Disparities in HIV Care

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Charles Drew University
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Overview

- Disparities in HIV/AIDS health services
- Factors explaining disparities in services
- Health consequences of disparities and barriers
- New study addressing disparities
# U.S. AIDS Death Rates by race
**(per 100,000 Population)**

<table>
<thead>
<tr>
<th>Race</th>
<th>Total</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>4</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Black</td>
<td>27</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td>Hispanic</td>
<td>9</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>3</td>
<td>4</td>
<td>Unknown</td>
</tr>
<tr>
<td>Asian Pacific Islander</td>
<td>1</td>
<td>2</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

NCHS 2000
HCSUS Was the Only Nationally Representative Study of People in care for HIV/AIDS (1996-02)

Stage 1: Random areas

Stage 2: Random providers

Stage 3: Random patients
Disparities in AIDS Health Services

- Insurance coverage
- Outpatient
- Emergency Room
- Hospital Care
- Medications
Insurance Profile of Adults Living with HIV in Care by Race/Ethnicity

- Adult HIV population in care: 100%
- Private: 32%
- Medicaid (with or without other insurance): 29%
- Medicare: 19%
- Uninsured: 20%

Bozzette, NEJM 1998
Disparities in Outpatient Visits and Protease Inhibitor Use

Shapiro et al., JAMA 1999  all P<.01
Proportion Using Emergency Room without Associated Hospitalization

- Whites: 18%
- Blacks: 30%
- Hispanics: 26%
- Men: 21%
- Women: 32%
- MSM: 19%
- IDU: 30%
- Heterosexual: 27%

Shapiro, et al. *JAMA* 1999  all p<0.05
Expenditures for Medications vs. Hospital Care by Race

Bozzette, et al. NEJM 2001 All p<.01
Percent Ever Using HAART by Vulnerable Characteristics

White Blacks

Men Women

MSM IDU

High Income Low Income

Percent

Cunningham, et al., JAIDS 2000 all p<0.01

I:\cunningham\Grand Rounds\HIV DrewUniv – Heslin\Cunningham HIV Lecture 041806 v4.ppt
Percent of Blacks and Whites Who Ever Received HAART

Cunningham, et al., JAIDS 2000  Both  p <.001
Percent Adhering “all of the time” to Antiretroviral Medications

Wenger, Cunningham, et al., SGIM 2000 abstract; p<.001
Multivariate Association of Race with Adherence

White

Blacks

Hispanic

Percent

0 0.5 1 1.5

1.0

0.62

0.51

All P<.01

Wenger, Cunningham, et al., Abstract AHSR 2000
Percentage With Access to PCP and MAC Prophylaxis

Among those meeting criteria. Asch, Cunningham, et al. JAIDS 2001; Both p <.001
Factors That Help Explain Disparities in Care

- Setting of care
- Access to clinical trials
- System and provider factors
- Competing subsistence needs
- Lack of supportive services / case-management
Greater than 3 months’ delay from HIV diagnosis to first HIV medical care by race, exposure (%)

<table>
<thead>
<tr>
<th>Race</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Heterosexual</th>
<th>IDU</th>
<th>MSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>26</td>
<td>31</td>
<td>34</td>
<td>27</td>
<td>36</td>
<td>24</td>
</tr>
</tbody>
</table>

Turner, Cunningham et al. Archives 2000 all p<0.05
Adjusted Odds of Access to an HIV Clinical Trial by Patient Characteristics

- White: 1.0
- Black: 0.5
- Hispanic: 0.6
- College Graduate: 1.0
- Some College: 0.7
- High School Graduate: 0.5
- <High School Education: 0.6

Gifford, Cunningham et al. NEJM 2002, all p<.01
Participation in a HIV Clinical Trial by Level of Trust in Providers and Distance from Center of Excellence

- **High Trust**
  - 0-1 Mile: 16%
  - 2-7 Miles: 14%
  - 8+ Miles: 11%

- **Low Trust**
  - 0-1 Mile: 12%
  - 2-7 Miles: 14%
  - 8+ Miles: 11%

**Distance**
- 0-1 Mile: 22%
- 2-7 Miles: 14%
- 8+ Miles: 11%

Gifford, Cunningham, et al. *NEJM* 2002

P-value <.05
System and Provider Factors Help Explain Disparities in HAART Use (%)

