HIV Disparities: A Population Perspective

Gregorio Millett
amfAR
The North American HIV/AIDS & Housing Summit
September 14, 2015
Outline

• HIV/AIDS disparities in U.S.
• Demographic disparities across treatment cascade
• Structural disparities and the treatment cascade
• Similar disparities in resource rich nations
• Successes in overcoming disparities
• Summary
HIV Diagnoses Among Persons Aged 13 Years or Older by Transmission Category and Year of Diagnosis, United States

- Male-to-male sexual contact: % change, 2002-2011 = 0
- Heterosexual contact: -35%
- IDU: -70%
- MTM+IDU: -58%

Source: A. Johnson, JAMA 312:432, 2014
<table>
<thead>
<tr>
<th>Age Range</th>
<th>Change in Diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 to 24</td>
<td>132.5%</td>
</tr>
<tr>
<td>25 to 34</td>
<td>-0.4%</td>
</tr>
<tr>
<td>35 to 44</td>
<td>-44.6%</td>
</tr>
<tr>
<td>45 to 54</td>
<td>5.3%</td>
</tr>
<tr>
<td>55+</td>
<td>18.5%</td>
</tr>
</tbody>
</table>
Lifetime Risk of HIV Diagnosis by Race

- **Whites**
  - 1 in 104 for men
  - 1 in 588 for women

- **Hispanics**
  - 1 in 35 for men
  - 1 in 114 for women

- **Blacks**
  - 1 in 16 for men
  - 1 in 30 for women

---

Lifetime Risk of HIV Diagnosis by Race

- **Whites**
  - 1 in 104 for men
  - 1 in 6 MSM
  - 1 in 588 for women

- **Hispanics**
  - 1 in 35 for men
  - 1 in 5 MSM
  - 1 in 114 for women

- **Blacks**
  - 1 in 16 for men
  - 1 in 3 MSM
  - 1 in 30 for women

---

Figure 2. Black gay men are only 0.2% of the total U.S. population, but one in four new HIV infections nationally.

The proportion of new HIV infections nationally among Black gay men in the U.S. is 100 times larger than their relative population size.

Figure 3. Black gay men are only 1.4% of the Black population, but they account for one in two new HIV infections among Black Americans each year.

(Sources cited in amfAR’s #Black(gay)livesmatter brief)
Lifetime Risk of HIV Diagnosis by Race

- **Whites**
  - 1 in 104 for men
  - 1 in 6 MSM
  - 1 in 588 for women
  - 1 in 6 transwomen

- **Blacks**
  - 1 in 16 for men
  - 1 in 30 for women
  - 1 in 2 transwomen

- **Hispanics**
  - 1 in 35 for men
  - 1 in 114 for women
  - 1 in 3 to 6 transwomen

32% U.S. Black gay men and Transwomen
28% Kazakhstani injection drug users
42% Kenyan female sex workers
26% Indonesian transgender women

Sources: Rosenberg, 2014; Baral, 2013; El Bassel, 2013; Baral, 2012
Percentages of Stage 3 (AIDS) Classifications among Adults and Adolescents with HIV Infection, by Race/Ethnicity and Year of Diagnosis, 1985–2011—United States and 6 Dependent Areas

Stage 3 (AIDS) Classifications among Adults and Adolescents with HIV Infection, by Transmission Category and Year of Diagnosis, 1985–2011—United States and 6 Dependent Areas
Success stories can change....

