6	In the las	For more information about side effects, see the section "What are the possible side effects of TRUVADA?" in this Medication Guide.
			you u	Other important information for people who take TRUVADA to help reduce their risk of getting HIV-1 infection:
			such a	Before taking TRUVADA to reduce your risk of getting HIV-1 infection:
		7	In the las	• You must be HIV-negative to start TRUVADA. You must get tested to make sure that you do not already have
			have y (amyl	HIV-1 infection.
			(any)	Do not take TRUVADA to reduce the risk of getting HIV-1 unless you are confirmed to be HIV-negative. Many HIV-1 tests can miss HIV-1 infection in a person who has recently become infected. If you have flu-like
				symptoms, you could have recently become infected with HIV-1. Tell your healthcare provider if you had a flu-like
				illness within the last month before starting TRUVADA or at any time while taking TRUVADA. Symptoms of new HIV-1 infection include:
			*To identify	o tiredness o sore throat
		thei	r male patier	 fever vomiting or diarrhea
		mer	n, women, o	joint or muscle aches o rash or greater, evaluate for PrEP or other intensive HIV prevention

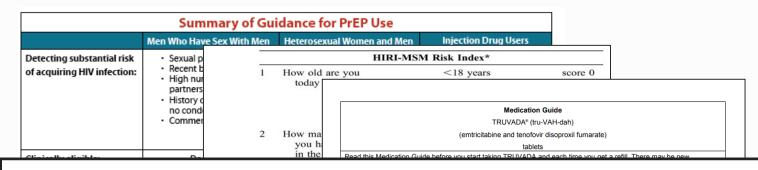


	Sum	mary of Gu	idance foi	r PrEP Use				
		e Sex With Men		al Women and Men	Injection Drug Users		-	
Detecting substantial risk	 Sexual p 	50 1		HIRI-MSM	Risk Index*	94 14		
of acquiring HIV infection:	Recent b High nur partners History o no cond	1	How old ar today	re you	<18 years Medication G	score 0		7
	Commer	2	How ma you h		TRUVADA [®] (tru-V (emtricitabine and tenofovir tablets	,		
Clinically eligible:	• Do • No • No • Do	3	in the In the lat how n did yc anal s	information. This informatio your treatment. This Medication Guide prov Guide section "What is TR	e before you start taking TRUVADA an in does not take the place of talking to vides information about two different wi 'UVADA?" for important information al bodeficiency Virus-1 (HIV-1) infection, a	your healthcare prov ays that TRUVADA n bout how TRUVADA	vider about your medical condition o may be used (see the Medication	r.
Prescription Other services:	Foll HIV side At 3	4	the bo How ma sex pa HIV p	• to reduce the risk of ge HIV is the virus that causes What is the most importa	tting HIV-1 infection in adults who are AIDS (Acquired Immune Deficiency S nt information I should know about B virus (HBV) infection and take TR	HIV-negative yndrome). TRUVADA?	titis B may become worse if you	
	Eve Do oral/re	5	In the lat how r you h sex (y with a HIV r	1. Men who have	ommends the following person e sex with men, are sexually ac ordant sex partner (i.e., a sex p	tiv <mark>e</mark> , and have o	ne of the following character	ristics:
iource: US Public Health Service. P	reexposure proph	6 7	In the lat you u such a In the lat have y (amyl	Med oth Bef 2. Heterosexual v • A serodisco	xually transmitted infection (ST t use of condoms during recep women and men who are sexu ordant sex partner (i.e., a sex p t use of condoms during sex w	tive or insertive a ally active and h artner living with	anal sex have one of the following chan h HIV)	racteristics:
		me	*To identify ir male patier n, women, o †If score is 10 vices; If score is	drugs or bis A recent ST 3. Persons who i 3. Persons who i 4. Share drug	The second of th	e following chara		ind who is at high risk (e.g., a person who hije

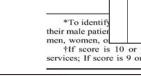
https://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf







<u>Anyone with high risk for HIV acquisition</u>, as determined by the patient's and/or provider's assessment, in which the risk of Truvada[®] does not outweigh the benefit.



· A recent STI with syphilis or gonorrhea

3. Persons who inject drugs and have one of the following characteristics:

- Share drug injection equipment
 - Are at risk of sexual acquisition of HIV (see above)

https://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf





What about U=U?