- Private Insurance: 63%
- Medicaid: 47%
- Uninsured: 50%
- Provider Experienced: 54%
- Provider Not Experienced: 44%

Cunningham, et al., AHSR 1999 all p<0.05
Days Until First Protease Inhibitor Use by Patient-Provider Race Groups

<table>
<thead>
<tr>
<th></th>
<th>White Providers</th>
<th>Black Providers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White Patients</td>
<td>Black Patients</td>
</tr>
<tr>
<td>Unadjusted</td>
<td>278</td>
<td>443***</td>
</tr>
<tr>
<td>Adjusted for patient characteristics</td>
<td>353</td>
<td>461**</td>
</tr>
<tr>
<td>Adjusted for patient and provider characteristics</td>
<td>377</td>
<td>460*</td>
</tr>
<tr>
<td>Adjusted for patient, provider, and attitude characteristics</td>
<td>383</td>
<td>467*</td>
</tr>
<tr>
<td></td>
<td>206</td>
<td>419**</td>
</tr>
<tr>
<td></td>
<td>251</td>
<td>342</td>
</tr>
<tr>
<td></td>
<td>227</td>
<td>285*</td>
</tr>
<tr>
<td></td>
<td>223*</td>
<td>288*</td>
</tr>
</tbody>
</table>

Source: King, Cunningham, et al., *JGIM* 2004
### Days Until First Protease Inhibitor Use Among Selective Providers

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Predicted Median Days to First PI Use (95% CI)</th>
<th>Difference in Days to First PI Use Compared to Reference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whites</td>
<td>311 (284 to 333)</td>
<td>reference</td>
</tr>
<tr>
<td>African Americans</td>
<td>409 (368 to 445)</td>
<td>98 (51 to 148)***</td>
</tr>
<tr>
<td>Latinos</td>
<td>360 (316 to 404)</td>
<td>50 (1 to 98)*</td>
</tr>
<tr>
<td>Other Race Ethnicity</td>
<td>300 (228 to 379)</td>
<td>-10 (-80 to 71)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>329 (305 to 350)</td>
<td>reference</td>
</tr>
<tr>
<td>Women</td>
<td>400 (356 to 443)</td>
<td>71 (16 to 125)**</td>
</tr>
</tbody>
</table>

Source: Wong et al., JGIM 2004

P value: * < .05
** < .01
*** < .001
## Days Until First Protease Inhibitor Use Among Selective Providers (Continued)

<table>
<thead>
<tr>
<th></th>
<th>Predicted Median Days to First PI Use (95% CI)</th>
<th>Difference in Days to First PI Use Compared to Reference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Annual Family Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; $25,000</td>
<td>306 (267 to 337)</td>
<td>reference</td>
</tr>
<tr>
<td>≤ $25,000</td>
<td>366 (339 to 388)</td>
<td>60 (17 to 102)**</td>
</tr>
<tr>
<td><strong>Drug / Heavy Alcohol Use</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonuser</td>
<td>342 (319 to 361)</td>
<td>reference</td>
</tr>
<tr>
<td>User</td>
<td>394 (336 to 447)</td>
<td>51 (-1 to 117)</td>
</tr>
</tbody>
</table>

Source: Wong et al., JGIM 2004

P value: *
** < .05
*** < .001
### Access to Infectious Disease Specialist by Race

<table>
<thead>
<tr>
<th></th>
<th>RR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>0.67</td>
<td>(0.57, 0.80)*</td>
</tr>
<tr>
<td>Latino</td>
<td>1.09</td>
<td>(0.87, 1.35)</td>
</tr>
<tr>
<td>Other</td>
<td>0.64</td>
<td>(0.40, 1.04)</td>
</tr>
</tbody>
</table>

Heslin, Cunningham JGIM 2005

*p<0.01
Access to Infectious Disease Specialist by Race

![Bar Graph](chart.png)

