Continuum of HIV Care
Subpopulation Differences in Care and Treatment in the United States

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North American Housing
and HIV/AIDS Research Summit
Montréal, Québec
September 24, 2013
World Health Organization’s Commission on Social Determinants of Health Conceptual Framework

Determinants of Health

- Biology and genetics (e.g., sex, age, race)
- Individual behavior (e.g., injection drug use, unprotected sex)

Social Determinants of Health

- Social environment (e.g., discrimination, income, education level, marital status)
- Physical environment (e.g., place of residence, crowding conditions, the built environment)
- Health services (e.g., access to quality care, insurance status)
The Continuum of Care – United States

Percentage of persons with HIV engaged in selected stages of the continuum of care

Prevalence, 2009: 1,148,200 persons living with HIV infection
Data

- **National HIV Surveillance System (NHSS)**
  - All states, District of Columbia, and U.S. dependent areas
  - Mandatory reporting of HIV diagnoses (any stage)
  - Evidence of care: CD4 and VL test results
  - No data on ART use

- **Medical Monitoring Project (MMP)**
  - Cross-sectional survey of patients in care
  - Sample: 17 states and Puerto Rico, outpatient HIV care facilities, HIV-infected adults receiving medical care January-April
  - Medical record abstraction and interview
HIV Surveillance

Measures of HIV morbidity and mortality

- HIV Infection
  - HIV diagnosis
  - 1st CD4 count, viral load, drug resistance test
  - Repeat CD4, viral load test
  - 1st CD4 < 200 (IMM-AIDS)

- AIDS-OI
- Death

- Entry to care
- Retention in care and viral suppression
The Denominator

- Undiagnosed—among all people living with HIV
- Linkage to care—among people newly diagnosed in a particular year
- In care—
  - Among all people living with HIV
  - Among people living with diagnosed HIV
- On ART—
  - Among all people living with HIV
  - Among people living with diagnosed HIV
  - Among people in care
- Viral suppression—
  - Among all people living with HIV
  - Among people living with diagnosed HIV
  - Among people in care
  - Among people on ART
Diagnosed and Undiagnosed HIV

Goal:
- Increase from 79 percent to 90 percent the percentage of people living with HIV who know their serostatus.

2009:
- 1,148,200 persons living with HIV infection
- 207,600 (18.1%) with undiagnosed HIV infection
Percentage of People Living with Diagnosed HIV, by Age, 2009

- 13–24: 41%
- 25–34: 72%
- 35–44: 85%
- 45–54: 89%
- 55–64: 89%
- ≥65: 89%
Percentage of People Living with Diagnosed HIV, by Race/ethnicity, 2009

- AI/AN: 75%
- Asian: 73%
- Black: 81%
- Hispanic/Latino: 80%
- NHOPi: 74%
- White: 85%

AI/AN: American Indian/Alaska Native
Black or African American
NHOPi: Native Hawaiian/Other Pacific Islander
Percentage of People Living with Diagnosed HIV, by Transmission Category, 2009

- MSM: 79%
- IDU males: 90%
- IDU females: 91%
- MSM and IDU: 91%
- HC males: 76%
- HC females: 82%

MSM, men who have sex with men
IDU, injection drug use
HC, heterosexual contact
<table>
<thead>
<tr>
<th></th>
<th>HIV Test in the past 12 months</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Total participants</td>
<td>Homeless past 12 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. %</td>
<td>Yes %</td>
<td>No. %</td>
</tr>
<tr>
<td>IDU (2009)</td>
<td>9652 48.6</td>
<td>49.8</td>
<td>46.6</td>
</tr>
<tr>
<td>HET (2010)</td>
<td>9278 32.8</td>
<td>36.3</td>
<td>31.2</td>
</tr>
<tr>
<td>MSM (2011)</td>
<td>8012 66.5</td>
<td>63.1</td>
<td>66.7</td>
</tr>
</tbody>
</table>

Excludes all self-reported positives
Source: Unpublished data from the National HIV Behavioral Surveillance System
Care and Viral Suppression

- Increase the proportion of newly diagnosed patients linked to clinical care within three months of their HIV diagnosis from 65 percent to 85 percent.

- Increase the proportion of Ryan White HIV/AIDS Program clients who are in continuous care (at least 2 visits for routine HIV medical care in 12 months at least 3 months apart) from 73 percent to 80 percent.

