How can we reduce disparities in HIV care and prevention in the United States?

ACTHIV 2018
April 5, 2018

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Co-Director, UAB Center for AIDS Research
Learning Objectives

• Describe multidimensional disparities spanning a status neutral continuum of HIV prevention and care

• Review how a multilevel framework can identify contributing factors to inform action addressing disparities

• Describe the role of care engagement, missed clinic visits, and tiered strategies in addressing disparities

• Explain the importance of engaging community and public health partners in a local context to address disparities
Disclosures

• Dr. Mugavero has received consulting fees from Gilead Sciences
Outline

• Framing HIV disparities in the national context
• Multidimensional disparities spanning a status neutral continuum of HIV prevention and care
• HIV care engagement and disparities
• Addressing HIV disparities in the local context
**RIGHT PEOPLE, RIGHT PLACES, RIGHT PRACTICES**

**RIGHT PEOPLE**

**KEY POPULATIONS**

- Gay, bisexual, and other men who have sex with men of all races and ethnicities (noting the particularly high burden of HIV among Black gay and bisexual men)
- Black women and men
- Latino men and women
- People who inject drugs
- Youth aged 13 to 24 years (noting the particularly high burden of HIV among young Black gay and bisexual men)
- People in the Southern United States
- Transgender women (noting the particularly high burden of HIV among Black transgender women)

**RIGHT PLACES**

**PRIORITY AREAS**

- **Major metropolitan areas** have higher rates of HIV than other areas of the country.
- **Southern United States**: more than 1/3 of the population lives in southern states, but the region accounts for more than 1/2 of all HIV diagnoses.
Estimated Transmission, HIV Care Continuum, U.S.

**Right Practices**

- Widespread HIV testing and linkage to care enabling people living with HIV to access treatment early.
- Full access to PrEP services for those whom it is appropriate and desired, with support for medication adherence for those using PrEP.
- Broad support for people living with HIV to remain engaged in comprehensive care, including support for treatment adherence.
- Universal viral suppression among people living with HIV.

**Engagement & Adherence**

Universal viral suppression

“U=U”

Skarbinski et al. JAMA Intern Med 2015;175
U=U: Undetectable=Untransmittable

"The scientific evidence is clear. Someone whose HIV is undetectable does not pose an infection risk to their sexual partners."

New York State Becomes the First State in the U.S. to join U=U
September 20, 2017

City of Chicago and Community Leaders Join U=U Campaign as Part of New Effort to Reduce HIV Transmissions to Zero
September 28, 2017

https://www.preventionaccess.org/about
https://www.health.ny.gov/diseases/aids/ending_the_epidemic/
Outline

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• Multidimensional disparities spanning a status neutral continuum of HIV prevention and care

• HIV care engagement and disparities

• Addressing HIV disparities in the local context
Status Neutral Continuum of HIV Prevention & Care

https://www.nastad.org/domestic/hiv-prevention-health-equity, Slide courtesy of Hyman Scott
Geographic Disparities in HIV Prevalence

https://aidsvu.org/launch2017/
Sociodemographic Disparities in New HIV Diagnoses

Total Estimated New HIV Diagnoses in 2016 (n=39,782)

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>White MSM</td>
<td>7390</td>
</tr>
<tr>
<td>Black MSM</td>
<td>10,223</td>
</tr>
<tr>
<td>Hispanic MSM</td>
<td>7425</td>
</tr>
<tr>
<td>Black Women</td>
<td>4189</td>
</tr>
<tr>
<td>Black Men</td>
<td>1926</td>
</tr>
<tr>
<td>White Women</td>
<td>1032</td>
</tr>
<tr>
<td>Hispanic Women</td>
<td>1025</td>
</tr>
<tr>
<td>Black Male</td>
<td>471</td>
</tr>
<tr>
<td>Black Female</td>
<td>338</td>
</tr>
</tbody>
</table>

Lifetime Risk of HIV by Race/Ethnicity & Gender

- African American Men: 1 in 20
- African American Women: 1 in 48
- Hispanic Men: 1 in 48
- Hispanic Women: 1 in 227
- White Men: 1 in 132
- White Women: 1 in 880

Source: Centers for Disease Control and Prevention

CDC. HIV Surveillance Report, 2015, Slide courtesy of Latesha Elopre
Among 1.1 million adults estimated to benefit from PrEP, U.S., 2015:
- MSM - 71%
- Heterosexual - 23%
- IDU - 6%
- African American - 44%
- Hispanic/Latino - 25%
- White - 31%

...but only 1% of those – 7,000 African Americans – were prescribed PrEP*

...but only 3% of those – 7,600 Latinos – were prescribed PrEP*

Underutilization of PrEP by Geography & Gender

There were over **77,000** PrEP users in 2016.