- **White**: 1.0
- **Black**: 0.7*
- **Latino**: 1.1
- **Other**: 0.6

*Heslin, et al. JGIM 2005  *p<0.01
## Access to Experienced HIV Provider by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Difference in # HIV patients</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>-48</td>
<td>(-86, -5)*</td>
</tr>
<tr>
<td>Latino</td>
<td>36</td>
<td>(-7, 95)</td>
</tr>
<tr>
<td>Other</td>
<td>-58</td>
<td>(-136, 13)</td>
</tr>
</tbody>
</table>

Heslin, Cunningham *JGIM* 2005

*p<0.01*
Access to Experienced HIV Provider by Race

Heslin, et al. JGIM 2005  *p<0.01
Percent Delays in Care Due to Competing Subsistence Needs by Vulnerable Group

- Men: 33%
- Women: 45%
- Whites: 32%
- Blacks: 40%
- Hispanics: 41%
- MSM: 31%
- IDU: 45%
- College Grad: 28%
- H.S. Grad: 37%
- < H.S.: 42%
- Income >25K: 26%
- Income <25K: 45%

Cunningham, et al. Medical Care, 1999  all p<0.05
Effect of Competing Needs on Access to Care

Cunningham, et al. Medical Care 1999  P<.05*; P<.01**; P<.001***; P<.0001****
Adjusted Odds of Unmet Need for Supportive Services, Non-Whites Compared with Whites

Katz, Cunningham, et al. *Medical Care* 2000  * all p<0.05
Adjusted Odds of Receiving Antiretrovirals for Those on Case-Management (OR)

Katz, Cunningham, et al. Annals of Internal Medicine 2001 *p<0.05; **p<0.01; ***p<0.001

1.6 **

1.7 **

1.6 ***

1.5 **

1 ARV

2 ARV

3 ARV

PI/NNRTI
Proportional Hazard Analysis of Mortality by Educational Level

Source: Cunningham et al., JHCPU 2005

Adjusted for Sociodemographics, Clinical, and Treatment variables. *p<.05; **p<.01

1.5**
1.2**
1.1*
Proportional Hazard Analysis of Mortality by Net Wealth

Source: Cunningham et al., JH CPU 2005

Adjusted for Sociodemographics, Clinical, and Treatment variables. *p<.05; **p<.01
Factors That Help Explain Disparities in Treatment and Outcomes

• Provider/system factors
  – financing
  – experience/specialization
  – service organization, coordination, proximity

• Provider/patient factors
  – communication/language
  – racial/gender concordance
  – trust
  – case management

• Barriers - financial and non-financial

• Patient attitudes, beliefs, behaviors
Summary and Recommendations

- Vulnerable groups are increasingly HIV Infected
- Vulnerable groups get fewer medications for HIV, report more barriers to care, have worse health outcomes
- Need to develop and test interventions to overcome barriers, reduce disparities, and improve outcomes
New Studies

• Outreach to underserved with HIV

• Preventing disparities in future HIV vaccine dissemination
## Comparison of Outreach and HCSUS Samples

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Outreach %</th>
<th>HCSUS %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>18.4</td>
<td>49.3****</td>
</tr>
<tr>
<td>Black</td>
<td>58.6</td>
<td>32.3</td>
</tr>
<tr>
<td>Hispanic</td>
<td>19.7</td>
<td>15.5</td>
</tr>
<tr>
<td><strong>Spanish Language</strong></td>
<td>8.8</td>
<td>2.5**</td>
</tr>
<tr>
<td><strong>Annual Income (&lt;$10,000)</strong></td>
<td>75.4</td>
<td>44.6****</td>
</tr>
<tr>
<td><strong>Homeless in Last 6 months</strong></td>
<td>34.1</td>
<td>6.8***</td>
</tr>
<tr>
<td><strong>No Insurance</strong></td>
<td>28.8</td>
<td>18.7</td>
</tr>
</tbody>
</table>

Source: HRSA HCSUS Comparison paper, submitted 2005
### Multivariate Comparison of Outreach and HCSUS Associations with Ambulatory Visits