Indiana community's HIV outbreak a warning to rural America

Laura Ungar and Chris Kenning, USA TODAY 7:25 p.m. EDT May 17, 2015

Figure 1: HIV diagnoses among PWID, Scott County, Indiana vs NYC

Scott County, Indiana (pop 24,000)
PWID HIV diagnoses in 5 months, December 2014- early June 2015

New York City (pop 8 million)
PWID HIV diagnoses in calendar year 2014
Disparities by Demographic Group Across Treatment Cascade


(Torian & Weiwel, 2011)
Youth and HIV-Related Disparities

Retrospective CA/CO (Ryscavage, 2011)
46 youth (17-24) matched with 46 adult controls (25-40). Data collected 2003-2009, Northwestern Hospital

Black youth lowest probability of virologic suppression at 6 months (44%), compared to
• Black adults (71%)
• Nonblack youth (77%)
• Nonblack adults (91%)

Black youth had highest predicted probability of viral rebound (72%) compared to
• Nonblack youth (42%)
• Black adults (18%)
• Nonblack adults (6%)
HIV-Related Disparities by Sex

- Higher diagnosis rates and higher CD4 among women (Meditz, 2011)

- Time in care and on HAART least for
  - females than males (57% vs. 71%; P=.01) (Meditz, 2011)

- Women significantly
  - less likely to use HIV primary care services (OR 0.56, CI 0.35, 0.90)
  - greater use of the emergency department (OR 2.13, 1.31, 3.46) (Sohler, 2009)

- Mortality higher among women
  - Even after adjustment for the length of time on HAART (Lemly, 2009)

- Domestic violence (Machtailer, 2012)
  - Meta-analysis: 29 US studies women PLWHIV
    - 30% PTSD (5x times national rate)
    - 55.3% intimate partner violence (>2x the national rate)
    - Recent trauma associated with 4x odds of ART failure
    - Domestic violence doubled risk of death
When coming out as gay leads to homelessness

Tevin Brunner, who is gay and recently was homeless, is now working and living in transitional housing in North Avondale. The U.S. Department of Housing and Urban Development chose Cincinnati and Houston to develop a plan to address homelessness in gay, lesbian, bisexual and transgender youth.
Foreign-Born Latinos & HIV Outcomes

US-Mexico border: 46% Latinos dx late vs. 37% Whites (Espinoza, 2009)
- higher proportion of late diagnoses among foreign-born compared to US-born Latinos (51% vs. 39%)
- increased risk of delayed diagnosis among foreign-born vs. US-born males (AOR 1.7, 95% CI 1.4–2.2)

LA County Spanish-speaking Latinos 3x more likely to present late compared to English-speaking Latinos (Wohl, 2009)

Greater mortality rates among Latinos born in Puerto Rico than mainland US (Hanna, 2008; Nash, 2005)
Disparities persist between black and other MSM throughout treatment cascade (24 comparative studies)

- Undiagnosed HIV
  OR, 6.38 (4.33-9.39)

- Diagnosed HIV+
  OR, 3.00 (2.06-4.40)

- ART utilization/access
  OR, 0.56 (0.41-0.76)

- >200 CD4 cells/mm³ before ART initiation
  OR, 0.40 (0.26-0.62)

- Healthcare visits
  OR, 0.61 (0.42-0.90)

- ART adherence
  OR, 0.50 (0.33-0.76)

- HIV suppression
  OR, 0.51 (0.31-0.83)

- Viral Suppression

- Lower income (<$20k)
  OR, 3.42 (1.94-6.01)

- Health insurance
  OR, 0.47 (0.29-0.77)

(Millett, 2012)
### Table 3: Estimated prevalence rates of contextual factors that are potentially related to HIV risk

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number of studies (k)</th>
<th>Weighted mean (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social isolation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discomfort in public settings</td>
<td>3</td>
<td>60.4</td>
</tr>
<tr>
<td>Feel unsafe in public settings</td>
<td>3</td>
<td>76.6</td>
</tr>
<tr>
<td>Economic marginalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homelessness</td>
<td>11</td>
<td>12.9</td>
</tr>
<tr>
<td>Unemployment</td>
<td>13</td>
<td>23.0</td>
</tr>
<tr>
<td>Job discrimination</td>
<td>4</td>
<td>35.3</td>
</tr>
<tr>
<td>Social services discrimination</td>
<td>3</td>
<td>40.6</td>
</tr>
<tr>
<td>Incarceration history</td>
<td>7</td>
<td>32.8</td>
</tr>
<tr>
<td>Health care needs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without health insurance</td>
<td>7</td>
<td>49.9</td>
</tr>
<tr>
<td>Refused transgender-related medical care</td>
<td>5</td>
<td>30.5</td>
</tr>
</tbody>
</table>

