



NATIONAL LGBT HEALTH  
EDUCATION CENTER

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# PrEP and Informatics

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# Our Roots

## Fenway Health

- Independent 501(c)(3) FQHC
- Founded 1971
- Mission: To enhance the wellbeing of the LGBTQIA+ community as well as people in our neighborhoods and beyond through access to the highest quality health care, education, research, and advocacy
- Integrated primary care model, including HIV and transgender health services

## The Fenway Institute

- Research, Education, Policy

[www.lgbthealtheducation.org](http://www.lgbthealtheducation.org)





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# Today's Faculty

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# Disclosures

No presenters for today's session have financial or other conflicts of interest to disclose.

# Using Electronic Health Records to Identify Potential PrEP Candidates

Douglas Krakower, MD and Julia Marcus, PhD, MPH



Beth Israel Deaconess  
Medical Center

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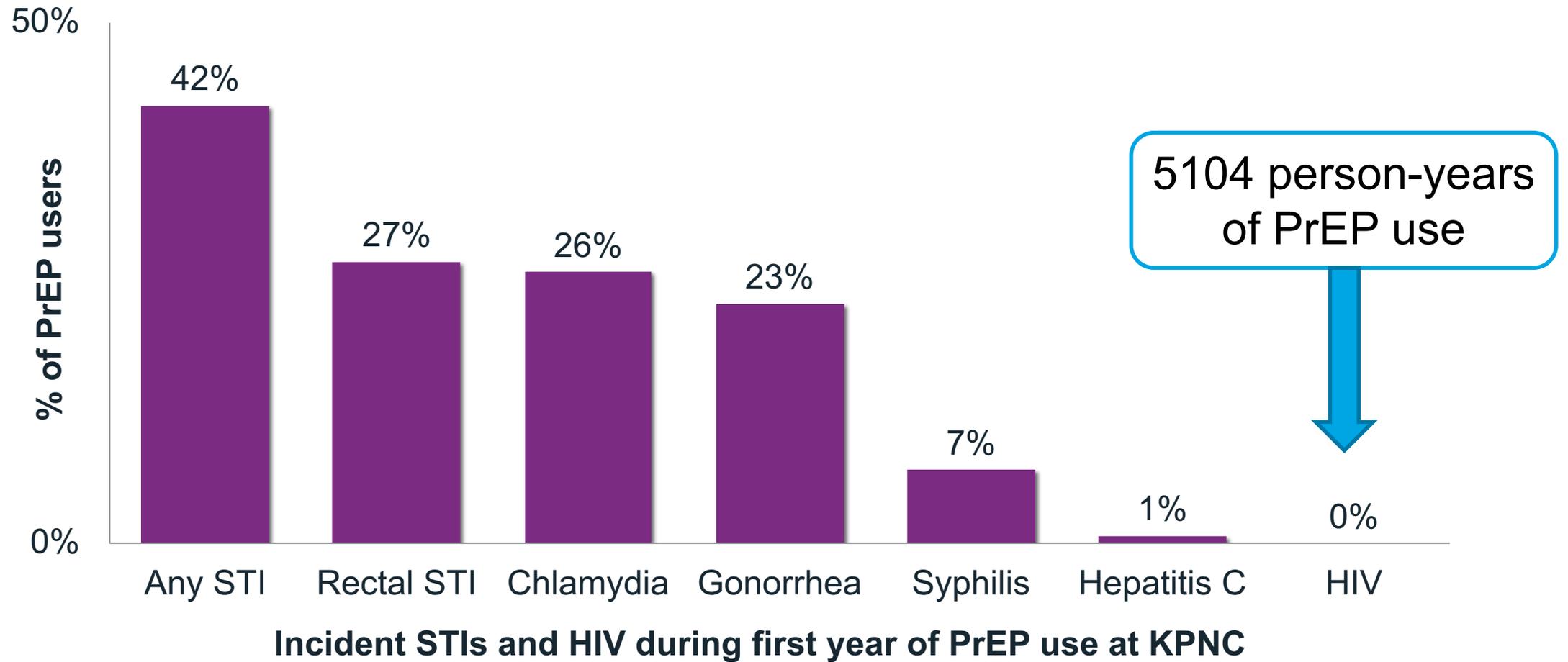
FENWAY  HEALTH

# Overview

- 1) Promise of EHRs to catalyze PrEP discussions
- 2) Development of EHR-based prediction models
- 3) Patient and provider perspectives
- 4) Implementation in diverse healthcare settings



# PrEP works.



# Used least by those who could benefit most

Lifetime Risk of HIV Diagnosis among MSM by Race/Ethnicity



## PrEP coverage

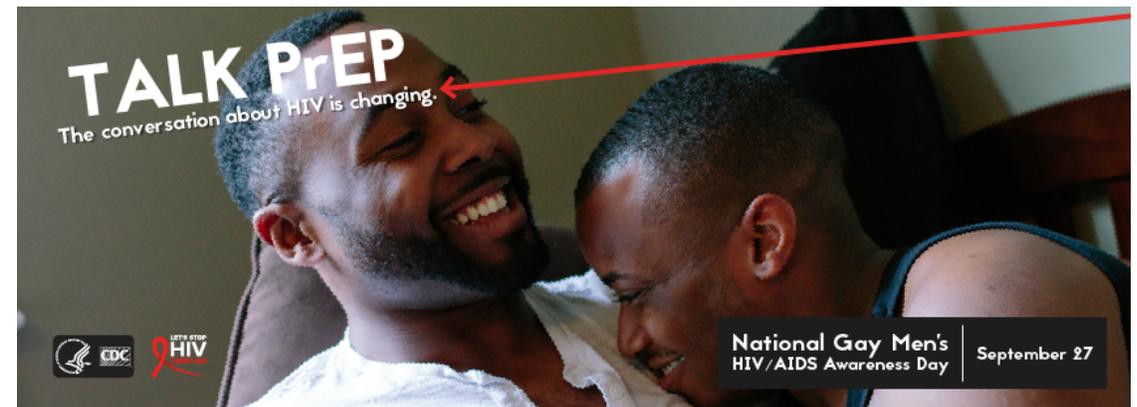
Black: 6%

Hispanic: 11%

White: 42%

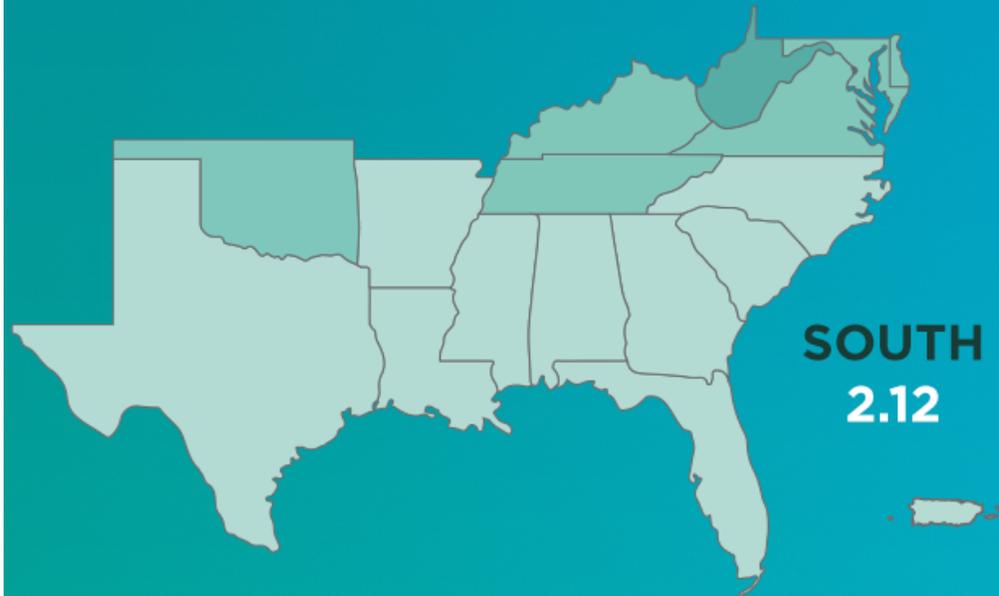
## Barriers

- Stigma and racism
- Cost
- HIV risk assessment



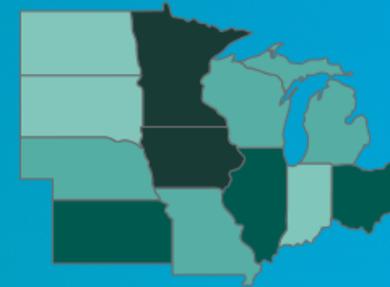
# Used least in regions that need it most

