The Global HIV Epidemics among Gay, Bisexual and other MSM

HPTN MSM Plenary
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Global HIV prevalence of HIV in MSM compared with regional adult prevalence

Global HIV prevalence among MSM, 2007-2011

Diagnoses of HIV Infection among Adults and Adolescents, by Transmission Category, 2008–2011—United States and 6 Dependent Areas

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

a Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

b Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.
Diagnoses of HIV Infection among Adult and Adolescent Males, by Transmission Category, 2008–2011 United States and 6 Dependent Areas

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

- Heterosexual contact: a
- Injection drug use
- Male-to-male sexual contact
- Male-to-male sexual contact and injection drug use
- Other: b

a Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.
b Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or identified.
Diagnoses of HIV Infection among Adults and Adolescents, by Transmission Category, 2011—United States and 6 Dependent Areas

N = 50,007

- Male-to-male sexual contact: 62%
- Injection drug use (IDU) – Males: 18%
- Injection drug use (IDU) – Females: 10%
- Male-to-male sexual contact and IDU: 5%
- Heterosexual contact – Males: 3%
- Heterosexual contact – Females: 3%
- Other: <1%

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting.

* Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

b Includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified.

Year of diagnosis

Diagnoses, No.

2005 2006 2007 2008

- Black/African American
- Hispanic/Latino
- American Indian/Alaska Native
- White
- Native Hawaiian/Other Pacific Islander
- Multiple races
- Asian
- Multiple races

Note: Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. Data from 37 states and 5 U.S. dependent areas with confidential name-based HIV infection reporting since at least January 2005. All displayed data have been estimated. Estimated numbers resulted from statistical adjustment that accounted for reporting delays and missing risk-factor information, but not for incomplete reporting. Data exclude men who reported sexual contact with other men and injection drug use.

*Hispanics/Latinos can be of any race.
Diagnoses of HIV Infection among Men Who Have Sex with Men, by Region of Residence and Race/Ethnicity 2011—United States and 6 Dependent Areas

Note. Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing transmission category, but not for incomplete reporting. Data on men who have sex with men do not include men with HIV infection attributed to male-to-male sexual contact and injection drug use.

* Hispanics/Latinos can be of any race.
HIV incidence among MSM, 1995-2013

Beyrer, et al, AIDS 2013
Sixty months cumulative HIV incidence in a cohort of men who have sex with men, Bangkok, Thailand, 2006 – 2012, by age group

Number at risk (HIV-negatives)

<table>
<thead>
<tr>
<th>Months</th>
<th>1372</th>
<th>1147</th>
<th>919</th>
<th>635</th>
<th>564</th>
<th>326</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12</td>
<td>264</td>
<td>187</td>
<td>140</td>
<td>92</td>
<td>73</td>
<td>38</td>
<td>18-21 years</td>
</tr>
<tr>
<td>13-24</td>
<td>724</td>
<td>605</td>
<td>497</td>
<td>352</td>
<td>313</td>
<td>179</td>
<td>22-29 years</td>
</tr>
<tr>
<td>25-36</td>
<td>384</td>
<td>355</td>
<td>282</td>
<td>191</td>
<td>178</td>
<td>109</td>
<td>≥30 years</td>
</tr>
</tbody>
</table>

Source: van Griensven et al, AIDS 2013 doi: 10.1097/QAD.0b013e32835c546e
Primary and Secondary Syphilis-Reported Cases by Sex, Sexual Behavior and Race/Ethnicity, USA, 2012
WHY?

Etiologies of HIV Risk in MSM
Risks for Infection among MSM

- **Individual level risks**
  - Well described but insufficient to explain epidemics of HIV among MSM

- **Network level risks**
  - Sex role versatility with sex between men
  - Increased size and lower density networks are associated with HIV in China, Australia, and minority MSM in USA, UK

- **Structural risks**
  - Emerging data on HIV risk and criminalization, stigma, discrimination in health care settings, low access to services, ART
# Understanding Networks

<table>
<thead>
<tr>
<th>Report</th>
<th>Population</th>
<th>Finding</th>
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</thead>
<tbody>
<tr>
<td>Lin, <em>AJE</em> 2013</td>
<td>MSM in China, 2008-10</td>
<td>Used contact tracing and molecular epidemiology: limited by stigma</td>
</tr>
<tr>
<td>Yebra, <em>Inf Gen Evo</em>, 2013</td>
<td>HIV in Madrid, 1995-10</td>
<td>Inclusion in networks more likely for MSM, most networks were in MSM</td>
</tr>
<tr>
<td>Ambrosioni, <em>AIDS</em> 2012</td>
<td>Newly Diagnosed Swiss 2008-2010</td>
<td>Recent HIV infections account for 2/3 of onward transmission in MSM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MSM risk aOR 2.6 (1.1-6.3) for clustering in recent infx networks</td>
</tr>
<tr>
<td>Leigh Brown, <em>JID</em>, 2011</td>
<td>14,560 UK MSM</td>
<td>Median time to onward transmission 17 mos, 20% of infections in clusters ≤ 6 mos</td>
</tr>
<tr>
<td>Oster, <em>AIDS</em>, 2011</td>
<td>Mississippi, new dx 2005-08</td>
<td>Clusters of young Black MSM insular in risk, demography, not geography</td>
</tr>
</tbody>
</table>
Oster, et al, STD 40:3;2013
Molecular Epidemiology of HIV subtypes in MSM, 2007-11

Meta-Analysis: Where are HIV-Related Disparities Greatest Between Black vs. Other MSM? (174 US studies)

Sexual and drug risk behaviors rank lowest among racial disparities in outcomes associated with HIV infection

(Millett, The Lancet, 2012)
Moscow MSM: HIV diagnosis and treatment

HIV prevalence in study sample: 15.22% of total sample; RDS adj: 12.4% (95%CI: 9.3 – 16.1)

Conclusions

- HIV incidence is stable or rising in low, middle, and high income countries
- Explosive epidemics underway in China, Thailand, Kenya, some US cities
- Individual level risk factors less important than network effects for MSM epidemics
- Biological, network, structural and health system risks all play roles in HIV among MSM
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