



# **PrEP Prescribing and Adherence to Clinical Guidelines Among New York City Providers, 2015-2016**

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# Introduction

- Pre-exposure prophylaxis (PrEP) use is increasing in New York City (NYC), yet it is likely still under-prescribed
- NYC Health Dept. is committed to increasing access to PrEP through several programs, including outreach to providers
- Important to study provider practices, including adherence to clinical guidelines for PrEP follow-up care

# Aims

- Among a sample of providers visited by a PrEP/PEP provider outreach campaign, we examined
  - Report of ever prescribing PrEP and its association with provider and practice characteristics
  - Among PrEP prescribers, adherence to CDC PrEP guidelines and its association with provider and practice characteristics

## CDC PrEP Guidelines Assessed

At least **quarterly**: HIV testing, adherence counseling, risk reduction counseling, side effects assessment

At least **semi-annually**: STI screening, creatinine screening

# Methods

**Study population** Providers who received educational outreach visits from NYC DOHMH's PrEP/PEP Public Health Detailing Campaign (10/2014-4/2015)

- Visits: brief, “cold-call” presentations by DOHMH representatives using PrEP and PEP Action Kit
- Targeted practices with a recent history of diagnosing HIV
- Contacted primary care (PC) and infectious disease (ID) prescribing providers

**Survey design** One-time, self-administered Internet survey among sample of detailed providers (12/2015-1/2016)

**Sample recruitment** Sample of detailed providers were recruited via email with addresses obtained either:

- By representatives during the campaign or,
- Among a random sample, via Internet search or phone request

# Data collection

## Outcomes

- Ever prescribing PrEP
- Adherence to CDC PrEP guidelines

Considering all your patients who are taking PrEP, how frequently do you do each of the following?

	Never	Only as needed	Every 3 mos.	Every 6 mos.	Every 12 mos.
Test for HIV	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Test for STIs other than HIV	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Monitor creatinine clearance	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Ask about PrEP side effects	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide PrEP adherence counseling	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide risk reduction counseling	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Data analysis

- Associations with PrEP prescribing and adherence to CDC guidelines assessed using logistic regression, controlling for provider specialty and practice type
- Characteristics examined:

- Provider-level
  - Specialty (HIV medicine, ID, PC, other)
  - Training (MD/DO, NP/PA)
  - Graduation year (Before 1996, 1996 or later)
  - Sexual identity (gay/lesbian/bisexual, straight)
  - PEP prescribing practices (ever prescribe, never)
  - Timing of initial PrEP prescription (before 2015, 2015 or later)
  - Number of PrEP patients (>5, ≤5)
  - Knowledge/belief of PrEP efficacy (≥90% efficacious, <90%)
- Practice-level
  - Practice type (hospital, community health center [CHC], independent)
  - Having a PrEP protocol (yes, no)

# Results – Provider sample

Characteristic	n (%)
<b>Total</b>	169 (100%)
<b>Provider specialty</b>	
HIV	37 (22%)
Infectious disease (ID)	15 (9%)
Other	15 (9%)
Primary care (PC)	102 (60%)
<b>Provider sexual identity</b>	
Gay/lesbian/bisexual	16 (11%)
Straight/heterosexual	131 (89%)
<b>Provider ever prescribed PEP</b>	
Yes	90 (55%)
No	74 (45%)
<b>Provider-reported belief of daily PrEP efficacy</b>	
≥90%	89 (56%)
0-89%	71 (44%)
<b>Practice type</b>	
Hospital-affiliated	86 (57%)
Community health center	41 (27%)
Independent practice	23 (15%)
<b>Practice has PrEP protocol</b>	
Yes	68 (44%)
No	85 (56%)