In 2018, the **South** had the **most unmet need for PrEP** by region.  
*(Lowest PrEP to Need Ratio)*

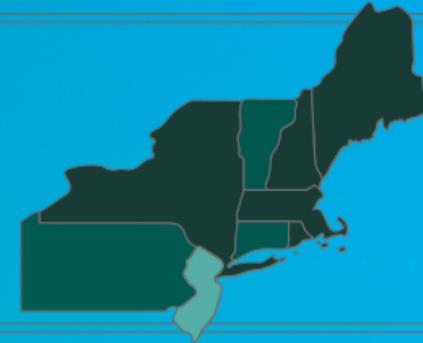


State-Level PrEP-to-Need Ratio, 2018

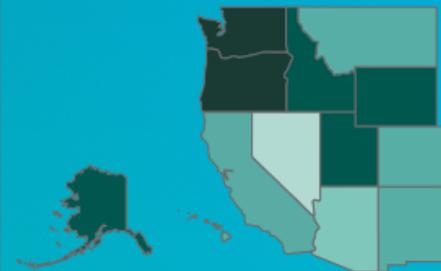
0 - 2.17    2.18 - 3.34    3.35 - 4.51    4.52 - 7.0    7.1+



**NORTHEAST**  
6.44



**WEST**  
3.86



Here, the PrEP-to-Need Ratio (PnR) is the ratio of the number of PrEP users in 2018 to the number of people newly diagnosed with HIV in 2017.

# Need effective tools to assess HIV risk

Recommendation Summary		
Population	Recommendation	Grade (What's This?)
Persons at high risk of HIV acquisition	The USPSTF recommends that clinicians offer preexposure prophylaxis (PrEP) with effective antiretroviral therapy to persons who are at high risk of HIV acquisition.	<b>A</b>

“Research is needed to **develop and validate tools** that are highly accurate for identifying persons at high risk of HIV acquisition who would benefit from PrEP.”

# Limitations of existing HIV risk prediction tools

## MSM Risk Index

1. How old are you today?	If <18 years, score 0. If 18-28 years, score 8. If 29-40 years, score 5. If 41-48 years, score 2. If 49 years or more, score 0.	_____
2. In the last 6 months, how many men have you had sex with?	If >10 male partners, score 7. If 6–10 male partners, score 4. If 0-5 male partners, score 0.	_____
3. In the last 6 months, how many times did you have receptive anal sex (you were the bottom) with a man without a condom?	If 1 or more times, score 10. If 0 times, score 0.	_____
4. In the last 6 months, how many of your male sex partners were HIV-positive?	If >1 positive partner, score 8. If 1 positive partner, score 4. If <1 positive partner, score 0.	_____
5. In the last 6 months, how many times did you have insertive anal sex (you were the top) without a condom with a man who was HIV- positive?	If 5 or more times, score 6. If 0 times, score 0.	_____
6. In the last 6 months, have you used methamphetamines such as crystal or speed?	If yes, score 6. If no, score 0.	_____
Add down entries in right column to calculate total score.		_____ <b>TOTAL SCORE*</b>

\*If score is 10 or greater, evaluate for intensive HIV prevention services including PrEP.  
If score is below 10, provide indicated standard HIV prevention services.

Preexposure Prophylaxis for the Prevention of HIV Infection in the United States – 2014 Clinical Providers' Supplement Page 21 of 43

- Require providers to know a patient is in an HIV risk group (e.g., MSM)
- Difficult to use during busy clinical visits
- Not strongly predictive (C-statistics 0.66-0.72)
- Underestimate HIV risk in Black MSM

# Envisioning EHR decision support for PrEP

PROMPT

Go To Patient PROMPT →

Catastrophic Hold

APM	Value	Actions
+ ASA	needs discussion - 15.9%, 60-69 Last: Due:	CV Calc Discuss Rx
+ CRC	up to date - followed by GI Last: 01/23/2015 Due: 01/27/2020	Done Outside Colectomy Holds ▾
+ D/T/Td	up to date Last: 10/02/2014 Due: 10/02/2024	
+ Flu	up to date Last: 10/18/2017 Due: 10/01/2018	
+ Pneum	up to date Last: 02/29/2016 Due:	

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request timestamp: 09/21/2018 08:28:50  
request url: prompt.kp.org  
program version: 2.34.1

# Objective

Develop and validate an HIV risk prediction model using EHR data to identify potential PrEP candidates in a large healthcare system

# Study setting #1

- Kaiser Permanente Northern California
- Large integrated healthcare system
- 4.3 million members



# HIV risk predictors retained in final model

## Demographics

- Male
- Aged 50-59
- Aged ≥60
- Black
- Hispanic
- Asian
- Other race/ethnicity
- Lower SES categories as measured by neighborhood deprivation index (3 variables)
- Received care in 1 of 3 cities with higher HIV incidence (3 variables)
- Resided in 1 of 8 urban ZIP codes with higher HIV incidence (8 variables)

## Social history

- MSM
- Sexually active

## Laboratory tests and results

- Positive urine test for methadone, ever prior
- Positive urine test for cocaine, ever prior
- No. of HIV testing episodes, prior 2 years
- No. of HIV antibody or RNA tests, prior 2 years
- No. of tests for rectal GC/CT, ever prior
- No. of positive tests for rectal GC/CT, prior 2 years
- No. of positive tests for urethral CT, prior 2 years
- No. of positive tests for urethral GC, prior 2 years
- No. of syphilis tests, prior 2 years
- No. of positive syphilis tests, prior 2 years

## Medication use

- Medications for erectile dysfunction, ever prior
- No. of penicillin G benzathine injections with syphilis test within 90 days, prior 2 years

