

Pre-exposure Prophylaxis (PrEP) in Ambulatory Care Practices, New York City, 2012-2014

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Zoe R. Edelstein¹, Remle Newton-Dame¹, Julie E. Myers^{1,2}, Paul M. Salcuni¹, Laura Jacobson¹

¹New York City Department of Health and Mental Hygiene, Queens, NY; ²Division of Infectious Diseases, Department of Medicine, Columbia University Medical Center, New York, NY

Contact: Zoe Edelstein
zedelst1@health.nyc.gov
347-396-7650

Background

- Pre-exposure prophylaxis (PrEP) is a new HIV prevention option for those at highest risk, including men who have sex with men (MSM), transgender women, injection drug users, and HIV-negative partners in serodifferent partnerships
- Awareness of and support for PrEP has increased since FDA approval of oral PrEP (tenofovir/emtricitabine; TDF/FTC) in 2012
- It is unclear whether PrEP prescribing has also increased in a large, high burden jurisdiction
- We measured trends and patterns in PrEP prescribing in New York City (NYC) using electronic health record (EHR) data

Objectives

Among NYC ambulatory care practices:

- Examine quarterly trends in PrEP prescription rates
- Identify patterns of PrEP prescribing by practice type and neighborhood

Methods

Study design: Retrospective cohort of ambulatory practices using EHR

Data source :

- The Hub Population Health System™ (“the Hub”) of NYC’s DOHMH Primary Care Information Project (PCIP), which connects to over 700 practices using the eClinicalWorks EHR vendor
 - Ad hoc-distributed query model: SQL queries run as scheduled jobs at each practice. Data returned securely to data warehouse
- 18% of New Yorkers visited PCIP practices in 2013, including ≥5% of residents in each of 34 United Hospital Fund (UHF) neighborhoods

Practice eligibility criteria:

- Located in NYC
- Documented visits for ≥50 patients aged 13-100 in 2012
- Reported data for all quarters, 2012 - 2014

Data collection:

- EHRs were queried for PrEP prescription. Data returned at practice-level, aggregated by quarter
- PrEP prescription was defined as current TDF/FTC prescription in patients aged 13-100, in the absence of:
 - Diagnoses of HIV, hepatitis B, and/or HIV-related opportunistic infections (ICD-9 codes)
 - Prescription for any HIV medication other than TDF/FTC

Additional practice-level data used:

- Practice type: Community health center/hospital outpatient/independent practice
- Practice neighborhood: 34 UHFs and Chelsea-Village/Other NYC
- Total patients aged 13-100 seen, by quarter

Data analysis:

- PrEP prescription rate calculated per 100,000 patients seen
- Statistical significance (p<0.05) of time trends assessed with Cochran-Armitage test and of differences by practice characteristics in Q4 2014 with chi-square test

*Buck et al. J Am Med Inform Assoc. 2012;19:e46-e50.

Results

Practice Characteristics (Table 1)

- 542 practices were eligible for this analysis
 - 24 community health centers, 4 hospital settings and 514 independent practices; 29 located in Chelsea-Village
- 20% (106/542) of practices had ever prescribed PrEP, 2012 -2014

Time Trend in NYC (Figure 1, “All NYC”)

- Overall PrEP prescription rates increased from 6.7 per 100,000 in Q1 2012 to 155.4 per 100,000 in Q4 2014 (p<.0001); a 23.2-fold increase

Prescription by Practice Type (Table 2)

- In Q4 2014, PrEP prescription rate was higher (p<0.0001) in hospital outpatient and independent practices than in community health centers

Prescription by Practice Neighborhood (Table 2, Figures 1-2)

- In Q4 2014, PrEP prescription rate was higher (p<0.0001) at practices located in Chelsea-Village than in other NYC areas combined
- In Chelsea-Village, rate increased from 32.2 per 100,000 in Q1 2012 to 974.7 per 100,000 in Q4 2014 (p<.0001); a 30.3-fold increase
- In other NYC neighborhoods, rate increased from 3.4 per 100,000 in Q1 2012 to 50.2 per 100,000 in Q4 2014 (p<.0001); a 14.8-fold increase

Table 1. Characteristics of ambulatory care practice sample, overall and by ever prescribing PrEP, New York City, 2012-2014

Characteristic	Total	Any PrEP prescription	
		Yes	No
Total number of practices	542	106	436
Total patients seen, n			
Q1 2012	494,521	228,851	265,670
Q4 2014	591,848	279,873	311,975
Practice type, n (%)			
Community health center	24 (4.4)	20 (18.9)	4 (0.9)
Hospital outpatient	4 (0.7)	3 (2.8)	1 (0.2)
Independent practice	514 (94.8)	83 (78.3)	431 (98.9)
Practice neighborhood, n (%)			
Chelsea-Village	29 (5.4)	21 (19.8)	8 (1.8)
Other neighborhoods in NYC	513 (94.6)	85 (80.2)	428 (98.2)

Table 2. Comparison of PrEP prescription rates by practice type and neighborhood, New York City, Q4 2014

Characteristic	No. PrEP prescriptions/ Total no. patients	Rate per 10 ⁵ patients	p-value
Overall	920/591,848	155.4	--
Practice type			<0.0001
Community health center	116/116,345	99.7	
Hospital outpatient	149/63,480	234.7	
Independent practice	655/412,023	159.0	
Practice neighborhood			<0.0001
Chelsea-Village	656/67,301	974.7	
Other NYC	264/524,547	50.3	

Figure 1. PrEP prescription rate at 542 ambulatory care practices, by neighborhood, New York City, 2012-2014

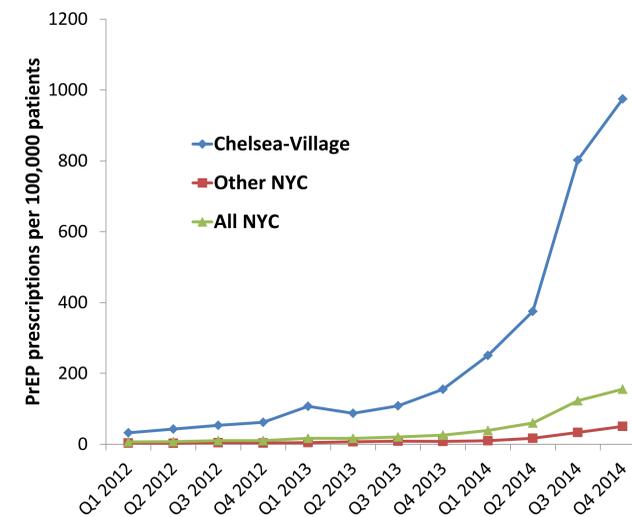
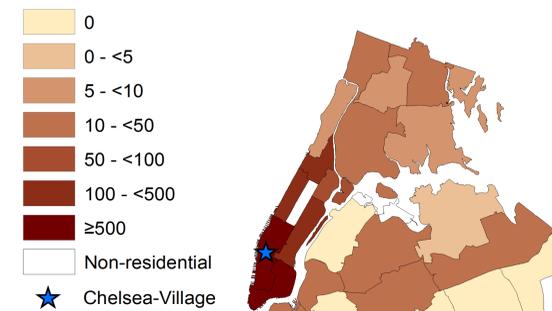


Figure 2. PrEP prescriptions per 100,000 patients seen at 542 ambulatory care practices, by UHF, New York City, Q4 2014

PrEP prescriptions per 100,000 patients



Limitations

- PrEP prescriptions identified based on EHR data elements, which could be incomplete or inaccurate
- Data were practice-level and cross-sectional
 - Patients de-duplicated quarterly, but not across time or practices
 - Provider- and patient-level data not available for analysis (e.g., provider specialty, patient demographics)
 - Practices covered by the Hub may not represent all ambulatory care practices in NYC
- Time trends and patterns may not be generalizable to all NYC practices, or to practices outside of NYC

Discussion

- PrEP prescription rates increased from 2012 to 2014 among NYC ambulatory care practices, with the largest increase observed in the second half of 2014
- PrEP prescription was highest in hospital outpatient settings, but also occurred in community health centers and independent practices
- PrEP prescription rates by quarter and increase over time were highest in Chelsea-Village, a primarily affluent neighborhood where many MSM live and access care
 - Although increases were seen in other neighborhoods, the difference by neighborhood may highlight disparities in access
- NYC DOHMH currently supports several PrEP-related initiatives for patients and for providers to help address potential disparities in PrEP access (Figure 3)
- Efforts are being made to leverage existing data sources to track PrEP-related trends citywide

Figure 3. Examples of recent NYC DOHMH materials for potential PrEP prescribers (left) and PrEP users (right)



Acknowledgements

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