The Social and Demographic Context of HIV Disease in the United States, 2012

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Learning Objectives
Upon completion of this presentation, learners should be better able to:

• Understand in which populations HIV infection is concentrated
• Identify social factors associated with greater likelihood of HIV infection
Demographics of HIV in the U.S.
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

Hall et al. JAIDS. 2008; 49: 294-297
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

HIV Prevalence
General US Population vs MSM

Overall: 0.1, Whites: 0.2, Latinos: 0.6, Blacks: 1.7, MSM overall: 19, White MSM: 16, Latino MSM: 18, Black MSM: 28

CDC fact sheet, 2010; MMWR, 2010
Social Context of HIV in the U.S.
Treatment Cascade, Medical Monitoring Project Data

- Diagnosed: 82%
- Linked to Care: 66%
- Retained in Care: 37%
- Prescribed ART: 33%
- Virally Suppressed: 25%

(CDC, 2012)
Insurance Access by Race

(Project America, 2008)
Table 1: Demographic characteristics, CD4+ count at entry into AIDS program and prevalence of opportunistic infections (OIs) at HIV diagnosis among immigrant and U.S.-born patients in the San Mateo County AIDS program, Northern California 2000–2002 (n = 391)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Immigrants (n = 94) N(%) or median (IQR)</th>
<th>U.S.-Born (n = 297) N(%) or median (IQR)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>71 (75.5%) 31 (27–38)</td>
<td>219 (73.7%) 35 (29–41)</td>
<td>0.649</td>
</tr>
<tr>
<td>Median age</td>
<td></td>
<td></td>
<td>0.001</td>
</tr>
<tr>
<td>Hispanic ethnicity</td>
<td>74 (78.7%) 32 (27–38)</td>
<td>20 (6.7%) 36 (27–38)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Monolingual (non-English)</td>
<td>66 (70.2%) 32 (27–38)</td>
<td>1 (0.34%) 36 (27–38)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
<td></td>
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<tr>
<td>Mexico</td>
<td>57 (61.3%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central America</td>
<td>13 (14.0%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>12 (12.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>11 (11.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean initial CD4+ count</td>
<td>287 cells/mm³ 32 (27–38)</td>
<td>333 cells/mm³ 36 (27–38)</td>
<td>0.143</td>
</tr>
<tr>
<td>Prevalence of OIs</td>
<td>28 (29.8%) 32 (27–38)</td>
<td>51 (17.2%) 36 (27–38)</td>
<td>0.009</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>19 (20.2%) 32 (27–38)</td>
<td>37 (12.5%) 36 (27–38)</td>
<td>0.064</td>
</tr>
</tbody>
</table>

Table 2: Independent associations with opportunistic infection (OI) at first HIV diagnosis (multivariate analysis) for 391 patients entering San Mateo County AIDS Program, California 2000–2002

<table>
<thead>
<tr>
<th></th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immigrants</td>
<td>2.98 (1.21–7.38)</td>
</tr>
<tr>
<td>Monolingual status</td>
<td>1.17 (0.40–3.43)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.51 (0.19–1.34)</td>
</tr>
</tbody>
</table>
HIV Infection Among Heterosexuals in Urban Areas, by Socio-Economic Indicators, 2006-2007, N=14,837

Structural/Environmental

- No high school education: 3.0%
- With high school education: 2.5%
- Unemployed: 2.0%
- Employed: 1.5%
- Below poverty level: 1.0%
- Above poverty level: 0.5%
- Homeless: 0.0%
- Not homeless: 0.0%

Housing and Health
19 US States and Cities, 2000-2003

• CDC/ HUD study of 7,925 people with HIV
  – 4% homeless

• Homeless living with HIV were:
  – Less likely to take HIV medication
  – Less likely to adhere to ART
  – Less likely to have CD4 > 200
  – Less likely to have undetectable viral load

Kidder et al., AJPH, 2007
Food Insecurity is Associated with Incomplete HIV RNA Suppression Among Homeless and Marginally Housed HIV-infected Individuals in San Francisco

Sheri D. Weiser1,2, Edward A. Frongillo3, Kathleen Ragland4, Robert S. Hogg5,6, Elise D. Riley1, and David R. Bangsberg7

Food insecure participants had <80% ART adherence

In adjusted analyses, food insecurity associated with 79% lower odds of viral suppression (AOR, 0.21, 95% CI= 0.06–0.72)
Review identified better HAART outcomes among:
- former DU
- those with less severe psychiatric conditions
- those receiving opioid substitution therapy
- those receiving psychosocial support

Alcohol or crack cocaine abuse associated with poorer outcomes.