U=U

- Those who have an undetectable viral load have effectively no risk of transmitting the virus.
- This is a consensus of HIV experts worldwide, CDC, NIH, IDSA/HIVMA, common knowledge in the medical community.
- Combined data from 4 studies (HPTN 052, OPPOSITES ATTRACT, PARTNER and PARTNER2)
 - Among sero-discordant couples where the partner living with HIV had a durably undetectable viral load:
 - zero transmission among over a hundred thousand condomless sex acts
 - Results similar in both male-female and male-male partnerships





U=U

Is PrEP necessary in this situation?

- Consider *durable* viral suppression
 - Contributing factors include adherence, history of virologic failure, follow-up interval of the HIV-positive person
- Consider non-monogamous sex
 - In U=U studies, HIV transmissions DID occur, but were linked to sex between HIV-negative participant and HIV-positive individual not involved in the study
- <u>Always</u> weigh risks and benefits





HIV risk is behavioral, individual, transitional The only way to know is to ask (and listen)!





IV. The sexual history (Many providers don't do this, even though it is a crucial job requirement)





Barriers to the Sexual History

- Lack of time
- Uneasiness of clinicians and patients with a difficult and sensitive subject
- Belief it is irrelevant
- Belief it is someone else's job
- Fear of offending the patient
- Medical/nursing school curricula design





Barriers to the Sexual History

- What are your barriers to taking a sexual history?
- How can you overcome those barriers?

As healthcare providers, we need to accept our responsibility to protect our patients.







Sexual History Misconceptions

- The problems with labeling
 - "Married persons do not acquire STIs"
 - "Persons who identify as "straight" only have sex with those of the opposite gender"
 - "Persons who identify as "gay" or "lesbian" only have sex with those of the same gender"
- Persons will an STI will have symptoms
- Persons will voice sexual concerns without prompting





Effective Communication Skills

- Consider prefacing the sexual history with a short introduction.
- Start with open-ended questions
- Use closed-ended questions to elicit specific information





- Preface
 - "The rates of sexually transmitted infections continue to increase, especially here in the South. In order to screen you correctly, prevent STIs and keep you healthy, it's important for me to know how you have sex and with whom."
 - "Gonorrhea and chlamydia can also live in our rectums and throats, so it's important for us to test anywhere you might have had an exposure."





- "About how many partners have you had in the past 6 months?"
- "Do you have sex with men, women or both?"
- "Are you a top, bottom, or vers?"
 - Top = anal insertive
 - Bottom = anal receptive
 - Vers/versatile = both insertive and receptive
- "Do you have oral sex?"
- "What do you do to prevent STDs?"
- "Are you trying to prevent pregnancy? What do you use for contraception?"
- "Do you use condoms? What percentage of the time would you say you use condoms?"





- "Are any of your partners HIV-positive?"
 - If so, "do you know if they're undetectable?"
- "Have any of your partners recently had an STD?"
- "Have you ever had an STD"
- "Have you ever had HIV or STD testing?"





- "Do you ever use drugs, like poppers or meth, when you have sex?"
- "Do any of your partners make you scared or feel unsafe?"
- "Do you ever have to use sex for things you need, like food or to pay pills?"



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- Also a great time to discuss travel!
- Many people meet sexual partners, or have sex with partners other than long-term partner, during travel







Interactive Cases!







Case 1 - Mark

- 34-year-old man presenting for routine annual history and physical. He has been followed by this provider since he was 19.
- Fourth of seven children. Raised Baptist, participates in fundraising for his church.
- Originally from Johnson City, TN. Moved to Nashville for college, studied marketing at Belmont.
- Works in digital marketing for a healthcare start-up in Nashville.
- Travelled to Las Vegas for a bachelor party in September 2019, no other recent travel.
- Drinks 5-10 drinks/week (usually only on weekends), does not smoke cigarettes, smokes marijuana occasionally, no other recreational drugs.
- Identifies as heterosexual. Has had sex with both men and women. He has a girlfriend of two years, and has had sex with three different men (one time each) during the past two years (once without a condom). He met these partners on the dating app Grindr. He has had both anal insertive and receptive sex. He has not disclosed these other partners to anyone. He went a Walgreens walk-in clinic last year for STI testing, had negative urine gonorrhea/chlamydia, syphilis and HIV testing. He's otherwise never undergone STI testing.







