Cutting Edge & Interventions to Promote PrEP Adherence

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HIV Seroconversion after Exposure to nPEP vs PrEP at a San Francisco STD Clinic

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Background/Significance

- 1.2 M people in US living with HIV; 1 in 8 unaware of status

- Pre-Exposure Prophylaxis (PrEP) is a highly efficacious HIV prevention strategy

- PrEP is a key component of the National HIV Prevention Strategy and is a core strategy in local, national, and global “Getting to Zero” campaigns

- Emphasis on PrEP has led to renewed interest in non-occupational post-exposure prophylaxis (nPEP)

- Data for nPEP are less robust than for PrEP – no RCTs, most data come from case control or cohort studies

- Patients and providers may opt for nPEP if risk not perceived as ongoing, but unclear if this is optimal
Background/Significance

- **Research Aim:** To compare the real-world effectiveness of nPEP versus PrEP among men who have sex with men (MSM) at San Francisco City Clinic (SFCC)

- **San Francisco City Clinic (SFCC)**
  - San Francisco’s only municipal STD clinic, in operation since 1933. Run by the Department of Public Health
  - Prominent Bay Area provider of free and low cost sexual health services, including HIV preventative pharmacotherapies
  - EMR system available for robust data analysis
    - Demographic characteristics
    - Standardized behavioral risk assessments
    - Tracking of laboratory testing over time
Background/Significance

- Study Population:
  - Adult MSM patients who were HIV negative at their initial SFCC visit during 9/1/2012 – 6/30/2016

- Primary Predictor Variable:
  - Exposure to PrEP vs nPEP vs Neither strategy

- Primary Outcome Variable:
  - Conversion to HIV seropositivity
    - Defined as positive HIV Ab test with confirmatory testing in SFCC EMR system
    - Cross matched at city & state levels through eHARS (Enhanced HIV Surveillance System), as of 4/27/2017
Methods

- EMR Review → MSM patients divided into 3 mutually exclusive groups.

**PrEP Ever**
- Patients who ever reported PrEP use, whether prescribed through SFCC or elsewhere (regardless of any nPEP use)

**nPEP Only**
- Patients prescribed $\geq 1$ courses of nPEP
- No evidence of having ever been prescribed PrEP

**Neither**
- Never reported PrEP use, nor prescribed nPEP or PrEP through SFCC
Methods

- Groups 1, 2, and 3 were then compared on the following:
  - Baseline characteristics (age, race)
  - Behavioral risk assessment
    - # Sexual partners in last 3 months (as reported at pt’s 1\textsuperscript{st} visit within study interval)
    - # Condom-less receptive anal sex partners in last 3 months
    - Presence of other STIs (syphilis, chlamydia, gonorrhea) prior to and during study interval
    - Seroconversion to HIV seropositivity

- Statistical testing - Chi square for proportions, t-test/ANOVA for means
  - * = p<0.05; † = p<0.001
Results

8,029 MSM

1,204 PrEP users
1,002 nPEP users
5,823 Neither

Approximately one quarter (24.4%) of PrEP users also used nPEP
## Results

<table>
<thead>
<tr>
<th></th>
<th>PrEP Ever</th>
<th>nPEP Only</th>
<th>Neither</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years) †</strong></td>
<td>32.9</td>
<td>33.1</td>
<td><strong>35.4</strong></td>
</tr>
<tr>
<td>Caucasian</td>
<td>52.0%</td>
<td>55.8%</td>
<td>52.7%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>23.4%</td>
<td>22.7%</td>
<td>21.3%</td>
</tr>
<tr>
<td><strong>African-American†</strong></td>
<td>7.1%</td>
<td><strong>5.1%</strong></td>
<td>9.0%</td>
</tr>
</tbody>
</table>
Risk Behavior Characteristics†

- **Identify as Gay**
  - PrEP Ever: 88.00%
  - nPEP Only: 82.20%
  - Neither: 65.20%

- **Other STIs Prior to Study**
  - PrEP Ever: 56.90%
  - nPEP Only: 27.00%
  - Neither: 29.90%

- **Other STIs During Study**
  - PrEP Ever: 45.70%
  - nPEP Only: 26.80%
  - Neither: 18.80%
Sexual Partners Reported in Last Three Months

- **Mean # Male Partners**
  - PrEP Ever: 8.4
  - nPEP Only: 6.2
  - Neither: 4.4

- **Mean # Condomless Receptive Anal Sex Partners**
  - PrEP Ever: 2
  - nPEP Only: 1.5
  - Neither: 1
HIV Seroconversion*

- PrEP Ever: 1.70% (20/1,204)
- PEPE Only: 3.40% (34/1,002)
- Neither: 1.90% (111/5,823)
Discussion/Limitations

- MSM using PrEP had higher sexual risk compared with those using nPEP alone
- Despite the higher sexual risk, PrEP users were less likely to seroconvert than nPEP users
- Rates of HIV seroconversion were similar among PrEP vs neither users
Discussion/Limitations

- Limitations
  - Predictor variable misclassifications
    - nPEP users could have been rx’d PrEP elsewhere
  - Outcome variable concerns
    - Could miss HIV seroconversions among patients who left CA, or who never underwent subsequent HIV testing
  - Sample size limitations
  - Differences in follow-up time among groups
Conclusions

- MSM seen at STD clinics, particularly those at high risk for future STIs including HIV, should be offered PrEP
- Those using nPEP should be linked to PrEP after nPEP completion
- Retention in PrEP therapy remains an ongoing challenge in HIV preventative care

Next Steps:
- Additional characterization of risk behaviors (IVDU, HIV positive partners, etc)
- Additional statistical modeling/stratification for factors contributing to HIV seroconversion
References


Questions?