*Herbst, 2008*
Percent of estimated diagnoses\textsuperscript{a} of AIDS by region\textsuperscript{b} and year, United States, 1981-2010

\textsuperscript{a} Diagnoses of AIDS were adjusted for reporting delay, but not for incomplete reporting

\textsuperscript{b} Regions consist of Northeast (Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont), Midwest (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin), South (Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia), and West (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming)

(Slide courtesy Joseph Prejean)
HIV Case-Fatality Rate Greatest in the South

(Hanna, 2011)
Disparities by Structural Factors Across Treatment Cascade

- No insurance
- Low income
- Housing status

<table>
<thead>
<tr>
<th>Stage</th>
<th>Percent of People with HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosed</td>
<td>82%</td>
</tr>
<tr>
<td>Linked to Care</td>
<td>66%</td>
</tr>
<tr>
<td>Retained in Care</td>
<td>37%</td>
</tr>
<tr>
<td>Prescribed ART</td>
<td>33%</td>
</tr>
<tr>
<td>Virally Suppressed</td>
<td>25%</td>
</tr>
</tbody>
</table>

- ART Adherence
  - Housing status
  - Low social support
  - Low income

(Sources: Muthulingam, 2013; Hannah, 2013; CDC, 2012; Hall, 2012; Traeger, 2012; Torian, 2011; Knowlton, 2010; Meade, 2009; Mugavero, 2009; Weiser, 2009; Kidder, 2007; Bell, 1999)
Structural Disparities and Earlier ART

New US treatment guidelines recommend antiretroviral treatment for all people with HIV

TREATMENT GUIDELINES>

Keith A/com
Published: 29 March 2012

Newly updated US antiretroviral treatment guidelines are recommending antiretroviral treatment for all people with HIV infection, with particular emphasis on treatment for people with CD4 cell counts below 500; anyone at risk of transmitting HIV to partners; pregnant women; and people with hepatitis B co-infection or HIV-related kidney disease.

The new recommendations strengthen previous US recommendations on when to start treatment, which recommended initiating treatment at CD4 cell counts between 350 and 500 cells/mm³. The 2009 guidelines panel was, however, divided as to the strength of this recommendation: based on available evidence, 55% of the panel considered it a 'strong' recommendation and 45% 'moderate'.

The new Department of Health and Human Services (DHHS) guidelines state that “antiretroviral therapy is recommended for all HIV-infected individuals.”

Evidence of SF policy Effectiveness

“In multivariate analyses (adjusting for age, sex, and injection drug use), the likelihood of HIV suppression more than doubled (at SFGH’s Ward 86 Clinic) after adoption of the new policy.”

(Geng, CROI, 2012)
Structural Disparities and Earlier ART

New US treatment guidelines recommend antiretroviral treatment for all people with HIV

TREATMENT GUIDELINES

Keith Alcorn
Published: 29 March 2012

Newly updated US antiretroviral treatment guidelines are recommending antiretroviral treatment for all people with HIV infection, with particular emphasis on treatment for people with CD4 cell counts below 500, anyone at risk of transmitting HIV to partners; pregnant women; and people with hepatitis B co-infection or HIV-related kidney disease.

The new recommendations strengthen previous US recommendations on when to start treatment, which recommended initiating treatment at CD4 cell counts between 350 and 500 cells/mm³. The 2009 guidelines panel was, however, divided as to the strength of this recommendation: based on available evidence, 55% of the panel considered it a ‘strong’ recommendation and 45% ‘moderate’.

The new Department of Health and Human Services (DHHS) guidelines state that “antiretroviral therapy is recommended for all HIV-infected individuals”.