- Increase the proportion of HIV diagnosed gay and bisexual men, blacks, and Latinos with undetectable viral load by 20 percent.
Linkage to Care, Retention in Care, and Viral Suppression, by Age Group, 14 U.S. Jurisdictions

* Among persons aged ≥13 years who were diagnosed with HIV infection during 2010, 14 areas
** Among persons aged ≥13 years who were diagnosed with HIV infection by year-end 2008 and were alive at year-end 2009, 14 areas
Retained in care, ≥2 CD4 or VL results in 2009 at least 3 months apart
Viral suppression, most recent VL in 2009 was ≤200 copies/ML
Linkage to Care, Retention in Care, and Viral Suppression, by Race/Ethnicity, 14 U.S. Jurisdictions

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Linkage to Care, Retention in Care, and Viral Suppression, by Transmission Category, 14 U.S. Jurisdictions

- Male-to-male sexual contact: Linked to care 79.8%, Retained in care 43.6%, Viral Suppression 39.9%
- Injection drug use - Males: Linked to care 78.0%, Retained in care 36.1%, Viral Suppression 27.2%
- Injection drug use - Females: Linked to care 79.8%, Retained in care 41.0%, Viral Suppression 30.8%
- Male-to-male sexual contact and injection drug use: Linked to care 83.4%, Retained in care 46.1%, Viral Suppression 36.0%
- Heterosexual contact - Males: Linked to care 79.1%, Retained in care 41.0%, Viral Suppression 32.7%
- Heterosexual contact - Females: Linked to care 82.4%, Retained in care 43.4%, Viral Suppression 34.5%

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Among persons aged ≥13 years who were diagnosed with HIV infection during 2010, 14 areas

National HIV/AIDS Strategy: increase the percentage of patients linked to care within three months of diagnosis to 85%
Linkage to Care, by Type of Diagnosis Facility, 13 U.S. Jurisdictions

Monitored Mean HIV Viral Load, Percent Poverty and Percent High School Diploma, by Census Tract, DC, 2008

- 33% of PLWH had ≥1 VL during 2008

Castel et al. AIDS 2012;26:345-353.
### Socio-demographic Factors and Durable Viral Suppression among People in HIV Care, 2009

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Weighted %</th>
<th>Adjusted prevalence ratio</th>
<th>95% CI</th>
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<tbody>
<tr>
<td><strong>Total N = 4,217</strong></td>
<td></td>
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<tr>
<td>Healthcare coverage</td>
<td>4035</td>
<td>95.7</td>
<td>1.68</td>
<td>1.31-2.17*</td>
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<tr>
<td>(referent =none)</td>
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<tr>
<td>≤ Household poverty level</td>
<td>1824</td>
<td>43.3</td>
<td>0.89</td>
<td>0.84-0.95*</td>
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<td>(reference=above)</td>
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<tr>
<td>Homeless (past 12 m)</td>
<td>390</td>
<td>9.0</td>
<td>0.77</td>
<td>0.67-0.88*</td>
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<td>(reference=not homeless)</td>
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*Statistically significant at p<.05 or lower

Durable viral suppression: all viral loads in 12 months undetectable or ≤200 copies/ml (medical record data)

Healthcare coverage: health insurance (private, Medicaid, Medicare, city/county/state or other publicly-funded coverage (=other public), Tricare/ Champus/ Veterans Administration (=military), and/or coverage for ART and/or healthcare through Ryan White /AIDS Drug Assistance Program (=Ryan White)) (self-report interview data)

Medical Monitoring Project, Quinn et al. CROI 2013.
Viral Suppression, 14 U.S. Jurisdictions, 2009, and Goals of the National HIV/AIDS Strategy

- Black: 29% (2009), NHAS Goal: 40%
- Hispanic: 35% (2009), NHAS Goal: 48%
- White: 33% (2009), NHAS Goal: 45%
- MSM: 40% (2009), NHAS Goal: 40%
- Black MSM: 28% (2009), NHAS Goal: 34%
- Hispanic MSM: 37% (2009), NHAS Goal: 44%
- White MSM: 47% (2009), NHAS Goal: 56%

Antiretroviral Therapy
Percentage of People in HIV Care who are Prescribed ART, by Age – United States

<table>
<thead>
<tr>
<th>Age</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>18-24</td>
<td>76</td>
</tr>
<tr>
<td>25-34</td>
<td>78</td>
</tr>
<tr>
<td>35-44</td>
<td>88</td>
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<tr>
<td>45-54</td>
<td>91</td>
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<tr>
<td>55-64</td>
<td>92</td>
</tr>
<tr>
<td>65y+</td>
<td>92</td>
</tr>
</tbody>
</table>

Percentage of People in HIV Care who are Prescribed ART, by Race/ethnicity – United States

- Black/African American: 86%
- Hispanic/Latino: 89%
- White: 92%

Percentage of People in HIV Care who are Prescribed ART, by Transmission Category
United States

- MSM: 90
- IDU male: 92
- IDU female: 89
- MSM & IDU: 89
- HC male: 91
- HC female: 85

Overall, many people with HIV are not in regular care or have a suppressed viral load.

Disparities exist in diagnosis, care, treatment, and viral suppression by age, race/ethnicity, and socioeconomic status.

Diagnosis and care is critical for all, including all age groups.

Additional efforts are needed to ensure that all persons with HIV get optimal care, reduce disparities, and ultimately reduce HIV transmission.

Additional data on SDH may help indicate areas for intervention.
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.