0.60 (95% CI: 0.52–0.68)

(Malta, 2010)
Gender-Based Violence & HIV

- Meta-analysis of 29 studies of women living with HIV in the US:
  - 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 for women living with HIV
  
  (Machtinger, AIDS Behav, 2012)
Perinatal Transmission: Some challenges in light of major advances

- THEN: Peak of 1,650 infants born with HIV in 1991

- NOW: 100-200 infants annually, despite increase in women dx w/ HIV having babies

- Washington, DC
  - No infants born with HIV between 2009-2011
  - 4 infants born with HIV in 2012

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Social Context and HIV Clinical Care
ART initiation for all HIV+ persons advocated by public health officials

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)
Starting ART earlier magnifies existing social inequities

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

• People who started ART at higher CD4 (above 500 cells/mm$^3$) were more likely to be white, MSM, utilized private doctors (vs. being poor)

• ‘Initiating ART at CD4 > 350 and possibly > 500 cells/mm$^3$ 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

- AIDS deaths have declined least in the ART era
  - Among black and Latino MSM relative to white MSM (Blair et al., 2002; Hall et al., 2007)
  - Among black women compared to white men (44% vs. 79%, respectively; CDC 2009)
  - Among Latinos compared to blacks or whites (Cunningham et al., 2010)

Mortality incident rate-ratios between blacks and whites have increased since availability of ART
- Reason: Less access to healthcare in racial minority communities

Note. HAART = highly active antiretroviral therapy; IRR = incident rate ratio. For each period, the results from the model were adjusted for age, gender, and urbanicity. Whites were the reference group.

(Levine, 2007)
Providers and Clinical Care Disparities

Prospective cohort study of 2,207 HIV+ persons linked with cross-sectional survey of 404 attending physicians.

African Americans less likely to have an infectious diseases specialist as a regular source of care (OR, 0.60; 0.37 to 0.95).

Important results because studies show greater provider expertise associated with lower risk risk of death. (Jordan, 2013)

– Years providing care trumps expertise

Table 3 Key characteristics of “more routine”\(^a\) versus “less routine”\(^b\) testers for HIV in the past year\(^c\)

<table>
<thead>
<tr>
<th>More routine testers (n=173) were more likely to:</th>
<th>Less routine testers (n=157) were more likely to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be OB/GYN(^d) (47%)</td>
<td>Not be OB/GYN (only 12% are OB/GYN)</td>
</tr>
<tr>
<td>Report testing patients as routine practice (74%)</td>
<td>Report testing only patients who have risk factors (39% test routinely)</td>
</tr>
<tr>
<td>Be &lt;40 years old (32%; mean age 46 yrs)</td>
<td>Be &gt;40 years old (81%; mean age 49 yrs)</td>
</tr>
<tr>
<td>Be women(^e) (60%)</td>
<td>Be men (55%)</td>
</tr>
<tr>
<td>Have been tested for HIV themselves in past year (37%)</td>
<td>Not have been tested for HIV themselves in past year (only 16% were tested)</td>
</tr>
<tr>
<td>Perceive a higher local prevalence of HIV at the county (16%) and state (16%) levels</td>
<td>Perceive a lower local prevalence of HIV at the county (10%) and state (11%) levels</td>
</tr>
<tr>
<td>Have relatively more patients who are:</td>
<td>Have relatively fewer patients who are:</td>
</tr>
<tr>
<td>Black (62%)</td>
<td>Black (52%)</td>
</tr>
<tr>
<td>Low SES (34%)</td>
<td>Low SES (27%)</td>
</tr>
<tr>
<td>On Medicaid (30%)</td>
<td>On Medicaid (18%)</td>
</tr>
<tr>
<td>HIV positive (9%)</td>
<td>HIV positive (4%)</td>
</tr>
</tbody>
</table>
Improving Clinical Outcomes in Spite of Social Context
Overcoming Disparities – Example from a Private Insurance Setting

- KP Northern California cohort study of PWAs
- Black and Latino patients more likely to have lower education and SES
- Latinos had less access to public health insurance
- ART adherence over 2 year period highest among whites compared with blacks or Latinos
- Mean CD4 highest among whites compared to blacks or Latinos
- How did this translate into AIDS-related events or death by race?

No Racial Differences in AIDS-Related Events or Death


<table>
<thead>
<tr>
<th></th>
<th>HR (95% CI)</th>
<th>P</th>
</tr>
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<tbody>
<tr>
<td>White</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1.2 (0.9-1.5)</td>
<td>0.25</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.8 (0.6-1.1)</td>
<td>0.17</td>
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<tbody>
<tr>
<td>White</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1.1 (0.9-1.4)</td>
<td>0.27</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.7 (0.5-0.9)</td>
<td>0.01</td>
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Improvement in the Health of HIV-Infected Persons in Care: Reducing Disparities

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ART utilization

Viral suppression
National HIV/AIDS Strategy and the Affordable Care Act
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