



Ready, set, PrEP!

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Objectives

- At the end of the talk the audience should be able to:
 - Understand the data surrounding the utilization of PrEP
 - Recommend how to use PrEP appropriately in high-risk population
 - Recognize the side effects of Truvada
 - Identify some patient assistance programs for Truvada
 - Choose appropriate patient information to tell clients about PrEP

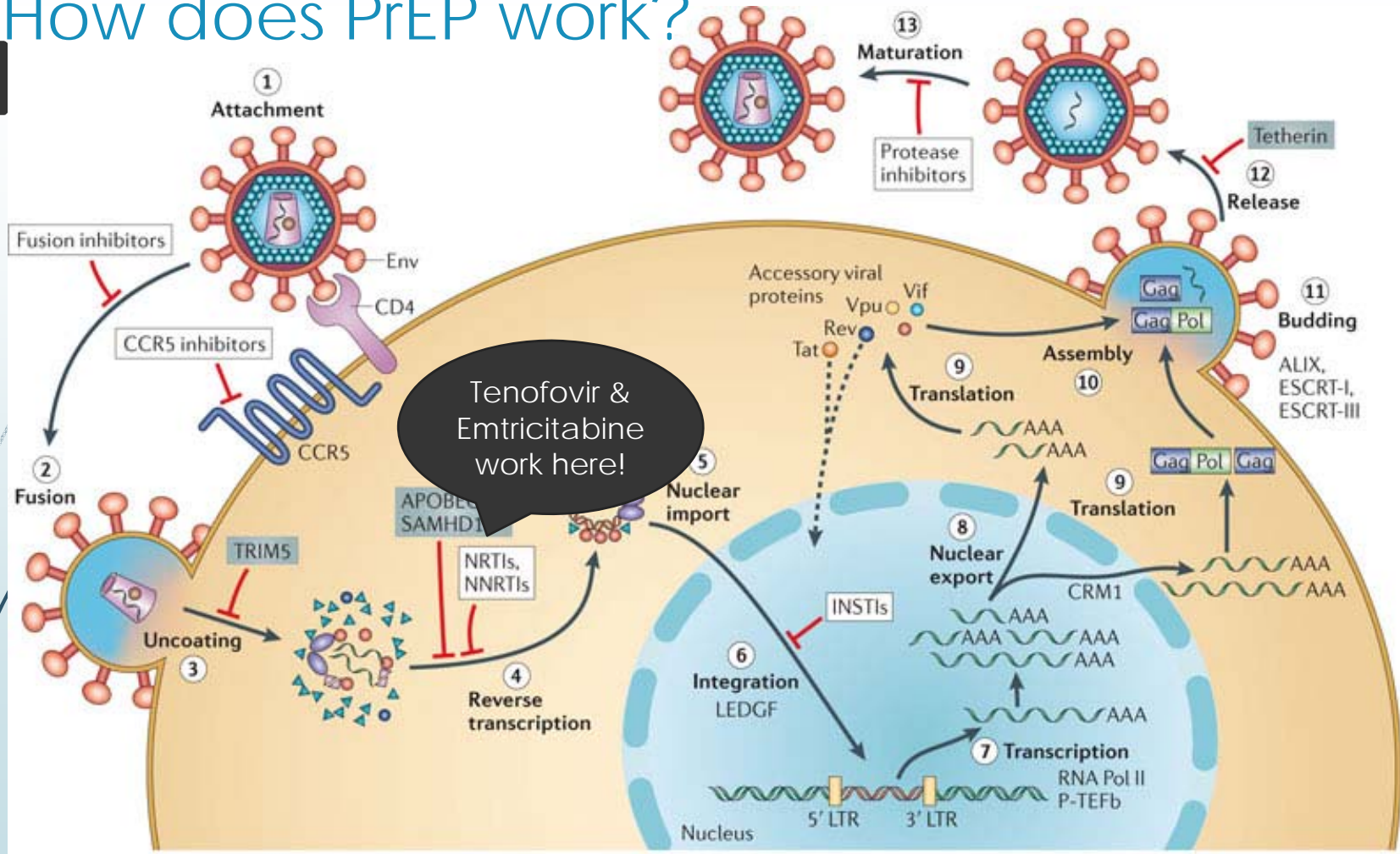


What is PrEP?

- PrEP: Pre-Exposure Prophylaxis for people at high-risk of acquiring HIV
- Utilize a combination of antiretrovirals to prevent new HIV infection
- Truvada®: tenofovir disoproxil fumarate (TDF) 300 mg combined with emtricitabine 200 mg given 1 pill once-daily
 - Safe and well-tolerated
 - Relatively high barrier to resistance
 - Rapid concentration in genital/rectal tissues
 - Rectal 7 days
 - Vaginal 21 days



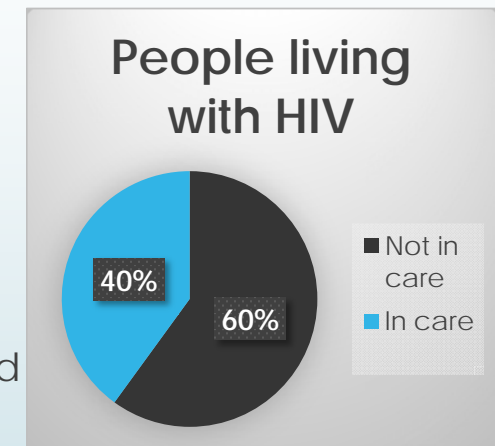
How does PrEP work?