Evidence of SF policy Effectiveness

“In multivariate analyses (adjusting for age, sex, and injection drug use), the likelihood of HIV suppression more than doubled (at SFGH’s Ward 86 Clinic) after adoption of the new policy.”

(Geng, CROI, 2012)

- Initiating ART at higher CD4 leaves disenfranchised and most at-risk populations behind.

- People who started ART at higher CD4 (above 500 cells/mm³) were more likely to be white, MSM, utilized private doctors (vs. being poor)

- ‘Initiating ART at CD4 > 350 and possibly > 500 cells/mm³ exposes a new potential inequality for populations already disproportionately affected by HIV, including youth, African Americans, the poor, and those diagnosed at facilities other than private providers’

(Truong, CROI, 2012)
AIDS Mortality by Race and Income, 1987-2011

(Singh, 2013)
Disparities persist even when healthcare available, VA studies

“Even in a system with few financial barriers to care, a substantial portion of HIV-infected patients have poor retention in care.”

“Urban residence predicted raltegravir adoption within 180 days (OR 1.72, 95% CI 1.09–2.70) and 360 days (OR 1.63, 95% CI 1.13–2.34). Efforts are needed to reduce geographic variation in adoption of advances in HIV therapy.”

“Despite similar durations of HIV infection and equal access to healthcare, AAs were significantly less likely to achieve viral suppression compared with European Americans.”

“Equal access to care yields high efficacy rates with HAART but does not fully equilibrate racial differences in virologic failure.”
Overcoming disparities
• Federal ban funding DC needle exchange dropped in 2007
• HIV diagnoses, AIDS diagnoses and mortality down among IDU since ban removal
• Study: 120 infections averted in 2 years after ban and $44 million saved
• Both House and Senate in 2015 partially dropped Federal ban for needle exchange

TABLE 1. Number and rate* of adults and adolescents† newly diagnosed with AIDS, by race/ethnicity and sex --- District of Columbia, 2004--2008

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total no.</th>
<th>%</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008$</th>
<th>2004--2008 EAPC$</th>
<th>p-value**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Rate</td>
<td>No.</td>
<td>Rate</td>
<td>No.</td>
<td>Rate</td>
<td>No.</td>
<td>Rate</td>
<td></td>
</tr>
<tr>
<td>Black/African American</td>
<td>2,836</td>
<td>86.0</td>
<td>657</td>
<td>240</td>
<td>563</td>
<td>207</td>
<td>604</td>
<td>223</td>
<td>-7.1</td>
</tr>
<tr>
<td>Males</td>
<td>1,857</td>
<td>56.0</td>
<td>448</td>
<td>373</td>
<td>364</td>
<td>305</td>
<td>389</td>
<td>328</td>
<td>-7.8</td>
</tr>
<tr>
<td>Females</td>
<td>979</td>
<td>30.0</td>
<td>209</td>
<td>136</td>
<td>199</td>
<td>130</td>
<td>215</td>
<td>142</td>
<td>-5.3</td>
</tr>
<tr>
<td>Hispanic/Latino††</td>
<td>175</td>
<td>5.0</td>
<td>48</td>
<td>122</td>
<td>43</td>
<td>109</td>
<td>28</td>
<td>71</td>
<td>-17.8</td>
</tr>
<tr>
<td>Males</td>
<td>129</td>
<td>4.0</td>
<td>37</td>
<td>178</td>
<td>27</td>
<td>130</td>
<td>22</td>
<td>106</td>
<td>-15.4</td>
</tr>
<tr>
<td>Females</td>
<td>46</td>
<td>1.0</td>
<td>11</td>
<td>59</td>
<td>16</td>
<td>86</td>
<td>6</td>
<td>32</td>
<td>-21.6</td>
</tr>
</tbody>
</table>
Improvement in the Health of HIV-Infected Persons in Care: Reducing Disparities

Richard D. Moore, Jeanne C. Keruly, and John G. Bartlett

Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland

[Graphs showing ART utilization and Viral suppression over time]
Gov. Cuomo releases 3-point plan to end AIDS epidemic in New York

06/29/14 11:36 AM

Governor Inslee Issues to End AIDS in Washington State by 2020

November 28, 2014 by kellywbray

*Seattle* – Governor Jay Inslee has announced a commitment to End AIDS in Washington. The governor issued a proclamation today that appoints an HIV Planning Steering Group (HPSG) to develop a statewide plan for reducing the rate of new HIV diagnoses by 50 percent by 2020.