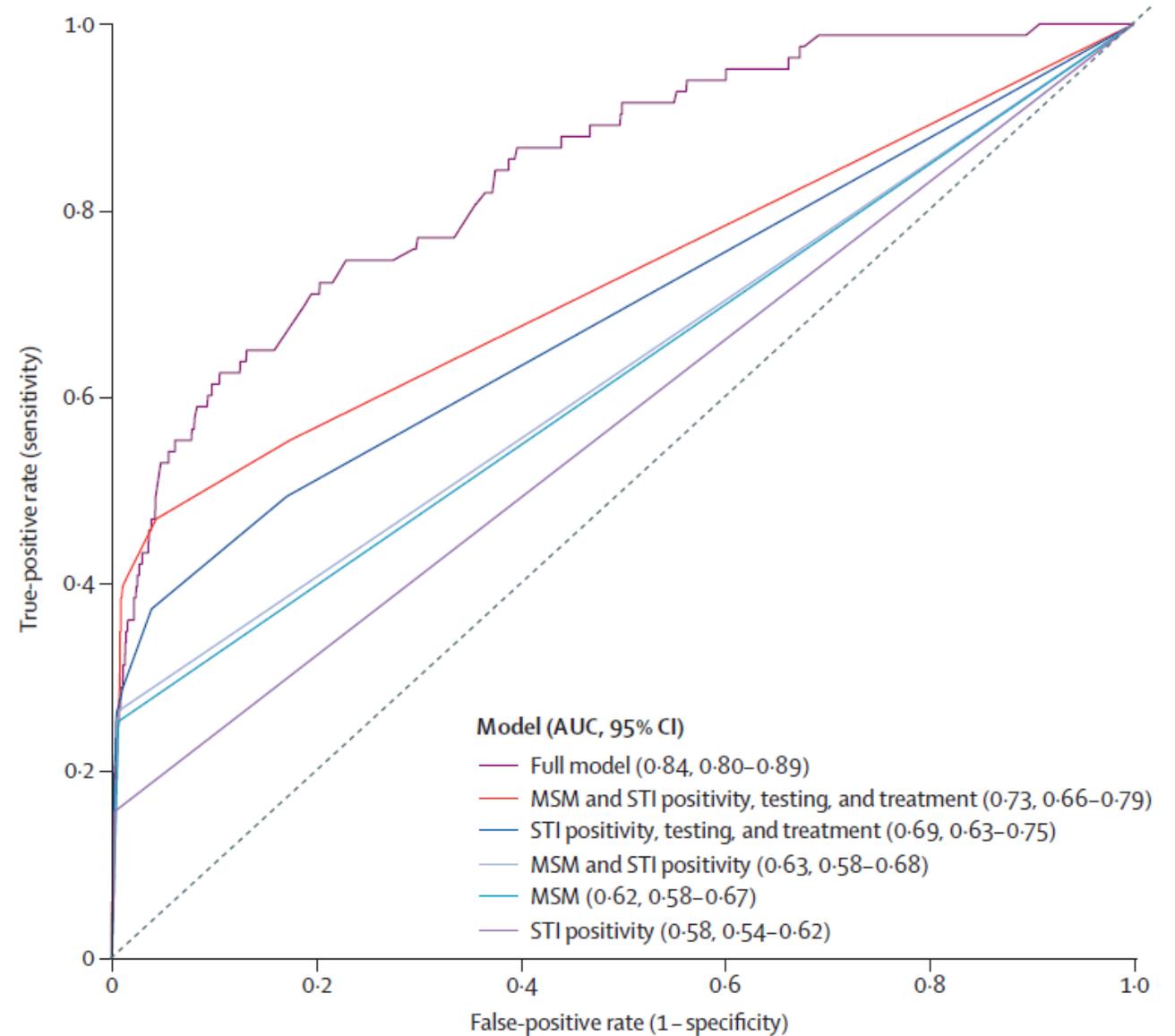
## Diagnoses

- No. of anal wart diagnoses, ever prior
- Depression, ever prior
- Any psychiatric diagnosis, ever prior
- Transgender-related diagnosis, ever prior
- High-risk sexual behavior (homosexual), ever prior
- High-risk sexual behavior (unspecified), ever prior
- Exposure to HIV, ever prior
- HIV counseling, ever prior
- HIV education, ever prior

Cross-validated C-statistic in 2007-2014: **0.86** (95% CI: 0.85-0.87)

# Discrimination

- C-statistic remained high in 2015-2017: **0.84** (95% CI: 0.80-0.89)
- Full model outperformed simpler models



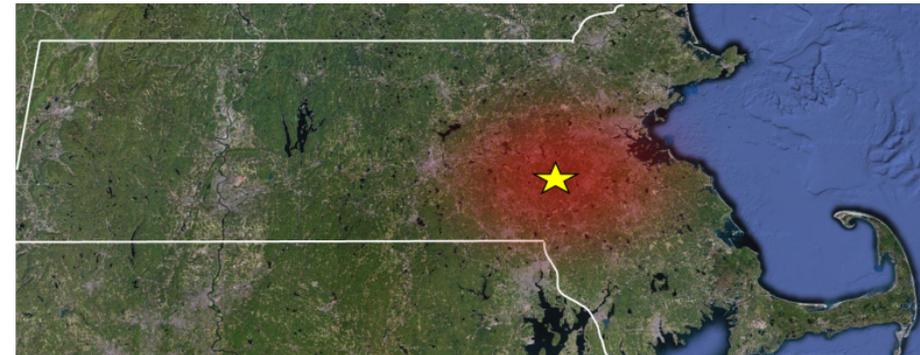
# Sensitivity of models among patients with high or very high risk scores (2.2%)

	Sensitivity (% of HIV cases identified)
Model	Overall (n=83)
Full model	39%
MSM status and STI positivity, testing, and treatment	29%
STI positivity, testing, and treatment	21%
MSM status and STI positivity	25%
MSM status	25%
STI positivity	6%

# Study setting #2



Atrius Health, a  
large ambulatory  
practice in Boston  
32 Sites, ~800,000 pts





# Extract potentially relevant EHR data for patients with incident HIV (cases) and patients without HIV (controls)

- Age
- Race
- Sex
- Home language
- No. of Encounters per Year
- No. of Gonorrhea tests per year
- Positive Gonorrhea tests per year
- Rectal Gonorrhea tests per year
- Positive rectal Gonorrhea tests per year
- Pharyngeal Gonorrhea tests per year
- Positive pharyngeal Gonorrhea tests per year
- No. of Chlamydia tests per year
- Positive Chlamydia tests per year
- Rectal Chlamydia tests per year
- Positive rectal Chlamydia tests per year
- Pharyngeal Chlamydia tests per year
- Positive pharyngeal Chlamydia tests per year
- No. of syphilis tests per year
- Syphilis diagnosis per ESP
- LGV testing
- Anal cytology testing
- No. of HCV antibody tests
- No. of HCV RNA tests
- HCV antibody or RNA tests positive
- Acute Hepatitis C per ESP
- No. of HBV DNA tests per year
- HBSAg or HBV DNA positive
- Acute Hepatitis B per ESP
- No. of HIV ELISA tests per year
- No. of HIV Western Blots per year
- No. of HIV RNA tests per year
- HIV status per ESP
- HIV new diagnosis
- History of HIV meds
- HIV negative with HIV RNA tests
- Abnormal anal cytology
- Dx for Syphilis
- Dx for Anal syphilis
- Dx for Gonococcal infection of anus
- Dx for Gonococcal pharyngitis
- Dx for Chlamydia infection of anus
- Dx for Chlamydia pharyngitis
- Dx for LGV
- Dx for Chancroid
- Dx for Granuloma inguinale
- Dx for non-gonococcal urethritis
- Dx for HSV with complications
- Dx for Genital Herpes
- Dx for Anogenital warts
- Dx for Anorectal ulcers
- Dx for PID
- Dx for Contact / exposure to STD
- Dx for High risk sexual behavior
- Dx for HIV counseling
- Dx for HIV counseling
- Dx for Anorexia nervosa
- Dx for Bulimia nervosa
- Dx for Eating disorders
- Dx for Counseling for childhood sex abuse
- Dx for Alcohol dependence
- Dx for Opioid dependence
- Dx for Sedative, hypnotic, or anxiolytic dependence
- Dx for Cocaine dependence
- Dx for Amphetamine dependence
- Rx for bicillin
- Rx for azithromycin 1g
- Rx ceftriaxone 125mg or 250mg
- Rx for methadone
- Rx for Suboxone
- Rx for sildenafil or tadalafil or vardenafil



# Extract potentially relevant EHR data for patients with incident HIV (cases) and patients without HIV (controls)



## Demographics

- No. of Gonorrhea tests per year
- Positive Gonorrhea tests per year
- Rectal Gonorrhea tests per year
- Positive rectal Gonorrhea tests per year
- Pharyngeal Gonorrhea tests per year
- Positive pharyngeal Gonorrhea tests per year
- No. of Chlamydia tests per year
- Positive Chlamydia tests per year
- Rectal Chlamydia tests per year
- Positive rectal Chlamydia tests per year
- Pharyngeal Chlamydia tests per year
- Positive pharyngeal Chlamydia tests per year
- No. of syphilis tests per year
- Syphilis diagnosis per ESP
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- Anal cytology testing

- No. of HCV antibody tests
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- HCV antibody or RNA tests positive
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- Rx for sildenafil or tadalafil or vardenafil



# Extract potentially relevant EHR data for patients with incident HIV (cases) and patients without HIV (controls)



Demographics



Laboratory Results

- Dx for Syphilis
- Dx for Anal syphilis
- Dx for Gonococcal infection of anus
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- Dx for Chlamydia infection of anus
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- Dx for HSV with complications
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# Extract potentially relevant EHR data for patients with incident HIV (cases) and patients without HIV (controls)



Demographics



Laboratory Results



Diagnoses

Rx for bicillin  
Rx for azithromycin 1g  
Rx ceftriaxone 125mg or 250mg  
Rx for methadone  
Rx for Suboxone  
Rx for sildenafil or tadalafil or vardenafil



