New England healthcare providers’ perceptions, knowledge and practices regarding the use of antiretrovirals for prevention

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Potential Competing Interests

• Current funding:
  • National Institute of Mental Health
    • K23 MH098795
  • Bristol-Myers-Squibb Virology Fellowship

• Additional project support:
  • Gilead Sciences
Early ART and PrEP can decrease HIV transmission, but provider adoption has been limited

- Studies demonstrate that earlier initiation of antiretroviral therapy (ART) and PrEP can decrease HIV transmission\(^1,2,3,4,5\)
- Guidelines recommend early ART (2012\(^6\)) and PrEP (2011-2014\(^7,8,9\))
- However, limited adoption by providers\(^10,11\)

\(^1\)Cohen 2011, \(^2\)Grant 2010, \(^3\)Baeten 2012, \(^4\)Thigpen 2012, \(^5\)Choopanya 2013
\(^6\)DHHS 2012, \(^7\)MMWR 2011, \(^8\)MMWR 2012, \(^9\)USPHS 2014
\(^10\)Kurth 2012, \(^11\)Karris 2013
We surveyed New England healthcare providers to assess current ART and PrEP prescribing practices

• Providers affiliated with New England AIDS Education and Training Center (NEAETC)
• Anonymous, online survey
• Sept – Dec 2013
• Knowledge, beliefs, practices, intentions regarding early ART and PrEP
We assessed factors associated with prescribing early ART and PrEP

- Descriptive statistics
- Multivariable logistic regression models

1) Early ART: Intention to prescribe ART to all patients irrespective of CD4+ count
2) PrEP: Having prescribing PrEP to at least 1 patient
Recruitment

Email invitation n=1637

Started survey n=207

Completed survey n=184

Response rate 11.2%; similar to prior NEAETC surveys
Completion rate 88.9%
## Demographic characteristics of survey completers

<table>
<thead>
<tr>
<th>Demographics</th>
<th>(n=184)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>56.9%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>81.6%</td>
</tr>
<tr>
<td>Asian</td>
<td>12.1%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>5.2%</td>
</tr>
<tr>
<td>Other</td>
<td>1.2%</td>
</tr>
<tr>
<td>Hispanic, Latino/a</td>
<td>3.4%</td>
</tr>
<tr>
<td>Age in yrs, median (IQR)</td>
<td>44 (35-55)</td>
</tr>
</tbody>
</table>
## Practice characteristics of survey completers

<table>
<thead>
<tr>
<th>Practice characteristics</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provider type</strong></td>
<td></td>
</tr>
<tr>
<td>Nurse practitioner</td>
<td>22.3%</td>
</tr>
<tr>
<td>Primary care physician</td>
<td>21.7%</td>
</tr>
<tr>
<td>ID physician</td>
<td>21.1%</td>
</tr>
<tr>
<td>Other</td>
<td>34.9%</td>
</tr>
<tr>
<td><strong>Years providing HIV care, median (IQR)</strong></td>
<td>10 (4-20)</td>
</tr>
<tr>
<td><strong>ART-prescribing providers</strong></td>
<td>60.9%</td>
</tr>
</tbody>
</table>

Respondents and non-respondents shared similar demographic and practice characteristics
Results: One-third of ART-prescribing clinicians were not aware that guidelines recommend early ART

“Department of Health and Human Services HIV treatment guidelines recommend ART for all HIV-infected patients irrespective of CD4+ count.” (n=105)
Providers believe that early ART reduces infectiousness, but most tend to defer ART if patients are not ready to initiate.

<table>
<thead>
<tr>
<th>Belief</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early ART decreases spread of HIV in a community</td>
<td>96%</td>
</tr>
<tr>
<td>I tend to defer ART if a patient is not ready to initiate it</td>
<td>78%</td>
</tr>
<tr>
<td>Concerned about toxicity with early ART</td>
<td>41%</td>
</tr>
<tr>
<td>Patients need to have depression treated before initiating ART</td>
<td>29%</td>
</tr>
<tr>
<td>Patients who use excessive alcohol/illicit drugs need to be in recovery before initiating ART</td>
<td>24%</td>
</tr>
<tr>
<td>Concerned about development of resistant virus with early ART</td>
<td>24%</td>
</tr>
</tbody>
</table>
Two-thirds of ART-prescribing providers intend to prescribe ART to all HIV-infected patients.

