Trends in HIV Incidence and Prevalence in the United States

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7th International Workshop on HIV Transmission
Washington, DC, July 20, 2012
Review

- Incidence
- Prevalence
- Transmission potential

- People living with HIV
- New HIV infections
  - Using back-calculation methodology
- New HIV infections
  - Using new incidence surveillance methodology

Sources: Hall JAMA 2008; PreJean PLoS ONE 2011; MMWR 60(21):689-693
Using estimates from new incidence methodology
HIV Incidence by Sex, United States - 2009

Male 77%
Female 23%
HIV Incidence by Age at Infection, United States - 2009

- 13-29: 39%
- 40-49: 23%
- 30-39: 27%
- 50+: 11%
HIV Incidence by Transmission Category, United States - 2009

- Male-to-Male Sexual Contact (MSM) 61%
- Heterosexual Contact 27%
- Injection Drug Use (IDU) 9%
- MSM/IDU 3%
- Other <1%

Total Incidence: 100%
HIV Incidence by Sex, United States, 1977-2009

*solid lines indicate estimates from extended back-calculation, and dashed lines indicate estimates from the stratified extrapolation approach*
HIV Incidence by Race/ethnicity, United States, 1997-2009

*solid lines indicate estimates from extended back-calculation, and dashed lines indicate estimates from the stratified extrapolation approach*
Estimated annual percent change among MSM 13-29y:
All, 8.1%, 95% CI 1.9%-14.9%; black, 12.2%, 95% CI 4.2%-20.9%; all other NS.
HIV Incidence Rate (per 100,000) by Race/Ethnicity and Sex, United States, 2006-2009
HIV Prevalence in the United States

- 1,148,200 persons living with HIV infection, year-end 2009
- 207,600 (18.1%) persons with undiagnosed HIV infection
Estimated Rates of Adults and Adolescents Living with HIV Infection (Prevalence), by Age Group, 2009—United States

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Prevalence, Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>13–24</td>
<td>149</td>
</tr>
<tr>
<td>25–34</td>
<td>421</td>
</tr>
<tr>
<td>35–44</td>
<td>770</td>
</tr>
<tr>
<td>45–54</td>
<td>854</td>
</tr>
<tr>
<td>55–64</td>
<td>448</td>
</tr>
<tr>
<td>≥65</td>
<td>102</td>
</tr>
</tbody>
</table>
Estimated Rates of Adults and Adolescents Living with HIV Infection (Prevalence), by Race/Ethnicity, 2009—United States

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>Prevalence, Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian/Alaska Native</td>
<td>228</td>
</tr>
<tr>
<td>Asian</td>
<td>136</td>
</tr>
<tr>
<td>Black/African American</td>
<td>1,685</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>617</td>
</tr>
<tr>
<td>Hawaiian/Other Pacific Islander</td>
<td>392</td>
</tr>
<tr>
<td>White</td>
<td>223</td>
</tr>
<tr>
<td>Multiple races</td>
<td>537</td>
</tr>
</tbody>
</table>
Estimated Numbers of Adults and Adolescents Living with HIV Infection (Prevalence), by Transmission Category, 2009—United States

N = 1,148,200

Transmission category

- Male-to-male sexual contact: 592,100
- Injection drug use - Males: 113,200
- Injection drug use - Females: 70,200
- Male-to-male sexual contact and injection drug use: 60,200
- Heterosexual contact - Males: 100,600
- Heterosexual contact - Females: 207,100
Table 3  Expected prevalence rates of HIV infection within a cohort of young MSM who are seronegative at age 18; 2.39% annual incidence rate for the general population of MSM; 4% incidence rate for African American MSM

<table>
<thead>
<tr>
<th>Age</th>
<th>General population of MSM</th>
<th>African American MSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>4.7% (95% CI: 4.3, 5.2)</td>
<td>7.8% (95% CI: 2.3, 18.8)</td>
</tr>
<tr>
<td>25</td>
<td>15.6% (95% CI: 14.2, 16.9)</td>
<td>24.9% (95% CI: 8.8, 51.8)</td>
</tr>
<tr>
<td>30</td>
<td>25.2% (95% CI: 23.0, 27.3)</td>
<td>38.7% (95% CI: 14.5, 71.4)</td>
</tr>
<tr>
<td>35</td>
<td>33.7% (95% CI: 31.0, 36.3)</td>
<td>50.0% (95% CI: 19.9, 83.0)</td>
</tr>
<tr>
<td>40</td>
<td>41.2% (95% CI: 38.1, 44.2)</td>
<td>59.3% (95% CI: 25.0, 90.0)</td>
</tr>
</tbody>
</table>
HIV Prevalence in the United States

- 1,148,200 persons living with HIV infection, year-end 2009
- 207,600 (18.1%) persons with undiagnosed HIV infection
Percentages and rates of HIV transmission attributed to persons aware and unaware of their HIV infection

TR = 10.4/100

18%

82%

People living with HIV 2009

Diagnosed

Undiagnosed

TR = 2.7/100

49%

51%

New infections

Infections from undiagnosed

Infections from diagnosed

Estimated Number of Adults and Adolescents Living with HIV Infection (Diagnosed and Undiagnosed)* and Percent Undiagnosed† – United States, 1985 - 2008

*HIV prevalence was estimated based on national HIV surveillance data for adults and adolescents (aged ≥ 13 years at diagnosis) reported through June 2010 using extended back-calculation.
†The number of undiagnosed HIV infections was derived by subtracting the estimated number of diagnosed living cases from the estimated overall HIV prevalence.
Estimated rate of males aged ≥13 years living with HIV infection, 2008 – United States

Estimated rates of males aged ≥13 years living with HIV infection and undiagnosed HIV infection, 2008 – United States

Percentage of MSM with diagnosed and undiagnosed HIV infection, 2008 – United States

Number of persons with HIV engaged in selected stages of the continuum of HIV care — United States

CDC. Vital Signs: HIV Prevention Through Care and Treatment — United States. MMWR 2011;60:1618-1623
Percentage of MSM living with HIV (diagnosed) at the end of 2009 who received care in 2009, 13 U.S. jurisdictions

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>41</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>48</td>
</tr>
<tr>
<td>White</td>
<td>51</td>
</tr>
</tbody>
</table>

Hall et al. JAIDS DOI: 10.1097/QAI.0b013e318249fe90
Highly active antiretroviral therapy does not completely suppress HIV in semen of sexually active HIV-infected men who have sex with men

Joseph A. Politch\textsuperscript{a}, Kenneth H. Mayer\textsuperscript{b,d}, Seth L. Welles\textsuperscript{c}, William X. O’brien\textsuperscript{b}, Chong Xu\textsuperscript{a}, Frederick P. Bowman\textsuperscript{a} and Deborah J. Anderson\textsuperscript{a}

\textit{AIDS} 2012, 26:000–000
Among MSM, race/ethnicity, age, ... not associated with having UAI with a partner with negative or unknown HIV status at last sex

Heffelfinger et al. Poster #1091, CROI 2012.
Summary

- Overall, HIV incidence relatively stable
- Incidence increased among young MSM, particularly young black MSM
- Disparities exist
  - Incidence
  - Prevalence overall and undiagnosed prevalence
  - Care, treatment, and suppressed viral load
- Comprehensive prevention strategy must address continuum of care as well as other factors (e.g., risk behavior, STIs, policy)
National HIV/AIDS Strategy

- Reducing the number of people who become infected with HIV
- Increasing access to care and optimizing health outcomes for people living with HIV; and,
- Reducing HIV-related health disparities

Questions?

www.cdc.gov/nchhstp/atlas

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.