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

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 25% 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
- Report 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 2012
- 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 with chi-square test

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 15.5 per 100,000 in Q4 2014 (p<.0001); a 2.3-fold increase

Prescription by Practice Type (Table 2)
- In Q4 2014, PrEP prescription rate was higher (p<.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<.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 97.4 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 (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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total</th>
<th>Any PrEP prescription</th>
</tr>
</thead>
</table>
|                                      | Yes | No | Total number of practices
| Total patients seen, n                | 494,521 | 228,851 | 265,670 |
| Q1 2013                               | 591,348 | 279,873 | 311,575 |
| Q4 2014                               | 24 (4.4) | 20 (16.9) | 4 (1.6) |
| Hospital outpatient                   | 4 (0.7) | 3 (2.4) | 1 (0.2) |
| Independent practice                  | 514 (94.8) | 83 (76.3) | 431 (88.8) |
| Chelsea-Village                       | 29 (5.4) | 21 (19.8) | 8 (1.6) |
| Other neighborhoods in NYC             | 513 (94.6) | 85 (80.3) | 428 (98.2) |

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

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. PrEP prescriptions/ Total no. patients</th>
<th>Rate per 100 patients</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>920/951,848</td>
<td>155.4</td>
<td></td>
</tr>
<tr>
<td>Practice type</td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Community health center</td>
<td>116/116,345</td>
<td>99.7</td>
<td></td>
</tr>
<tr>
<td>Hospital outpatient</td>
<td>149/93,480</td>
<td>234.7</td>
<td></td>
</tr>
<tr>
<td>Independent practice</td>
<td>655/412,023</td>
<td>159.0</td>
<td></td>
</tr>
<tr>
<td>Practice neighborhood</td>
<td></td>
<td></td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Chelsea-Village</td>
<td>656/67,381</td>
<td>974.7</td>
<td></td>
</tr>
<tr>
<td>Other NYC</td>
<td>264/524,572</td>
<td>50.3</td>
<td></td>
</tr>
</tbody>
</table>

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 use (Figure 3)
- Efforts are being made to leverage existing data sources to track PrEP-related trends citywide

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

Acknowledgements

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