# Results – PrEP Prescribing

Characteristic	Ever prescribed PrEP [n (%)]	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)
<b>Total</b>	100/169 (59%)		
<b>Provider specialty</b>			
HIV	33 (89%)	<b>8.3 (2.7 – 25.0)</b>	<b>9.8 (3.1 – 30.5)</b>
ID <sup>1</sup>	10 (67%)	2.0 (0.6 – 6.3)	2.6 (0.8 – 8.4)
Other <sup>2</sup>	6 (40%)	0.7 (0.2 – 2.0)	0.5 (0.1 – 2.0)
PC	51 (50%)	Ref	Ref
<b>Provider ever prescribed PEP</b>			
Yes	76 (84%)	<b>11.3 (5.3 – 23.9)</b>	<b>6.7 (2.9 – 15.5)</b>
No	24 (32%)	Ref	Ref
<b>Practice has PrEP protocol</b>			
Yes	52 (76%)	<b>3.0 (1.5 – 6.1)</b>	<b>2.4 (1.1 – 5.3)</b>
No	44 (52%)	Ref	Ref
<b>Provider-reported belief of daily PrEP efficacy</b>			
≥90%	67 (75%)	<b>3.5 (1.8 – 6.9)</b>	2.0 (1.0 – 4.3)
0-89%	33 (46%)	Ref	Ref
<b>Provider sexual identity</b>			
Gay/lesbian/bisexual	15 (94%)	<b>12.3 (1.6 – 95.7)</b>	4.8 (0.6 – 41.9)
Straight/heterosexual	72 (55%)	Ref	Ref

**p < 0.05**

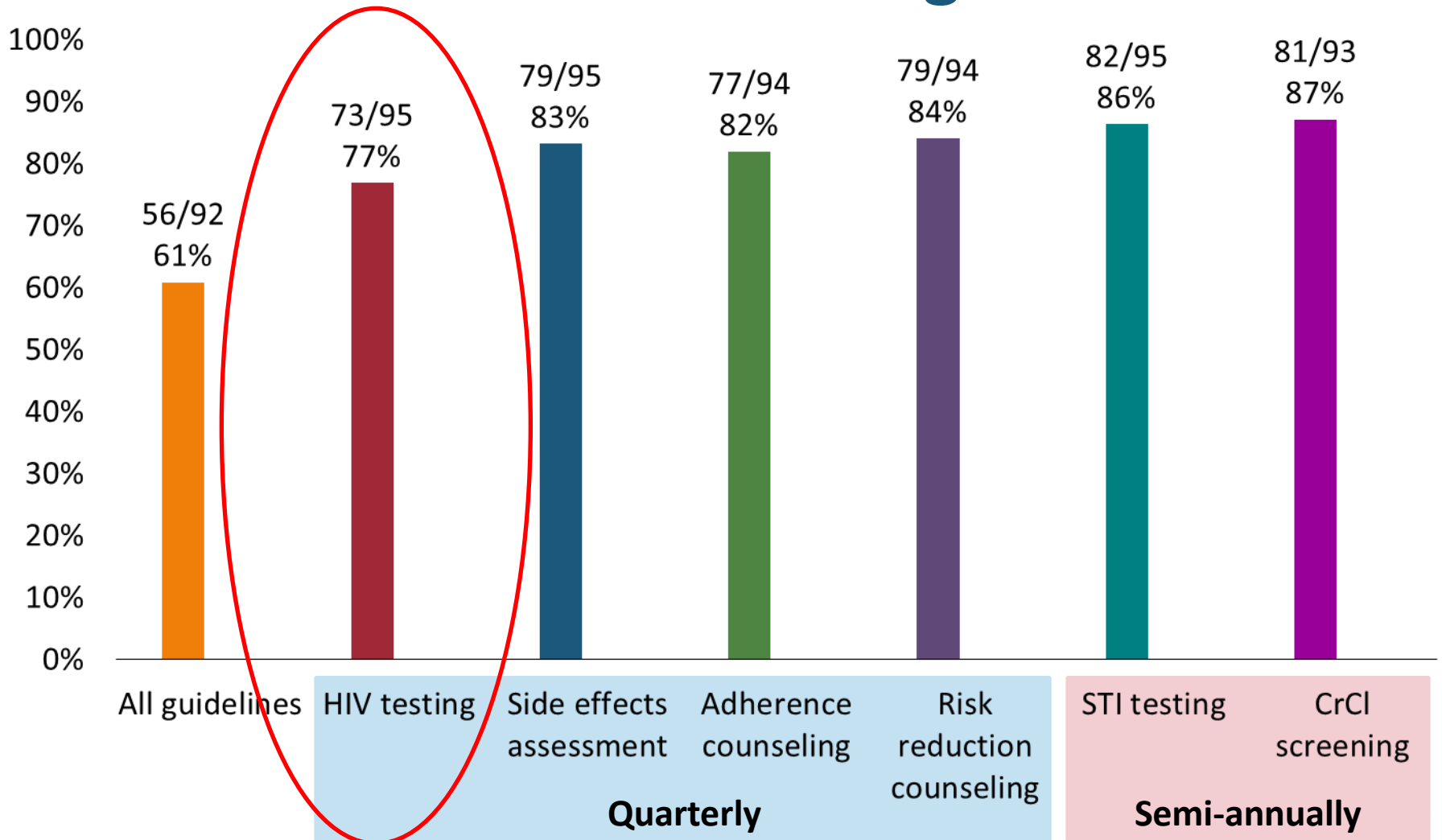
<sup>1</sup>Providers specializing in infectious diseases but not HIV medicine