**H. Fisher Raymond, DrPH, MPH, Yea-Hung Chen, MS, Theresa Ick, BA, Susan Scheer, PhD, MPH, Kyle Bernstein, PhD, SCM, Sally Liska, DrPH, MS, Brian Louie, BA, Mark Pandori, PhD, and Willi McFarland, MD, PhD, MPH, TM**


<table>
<thead>
<tr>
<th>Variable</th>
<th>MSM1 2004</th>
<th></th>
<th>MSM2 2008</th>
<th></th>
<th>MSM3 2011</th>
<th></th>
<th>(\chi^2) Test for Trend (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV positive (by serological test in this study)</td>
<td>24.0</td>
<td>19.6, 28.1</td>
<td>23.0</td>
<td>19.0, 26.3</td>
<td>23.0</td>
<td>18.9, 26.6</td>
<td>0.73</td>
</tr>
<tr>
<td>Unrecognized HIV infection*</td>
<td>21.7</td>
<td>13.2, 30.3</td>
<td>18.0</td>
<td>10.9, 25.2</td>
<td>7.5</td>
<td>2.4, 12.7</td>
<td>0.025 *</td>
</tr>
<tr>
<td>Tested for HIV in the last 6 mos (if not known HIV+)</td>
<td>44.1</td>
<td>35.6, 49.6</td>
<td>55.2</td>
<td>50.4, 59.9</td>
<td>57.8</td>
<td>52.9, 62.6</td>
<td>&lt;0.001 *</td>
</tr>
<tr>
<td>HIV incidence (by BED assay, percent per year)</td>
<td>2.6</td>
<td>0.8, 4.3</td>
<td>0.7</td>
<td>0, 1.5</td>
<td>1.0</td>
<td>0.02, 1.9</td>
<td>0.06</td>
</tr>
<tr>
<td>Ever on ART*</td>
<td>71.2</td>
<td>60.6, 81.9</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Currently on ART*</td>
<td>—</td>
<td>—</td>
<td>79.3</td>
<td>70.6, 87.3</td>
<td>88.2</td>
<td>82.1, 94.3</td>
<td>—</td>
</tr>
<tr>
<td>Gonorrhea history in the last year (by self-report)</td>
<td>6.5</td>
<td>4.0, 8.9</td>
<td>7.7</td>
<td>5.4, 9.9</td>
<td>9.2</td>
<td>6.7, 11.7</td>
<td>0.15</td>
</tr>
<tr>
<td>Multiple sexual partners in the last year</td>
<td>79.3</td>
<td>75.2, 83.3</td>
<td>77.5</td>
<td>73.9, 81.1</td>
<td>76.5</td>
<td>72.8, 80.2</td>
<td>0.31</td>
</tr>
<tr>
<td>Methamphetamine use in the last year</td>
<td>22.8</td>
<td>18.6, 27.0</td>
<td>13.2</td>
<td>10.3, 16.2</td>
<td>11.9</td>
<td>9.1, 14.8</td>
<td>&lt;0.001 *</td>
</tr>
</tbody>
</table>

*Percent of HIV positives by serological test.*
Summary

• HIV clinical outcomes consistently worse among set of demographic groups

• Social/structural factors exacerbate HIV-related disparities

• Disparities remain even when care access is equivalent
  – Similar disparities evident in other resource rich nations
  – Opportunities to identify causes transnationally

• HIV-related disparities can be reduced
  – Successful programs for eliminating HIV-related disparities should be studied and replicated