<table>
<thead>
<tr>
<th>Sociodemographic Characteristics</th>
<th>Outreach (Odds Ratio [95% CI])</th>
<th>HCSUS (Odds Ratio [95% CI])</th>
<th>Interaction P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Race/Ethnicity (White)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1.21 (0.75-1.94)</td>
<td>1.71 (1.18-2.49)**</td>
<td>0.24</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.81 (0.39-1.69)</td>
<td>2.34 (1.56-3.52)****</td>
<td>0.02</td>
</tr>
<tr>
<td>Other</td>
<td>0.70 (0.31-1.57)</td>
<td>1.19 (0.50-2.80)</td>
<td>0.37</td>
</tr>
<tr>
<td><strong>Education (College Degree)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some College</td>
<td>1.24 (0.61-2.54)</td>
<td>1.02 (0.66-1.56)</td>
<td>0.63</td>
</tr>
<tr>
<td>High School Degree</td>
<td>1.49 (0.86-2.59)</td>
<td>0.74 (0.44-1.25)</td>
<td>0.07</td>
</tr>
<tr>
<td>No High School Degree</td>
<td>2.03 (1.11-3.73)*</td>
<td>0.92 (0.53-1.60)</td>
<td>0.06</td>
</tr>
</tbody>
</table>

Source: Cunningham et al., *Medical Care* under-review 2006
## Multivariate Comparison of Outreach and HCSUS Associations with Ambulatory Visits

<table>
<thead>
<tr>
<th>Sociodemographic Characteristics</th>
<th>Outreach (Odds Ratio [95% CI])</th>
<th>HCSUS (Odds Ratio [95% CI])</th>
<th>Interaction P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Income ($10,000+)</td>
<td>0.73 (0.56-0.96)*</td>
<td>1.35 (1.04-1.75)*</td>
<td>0.002</td>
</tr>
<tr>
<td>Insurance Status (Private)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicaid</td>
<td>1.13 (0.67-1.89)</td>
<td>1.00 (0.57-1.75)</td>
<td>0.75</td>
</tr>
<tr>
<td>Medicare</td>
<td>0.95 (0.45-2.02)</td>
<td>0.97 (0.50-1.90)</td>
<td>0.98</td>
</tr>
<tr>
<td>No Insurance</td>
<td>1.51 (0.93-2.45)</td>
<td>1.47 (1.03-2.11)*</td>
<td>0.94</td>
</tr>
</tbody>
</table>

Source: Cunningham et al., *Medical Care* under-review 2006
## Comparison of Outreach and HCSUS Samples (cont.)

<table>
<thead>
<tr>
<th>Clinic Characteristics</th>
<th>Outreach (Odds Ratio [95% CI])</th>
<th>HCSUS (Odds Ratio [95% CI])</th>
<th>Interaction P-Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4 Count (&lt;500+)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>350-499</td>
<td>0.99 (0.66-1.47)</td>
<td>1.25 (0.90-1.73)</td>
<td>0.37</td>
</tr>
<tr>
<td>200-349</td>
<td>1.05 (0.77-1.43)</td>
<td>1.08 (0.74-1.58)</td>
<td>0.90</td>
</tr>
<tr>
<td>50-199</td>
<td>1.32 (0.84-2.07)</td>
<td>1.00 (0.63-1.58)</td>
<td>0.39</td>
</tr>
<tr>
<td>0-49</td>
<td>1.53 (1.00-2.36)*</td>
<td>0.93 (0.36-2.36)</td>
<td>0.14</td>
</tr>
<tr>
<td>Used Heroin or Cocaine Ever</td>
<td>0.82 (0.56-1.20)</td>
<td>1.05 (0.84-1.32)</td>
<td>0.27</td>
</tr>
<tr>
<td>Heavy Alcohol Use in Past 30 days</td>
<td>1.74 (1.23-2.45)*</td>
<td>1.00 (0.73-1.37)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Source: Cunningham et al., *Medical Care* under-review 2006
Conclusion

- Outreach sample had more vulnerable persons, lower utilization than HCSUS
- Different associations between 2 samples
- Heavy alcohol associated with low use in Outreach sample only
- Generalization from in-care populations may not be warranted

Source: Cunningham et al., Medical Care under-review 2006
What can I do to reduce disparities?

- **DVD**: “Working Together to end Racial and Ethnic Disparities: One Physician at a Time”
- **Source**: American Medical Association (AMA)

[www.ama-assn.org/go/healthdisparities](http://www.ama-assn.org/go/healthdisparities) or call 800.621.8335