Case 2 - Elle

- 28-year-old woman presenting with dysuria, urinary urgency, and hesitancy consistent with urinary tract infection. This is her first visit to this provider.
- She has no siblings, has not spoken with her parents since she was 16.
- Her highest level of education is 10th grade.
- She has not recently travelled outside of Middle Tennessee.
- She does not drink alcohol, and smokes 1/2 pack per day.
- She has injected opioids and methamphetamines since she was 15. She has been to multiple intense outpatient rehabilitation programs and is usually able to maintain sobriety for 1-2 years after each program. She most recently relapsed 3 months ago and has been injecting heroin or taking prescription opiates daily since then. The injectable heroin is usually prepared for her, so she is not certain if the syringes had been previously used. She has traded sex for opiates, as well as a place to stay and money to pay her bills. She experienced intimate partner violence one month ago by the man she was living with who procures her opiates (who she considered her boyfriend), which resulted in a rib fracture. She now lives with her cousin but is afraid she will be kicked soon due to her opiate use.







Case 3 - Ben

- 21-year-old man presenting for 3 days of urethral discharge. He established with this student health provider two years ago.
- He is a junior in college studying political science.
- No recent travel, but planning to go to Miami with friends on Spring Break.
- He drinks up to 15 drinks/week (usually on weekends). He has used cocaine, marijuana, and MDMA several times in the past 3 months. He does not smoke cigarettes.
- He identifies as gay. He has had seven male partners in the past 6 months. He knows most of these partners, and inquires about their HIV statuses. One of them is HIV-positive, engaged in care and undetectable, the rest are believed to be HIV-negative. His sexual debut was at age 18. He identifies as "vers" (anal insertive and receptive). He has a history of rectal gonorrhea last year and early syphilis two years ago. He uses condoms "80%" of the time. He typically undergoes HIV screening and STI testing every 6 months at the health department. He knows about PrEP but has financial concerns about starting it. He is on his parent's insurance, so is worried that STI screening, treatment and PrEP-associated charges will be apparent on bills sent to his parent's house. He worries that if his parents find out he is gay, he will be financially cut-off.





IV. PrEP medication counseling



PrEP Medication Counseling

- Dosing
 - One tab daily, with or without food
- Adherence, and its relationship to efficacy
- Time to effectiveness
 - 7-10 days for men, 21 days for women
 - Barrier protection especially needed during that time
- Adverse effects
 - Nausea, vomiting, diarrhea, loss of appetite, weight loss
 - Fatigue, headache
- Requirements for monitoring
- Refill process
 - "Call when you have 7-10 days left"



V

Adverse Events

Adverse Event	TDF-FT (N=611		Placebo (N = 608	P Value†	
	no. of participants (%)	no. of events	no. of participants (%)	no. of events	
Any	557 (91.2)	4357	536 (88.2)	4390	0.003
Any serious	63 (10.3)	68	66 (10.9)	79	0.90
Grade 3 or 4 only	19 (3.1)	21	29 (4.8)	32	0.17
At least possibly related to study drug	20 (3.3)	21	27 (4.4)	29	0.35
Upper respiratory tract infection	231 (37.8)	385	241 (39.6)	439	0.84
Headache	227 (37.2)	390	226 (37.2)	411	0.73
Dizziness	92 (15.1)	109	67 (11.0)	82	0.03
Abdominal pain	155 (25.4)	215	156 (25.7)	217	0.78
Nausea	113 (18.5)	132	43 (7.1)	48	< 0.001
Vomiting	69 (11.3)	87	43 (7.1)	47	0.008
Diarrhea	76 (12.4)	93	65 (10.7)	76	0.22
≥5% Weight loss	75 (12.3)	113	61 (10.0)	72	0.13
Back pain	57 (9.3)	72	68 (11.2)	90	0.37
Rash	39 (6.4)	44	42 (6.9)	48	0.81
Fracture	7 (1.1)	7	6 (1.0)	8	0.74
Elevated creatinine	1 (0.2)	1	0	0	1.00
Hypophosphatemia	142 (23.2)	219	159 (26.2)	245	0.65
Hyperamylasemia	315 (51.6)	997	302 (49.7)	1017	0.45
Elevated AST	36 (5.9)	43	38 (6.2)	42	0.90
Elevated ALT	38 (6.2)	48	43 (7.1)	66	0.57
Death‡	2 (0.3)	2	4 (0.7)	4	0.45

* ALT denotes alanine aminotransferase, and AST aspartate aminotransferase.

