Increases in ART prescription and viral suppression among HIV-positive young adults in care in the United States, 2009-2013

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Acknowledgments

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- Medical Monitoring Project
  - Participants
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Conflict of interest disclosure

Linda Beer, PhD has no real or apparent conflicts of interest to report
Background

- HIV-positive young adults are less likely than older adults to take antiretroviral therapy (ART), be adherent, and be virally suppressed

- Recent developments
  - Guidelines now recommend universal prescription of ART
  - Simpler, more tolerable ART regimens
  - Enhanced focus on improving care continuum for youth

- Effect of these developments on youth nationally is unknown
Analytic questions

- Have recent developments been accompanied by increased ART prescription, adherence, and care utilization among young adults in care?
  - If so, has this contributed to improvements in viral suppression?

- To answer these questions, we estimated temporal trends in these factors among HIV-positive young adults in care in the United States from 2009 to 2013.
METHODS
Data

- Medical Monitoring Project (MMP), 2009 – 2013
  - Surveillance system describing clinical and behavioral characteristics of adults receiving HIV medical care in the U.S.
  - Annual, cross-sectional estimates
  - Complex sample of facilities and patients in 23 jurisdictions

- Data collection
  - Interviews and medical record abstractions (N=23,125)
  - Response rates: facilities 76–85%; patients 49–55%
Methods

- Used linear regression to estimate trends from 2009 to 2013 among young adults receiving HIV care (aged 18-24)
  - N by year: 2009=107; 2010=125; 2011=127; 2012=144; 2013=133
- Measures (all based on medical record review except adherence)
  - Viral suppression (<200 copies/mL at last test)
  - Sustained viral suppression (<200 copies/mL at all tests during past 12 months)
  - ART prescription during past 12 months
  - 100% adherence to ART dose during past 3 days (self-reported)
  - Care utilization (>1 viral load in each 6 month period during past year)
- Weighted for unequal selection probabilities and non-response
RESULTS
## Selected characteristics of HIV-positive young adults in care, Medical Monitoring Project 2009-2013 (N=636)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% (CI)</th>
<th>% (CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black men</td>
<td>43 (37-50)</td>
<td>Homeless</td>
</tr>
<tr>
<td>Black women</td>
<td>15 (11-18)</td>
<td>14 (10-18)</td>
</tr>
<tr>
<td>Hispanic men</td>
<td>14 (10-17)</td>
<td>Incarcerated</td>
</tr>
<tr>
<td>White men</td>
<td>11 (8-14)</td>
<td>Aged 10+ at HIV diagnosis</td>
</tr>
<tr>
<td>Other</td>
<td>17 (14-21)</td>
<td>Length of HIV diagnosis</td>
</tr>
<tr>
<td>Gay or bisexual identity</td>
<td>62 (57-67)</td>
<td>&lt;5 years</td>
</tr>
<tr>
<td>At/below household poverty</td>
<td>62 (56-66)</td>
<td>5-9 years</td>
</tr>
<tr>
<td>Uninsured/RW coverage only</td>
<td>35 (28-41)</td>
<td>10+ years</td>
</tr>
</tbody>
</table>

Source: Beer et al; Receipt of clinical and prevention services, clinical outcomes, and sexual risk behaviors among HIV-infected young adults in care in the United States; *AIDS Care* 2016. Time period is 12 months prior to interview unless otherwise noted; all variables measured by interview self-report.
ART prescription among HIV-positive young adults in care, Medical Monitoring Project 2009-2013

\[
\beta_{\text{TREND}} = 0.04, \quad P_{\text{TREND}} = 0.01
\]

ART, antiretroviral therapy.
ART adherence among HIV-positive young adults in care, Medical Monitoring Project 2009-2013

\[ \beta_{\text{TREND}} = 0.01, \quad P_{\text{TREND}} = 0.36 \]

ART, antiretroviral therapy; adherence, 100% adherence to antiretroviral dose during past 3 days.
Care utilization among HIV-positive young adults in care, Medical Monitoring Project 2009-2013

\[ \beta_{\text{TREND}} = -0.01, \quad P_{\text{TREND}} = 0.31 \]

Care utilization, at least 1 viral load in each 6 month period during past year.
Viral suppression at last test among HIV-positive young adults in care, Medical Monitoring Project 2009-2013

\[ \beta_{\text{TREND}} = 0.02, \quad P_{\text{TREND}} = 0.22 \]

Viral suppression at last test, viral load at last test documented in medical record as undetectable or \(<=200\)
Sustained viral suppression among HIV-positive young adults in care, Medical Monitoring Project 2009-2013

Sustained viral suppression, all viral loads in past 12 months documented in medical record as undetectable or <=200 copies/ml.
Viral suppression among HIV-positive young adults in care, Medical Monitoring Project 2009-2013
Summary of results

- Improvements in ART prescription
  - 4 percentage point average annual increase
- No change in adherence or care utilization
- No change in viral suppression at last test
- Improvements in sustained viral suppression
  - 5 percentage point average annual increase
DISCUSSION AND CONCLUSIONS
Discussion

- Improvements in sustained viral suppression
  - Accounting for ART prescription somewhat attenuated the sustained viral suppression trend (adjusted $\beta=0.04$, $P_{\text{TREND}} 0.02$)

- No upward trend in viral suppression at last test
  - At any given time only about 2/3 of young adults in HIV care are virally suppressed, but increasingly more are able to maintain suppression
Discussion

- Why no change in viral suppression at last test?
  - No improvements in adherence or care utilization
  - Changes in the characteristics of young adults in care?
    - Increasing proportion of males, but stratifying by gender, race, ART use, time since diagnosis did not alter results
Limitations

- Adherence measure is limited to past three days
- Did not assess other potential explanatory factors for changes in viral suppression such as changes in ART regimens
Conclusions

- Significant increases in sustained viral suppression among HIV-positive young adults in care in the U.S.
  - Partially attributable to increasing ART prescription
- However, levels of viral suppression among young adults in care remain too low
- Wider development and implementation of effective strategies to improve adherence among young persons may be needed
Thank you

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.