# Extract potentially relevant EHR data for patients with incident HIV (cases) and patients without HIV (controls)



Demographics



Laboratory Results



Diagnoses



Prescriptions

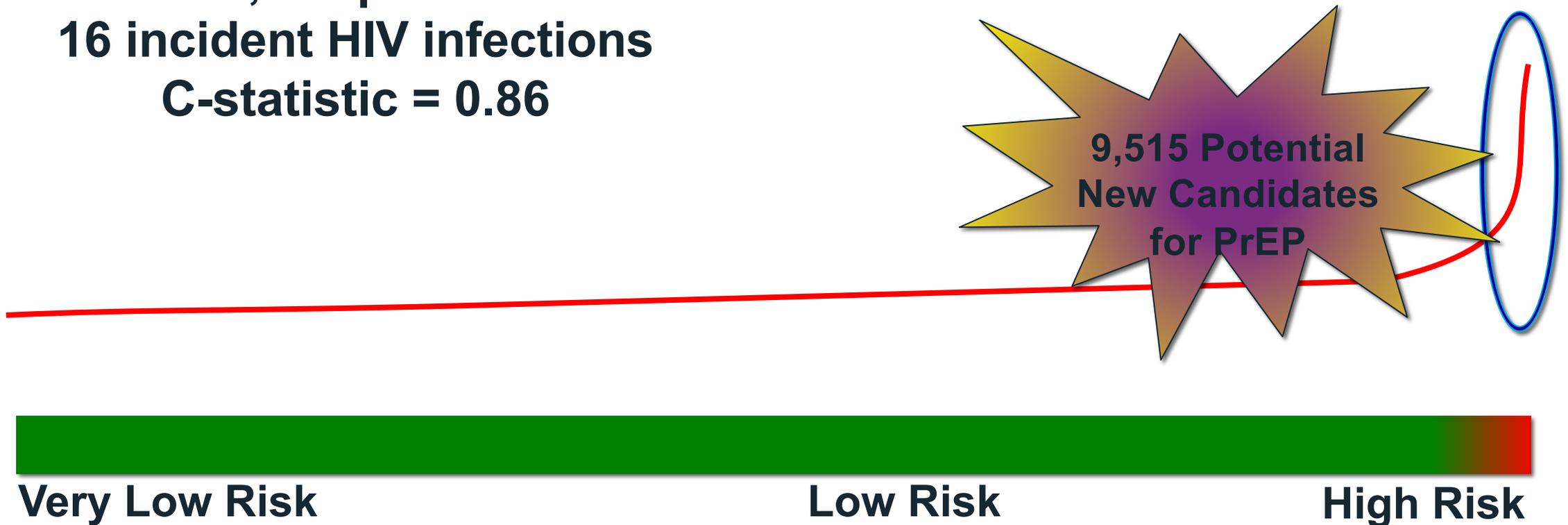
# 9,515 (1.8%) of patients in the general population in 2016 had HIV risk scores above an inflection point

## Atrius Health in 2016

537,257 patients

16 incident HIV infections

C-statistic = 0.86



# *Would You Want a Computer to Judge Your Risk of H.I.V. Infection?*

A new software algorithm decides which patients are most likely to become infected with the virus. But this is not like other risk calculators, some experts say.



By [Gina Kolata](#)

July 30, 2019



# What do providers think about the use of automated prediction models for PrEP?

Focus groups: 42 PCPs (Atrius, Fenway)

## Anticipated benefits

- Identify candidates missed by busy clinicians
- Facilitate discussions about HIV risk
- Destigmatize and standardize risk assessment

## Concerns

- Negative patient reactions
- Potential breaches in confidentiality
- Accuracy of model predictions

“I think I should probably be offering PrEP to more people than I am offering it to. So in that way, **it would improve my practice** and have me doing something that I would like to be doing.”

- Attending, Atrius Health

# What do patients think about the use of risk prediction tools for PrEP?

Interviews: 32 MSM (Fenway, BIDMC)

## Themes

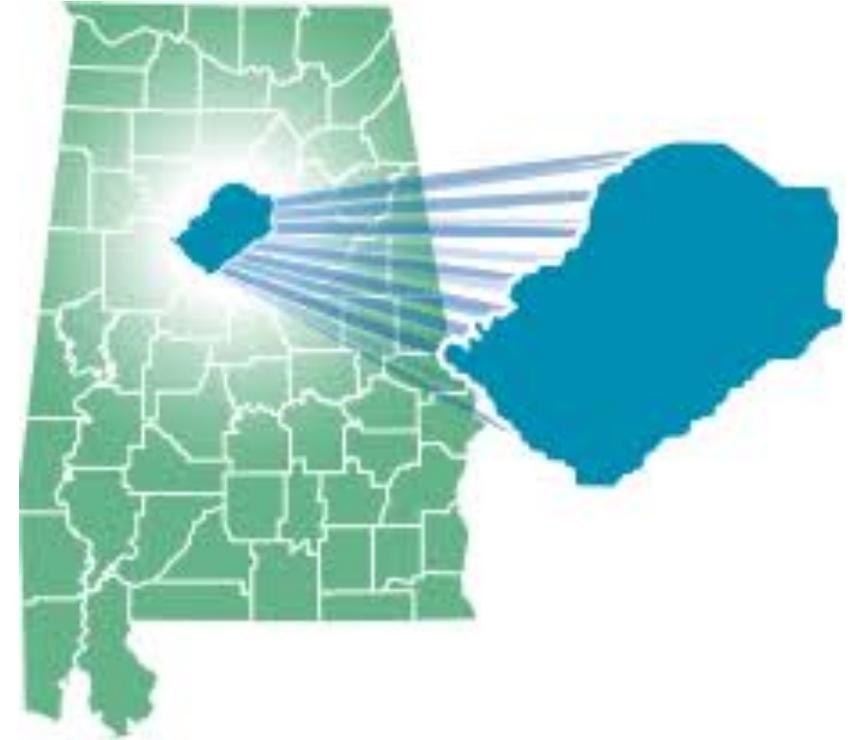
- Need for providers to contextualize information about risk
- Doubts about quantifying risk at a single point in time
- Belief that receiving a high risk score would prompt behavior change

“I would think [an HIV risk prediction score] actually could be helpful, in a way. I mean, obviously, I would take it with a grain of salt.... But **I think it would help me understand where I am**, you know how I’ve been doing. ‘Ok, do I continue on the course that I’m on? Or do I need to readjust?’”

- MSM participant

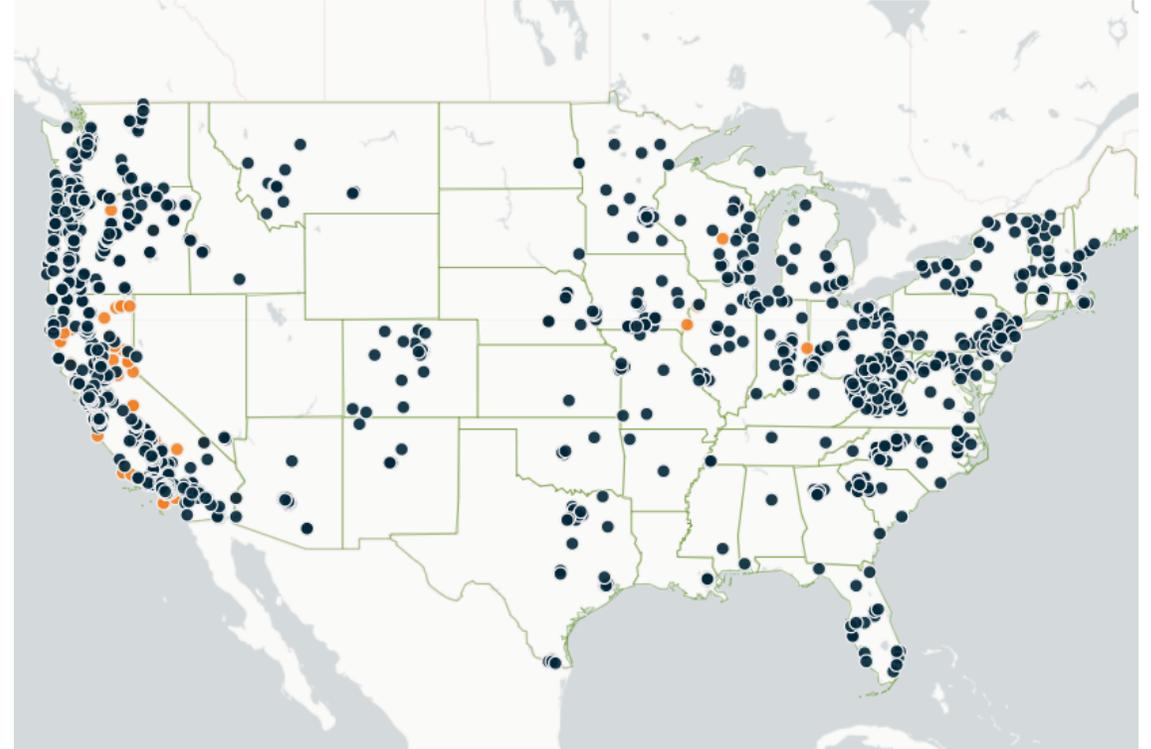
# Implement in public health clinics in Alabama