† All P values were calculated with the use of a time-to-first-event analysis (regression analysis of survival data on the basis of the Cox proportional-hazards model), with the exception of the P values for weight loss of 5% or more and death, which were calculated with the use of Fisher's exact test.

the causes of death in the TDF-FTC group were motor vehicle accident (one participant) and suicide (one); the causes of death in the placebo group were motor vehicle accident (two), homicide (one), and cerebrovascular accident (one).



V

Adverse Events

	Table 2. Adverse Events, According to Treatm	ent Group.*						
	Adverse Event	TDF-FT (N=611		Placebo (N = 608		P Value;		
		no. of participants (%)	no. of events	no. of participants (%)	no. of events			
	Any	557 (91.2)	4357	536 (88.2)	4390	0.003		
	Any serious	63 (10.3)	68	66 (10.9)	79	0.90		
	Grade 3 or 4 only	19 (3.1)	21	29 (4.8)	32	0.17		
	At least possibly related to study drug	20 (3.3)	21	27 (4.4)	29	0.35		
	Upper respiratory tract infection	231 (37.8)	385	241 (39.6)	439	0.84		
Dizziness	L Hendarbe	92 (15.1)	390	109	411	67 (11.0)) 82	0.03
	Nausea	113 (18.5) 132 113 (18.5)		43 (7.1) 48 132		<0.001		
Nausea						43 (7.1)	48	<0.00
Vomiting		69 (11.3)		87		43 (7.1)	47	0.008
	Fracture	7 (1.1)	7	6 (1.0)	8	0.74		
	Elevated creatinine	1 (0.2)	1	0	0	1.00		
	Hypophosphatemia	142 (23.2)	219	159 (26.2)	245	0.65		
	Hyperamylasemia	315 (51.6)	997	302 (49.7)	1017	0.45		
	Elevated AST	36 (5.9)	43	38 (6.2)	42	0.90		
	Elevated ALT	38 (6.2)	48	43 (7.1)	66	0.57		
	Death:	2 (0.3)	2	4 (0.7)	4	0.45		

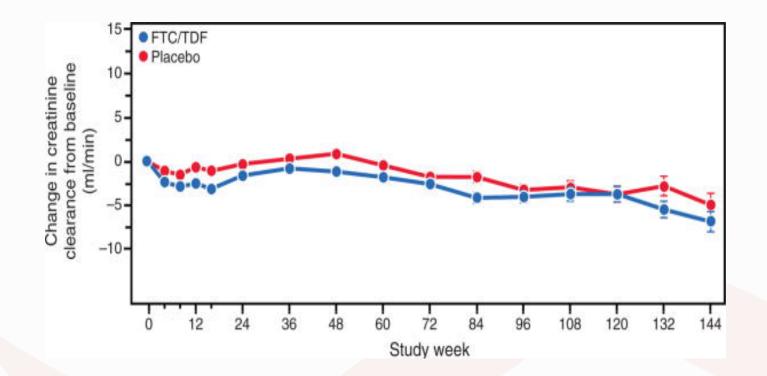
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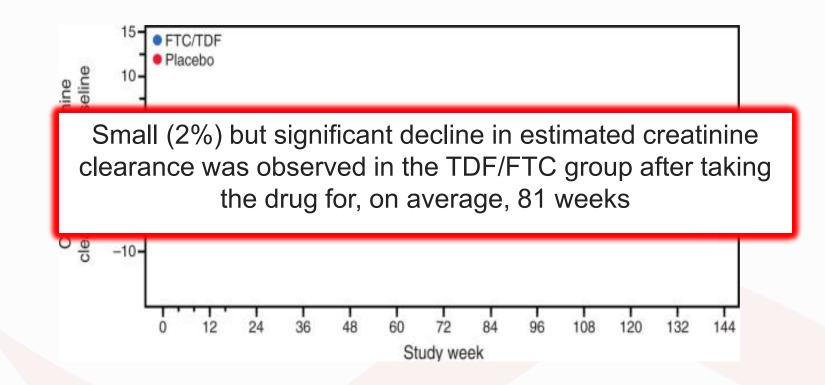