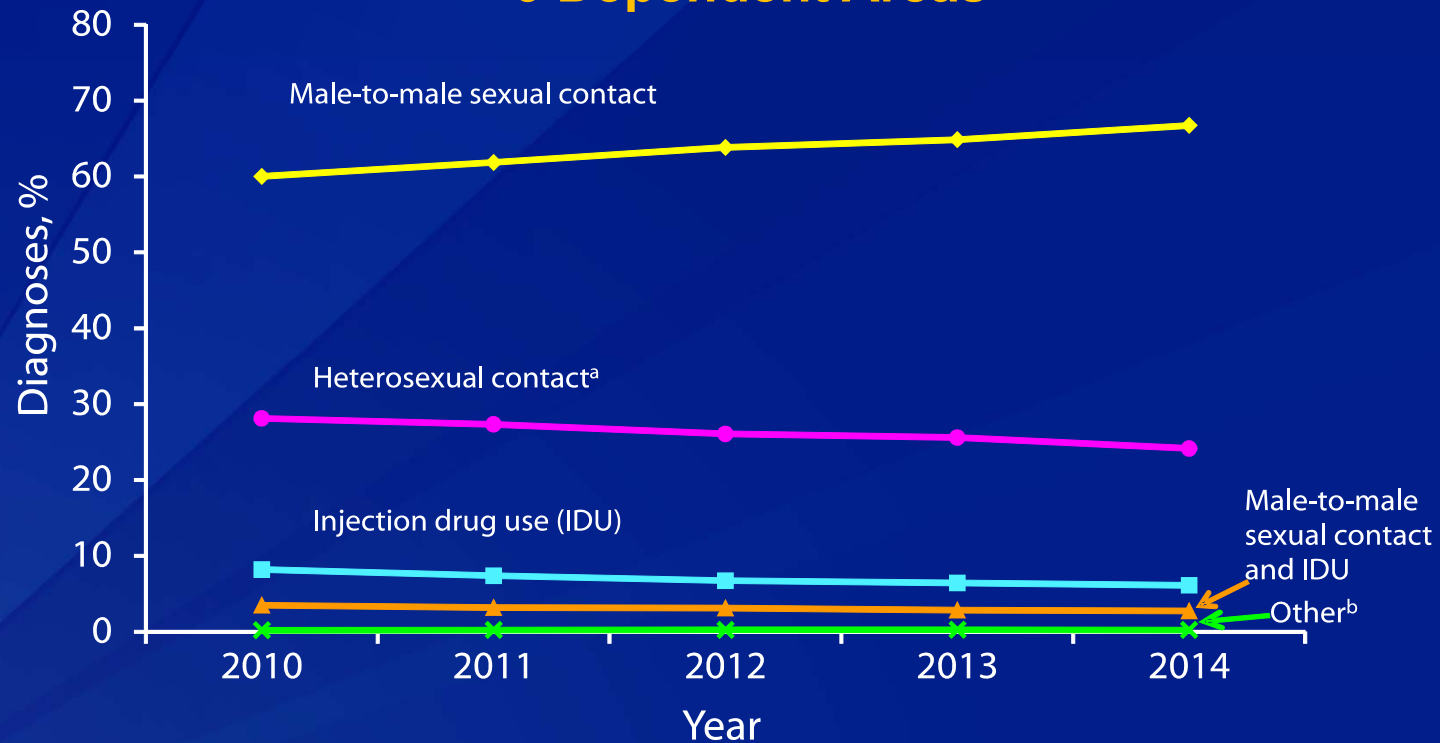
Why take PrEP?



- ▶ New HIV infections occur every year
 - ▶ Only 4/10 people living with HIV are in care in the US
 - ▶ Only 3/10 people living with HIV achieve viral suppression
 - ▶ 1/8 (13%) of the population with HIV is unaware of their infection
- ▶ Some people are more likely to acquire HIV than others and would benefit from PrEP
- ▶ Studies have shown that PrEP reduces the risk of getting HIV from sex by more than 90% when used consistently
- ▶ Among people who inject drugs, PrEP reduces the risk of getting HIV by more than 70% when used consistently



Diagnoses of HIV Infection among Adults and Adolescents, by Transmission Category, 2010–2014—United States and 6 Dependent Areas



Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

^a Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

^b Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.



Diagnoses of HIV Infection among Adults and Adolescents, by Transmission Category, 2014—United States and 6 Dependent Areas

Transmission Category	No.	%
Male-to-male sexual contact	29,771	66.7
Injection drug use (IDU)	2,732	6.1
Male-to-male sexual contact and IDU	1,222	2.7
Heterosexual contact ^a	10,781	24.2
Other ^b	103	0.2
Total^c	44,609	100

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

^a Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

^b Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

^c Because column totals for estimated numbers were calculated independently of the values for the subpopulations, the values in each column may not sum to the column total.



What's the evidence?

PREPARE EVERY DAY
Adherence is key for PrEP, which must be taken daily in order to achieve optimal protection.

KNOWLEDGE IS PrEP
Current PrEP guidelines require screening every 3 months to confirm negative status and healthy kidney function.

LOVE YOUR SEX PrEP
PrEP is highly effective, but only against HIV. It does not protect against STDs or pregnancy.

10 MILLION WOMEN DO IT EVERY DAY WITH THE BIRTH CONTROL PILL

IN CLINICAL TRIALS PrEP HAS BEEN SHOWN TO REDUCE HIV TRANSMISSION BY 92%.

FURTHER ANALYSIS INDICATES THAT DAILY USE CAN BE 99% EFFECTIVE AT PROTECTING AGAINST HIV.