- 1 of 7 hotspot states in Ending the Epidemic initiative
- Jefferson County diagnoses the most HIV cases in the state
- 3 primary care clinics and 1 STI clinic, with 17 years of EHR data



# Pilot trial in network of community health centers

- 2.8 million patients
- 19% Black, 35% Latinx, 65% below poverty line
- 155 clinics in HIV hotspot counties



**OCHIN**

# Trial at Kaiser Permanente San Francisco

- 121 PCPs serving 189,000 patients
- Refer to centralized PrEP program
- ~5000 pts on PrEP but substantial disparities



# Conclusions

- We need to catalyze conversations about sexual health and PrEP in healthcare settings
- Rich EHR data can help providers identify patients likely to benefit from PrEP
- Next steps:
  - Optimize models (e.g., women, disseminability)
  - Implement in EHRs
  - Evaluate impact on PrEP prescribing

# Thank you!

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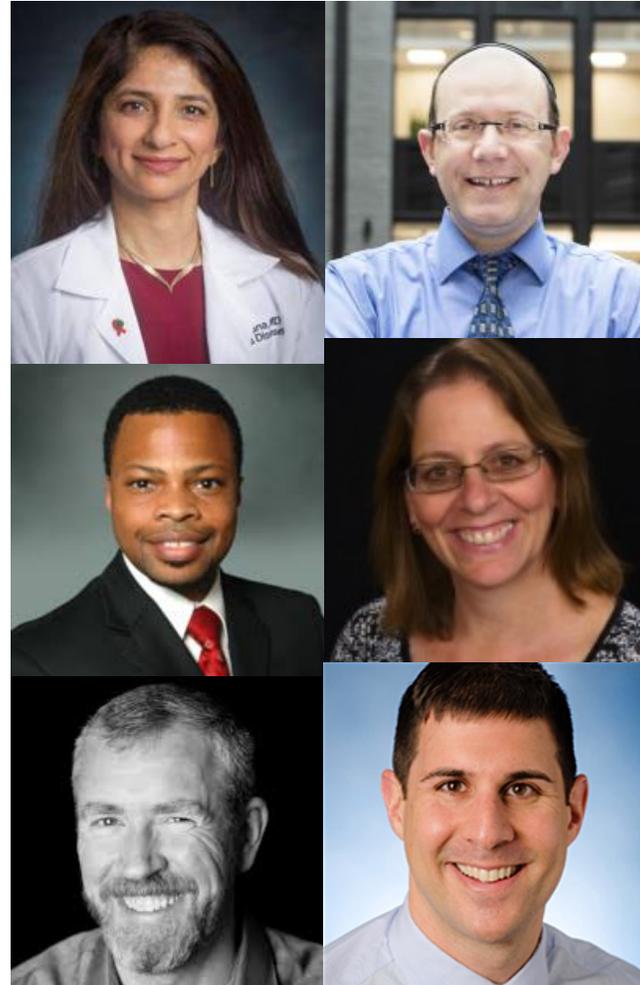
Jonathan Volk

Mike Silverberg

Jonathan Todd

Miguel Marino

Stacey Alexeeff



## ■ NIAID

- K01 AI122853
- R21 AI143386
- P30 AI060354

## ■ NIMH

- K23 MH098795
- R34 MH122291

## ■ NIMHHD

- R01 MD013565-02S1

## ■ Kaiser Permanente

- Community Benefit Research Program
- Delivery Science Research Program



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# Collecting and Extracting PrEP Data



Kenneth Levine, BCS

# Collecting and Extracting PrEP Data

- Ways to collect data on PrEP usage for later review
- Using Forms
- PrEP is more than a service
  - Allows other important information about patient to be tracked
  - Gateway to improved care

# Fulfilling Query Requests for PrEP Users

- OPTION 1: Create a problem code called PrEP in Medical Record
  - For a PrEP patient
    - Create a PrEP problem at time of first Rx
    - Inactivate problem when patient goes off PrEP
    - Create a new PrEP problem each time they go back on PrEP
    - Queries can look for active PrEP in problem list
    - **This places onus on provider accurately entering and removing the problem**

# Fulfilling Query Requests for PrEP users (cont.)

- OPTION 2: Identify PrEP Rx as being for PrEP
  - For a PrEP patient
    - Create a prep Rx in which the instructions state “for PrEP or some standard text.
    - Set up in custom med list so provider just chooses.
    - Inactivate Rx when patient goes off PrEP.
    - This places onus on provider accurately specifying that Rx is for PrEP, and ending Rx when patient stops.

# Fulfilling Query Requests for PrEP users (cont.)

- OPTION 3: Use forms for PrEP data collection and tap this data for PrEP usage information
  - For a PrEP patient
    - Track not just their PrEP usage but where they are on the PrEP continuum, eg – considering, interested, initiating, follow up, termination.
    - Track other useful information like risk factors, sexual history, prior PrEP usage, prior nPEP usage, PrEP side effects, barriers to effectively taking PrEP, STI and acute HIV screening, counselling , plan follow ups.
    - Nursing staff involvement, can also track by telehealth
    - Richer opportunities for data mining
    - **This places onus on providers to use these forms when indicated and to complete them as correctly.**

# Fulfilling Query Requests for PrEP users (cont.)

- OPTION 4: **Reality** – You may have some of options 1, 2, and 3 in place but still need to get creative when it comes to extracting the most accurate information on PrEP usage
  - No HIV in problem list
  - Rx for Descovy or Truvada – if looking for first PrEP, should be first such Rx.
  - Rx instructions should not mention oPEP, nPEP or post exposure prophylaxis
  - Related document summary should only mention NPEP if PrEP is also mentioned, implying transition nPEP to PrEP
  - Rx instructions should mention PrEP OR Rx should be written for more than 30 days
  - No concurrent ARV Rx (which might indicate nPEP regimen).
  - Take advantage of readily available information like age, race, ethnicity, SOGI data, insurance for useful analyses

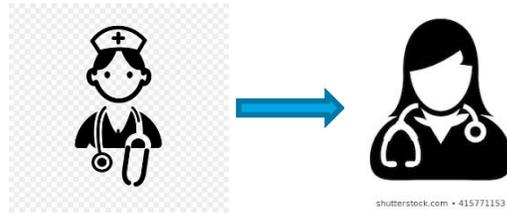
# PrEP Forms: More than Documenting PrEP Usage

Drop in STI  
Clinic

Drop in  
Needle  
Exchange



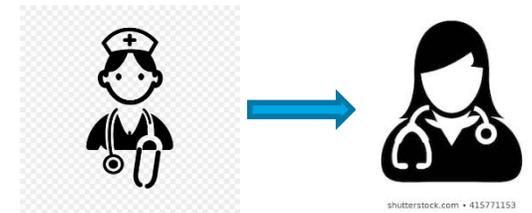
gg65103015 www.gograph.com



Same Day  
PrEP Form

PHAST PrEP  
Form

Established  
patients



PrEP Intake  
Form

PrEP STD  
Form



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# PrEP Forms: Intake

**Intake** | Assessment | History | PreP Med | Counseling | FollowUp

## Past Medical History

1. Have you ever tested positive for HIV?  Yes  No  Dont Know

2. Do you have a history of renal disease?  Yes  No  Dont Know

3. Do you have a history of liver disease?  Yes  No  Dont Know

4. Have you ever been diagnosed with osteoporosis?  Yes  No  Dont Know

5. Do you currently have Hepatitis B?  Yes  No  Dont Know

6. In the past 72 hours, have you

Had any condomless anal or vaginal intercourse?  Yes  No  Dont Know

Shared needles for injection drug use with partner of + or unknown HIV Status?  Yes  No  Dont Know

7. Have you ever been on nPEP?  Yes  No  Dont Know

8. Collect Immunization History

[.imm](#)

## Current Medications

Check record for any current meds and update list

1. Are you on a daily NSAID?  Yes  No

Current Medications

[Add Medications](#)

## Vital Signs

Weight  Height  Pulse  Temperature

O2  BP  /  Respiratory Rate

[Prev Form \(Ctrl+PgUp\)](#) [Next Form \(Ctrl+PgDn\)](#)