Percent of participants who would prescribe ART to typical HIV-infected patient in various clinical scenarios (n=105)

- Patient with CD4+ count ≤200 cells/mm³: 81%
- Patient with CD4+ count ≤350 cells/mm³: 81%
- Patient with CD4+ count ≤500 cells/mm³: 79%
- All patients irrespective of CD4+ count: 69%
Infectious diseases specialty was associated with intentions to prescribe early ART

<table>
<thead>
<tr>
<th>Provider type</th>
<th>Adjusted OR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>1.01 (0.93 to 1.09)</td>
<td>0.85</td>
</tr>
<tr>
<td>Female (vs. male)</td>
<td>0.86 (0.34 to 2.15)</td>
<td>0.75</td>
</tr>
<tr>
<td><strong>Provider type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary care physician</td>
<td>Ref</td>
<td>--</td>
</tr>
<tr>
<td><strong>ID specialist</strong></td>
<td>3.71 (1.13 to 12.1)</td>
<td>0.03</td>
</tr>
<tr>
<td>Other provider types</td>
<td>1.64 (0.53 to 5.02)</td>
<td>0.39</td>
</tr>
<tr>
<td>White (vs. other race/ethnicities)</td>
<td>1.04 (0.34 to 3.18)</td>
<td>0.94</td>
</tr>
<tr>
<td>HIV experience, years</td>
<td>0.97 (0.88 to 1.07)</td>
<td>0.57</td>
</tr>
</tbody>
</table>
Nearly all providers (89%) had heard of PrEP; one-fourth were not aware of FDA or CDC guidance.

**FDA has approved Truvada® for use as a once-daily PrEP regimen (n=183)**

- TRUE 71%
- FALSE 2%
- Not sure 27%

**CDC has issued guidance for clinicians regarding PrEP provision (n=182)**

- TRUE 75%
- FALSE 2%
- Not sure 23%
A minority of providers had prescribed PrEP; most of those who had prescribed PrEP anticipate future provision.

**PrEP prescribing practices and intentions (n=182)**

- Any providers at clinic/center prescribing PrEP: 37%
- Have you ever prescribed PrEP: 19%
- Likely to prescribe to additional patients: 74%
- If have not prescribed PrEP, likely to prescribe in future: 58%
Concerns about side effects from PrEP exist; few providers reported concerns about efficacy.
Providers perceive numerous barriers to prescribing PrEP in their practice settings

- Lack of patient requests
  - Not a barrier: 27%
  - Minor barrier: 33%
  - Moderate barrier: 25%
  - Major barrier: 15%

- Concerns about insurance coverage
  - Not a barrier: 10%
  - Minor barrier: 26%
  - Moderate barrier: 31%
  - Major barrier: 32%

- Clinicians not trained to prescribe PrEP
  - Not a barrier: 14%
  - Minor barrier: 22%
  - Moderate barrier: 30%
  - Major barrier: 35%

- Clinicians not aware of CDC guidance
  - Not a barrier: 19%
  - Minor barrier: 22%
  - Moderate barrier: 33%
  - Major barrier: 25%

- Time constraints
  - Not a barrier: 22%
  - Minor barrier: 38%
  - Moderate barrier: 31%
  - Major barrier: 9%

- Clinicians not aware of PrEP
  - Not a barrier: 23%
  - Minor barrier: 27%
  - Moderate barrier: 31%
  - Major barrier: 20%

- Limited # at-risk patients
  - Not a barrier: 27%
  - Minor barrier: 33%
  - Moderate barrier: 25%
  - Major barrier: 15%

Numbers represent percentage for each response category. Bars total to 100%.
Female and white providers were at lower odds of having prescribed PrEP

<table>
<thead>
<tr>
<th></th>
<th>Having prescribed PrEP to at least 1 patient (n=145)</th>
<th>Adjusted OR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>1.03 (0.97 to 1.10)</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td><strong>Female (vs. male)</strong></td>
<td>0.26 (0.10 to 0.70)</td>
<td><strong>0.007</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Provider type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary care physician</td>
<td>Ref</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>ID specialist</td>
<td>0.78 (0.19 to 3.12)</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>Other provider types</td>
<td>2.97 (0.90 to 9.82)</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td><strong>White (vs. other race/ethnicities)</strong></td>
<td><strong>0.30 (0.10 to 0.97)</strong></td>
<td><strong>0.04</strong></td>
<td></td>
</tr>
<tr>
<td>HIV experience, years</td>
<td>1.03 (0.94 to 1.12)</td>
<td>0.55</td>
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</tbody>
</table>
Study limitations include low response rate and heterogeneous provider types

- Low response rate; may not generalize
- Heterogeneous respondent population
  - Limited sample to ascertain ART prescribing practices
  - Heterogeneity a strength when exploring PrEP prescribing practices
In conclusion, providers believe that ARVs can decrease HIV transmission, but prescribing practices are suboptimal

- Providers believe early ART and PrEP are efficacious
- However, only 2/3rds report prescribing intentions consistent with implementing early ART
  - Patient readiness, threats to adherence, ARV toxicities
  - Non-ID specialists may warrant additional training
- Few have prescribed PrEP despite positive intentions
  - Practical barriers, concerns about toxicities
  - Need studies to explore gender/racial differences in prescribing
- Intentions may have evolved since study completion
- Interventions to optimize provider practices are needed
Study participants
Funding: NIMH, Bristol Myers Squibb
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The Fenway Institute
Research Assistants: Kevin Maloney, John Trinidad

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