PrEP

EFFECTIVENESS 0 100%

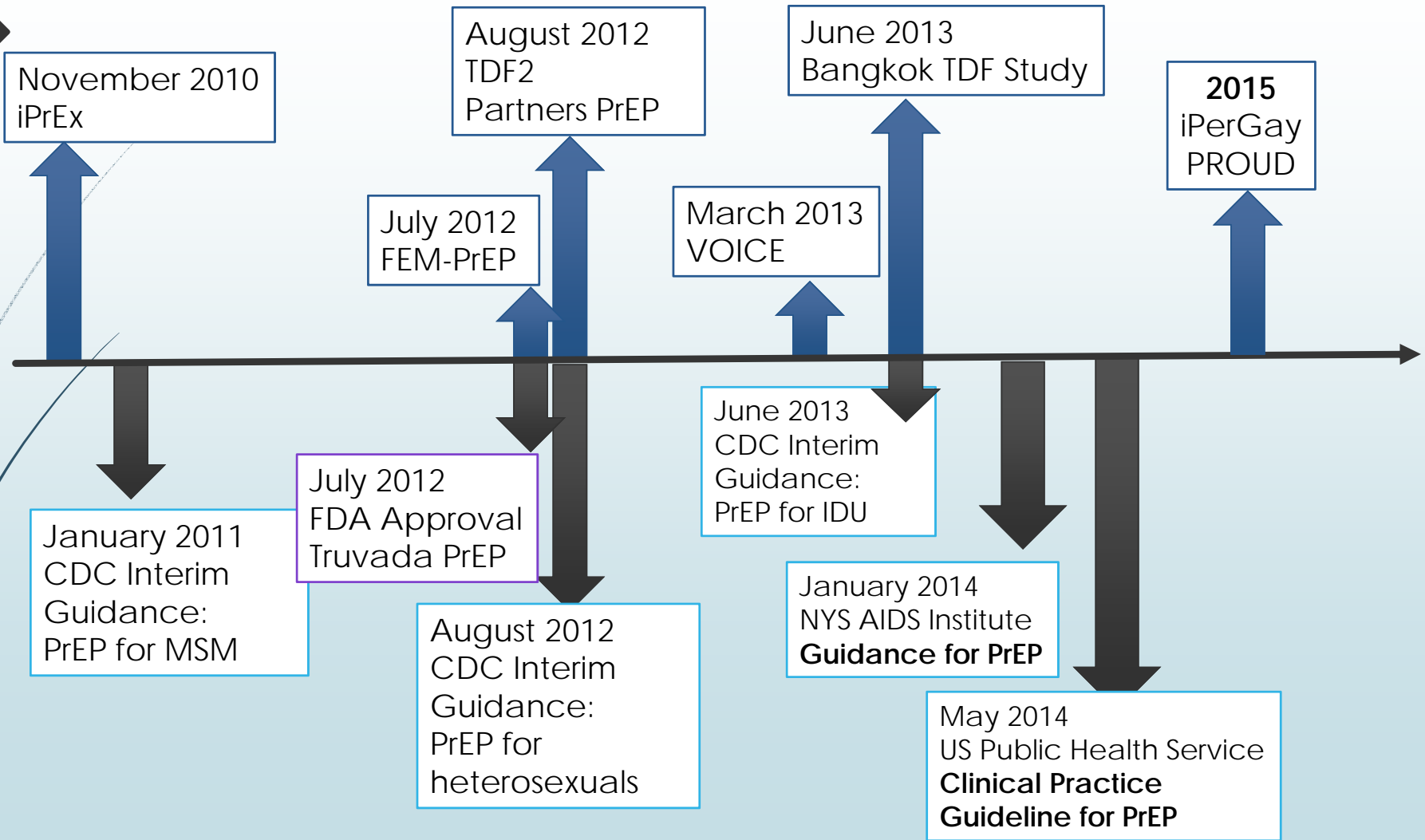
NATIONAL MINORITY AIDS COUNCIL #PREPAREFORLIFE

HIV SHOULDN'T STAND IN THE WAY OF LOVE

PrEP IS A DAILY PILL TO REDUCE THE RISK OF GETTING HIV.



PrEP Timeline



Adherence & PrEP Efficacy

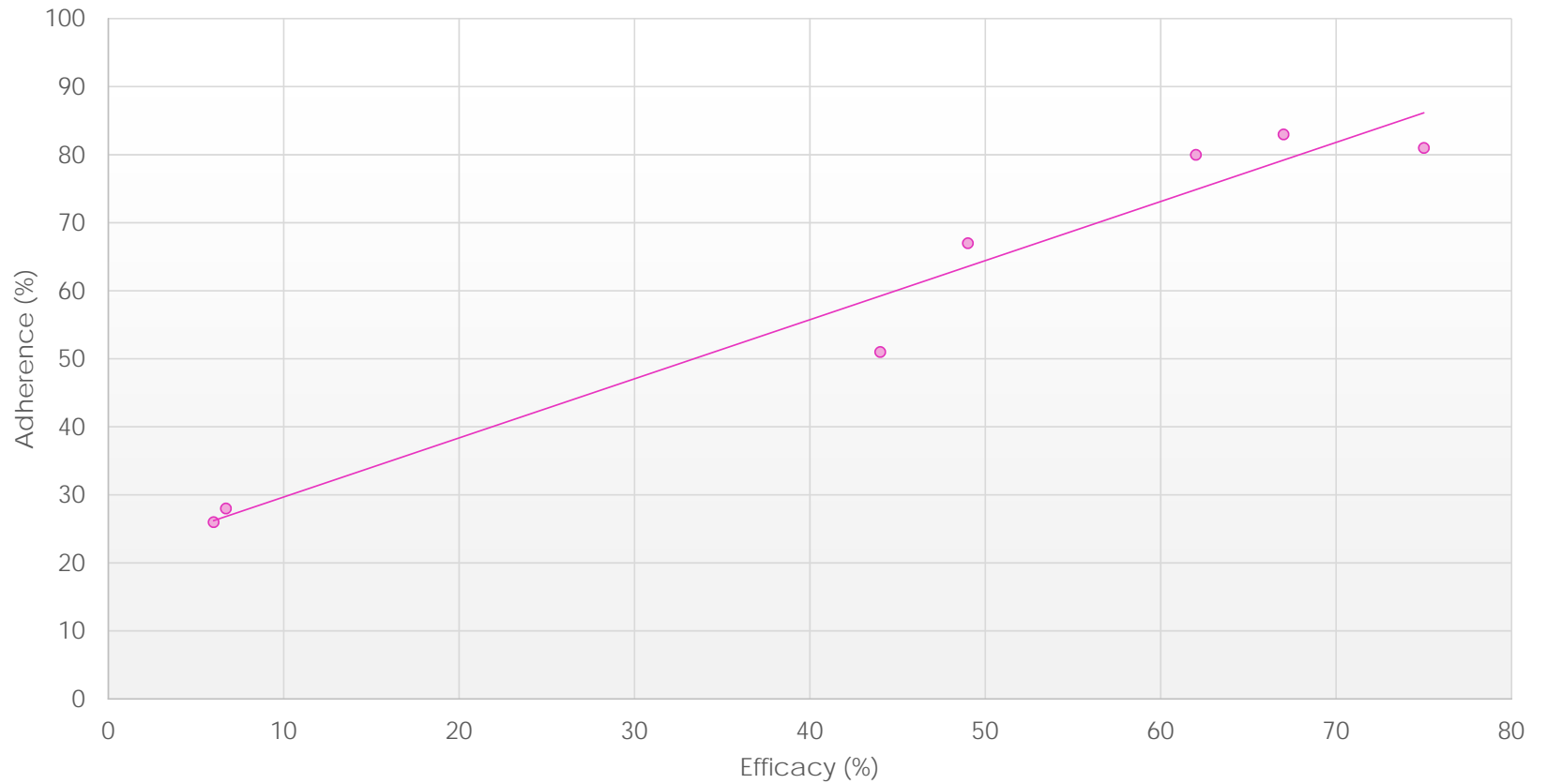
Trial	Compound Tested	Population	HIV protection efficacy (%)	% of blood sample with TDF detected	Adjusted efficacy after TDF plasma levels in blood (%)
iPrEx	Oral daily Truvada	MSM	44	51	92
Parters PrEP	Oral daily TDF	HIV Serodiscordant Couples	67	83	86
	Oral daily Truvada		75	81	90
TDF2	Oral daily Truvada	Heterosexual	62	80	85
Fem-PrEP	Oral daily Truvada	Heterosexual women	6	26	NR
BTS	Oral daily TDF	IDU	49	67	74
Voice	Oral daily Truvada	Heterosexual women	6.7	28	NR
IPERGAY	Intermittent Truvada	MSM	86	NR	NR
Proud	Oral daily Truvada	MSM	86	NR	NR