iPrEX, 2013







iPrEX, 2013



Table 3. Bone Mineral Density Scores.*										
Assessment		Forearm			Hip		L	umbar Spine		
	TDF-FTC (N=109)	Placebo (N=112)	P Value	TDF-FTC (N=109)	Placebo (N=112)	P Value	TDF-FTC (N=109)	Placebo (N=112)	P Value	
T score			0.004			< 0.001			< 0.001	
Enrollment	-0.75	-0.58		0.44	0.53		-0.72	-0.59		
6 mo	-0.77	-0.50		0.33	0.57		-0.84	-0.45		
12 mo	-0.79	-0.48		0.33	0.54		-0.77	-0.56		
18 mo	-0.93	-0.27		0.17	0.77		-0.92	-0.43		
24 mo	-0.92	-0.13		0.21	0.74		-1.11	-0.37		
z Score			0.004			< 0.001			< 0.001	
Enrollment	-0.70	-0.54		0.45	0.54		-0.67	-0.54		
6 mo	-0.73	-0.45		0.35	0.58		-0.80	-0.41		
12 mo	-0.72	-0.42		0.34	0.55		-0.74	-0.53		
18 mo	-0.88	-0.21		0.18	0.78		-0.88	-0.41		
24 mo	-0.87	-0.13		0.20	0.76		-1.09	-0.28		

* In the TDF–FTC group, 58 participants completed bone mineral density testing at the 6-month visit, 45 at the 12-month visit, 36 at the 18-month visit, and 23 at the 24-month visit. In the placebo group, 66 participants completed bone mineral density testing at the 6-month visit, 44 at the 12-month visit, 33 at the 18-month visit, and 35 at the 24-month visit.





Assessment	ssessment Forearm				Нір			Lumbar Spine		
	TDF-FTC (N=109)	Placebo (N=112)	P Value	TDF-FTC (N=109)	Placebo (N=112)	P Value	TDF-FTC (N=109)	Placebo (N=112)	P Value	
T score			0.004			<0.001			< 0.00	
Enrollment	-0.75	-0.58		0.44	0.53		-0.72	-0.59		
6 mo	-0.77	-0.50		0.33	0.57		-0.84	-0.45		

Significant decline in T scores and z scores for BMD at the forearm, hip, and lumbar spine in participants who received TDF/FTC, as compared with those who received placebo

6 mo	-0.73	-0.45	0.35	0.58	-0.80 -0.41
12 mo	-0.72	-0.42	0.34	0.55	-0.74 -0.53
18 mo	-0.88	-0.21	0.18	0.78	-0.88 -0.41
24 mo	-0.87	-0.13	0.20	0.76	-1.09 -0.28

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Table 3. Bone Mineral Density Scores.*									
Assessment		Forearm			Hip		L	umbar Spine	
	TDF-FTC (N=109)	Placebo (N=112)	P Value	TDF-FTC (N=109)	Placebo (N=112)	P Value	TDF-FTC (N=109)	Placebo (N=112)	P Value
T score			0.004			<0.001			<0.001

BUT THIS CAN RECOVER!

Bone mineral density recovered after 6 months of stopping TDF/FTC in both young and older adults.



* In the TDF–FTC group, 58 participants completed bone mineral density testing at the 6-month visit, 45 at the 12-month visit, 36 at the 18-month visit, and 23 at the 24-month visit. In the placebo group, 66 participants completed bone mineral density testing at the 6-month visit, 44 at the 12-month visit, 33 at the 18-month visit, and 35 at the 24-month visit.