<sup>2</sup>Other specialty includes all providers not identifying HIV medicine, ID, or primary care as a specialty (e.g., OB/GYN, pediatrics)

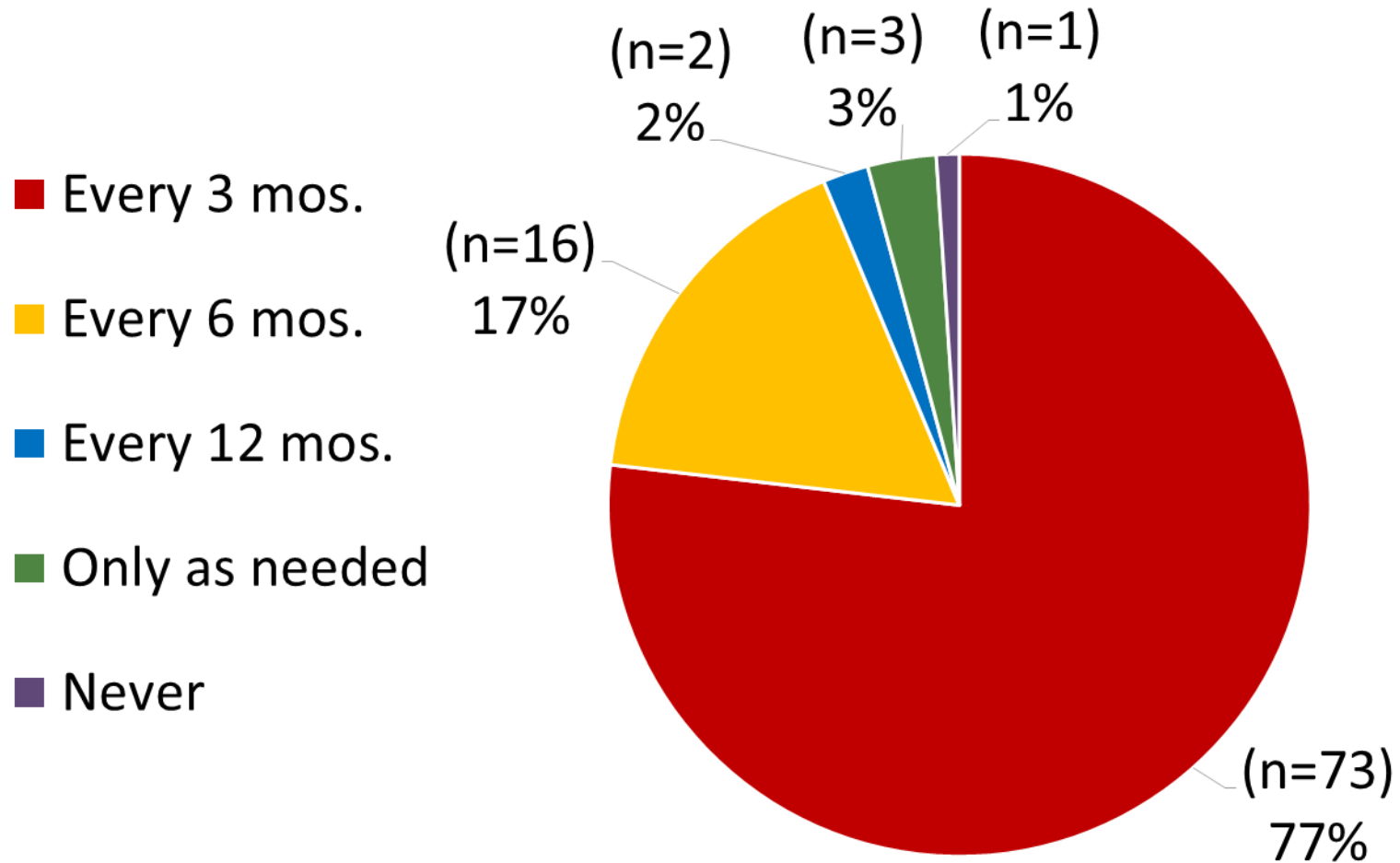
\*Adjusted for provider specialty and practice type (hospitals, CHCs, independent practices)



# Proportion of PrEP prescribers reporting adherence to clinical guidelines



# Reported HIV testing frequency among PrEP prescribers (N=95)



# Results – PrEP Guidelines

Characteristic	Follows PrEP guidelines [n (%)]	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)
<b>Total</b>	56/92 (61%)		
<b>Timing of provider's first PrEP prescription</b>			
Before 2015	35 (76%)	<b>3.9 (1.6 – 9.6)</b>	<b>4.3 (1.5 – 12.2)</b>
2015-2016	19 (45%)	Ref	Ref
<b>No. of provider's PrEP patients</b>			
More than 5	39 (76%)	<b>4.6 (1.9 – 11.3)</b>	<b>6.5 (2.2 – 19.3)</b>
≤5	17 (41%)	Ref	Ref
<b>Provider ever prescribed PEP</b>			
Yes	48 (68%)	<b>3.4 (1.2 – 9.3)</b>	<b>3.7 (1.1 – 12.4)</b>
No	8 (38%)	Ref	Ref
<b>Provider reported belief of daily PrEP efficacy</b>			
≥90%	46 (73%)	<b>5.1 (2.0 – 13.2)</b>	<b>4.7 (1.6 – 13.6)</b>
0-89%	10 (34%)	Ref	Ref
<b>Practice has a PrEP protocol</b>			
Yes	35 (70%)	2.2 (0.9 – 5.3)	2.1 (0.8 – 5.5)
No	21 (51%)	Ref	Ref

**p < 0.05**

\*Adjusted for provider specialty and practice type (hospitals, CHCs, independent practices)

# Limitations

- Data based on self-report by providers
  - Subject to recall error and social desirability bias
- Convenience sample
  - Providers visited by Detailing Campaign were specifically targeted for greater impact
  - Providers who responded to Internet survey recruitment might have had greater interest in PrEP and PEP
- Data on patient-level characteristics not included
  - Providers may serve populations with different levels of PrEP eligibility

# Summary

- Though most NYC providers in this sample had prescribed PrEP (59%), less than **two-thirds** followed all CDC clinical guidelines examined
  - Nearly **one quarter** reported testing PrEP patients for HIV less frequently than every three months
- **PrEP prescribing** associated with:
  - Provider specializing in HIV medicine, ever prescribing PEP, and marginally, believing daily PrEP  $\geq 90\%$  efficacious
  - Practice having PrEP protocol
- **Adherence to PrEP guidelines** associated with:
  - Provider first prescribing PrEP before 2015, prescribing PrEP to  $>5$  patients, ever prescribing PEP, believing daily PrEP  $\geq 90\%$  efficacious

# Discussion

- Findings concerning for suboptimal implementation of PrEP
  - Prescribing primarily by HIV specialists may limit access
  - Lack of adherence to guidelines may lead to development of drug resistance in those with breakthrough infection
- Findings motivate additional programs that support:
  - Further outreach to primary care providers
  - Continuing medical education among new and infrequent PrEP prescribers
  - Greater technical assistance on PrEP protocol development and implementation
  - Strategies for facilitating HIV testing outside of PrEP follow-up visits
  - Implementation of decision support tools in EMRs

# Acknowledgements

**Co-authors:** Julie Myers, Demetre Daskalakis, Sarit Golub, Arjee Restar, Zoe Edelstein

**Detailers:** Maryellen Lively, Alex Cherisme, Gregory Gattereau, Jacqueline Kirkland, Stanford Smith, Jeffrey Watson

**Provider participants**

**Thank you!**



# Conflict of Interest Disclosure

Paul Salcuni

has no real or apparent  
conflicts of interest to report.



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