That's a **73% increase** year over year since 2012.

PrEP Prevalence (per million)

- **Men**
- **Women**

<table>
<thead>
<tr>
<th>Year</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>5.5</td>
<td>1.2</td>
</tr>
<tr>
<td>2011</td>
<td>6.9</td>
<td>1.3</td>
</tr>
<tr>
<td>2012</td>
<td>11.0</td>
<td>1.6</td>
</tr>
<tr>
<td>2013</td>
<td>29.5</td>
<td>2.5</td>
</tr>
<tr>
<td>2014</td>
<td>151.2</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Racial/Ethnic Disparities Spanning Care Continuum

Persons Living With Diagnosed or Undiagnosed HIV by Race/Ethnicity (Year-End 2014)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>White</th>
<th>Hispanic</th>
<th>Black</th>
<th>Asian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosed</td>
<td>85%</td>
<td>88%</td>
<td>84%</td>
<td>83%</td>
<td>80%</td>
</tr>
<tr>
<td>Receipt of Care</td>
<td>62%</td>
<td>67%</td>
<td>59%</td>
<td>56%</td>
<td>57%</td>
</tr>
<tr>
<td>Retained in Care</td>
<td>48%</td>
<td>51%</td>
<td>46%</td>
<td>48%</td>
<td>46%</td>
</tr>
<tr>
<td>Viral Suppression</td>
<td>49%</td>
<td>67%</td>
<td>43%</td>
<td>48%</td>
<td>51%</td>
</tr>
</tbody>
</table>

Racial/Ethnic Disparities in Mortality in PLWH

- Evaluation of all-cause mortality after ART initiation (N=10,017)
- Eight academic HIV clinics (CNICS)
- Standardized 10-year mortality risks relative to White Men:
  - AA Men 7.2% (4.3, 10.1%) higher
  - AA Women 7.9% (3.9, 12.0%) higher
- Mortality rates of AA men and women living with HIV substantially elevated relative to U.S. population-level racial/ethnic disparities

Lesko et al, Clin Infect Dis 2015;60
Towards Understanding Mechanisms to Inform Action

Adapted from: Mugavero et al. Clin Infect Dis 2011;52(S2)
Outline

• Framing HIV disparities in the national context
• Multidimensional disparities spanning a status neutral continuum of HIV prevention and care
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• Addressing HIV disparities in the local context
Engagement in HIV Care is Dynamic

"Consistently High" (26%)

"Steadily Declining" (16%)

"Early Increasing" (17%)

"Late Increasing" (15%)

"Consistently Low" (26%)

Powers et al, JAIDS 2017; 74(S2), Slide courtesy of Julie Dombrowski
Implications of Missed HIV Medical Care Visits

PLWH initiating outpatient HIV medical care at UAB Clinic, 2000 - 2005 (N=543)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HR (95%CI)(^a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“No show” visit in 1(^{st}) year</td>
<td>2.90 (1.28- 6.56)</td>
</tr>
<tr>
<td>Age (HR per 10 years)</td>
<td>1.58 (1.12-2.22)</td>
</tr>
<tr>
<td>CD4 count &lt;200 cells/mL</td>
<td>2.70 (1.00-7.30)</td>
</tr>
<tr>
<td>Log(_{10}) plasma HIV RNA</td>
<td>1.02 (0.75-1.39)</td>
</tr>
<tr>
<td>ART started in 1(^{st}) year</td>
<td>0.64 (0.25-1.62)</td>
</tr>
</tbody>
</table>

\(^a\) Cox proportional hazards (PH) analysis also adjusts for sex, race/ethnicity, insurance, affective mental health disorder, alcohol abuse, and substance abuse.