V. PrEP laboratory monitoring





The First Visit

- Labs:
 - HIV Ag/Ab (but if symptoms of acute HIV, get HIV RNA)
 - Basic Metabolic Panel
 - Hepatitis B sAg, sAb
 - Hepatitis C Ab
 - Treponemal IgG
 - Gonorrhea/chlamydia PCR (oral, rectal and urethral)
 - Consider Hepatitis A IgM/IgG given recent outbreak





The Second Visit

- Repeat HIV screen, repeat serum creatinine
- Assess adherence
- Reassess eligibility
- Assess for side effects
- Provide behavioral risk reduction support
- STI screen, if necessary
- Assess pregnancy intention (test if could be pregnant)
- If HIV-negative and eligible, refill PrEP



Every 3 months

- HIV screen
- STI screen, if necessary
- Assess adherence
- Reassess eligibility
- Assess for side effects
- Provide behavioral risk reduction support
- Assess pregnancy intention (test if could be pregnant)
- If HIV-negative and eligible, refill PrEP





Every 6 months

- Screen for other STIs
- Repeat serum creatinine





A year of PrEP

Encounter	To do
Month 0	 Screen for HIV Confirm HBV and HCV status Check serum creatinine Screen for STIs Counseling Prescribe
Month 3	 Screen for HIV Check serum creatinine Counseling Prescribe
Month 6	 Screen for HIV Screen for STIs Counseling Prescribe
Month 9	 Screen for HIV Check serum creatinine Counseling Prescribe
Month 12	 Screen for HIV Screen for STIs Counseling Prescribe



- HIV screen: 5
- Serum creatinine: 3
- STI screen: 3

Prescriptions/Refill authorizations: 5

Discussions: 5+



Special considerations

Pregnant or breastfeeding women

- Pregnancy Category B (No known risk)
- Minimally secreted in breastmilk, not contraindicated in breastfeeding

Chronic HBV

- TDF/TAF and FTC are active against HBV
- Abrupt withdrawal could cause HBV flare
- Stopping requires careful monitoring and observation

Chronic Renal Failure (CrCl <60mL/min)</p>

- Don't use TDF/FTC; safety has not been adequately determined
- Can use TAF/FTC for CrCl >30mL/min





STOP PrEP

- The patient doesn't want it
- Behavior or life situations have changed that lower risk for HIV infection
- Intolerable adverse events/toxicities
- Nonadherence despite attempted interventions to improve
- HIV-infection







VI. Financial aspects of PrEP





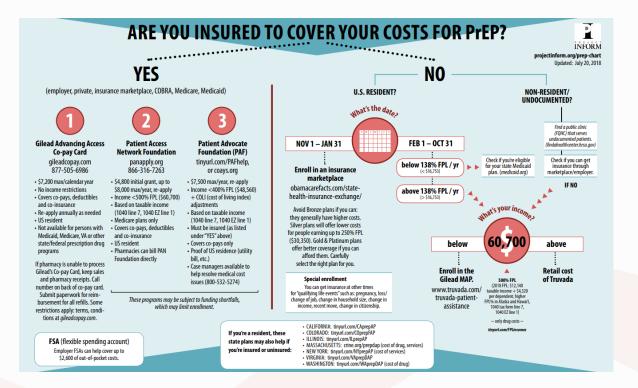
Truvada® coverage

- Actually, Truvada® is very affordable for most patients
- All insurance plans cover TDF/FTC for the indication of HIV prevention
 - Variable copays
- Medicare/Medicaid cover TDF/FTC
- Gilead Advancing Access Program Copay Assistance
 - \$7,200/calendar year of copay assistance
 - No income limitation
- Gilead Advancing Access Program Medication Access
 - Full drug coverage if income <500% federal poverty level</p>
 - Primary option for uninsured patients



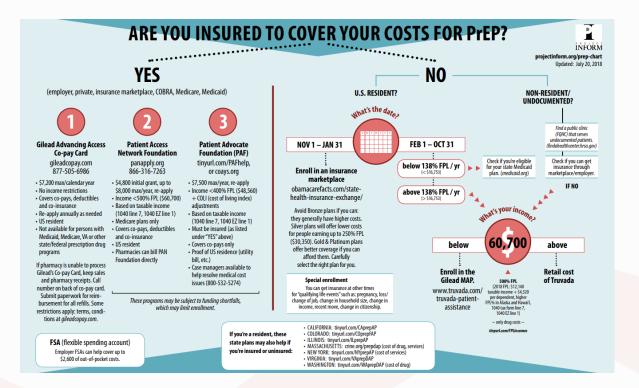


Financial Assistance











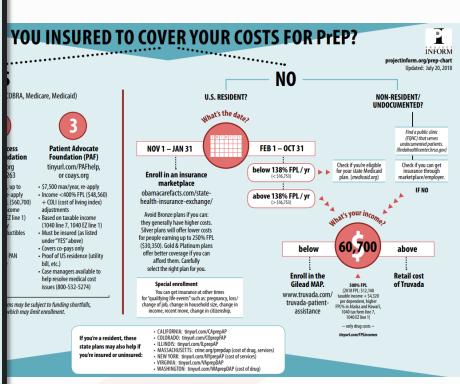


Gilead Advancing Access Co-pay Card

gileadcopay.com 877-505-6986

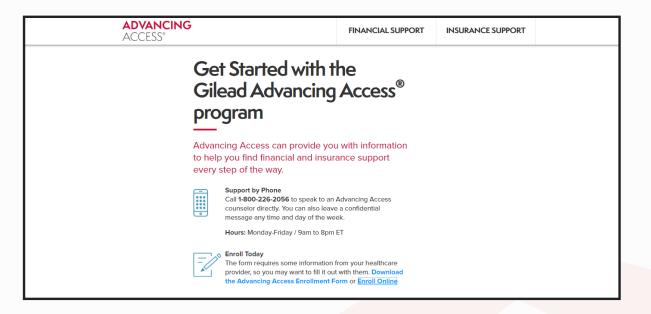
- \$7,200 max/calendar year
- No income restrictions
- Covers co-pays, deductibles and co-insurance
- Re-apply annually as needed
 US resident
- Not available for persons with Medicaid, Medicare, VA or other state/federal prescription drug programs

If pharmacy is unable to process Gilead's Co-pay Card, keep sales and pharmacy receipts. Call number on back of co-pay card. Submit paperwork for reimbursement for all refills. Some restrictions apply: terms, conditions at *gileadcopay.com*.

















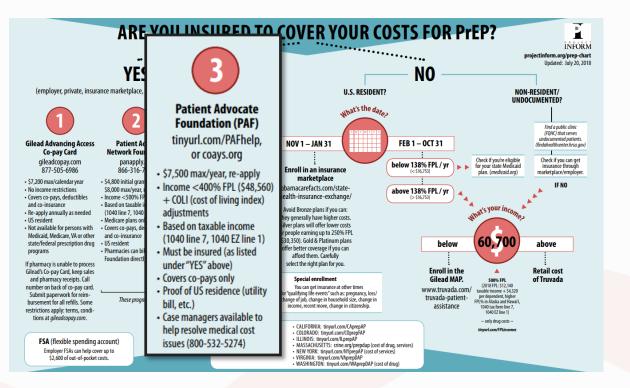


Gilead Advancing Access Program

- \$7,200/calendar year benefit
 - Increased from \$3,600 to \$4,200 in January 2018
 - Increased from \$4,200 to \$7,200 in September 2018
- No income limitation
- Federal beneficiaries excluded
- Usually goes toward deductible
 - Beware of copay accumulator programs
 - Manufacturer copay assistance will no longer count toward deductible



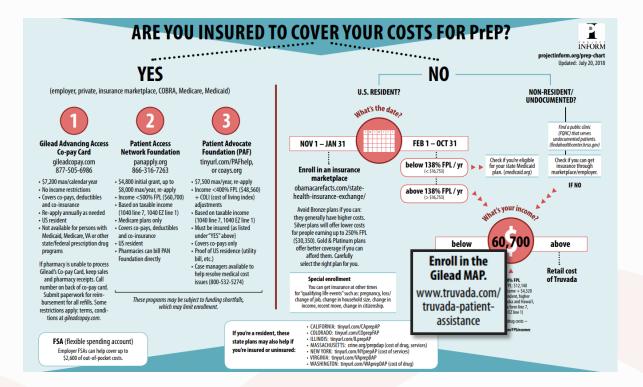






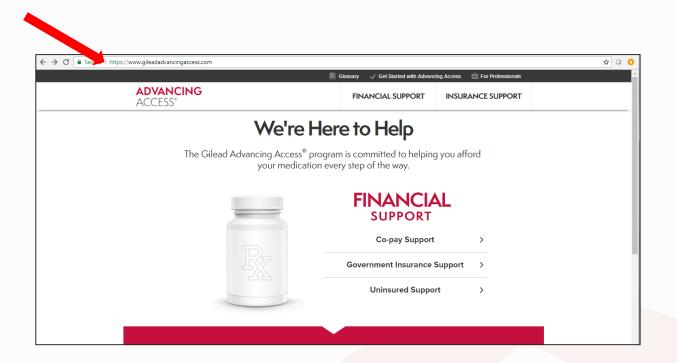


Medication Access Program



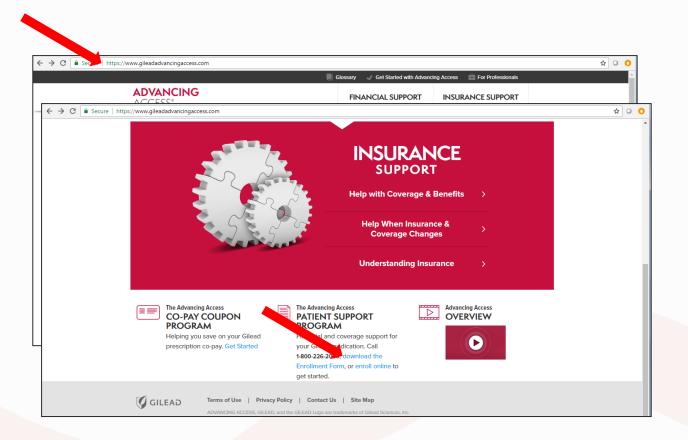
















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Advice to patients

- Find out your deductible
- Find out your Truvada® copay
- Find out your estimated costs of visits and labs
- If you need an insurance plan from the marketplace, avoid Bronze Plans due to high out-of-pocket expenses
- Use Flexible Spending Account to offset any out-ofpocket expenses





Billing/coding

- While ICD-10 does not provide specific codes for PrEP, the following codes have been discussed with billing and used for PrEP visits:
 - Z20.6 "Contact with and (suspected) exposure to HIV "
 - Z17.1 "Human immunodeficiency virus [HIV] counseling"
 - Z11.3 "Encounter for screening for infection with a predominantly sexual mode of transmission"
 - Z79.2 "Long-term (current) use of antibiotics"

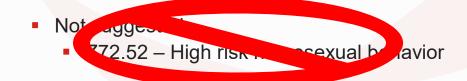
- Not suggested
 - Z72.52 High risk homosexual behavior





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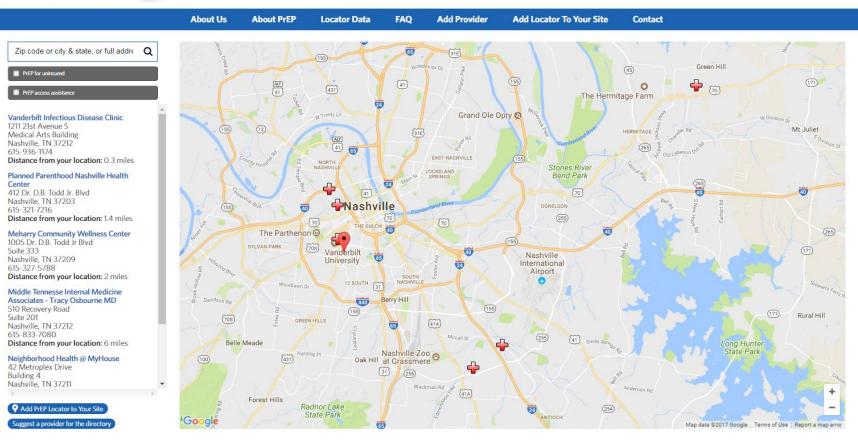






PrEP Locator

PrEP Locator **Q** Find Your Provider

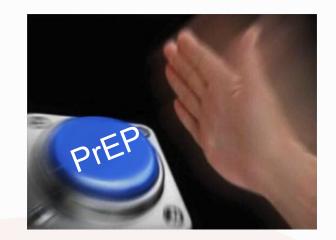


https://preplocator.org

AETC AIDS Education & Training Center Program Southeast

Conclusion

- PrEP is a component of primary care
- PrEP is an extremely effective preventive strategy for both HIV and STIs
- Understand PrEP prescribing guidelines
- PrEP is generally very well-tolerated
- Effective PrEP requires an ongoing patient-doctor relationship
- Sexual history is essential to comprehensive health care; care is incomplete without it.
- Ask for help! <u>sean.g.kelly@vumc.org</u>







Questions?