**Clear dose-response relationship
between evidence of PrEP use & efficacy**

Grant et al N Engl J Med 2010
Baeten et al N Engl J Med 2012
Thigpen et al N Engl J Med 2012
Van Damme et al N Engl J Med 2012

Choopanya et al Lancet 2013
Marrazzo et al N Engl J Med 2015
Molina et al N Engl J Med 2015
McCormack et al Lancet 2016

Adherence vs. Efficacy



Grant et al N Engl J Med 2010
Baeten et al N Engl J Med 2012
Thigpen et al N Engl J Med 2012

Van Damme et al N Engl J Med 2012
Choopanya et al Lancet 2013
Marrazzo et al N Engl J Med 2015

Pre-exposure prophylaxis to prevent the acquisition of HIV-1 infection (PROUD): effectiveness results from the pilot phase of a pragmatic open-label randomised trial

Sheena McCormack, David T Dunn*, Monica Desai, David I Dolling, Mitzy Gafos, Richard Gilson, Ann K Sullivan, Amanda Clarke, Iain Reeves, Gabriel Schembri, Nicola Mackie, Christine Bowman, Charles J Lacey, Vanessa Apea, Michael Brady, Julie Fox, Stephen Taylor, Simone Antonucci, Saye H Khoo, James Rooney, Anthony Nardone, Martin Fisher, Alan McOwan, Andrew N Phillips, Anne M Johnson, Brian Gazzard, Owen N Gill*

- ▶ Randomized, open-label trial of daily oral TDF/FTC PrEP in HIV- MSM in 13 clinics in London
 - ▶ Immediate (n = 268) vs
 - ▶ Deferred for 12 mos (n = 255)
- ▶ Endpoint: HIV infection at 12 mos
- ▶ 86% reduction in risk of HIV acquisition with immediate PrEP (90% CI [64-96])
 - ▶ Number needed to treat to prevent 1 infection: 13 (90% CI: 9-23)

- ▶ DMSB interrupted trial; recommended that all participants be offered PrEP

HIV Incidence		
Group	Infected, n	Incidence/100 PY (90% CI)
Immediate	3	1.2 (0.4-2.9)
Deferred	20	9.0 (6.1-12.8)

p=0.0001

Oral PrEP + ART as Prevention in High-Risk Serodiscordant Couples

Partners Demonstration Project in Africa

- Oral daily TDF/FTC PrEP for HIV-uninfected partner in serodiscordant couple continued 6 mos beyond initiation of ART for infected partner
- High-risk couples defined as younger age, fewer children, uncircumcised HIV-negative male, cohabitating, unprotected sex in past mo, high HIV-1 RNA in HIV-positive partner

Interim analysis

- > 95% of HIV-negative partners using PrEP
- 80% of HIV-positive partners have initiated ART; of these, > 90% with suppression

- 96% reduction in expected infections**
 - IRR, expected vs observed: 0.04 (95% CI: 0.01-0.19; $P < .0001$)

HIV Incidence, Actual vs Expected		
Group	Infected, n	Incidence/100 PY (95% CI)
Expected	39.7	5.2 (3.7-6.9)
Actual	2	0.2 (0-0.9)

- In pts with seroconversion, no TFV detectable in plasma at time of seroconversion
 - HIV-positive partner in 1 couple not on ART (high CD4+ count)
 - Other couple dissolved and HIV-negative partner in new relationship

Who should receive PrEP?

PrEP is for people without HIV who are at very high risk for getting it from sex or injection drug use

Men who have sex with men (MSM)	Transgender individuals	Heterosexual women and men	Injection drug users (IDU)
<ul style="list-style-type: none">• HIV-positive sexual partner• Recent bacterial STI• High number of sex partners• History of inconsistent/no condom use• Commercial sex work	<ul style="list-style-type: none">• Engaging in high-risk sexual behaviors	<ul style="list-style-type: none">• HIV-positive sexual partner• Recent bacterial STI• High number of sex partners• History of inconsistent/no condom use• Commercial sex work• High-prevalence area or network	<ul style="list-style-type: none">• HIV-positive injecting partner• Sharing injection equipment• Recent drug treatment (but currently injecting)

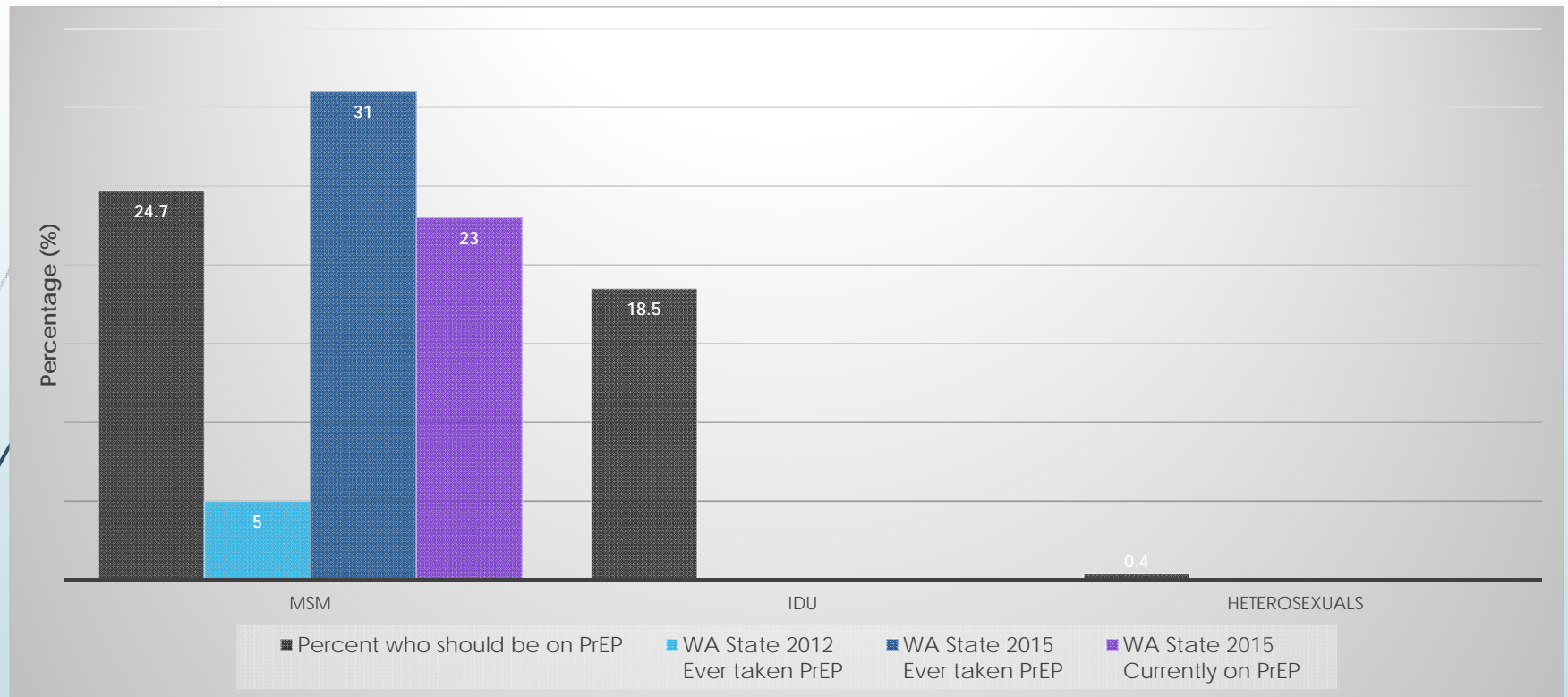
Score ≥ 10 is considered High-Risk, PrEP evaluation warranted

HIRI-MSM

HIRI-MSM Risk Index		SCORE
How old are you today (yrs)?	<18 years	0
	18-28 years	8
	29-40 years	5
	41-48 years	2
	≥ 49 years	0
How many men have you had sex with in the last 6 months?	>10 male	7
	6-10 male	4
	0-5 male	0
In the last 6 months, how many times did you have receptive anal sex (you were the bottom) with a man?	1 or more times	10
	0 times	0
How many of your male sex partners were HIV positive?	>1 positive partner	8
	1 positive partner	4
	<1 positive partner	0
In the last 6 months, how many times did you have insertive anal sex (you were the top) with a man who was HIV positive?	5 or more times	6
	0 times	0
In the last 6 months, have you used methamphetamines such as crystal or speed?	Yes	5
	No	0
In the last 6 months, have you used poppers (amyl nitrate)?	Yes	3
	No	0
Total		

Smith DK et al, *J Acquir Immune Defic Syndr* 2012

PrEP Utilization



MMWR 2015;64:1291-1295
Hood et al AIDS 2016

Barriers to PrEP

- Little knowledge of PrEP
- Costs (\$1,700/month)
- Concerns for adverse events
- **Lack of access of healthcare/providers who prescribe PrEP**
- Fear about asking for PrEP
- **Healthcare provider concerns, lack of knowledge (34%) or reluctance to prescribe PrEP**
 - Inability to follow patient regularly
- Inadequate outreach and dissemination of information and resources
- Fear of HIV resistance developing
- Increase promiscuity and STI as consequence of PrEP





PrEP Safety

- Rates of death, serious adverse events, and laboratory abnormalities (including renal dysfunction) very low
 - Not significantly different between those on PrEP and placebo
 - More severe side effects of Truvada include renal dysfunction such as Fanconi syndrome, decrease bone mineral density
- PrEP well tolerated
 - Adverse effects occurred in minority of subjects
 - GI adverse effects (e.g., nausea) more common in those receiving PrEP than placebo (< 10%, primarily during the first month only)
- PrEP safe during pregnancy (Mugo JAMA 2014)
- No reduction in contraceptive efficacy (Murnane AIDS 2014)
- Rare acquired resistance (about 3%); 12 infections averted for each case of resistance

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

Jonathan E. Volk,¹ Julia L. Marcus,² Tony Phengrasamy,¹ Derek Blechinger,¹ Dong Phuong Nguyen,¹ Stephen Follansbee,¹ and C. Bradley Hare¹

¹Department of Adult and Family Medicine, Kaiser Permanente San Francisco Medical Center, and ²Division of Research, Kaiser Permanente Northern California Oakland, California

Clinical Infect Dis, Sept 2015

HEALTH

Insurer Says Clients on Daily Pill Have Stayed H.I.V.-Free

By DONALD G. McNEIL Jr. SEPT. 2, 2015



A Truvada PrEP prescription, filled in July in New York City. New data points to the efficacy of this daily preventive pill. *Nicole Benvenuto/The New York Times*

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Large Study of PrEP Use in Clinical Practice Shows No New HIV Infections

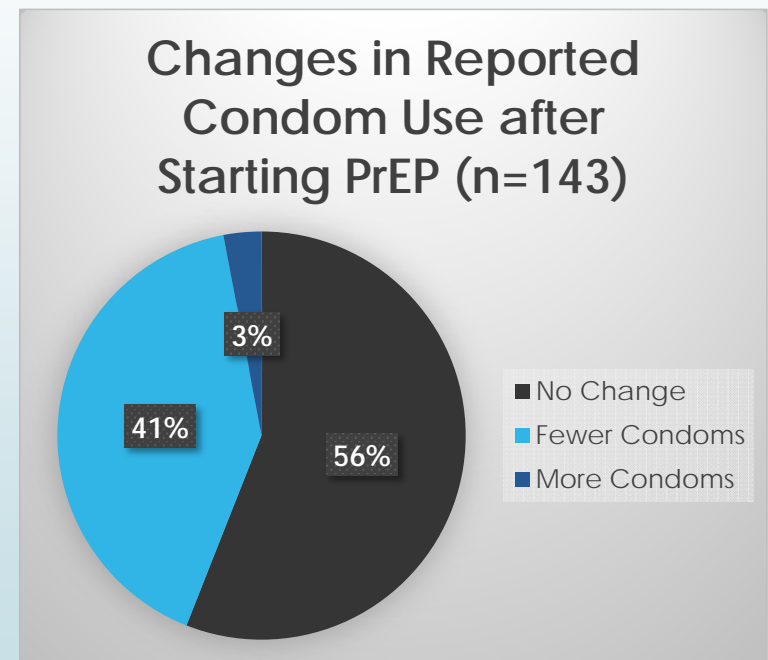
[HIV & AIDS](#)

First Man to Become HIV-Positive While on PrEP Is Rare Exception. February 26, 2016

PrEP in the “Real” World

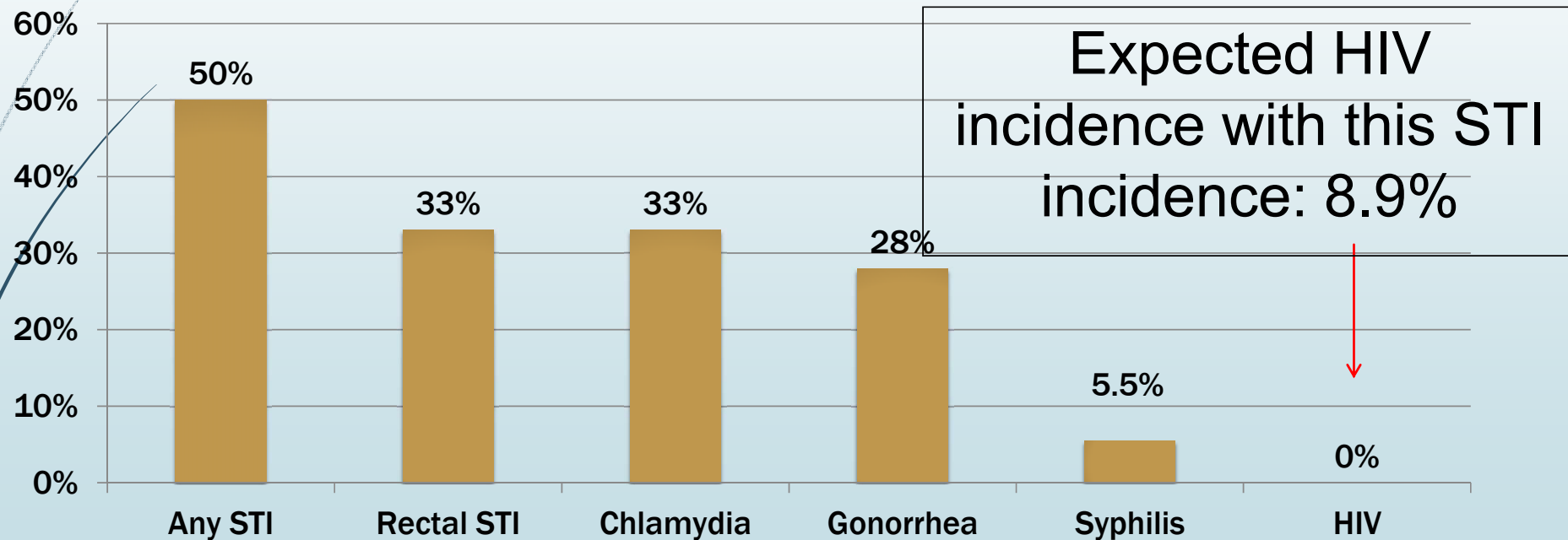
The Good News:

- ▶ No new HIV infections in over 600 PrEP initiators at Kaiser Permanente San Francisco



PrEP and STIs in >600 MSM Kaiser Permanente San Francisco

STI Incidence After 12 Months of PrEP Use



UNM Truman Health Services (THS)

- Affiliated with UNM Medical Group
- Level 3 National Committee for Quality Assurance Patient Centered Medical Home
- 1,100 HIV+ and/or transgender patients



 **UNM Truman Health Services**
UNM Medical Group, Inc.

PrEP Clinic Structure

Clinic meets ½ day per week

STEP 1

PrEP nurse screens patient

1. Sexual history
2. Clinic eligibility via telephone

STEP 2

Appointment with pharmacist

1. HIV education
2. Safe sex practices
3. Risk vs. benefits of PrEP
4. Adherence
5. Baseline labs obtained

STEP 3

Once lab results available

1. Insurance evaluation
2. Rx called to pharmacy
3. Enrollment in co-pay assistance as needed
4. Notify patient of lab results and cost

Follow-up as appropriate



Providing PrEP

After confirmation of clinical eligibility & Lab results available:

- Prescribe no more than 90-day supply of PrEP
 - Truvada 1 tablet PO daily
(tenofovir 300mg + emtricitabine 200mg)
 - Insurance prior approval
 - Truvada for PrEP Medication Assistance Program

**Every visit:
Assess adherence
Risk reduction counseling
Provide condoms**

<http://www.cdc.gov/hiv/pdf/guidelines/PrEPguidelines2014.pdf>

PrEP Management

	Baseline	1 month	3 month	6 month	9 month	12 month
HIV acquisition risk	X	X	X	X	X	X
Adherence	X	X	X	X	X	X
Adverse side effects	X	X	X	X	X	X
HIV test	X		X	X	X	X
Basic Metabolic Panel	X	X	X			
Urinalysis	X					X
Hepatitis Serologies	X					
Sexual Transmitted Infections (STIs)	X		X symptoms	X	X symptoms	X
Pregnancy test (if female)	X	X	X	X	X	X

As of April 2016

N=68 Scheduled for PrEP Appointment

14 No Shows

n=54 Attend first PrEP Appointment

1 HIV at baseline
1 Declined PrEP

n=52 prescribed 1 month PrEP

5 Within 1 month of initial visit
2 Change in risk factors
6 Missed 1st follow up

n=39 attended at least one follow-up visit

As of November 15, 2016

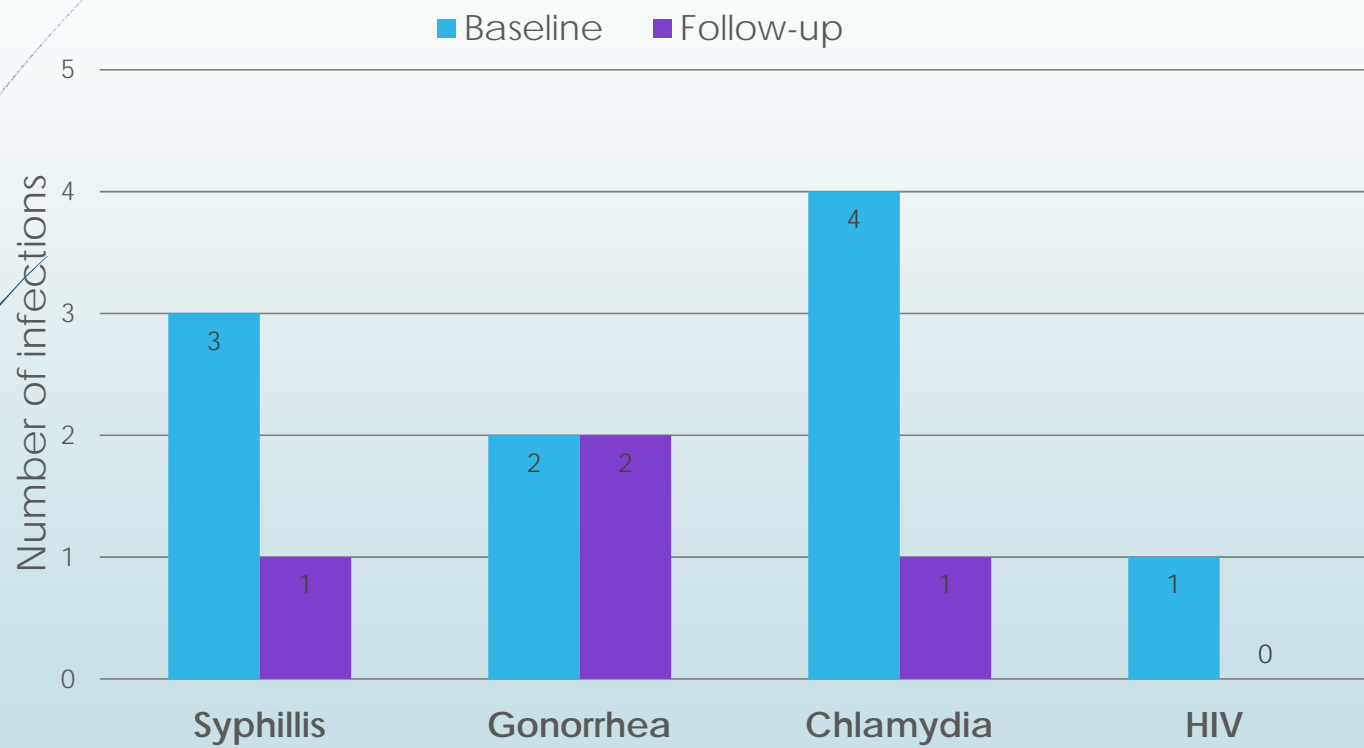
96 patients have been evaluated for PrEP



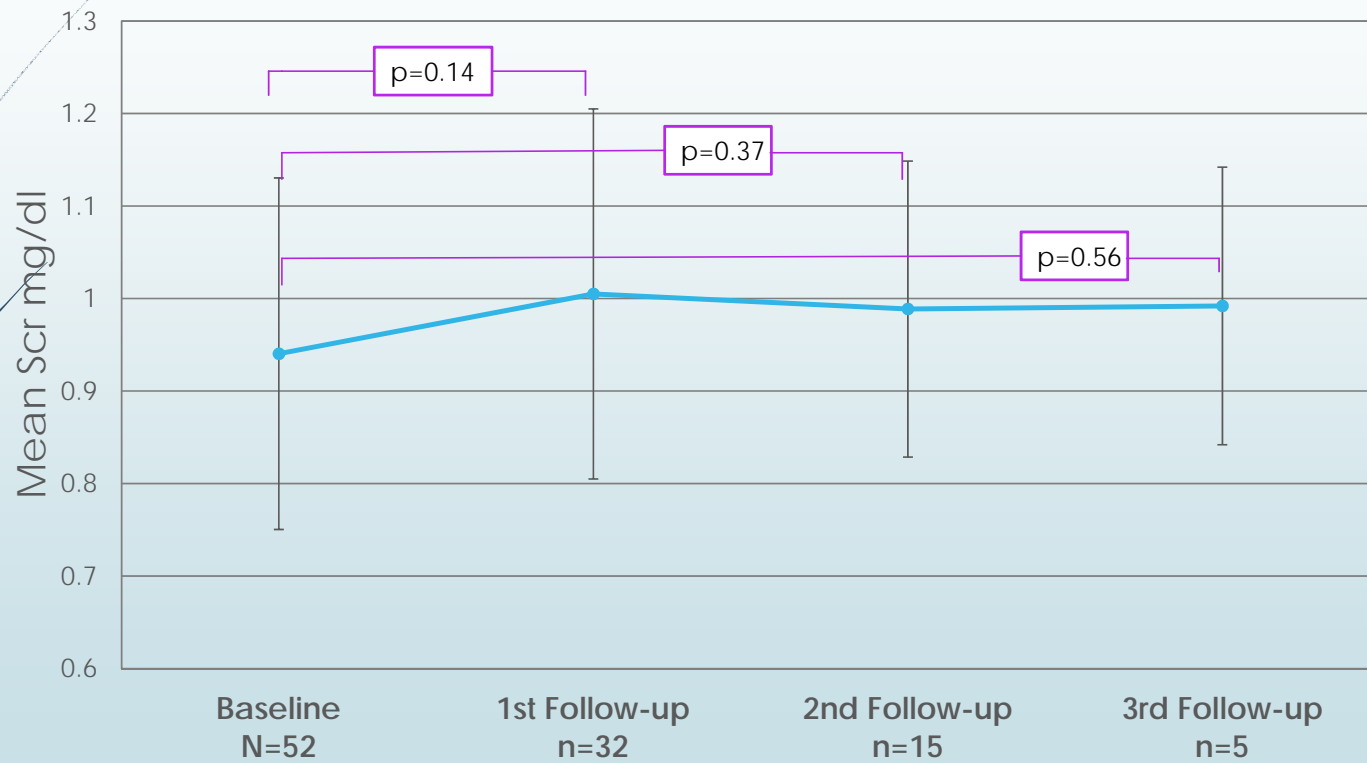
Endpoints April 2016 data

- ▶ 52 of the 53 (98.1%) individuals seeking PrEP were written prescriptions for TDF/FTC
 - ▶ No new cases of HIV acquisition for individuals on PrEP
 - ▶ The average time from initial visit to prescription fill was 4.1 days
 - ▶ Insurance coverage from all plans with help from co-pay assistance program
 - ▶ In general \$0-\$70 co-pay per month
- ▶ High adherence rates
 - ▶ Appointment show rate is 121/151 (82.8%)
 - ▶ On average individuals missed <1 dose/month
 - ▶ Compliance rate of 91.8%

Sexually Transmitted Infections

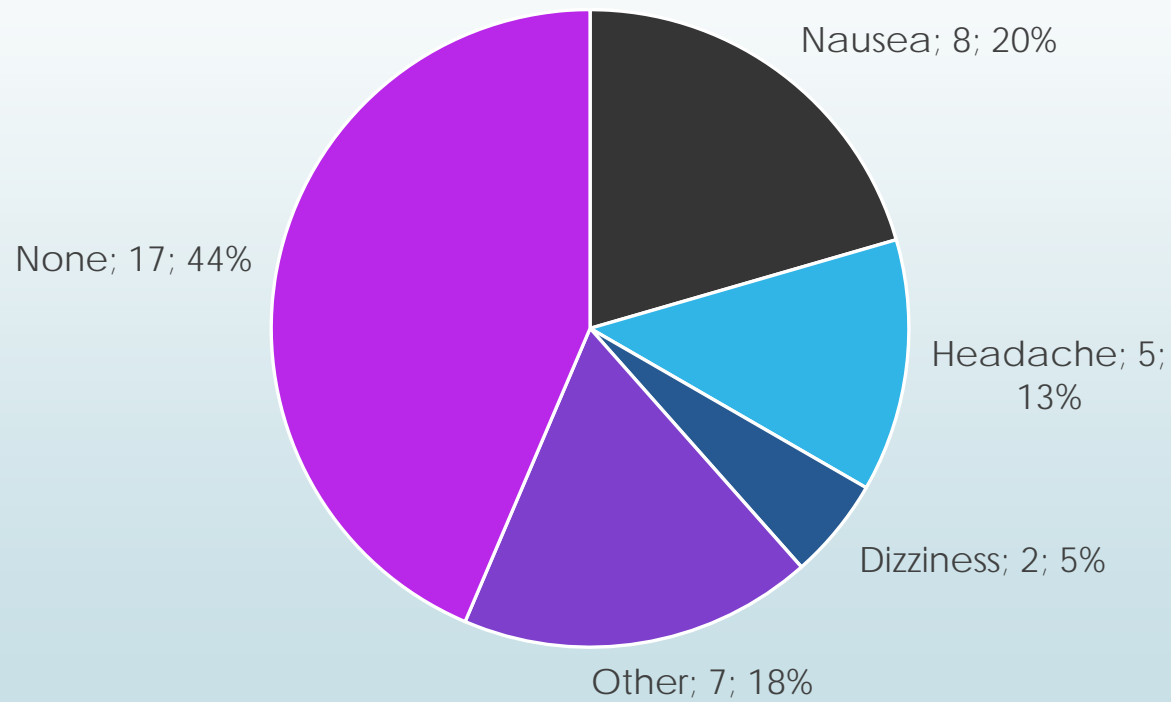


Mean Serum Creatinine



Side-Effects N=39

No patient discontinued PrEP due to side-effects



What should you tell your patients?

- ▶ Take Truvada® daily (every 24 hours)
- ▶ HIV test is required every 3 months
- ▶ Condom use will increase protection and prevent STI
- ▶ Side effects such as nausea, headache and GI upset may occur in the 1st week of treatment but should subside
- ▶ Do not share your medicine!

- ▶ Signs of acute HIV infection
 - ▶ Fever
 - ▶ Fatigue
 - ▶ Myalgia
 - ▶ Skin rash
 - ▶ Headache
 - ▶ Pharyngitis
 - ▶ Cervical Lymphadenopathy
 - ▶ Arthralgia
 - ▶ Night sweats
 - ▶ Diarrhea



**"The doctor will see you now –
I can't promise that he'll talk
to you, but he'll see you."**

Case #1

- ▶ 24 year old male, MSM who presents 4 hours after unprotected receptive anal sex with his HIV-infected partner who was recently diagnosed and started on antiretrovirals (in the last 8 weeks)

▶ Should PrEP be offered?



nPEP

Non-occupational Post-exposure Prophylaxis (nPEP)

- High risk exposure
- As soon as possible
- 28 day course
- Tenofovir/emtricitabine + raltegravir or dolutegravir

www.hivguidelines.org



Case #1 cont.

- ▶ 24 year old MSM on nPEP, day 27/28. Struggles with consistent condom use and regularly has unprotected receptive anal intercourse with his HIV-infected partner
- ▶ Should we consider PrEP?

Steps to start:

HIRI
Baseline labs
Insurance status, copay assistance
1 to 3 month supply
RTC in 1 to 3 months

Baseline labs:

HIV test
Chem 7
UA
Hep panel
STI screen
TPAB



Discontinuing PrEP

- ▶ Positive HIV result
- ▶ Acute HIV signs or symptoms
- ▶ Non-adherence
- ▶ Renal disease, osteopenia
- ▶ Changed life situation: lower HIV risk

<http://www.cdc.gov/hiv/pdf/guidelines/PrEPguidelines2014.pdf>



PrEP Summary

- Effective
- FDA approved
- Well-tolerated
- Many people benefit from PrEP and awareness, knowledge and utilization are improving

However,

- Short-term data only
- Daily adherence required
- Side effects
- Cost



PrEP Resources

- ▶ CDC: <http://www.cdc.gov/hiv/pdf/prepguidelines2014.pdf>
- ▶ NYSDOH AI: <http://www.hivguidelines.org/>
- ▶ PrEP Watch/ AVAC: <http://www.prepwatch.org/>



Additional Resources

NY/NJ AETC PrEP Webinars

- ▶ http://nynjaetc.virtualforum.com/pif.asp?Prog_ID=14060902&securitycode=KXbFYh
- ▶ http://nynjaetc.virtualforum.com/pif.asp?Prog_ID=14052303&securitycode=01r27E
- ▶ http://nynjaetc.virtualforum.com/pif.asp?Prog_ID=14050908&securitycode=o9k2C2