Missed HIV medical care visits associated with:
- Delayed ART initiation
- Poor retention in care
- Longer time to VS
- Greater cumulative VL burden (viremia copy-years)
- Racial disparities in VS
- Declines in CD4 count
- Inpatient hospitalization
- Mortality

# Missed Visits and Mortality Systematic Review

<table>
<thead>
<tr>
<th>Study</th>
<th>Year(s)</th>
<th>Location</th>
<th>Population</th>
<th>N</th>
<th>Missed visits</th>
<th>Association of missed visits with mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park, 2007</td>
<td>1998-2004</td>
<td>South Korea</td>
<td>Patients in the year after initiating HAART</td>
<td>387</td>
<td>34% missed 1-2 visits 8% missed ≥3 visits</td>
<td>Per additional missed visit: crude HR 1.54</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 missed visit: aHR 2.87</td>
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<td></td>
<td></td>
<td>2 missed visits: aHR 4.37</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>≥3 missed visits: aHR 8.19</td>
</tr>
<tr>
<td>Mugavero, 2009</td>
<td>2000-2010</td>
<td>USA</td>
<td>Patients in the year after initiating HIV care</td>
<td>543</td>
<td>60% missed a visit</td>
<td>Per additional missed visit: crude HR 2.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>aHR 2.9</td>
</tr>
<tr>
<td>Brennan, 2010</td>
<td>2004-2008</td>
<td>South Africa</td>
<td>Patients in the first 6 months after ART</td>
<td>4,476</td>
<td>26% missed 1 visit 7% missed 2 visits 1% missed ≥3 visits</td>
<td>Per additional missed visit: crude HR 1.15</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>aHR 1.11</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2 missed visits: crude HR 2.12 aHR 2.06</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>≥3 missed visits: crude HR 7.69 aHR 4.74</td>
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<td></td>
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</tr>
<tr>
<td>Colubi, 2012</td>
<td>2006-2011</td>
<td>Spain</td>
<td>All pts with missed visits in 6 month study</td>
<td>1,733</td>
<td>6% missed a visit</td>
<td>Per additional missed visit: crude OR 9.12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>aOR 6.35</td>
</tr>
<tr>
<td>Zhang, 2012</td>
<td>2002-2010</td>
<td>China</td>
<td>Patients in the first 6 months after initiating ART</td>
<td>27,504</td>
<td>29% missed 1-2 visits 8% missed 3-5 visits</td>
<td>Per additional missed visit: crude HR 1.4</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>aHR 1.3</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td>3-5 missed visits: crude HR 1.8 aHR 1.7</td>
</tr>
<tr>
<td>Horberg, 2013</td>
<td>1997-2009</td>
<td>USA</td>
<td>Patients in the year after diagnosis</td>
<td>2,811</td>
<td>39% missed 1-2 visits 18% missed 3-5 visits 8% missed ≥5 visits</td>
<td>Per additional missed visit: crude HR 1.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>aHR 1.37</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;5 missed visits: aHR 1.86</td>
</tr>
<tr>
<td>Mugavero, 2014</td>
<td>2000-2010</td>
<td>USA</td>
<td>Patients in the two years after initiating ART</td>
<td>3,672</td>
<td>39% missed 1-2 visits 29% missed &gt;2 visits</td>
<td>Per additional missed visit: crude HR 6.74</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>1-2 missed visits: aHR 1.98</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;2 missed visits: aHR 3.2</td>
</tr>
<tr>
<td>Kimeu, 2016</td>
<td>2011-2010</td>
<td>Kenya</td>
<td>Patients in the year after enrolling in care</td>
<td>582</td>
<td>31% missed 1 visit 10% missed ≥2 visits</td>
<td>Per additional missed visit: crude HR 6.74</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1-2 missed visits: crude HR 3.21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>≥2 missed visits: crude HR 3.21</td>
</tr>
</tbody>
</table>

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**Take home point:**
Missed clinic visits are pervasive among PLWH and consistently associated with increased mortality risk.
Missed HIV Medical Care Visits Contribute to Disparities in Viral Suppression

**FIGURE 1**—Percentage of (a) virological failure by race stratified by frequency of no-show visits and (b) no-show visits by race: Centers for Disease Control and Prevention and Health Resources and Services Administration Retention in Care preintervention, 6 US metropolitan areas, May 2008 to April 2009.

Zinski et al. Am J Public Health 2015;105
# