Trends and Associations with PrEP Prescription among 602 NYC Ambulatory Care Practices, 2014-16

Paul M. Salcuni Jenny Smolen Sachin Jain Julie Myers Zoe Edelstein

New York City Department of Health and Mental Hygiene



Background

- NYC has one of the largest HIV epidemics in the US
 - 2,493 new diagnoses in 2015, disproportionately occurring among certain populations, including:¹
 - 58% men who have sex with men
 - 16% Black and Latina women
 - 53% people living in high-poverty neighborhoods
- Oral emtricitabine/tenofovir (FTC/TDF) for HIV preexposure prophylaxis (PrEP) has been shown to reduce risk of sexual transmission by up to 92% when taken daily²
- Comprehensive efforts to scale up PrEP prescription and use are underway in NYC, focusing on priority populations above







Study Aims

- Examine PrEP prescribing among a sample of NYC ambulatory care practices using data from a unique clinical surveillance system called the **Hub Population Health System (The Hub)**
- Specifically aimed to:
 - Measure quarterly trends in PrEP prescription rates
 - Identify associations with PrEP prescribing by practice-level and patient-level characteristics



What is The Hub?

- An innovative system that connects to electronic health records (EHRs) of providers using EHR vendor eClinicalWorks
- Secure and confidential only aggregate patient counts are received from the practice





Who is part of The Hub?

- 720 practices
- 2,645 providers active in 2016
- 2.0M **patients** with visits in 2016

Hub practices on average over-represent:

- Young women (15-29)
- Hispanic/Latino and Asian persons
- Medicaid/Medicare patients
- Primary care providers
- Only people who are in care



Methods

- Retrospective cohort (Q1 2014 Q2 2016) of 602 ambulatory care practices using Hub to query EHRs
 - (6%) **community health centers**; ~22% of patient visits • 38
 - (<1%) hospital outpatient clinics; • 3
 - 561 (93%) independent practices;
- Practice inclusion criteria:
 - Located in New York City
 - Contributed data for all quarters
 - Documented in 2014 and 2015:
 - Visits for ≥50 patients aged ≥13
 - Diagnosis information for ≥80% of visits
 - Medication information for $\geq 20\%$ of visits

- ~12% of patient visits
 - ~66% of patient visits



Outcome: PrEP prescription algorithm



Data analysis

- Quarterly PrEP prescription rate calculated per 100,000 patients seen
- Trends and associations with PrEP prescription assessed using generalized estimating equations, examining:

Patient-level factors

- Sex male, female
- Age 18-29, 30 and above
- Race/ethnicity Asian, Black, Hispanic, White, other, missing

Practice-level factors

- Practice type Community health center, hospital, independent
- Practice location Manhattan, other
- Active ID specialists Yes, no
- Proportion of patients from highpoverty neighborhoods* Ranked by quartile

*High-poverty neighborhoods are ZIP code areas where ≥20% of residents live below the federal poverty level.



PrEP prescription rates per 100,000 patients seen in 602 ambulatory care practices, overall, NYC, 2014-2016





PrEP prescription rates per 100,000 patients seen in 602 ambulatory care practices, by sex, NYC, 2014-2016



*Adjusted for patient age and race/ethnicity, practice location and type, proportion of practice's patients living in high poverty ZIPs, and number of ID specialists.

PrEP prescription rates per 100,000 males seen in 602 ambulatory care practices, by age group, NYC, 2014-2016

*Adjusted for time, patient race/ethnicity, practice location and type, number of ID specialists, proportion of practice's patients living in high poverty ZIPs, and interaction between poverty and time.

PrEP prescription rates per 100,000 males seen in 602 ambulatory care practices, by race/ethnicity, NYC, 2014-2016

*Adjusted for patient age, practice location and type, proportion of practice's patients living in high poverty ZIPs, and number of ID specialists.

Associations with PrEP prescription rate and practice-level characteristics among male patients in 602 ambulatory care practices, NYC, 2014 – 2016

	Adjusted [*] rate ratio
Characteristic	(95% CI)
Practice location	
Manhattan	8.5 (4.0 - 18.1)
Other	Ref.
Practice type	
СНС	4.9 (2.5 - 9.5)
Hospital	0.4 (0.1 - 1.8)
Independent	Ref.
Active ID specialists ^b	
Yes	8.4 (3.6 - 19.6)
No	Ref.

CHC=community health center; ID=infectious disease **Bold=p<0.05**

*Adjusted for time, patient age and race/ethnicity, practice location and type, proportion of practice's patients living in high poverty ZIPs, and number of ID specialists.

PrEP prescribing by practice neighborhood, compared to poverty and **HIV diagnosis rate** PrEP per 100,000 patients seen 10,086 0 Q1 2014 Q2 2016 2015 HIV diagnoses

% living below FPL, 2011-2015 □ <10% □ 10-<20% □ 20-<30% □ ≥30% 2015 HIV diagnoses per 100,000 pop. □ 0 - 14.6 □ 14.7 - 20.5 □ 20.6 - 34.5 □ 34.6 - 66.2

Limitations

- Prescription data in EHRs are inherently limited
- Practices covered by the Hub likely not representative of all ambulatory care practices in NYC
 - Over-represents certain patient groups
 - Coverage varies by area (less representative below the city level)
 - Missing some practices known to be PrEP prescribers
- Time trends and associations may not be generalizable to all NYC practices, or outside of NYC

Summary

- PrEP prescription increased 976% between Q1 2014 to Q2 2016 among 602 ambulatory care practices in NYC
- By Q2 2016, males made up 95% of PrEP prescriptions
- Among males, PrEP prescription was associated with:
 - Younger age
 - White race/ethnicity
 - Manhattan practice location
 - Community health centers vs. independent practices
 - On-site ID specialists
 - Lower proportion of patient population from high-poverty neighborhoods (although the association attenuated over time)

Implications

- Sustained increase in PrEP prescribing suggests success of campaigns for patients and providers
- Difference by sex motivates focus on women and their primary care providers, including OB/GYNs
- Low prescribing to men of color, despite overrepresentation in the HIV epidemic, must continue to be addressed
- Continued outreach needed for:
 - Practices outside of Manhattan
 - Independent practices
 - Non-ID specialists
 - Practices seeing patients from high-poverty neighborhoods

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Questions?

Contact information

Paul Salcuni

psalcuni@health.nyc.gov