# PrEP Intake Forms: Assessment

Intake | **Assessment** | History | PreP Med | Counseling | FollowUp

**Physical Assessment**

**If yes to 2 or more, refer to provider to assess for acute HIV infection**

In the last month have you experienced any of the following:

- Fever
- Fatigue
- Myalgia
- Rash
- Headache
- Sore Throat
- Cervial Adenopathy
- Arthalgias
- Night Sweats
- Diarrhea

**Denies all**

Denies

- Fever
- Fatigue
- Myalgia
- Rash
- Headache
- Sore Throat
- Cervial Adenopathy
- Arthalgias
- Night Sweats
- Diarrhea

Assess for STI

- Dysuria
- Discharge
- Anorectal Itching
- Anorectal Pain
- Rash
- Ulcers

# PrEP Intake Forms: History and Readiness

Intake | Assessment | **History** | PreP Med | Counseling | FollowUp

**Sexual and Substance Use History**

1. How many sexual partners have you had in the last year?

2. What kind of sex are you having?

**Allow patients to answer, do not prompt. (If patient requests clarification: receptive and/or insertive anal, oral, vaginal, toys)**

3. Are you in a sexual relationship with someone who has HIV?  Yes  No

4. Do you now or have you ever engaged in sex work?  Yes  No

5. Do you now or have you ever used IV drugs?  Yes  No

**Readiness for medication**

1. What do you currently know about PreP?

2. Have you ever taken PreP before? If so when, why did you stop?

3. Do you know anyone on PreP?

4. Why are you interested in going on PreP?

5. What, if any, barriers do you foresee?

6. How long do you anticipate being on PreP?

# PrEP Intake Forms: PrEP Med

Intake

Assessment

History

PrEP Med

Counseling

FollowUp

## Review PreP Medication

### 1. Potential Side Effects

Common:

diarrhea, dizziness, nausea, headache, fatigue, abnormal dreams, sleep problems, rash, depression

**Counsel: If experience, continue med, contact care team within 7 days**

Cause for concern:

lactic acidosis (weakness, unusual pain, trouble breathing, nausea, vomiting, fast heartbeat, feeling cold/dizzy/lightheaded), liver problems (jaundice, light colored stools, lack of appetite, nausea, abdominal pain)

**Counsel: If experience, stop medication, contact care team for evaluation within 24 hours**

### 2. Need for daily adherence (discuss efficacy of and resistance to medication)

**Counsel: Notify provider and need for HIV testing prior to restarting PrEP if stopped for seven or more days**

### 3. Time to protection

**Approximately 7 days after starting PrEP in rectal tissue**

**Approximately 20 days in cervicovaginal tissue**

### 4. Review risk regarding Hepatitis B and acute HIV

## Baseline Testing

DPH:

- HIV Antibody  
 CT - Rectal Swab and Urine

- Syphilis  
 GC - Rectal Throat swab and Urine

Quest:

**Use the MED: PrEP Visit Custom List**

Order Quest Labs

# PrEP Intake Forms:Counseling

Intake	Assessment	History	PrEP Med	Counseling	FollowUp
--------	------------	---------	----------	------------	----------

### Assessment

Assessment:  Continues to be a good candidate for PrEP

- No apparent STI
- Risk for exposure to infection related to sexual behavior
- Symptoms concerning for an STI
- Concerned for contact to an STI
- Knowledge deficit related to medication use
- Knowledge deficit related to disease transmission
- Other

### Counseling

PrEP:  Importance of regular exams every three months

- Reducing number of partners and knowing their status can reduce risk
- PrEP does not protect against other STIs
- Importance of good adherence to medications
- Call us if missing multiple doses
- Pt informed of adherence aids such as pill boxes and smart phone applications
- "Every dose Every Day"
- Tell provider if you get flu like symptoms while on PrEP
- Informed of Gilead Patient Assistance program if unable to afford PrEP
- Encouraged condom use

STD:  Importance of regular exams at least annually for sexually active adults

- If you are told you have come into contact with an STI please schedule a visit and refrain from sexual activity until treated
- Encouraged condom use

As Applicable:  Patient informed of the Violence Recovery Program

- Patient informed of Team Case Manager for substance use resources.

Patient Instructions

# PrEP Forms: PHAST PrEP Check

Check-In | Education/Referrals

### PrEP Side Effect Check

Complains of

- Abdominal Pain
- Diarrhea
- Nausea
- Dark Urine
- Jaundice
- Muscle Pain
- Headache
- Weight Loss
- Lethargy
- Dizziness
- Depression
- Problems Sleeping
- Abnormal Dreams
- Rash

Notes

Denies all

Denies

- Abdominal Pain
- Diarrhea
- Nausea
- Dark Urine
- Jaundice
- Muscle Pain
- Headache
- Weight Loss
- Lethargy
- Dizziness
- Depression
- Problems Sleeping
- Abnormal Dreams
- Rash

### PrEP Barriers Check

Missed doses since last visit:

Barriers to taking PrEP as described

- No barriers identified
- Cost
- Ability to pick up
- Side effects
- Storage
- Other

Notes

# PrEP Forms: PHAST PrEP Check

## Education and Referrals

### 1. Education

Education, Counseling and Discussion of Risk Reduction Practices  Provided

Condom Distribution and Education  Provided

Recommended Regular Routine HIV/STI Screening  Provided

Information about nPEP  Provided

Information about PrEP  Provided

Notify Partners and discuss risk reduction practices  Provided

Discussed reporting requirements of infectious disease results to DPH and required agencies  Provided

### 2. Supported Referrals

PrEP Initiation (start or restart PrEP)  Referred  Provided  Confirmed

PrEP Maintenance (PrEP labs, sending labs to PCP, etc.)  Referred  Provided  Confirmed

PrEP Adherence  Referred  Provided  Confirmed

*(Every Dose, Every Day app for Truvada, Another mobile adherence app, Adherence Practice Review/Suggestions, PrEPAS, etc.)*

PrEP Financial Assistance (PrEPDAP, Gilead Copay Card, etc.)  Referred  Provided  Confirmed

nPEP  Referred  Provided  Confirmed

nPEP Financial Assistance  Referred  Provided  Confirmed

Primary Care  Referred  Confirmed

Hepatitis A/Hepatitis B Vaccine  Referred  Confirmed

Transgender/Gender Affirming Care & Services  Referred  Provided  Confirmed

Other Health Care Services (Optometry, Dental, Etc.)  Referred  Confirmed

Mental Health Services  Referred  Confirmed

Health Insurance Assistance/Financial Services  Referred  Provided  Confirmed

Benefits Assistance/Case Management Services  Referred  Confirmed

Transportation Services  Referred  Confirmed

Employment Services  Referred  Confirmed

Housing Support Services  Referred  Confirmed

*(Rental Assistance, Youth on Fire, Housing Search, etc.)*

Additional HIV/HCV/STI/TB Testing  Referred  Provided  Confirmed

Substance Use Services  Referred  Provided  Confirmed

*(Syringe Services Program, Drug/Alcohol Treatment, ATS, etc.)*

Medication Assisted Treatment Program  Referred  Confirmed

Narcan Program/Overdose Education  Referred  Provided  Confirmed

Legal Services  Referred  Confirmed

Vein and Wound Care  Referred  Confirmed

Other  Referred  Provided  Confirmed

# PrEP Forms: PHAST PrEP Check

## 3. Linkage to Care Referrals/Intervention

Partner Services (DIS)  Referred

Confirmed

Medication Adherence Support  Referred

Confirmed

*(Peer Support Groups, Mobile Adherence Apps for ARVs, etc.)*

Every Dose, Every Day Mobile App for ARVs  Referred

Provided

Confirmed

Healthy Relationships GLI  Referred

Provided

Confirmed

Other HIP Behavioral Interventions for HIV+ persons  Referred

Confirmed

ARTAS  Referred

Provided

Confirmed

Hepatitis C Treatment  Referred

Confirmed

Gonorrhea/Chlamydia/Syphilis Treatment  Referred

Provided

Confirmed

## 4. Other Interventions

Couples HIV/STI Testing and Counseling  Referred

Provided

Confirmed

PCC (Personal Cognitive Counseling)  Referred

Provided

Confirmed

Two-Session Risk Reduction Counseling  Referred

Provided

Confirmed

Additional referral/recommendation notes:

# Summary

- Important to standardize PrEP data capture
- Benefits for keeping track of who is considering PrEP, on PrEP, discontinuing PrEP
- Track other vital information concurrently:
  - STDs
  - symptoms
  - sex practices
  - resources or referrals
- Improve patient care

HEALTH INFORMATION TECHNOLOGY,  
**HITREQ**  
EVALUATION, AND QUALITY CENTER

**Optimizing Health IT for PrEP**

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May 21, 2020

Jillian Maccini, MBA, PCMH CCE

# Using health IT to support PrEP

- There are a number of best practices for PrEP that can be supported by configuring your EHR or health IT systems.
- These touch on a number of areas that are all important for creating a robust PrEP Program:
  - **Targeted Outreach/ Intervention-** What patients would most benefit from PrEP? What patients are at high or increased risk of acquiring HIV?
  - **Standardized Documentation-** Using structured data fields allows for reporting and tracking of treatment engagement as well as locating and closing gaps in patient care.
  - **Routine F/U and Screening-** PrEP treatment protocols call for quarterly patient visits as well as routine quarterly and bi-annually laboratory testing.
  - **Patient Education-** Patient education regarding acute HIV infection symptoms as well as the proper way to take PrEP medications and adherence strategies.
  - **Case Management/Care Coordination-** PrEP may not be covered by insurance, as such patients may need help navigating through government sponsored programs, or insurance authorization processes, to facilitate them receiving the medication.

**Best Practice:**  
**Patients should  
be regularly  
screened for  
Social  
Determinants of  
Health**

From the published literature:

- Access to education, effects of violence, and struggle to meet basic survival needs affect PrEP use and adherence.
- Patients should be screened for challenges related to securing food, clothing or housing; getting health care; securing medications, paying rent; seeing a doctor, exposure to violence. **When patients are facing barriers to social needs, they are often forced to prioritize those needs over engaging in preventative health services (like PrEP).**

# Related EHR Optimization

- Implement a Social Determinants of Health screener that is recorded in the EHR, and available for the care team to review prior to or during the visit.
  - [Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences \(PRAPARE\)](#) developed by NACHC
  - Templates available for many common EHRs
- Consider SDoH when creating care plan

## **Best Practice: Capture and consistently review insurance information in the EHR**

From the published literature:

- The EHR can be used to identify demographic risk factors, including health insurance status
- Insurance is a barrier for many young adults who are on their parents insurance and do not want their parents to be notified about PrEP.
- Not having insurance is also a barrier to accessing PrEP. Patients who do not have insurance can receive financial assistance through MAPs (Manufacturer Assistance Programs), but the requirements of enrollment for MAPS can delay initiation of PrEP.

# Related EHR Optimization

- Create and maintain a process for registration staff to **capture insurance in the EHR and confirm or update regularly**. If the patient has insurance that requires it (such as managed care), registration staff should **confirm the assigned primary care provider so referrals and prescriptions can be processed in a timely manner**.
- Encourage care team to review and **consider insurance coverage, as documented in the EHR, when creating a care plan** that includes PrEP as those patients without insurance may have less continuity of care and access to labs, prescriptions, etc.
- Create and maintain a process for assisting patients who are uninsured, which may include referring to eligibility staff or case management, to get insurance coverage and continuity of coverage and care.



## Best Practice: Implement a comprehensive sexual history template

From the published literature:

- Provider initiated conversations with patients in which the provider asks about sexual-related behaviors and the patient's sexual orientation are linked with **greater access to sexual health services, PrEP awareness, and greater willingness to take PrEP.**
- Having **standardized sexual history templates** assists providers in doing risk assessments to identify which patients are at **highest risk for HIV acquisition.** The template should help the provider identify if the patient is in key populations or has key risk factors.

Sources: Kevin F Kamis et al., Marisa Felsher et al. Full references in notes.

# Related EHR Optimization

- Create and/or implement a standard sexual history template in the EHR to assist in identifying patients who may be in need of PrEP.
  - Sample guidance for what to include in that template is available from the LGBT Education Center: [Taking Routine Histories of Sexual Health: A System-Wide Approach for Health Centers](#)
- Implement other screening questions from the literature, such as:
  - In the past 3 months, how many people did you have sex with?
  - In the last 6 months, including today, has a health care provider told you that you had an STD?
  - Have you ever had sex with someone who is HIV-positive?
  - Have you ever had sex with an anonymous person?
  - Have you ever paid money for sex?
  - Have you ever sold sex for drugs or money?
  - Over the past 3 months when you had sex, how often did you use a condom?

“Standardized documentation, specifically using structured data fields, allows for reporting and tracking of treatment engagement as well as locating and closing gaps in patient care.” ~Community Health Center at Buffalo, Inc

Assessment

Select an Assessment Sexual Health Assessment

Logs [Print] [Share] [Copy] [Refresh]

How do you identify yourself?	<input type="text"/>	
What gender were you assigned at birth?	<input type="text"/>	
What are your pronouns?	<input type="text"/>	
Have you been on PrEP before?	<input type="text"/>	
Have you had sex in the last 6 months?	<input type="text"/>	
Do you have sex with	<input type="text"/>	
Do you know the HIV status of your partners?	<input type="text"/>	
Do you use any drugs?	<input type="text"/>	
Do you use any alcohol?	<input type="text"/>	
Do you have sex for drugs?	<input type="text"/>	
Do you have sex for money?	<input type="text"/>	
Do you have housing?	<input type="text"/>	
Are you employed?	<input type="text"/>	
Have you been incarcerated?	<input type="text"/>	
Do you have medical insurance?	<input type="text"/>	
* Assessment completed by	<input type="text"/>	

Save Lock Cancel

Sample from Health Center using eClinicalWorks:

Health Risk Assessment > Sexual Health Assessment

# Further EHR Optimization

Use clinical decision support tools such as Best Practice Alerts or Clinical Rules Engine to prompt providers to consider PrEP and order appropriate labs and tests needed for PrEP, or to automate this process.

- Based on responses on the assessment, providers can be alerted to order labs or follow the clinic's defined clinical pathway for PrEP.
- Creating order sets can assist with this as well, practices may want to create order sets that include HIV testing along with bacterial STI testing (gonorrhea, syphilis, chlamydia) or other STI testing.
- Similarly, consider creating an order set for PrEP Initial testing and labs.

Automating screening alerts, orders, and follow-up facilitates provider decision making, allows proper patient care or follow-up with less effort, and allows the system to automate orders for needed services based on structured data responses entered by the clinician.



## Order Sets



Order Set

PrEP Initial



New

Copy

Update

Delete



 Labs

Add

F	Description	Lab Company
	OraQuick	
	Pregnancy Test, Urine	
	HIV Ab Screen 4th Generation wRfx (use this for sliding fee) [Labcorp]	LabcorpOG
	HIV-RNA, real time PCR(viral load) [Labcorp]	LabcorpOG
	Comp. Metabolic Panel -14 Labcorp	LabcorpOG
	Hep A Ab, Total [Labcorp]	LabcorpOG,Quest
	HBV Prevacination (Profile X)	LabcorpOG
	Hep C (HCV) Antibody With Reflex for HCV Antibody Verification	LabcorpOG
	RPR, Rfx Qn RPR/Confirm TP	LabcorpOG
	Ct, Ng, Trich vag by NAA	LabcorpOG
	Chlamydia/GC [PHARYNGEAL], NAA [Labcorp]	LabcorpOG
	Chlamydia/GC [RECTAL], NAA [Labcorp]	LabcorpOG

**Example of 'PrEP Initial' order set that providers can use to order all appropriate labs/ tests for initiation of PrEP**

Table 1: Suggested Step-by-Step Checklist for Providers Initiating PrEP

§ indicates detailed info available in Table 3

<p><b>1</b> Assess need</p>	<p>Having any <b>one or more</b> of the risk factors below places the individual at risk for HIV.</p> <table border="0"> <tr> <td data-bbox="425 119 1065 308"> <p><b>Risks for sexual transmission</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Any condomless sex in prior 6 months</li> <li><input type="checkbox"/> Any STI diagnosed in prior 6 months</li> <li><input type="checkbox"/> Not in a monogamous relationship with a partner confirmed to be HIV-uninfected</li> <li><input type="checkbox"/> Having sex with HIV+ partner(s)</li> <li><input type="checkbox"/> Commercial sex work</li> </ul> </td> <td data-bbox="1065 119 1686 308"> <p><b>Risks for parenteral transmission</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Shared injection equipment                             <ul style="list-style-type: none"> <li>- needles &amp; "works" for illicit/recreational drugs</li> <li>- consider anabolic steroids, body fillers, etc.</li> </ul> </li> <li><input type="checkbox"/> Known HIV+ injecting partner(s)</li> <li><input type="checkbox"/> Having sex with injecting partner(s)</li> </ul> </td> </tr> </table>	<p><b>Risks for sexual transmission</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Any condomless sex in prior 6 months</li> <li><input type="checkbox"/> Any STI diagnosed in prior 6 months</li> <li><input type="checkbox"/> Not in a monogamous relationship with a partner confirmed to be HIV-uninfected</li> <li><input type="checkbox"/> Having sex with HIV+ partner(s)</li> <li><input type="checkbox"/> Commercial sex work</li> </ul>	<p><b>Risks for parenteral transmission</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Shared injection equipment                             <ul style="list-style-type: none"> <li>- needles &amp; "works" for illicit/recreational drugs</li> <li>- consider anabolic steroids, body fillers, etc.</li> </ul> </li> <li><input type="checkbox"/> Known HIV+ injecting partner(s)</li> <li><input type="checkbox"/> Having sex with injecting partner(s)</li> </ul>				
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<p><b>2</b> Determine clinical eligibility</p>	<p><b>Within 30 days BEFORE starting PrEP, check hepatitis B status and renal function</b></p> <table border="0"> <tr> <td data-bbox="425 404 1065 562"> <ul style="list-style-type: none"> <li><input type="checkbox"/> Hepatitis B surface <b>antigen</b> (sAg) <small>REQUIRED</small></li> <li><input type="checkbox"/> Hepatitis B surface <b>antibody</b> (sAb) <small>RECOMMENDED</small></li> <li><input type="checkbox"/> Serum creatinine <small>REQUIRED</small></li> <li><input type="checkbox"/> Estimated creatinine clearance <small>REQUIRED</small></li> <li><input type="checkbox"/> Urinalysis (to establish baseline) <small>RECOMMENDED</small></li> </ul> </td> <td data-bbox="1065 404 1686 562"> <p><b>CAUTION if active hepatitis B (sAg+)</b></p> <ul style="list-style-type: none"> <li>• Truvada treats HBV; use may cause "flare" §</li> </ul> <p><b>eCrCl must be ≥ 60 mL/min by Cockcroft-Gault</b></p> <ul style="list-style-type: none"> <li>• Truvada dose reduction is <b>not</b> permitted for PrEP</li> <li>• Descovy is <b>NOT YET</b> approved for use as PrEP</li> </ul> </td> </tr> </table> <p><b>Within 7 days BEFORE starting PrEP, test for HIV infection</b></p> <table border="0"> <tr> <td data-bbox="425 661 1065 848"> <p><b>Order ONE of these</b> <small>REQUIRED – UNC's suggested order of preference</small></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Automated, lab-based antigen/antibody combination assay (4th or "5th" generation)</li> <li><input type="checkbox"/> Automated, lab-based IgM/IgG-sensitive antibody assay (3rd generation)</li> <li><input type="checkbox"/> HIV RNA ("viral load"), <b>quantitative</b></li> <li><input type="checkbox"/> Point-of-care (rapid) test with <b>fingerstick blood</b></li> </ul> </td> <td data-bbox="1065 661 1686 848"> <p><b>Must be confirmed as HIV-uninfected before PrEP</b></p> <ul style="list-style-type: none"> <li>• Rapid 4th gen (Determine HIV-1/2 Ag/Ab Combo) has had poor performance for detection of p24 antigen, missing many early infections §</li> <li>• If high-risk exposures, consider RNA <b>and</b> 4th gen</li> <li>• Do <b>NOT</b> rely on oral fluid testing; sensitivity is lower with oral fluid than with blood</li> </ul> </td> </tr> </table> <table border="0"> <tr> <td data-bbox="425 901 1065 1059"> <p><b>Any of these symptoms in prior month?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fever</li> <li><input type="checkbox"/> Fatigue</li> <li><input type="checkbox"/> Skin rash</li> <li><input type="checkbox"/> Pharyngitis</li> <li><input type="checkbox"/> Cervical adenopathy</li> </ul> </td> <td data-bbox="1065 901 1686 1059"> <p><b>Cannot have recent symptoms of acute HIV</b></p> <ul style="list-style-type: none"> <li>• <b>Must</b> be free of these symptoms in the month prior to starting PrEP</li> <li>• <b>If ANY symptoms are present, rule out acute HIV by ordering quantitative HIV RNA</b></li> </ul> </td> </tr> </table>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Hepatitis B surface <b>antigen</b> (sAg) <small>REQUIRED</small></li> <li><input type="checkbox"/> Hepatitis B surface <b>antibody</b> (sAb) <small>RECOMMENDED</small></li> <li><input type="checkbox"/> Serum creatinine <small>REQUIRED</small></li> <li><input type="checkbox"/> Estimated creatinine clearance <small>REQUIRED</small></li> <li><input type="checkbox"/> Urinalysis (to establish baseline) <small>RECOMMENDED</small></li> </ul>	<p><b>CAUTION if active hepatitis B (sAg+)</b></p> <ul style="list-style-type: none"> <li>• Truvada treats HBV; 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<p><b>Any of these symptoms in prior month?</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fever</li> <li><input type="checkbox"/> Fatigue</li> <li><input type="checkbox"/> Skin rash</li> <li><input type="checkbox"/> Pharyngitis</li> <li><input type="checkbox"/> Cervical adenopathy</li> </ul>	<p><b>Cannot have recent symptoms of acute HIV</b></p> <ul style="list-style-type: none"> <li>• <b>Must</b> be free of these symptoms in the month prior to starting PrEP</li> <li>• <b>If ANY symptoms are present, rule out acute HIV by ordering quantitative HIV RNA</b></li> </ul>						
<p><b>3</b> Consider other tests</p>	<p><b>If not already done in the prior 3-6 months</b> <small>RECOMMENDED</small></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Serum RPR for syphilis</li> <li><input type="checkbox"/> Nucleic acid amplification tests (NAATs) for gonorrhea and chlamydia             <ul style="list-style-type: none"> <li>• Cervix or vaginal swab for women, urine for men – along with pharynx and rectum, as appropriate</li> </ul> </li> <li><input type="checkbox"/> Nucleic acid amplification test for <i>Trichomonas vaginalis</i> (or wet prep), as appropriate</li> <li><input type="checkbox"/> Hepatitis C antibody §</li> </ul>						

UNC has a very clear checklist that can help determine what needs to be in order sets, or what appropriate prompts for next steps might be.

<https://www.med.unc.edu/nchivtraining/files/2019/09/PrEPchecklist.pdf>

**Best Practice:**  
**Utilize**  
**mechanisms for**  
**patient and**  
**provider**  
**reminders to**  
**improve**  
**adherence**

From published literature:

- Forgetting to take PrEP is often cited by patients as a perceived barrier to adherence. Patients are typically **more likely to forget to take PrEP due to a change in a routine, such as sleeping somewhere else, or when they are under the influence of substances**, both of which are times when they may need to take PrEP the most.
- **Text message reminders**, as well as regular reminders from health care partners and peers, promote PrEP adherence.
- Providers should **continuously remind** their patients of the importance of adherence in order to maximize prevention benefits

Sources: Maxwell, Gafos, and Shahmanesh, Pre-Exposure Prophylaxis Use and Medication Adherence Among Men Who Have Sex With Men. Full references in notes.

# Reminders to Promote Adherence

## Patients

- Patient centered care plans that include goals for taking PrEP, integrating PrEP into daily routine.
- Electronic patient engagement
  - Texting for PrEP reminders
  - Reminders for follow up appointments and testing
  - Remote patient monitoring

## Providers

- Use reporting or huddle tools to plan for follow-up or for upcoming visits:
  - Identifying patients who may be at risk of acquiring HIV
  - PrEP Treatment
    - Initial follow up to assess adherence and side effects
    - Due for a 3 month visit
    - Due for check of creatinine and eCrCl
  - Timely PrEP Prescription refills







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# Thank you!

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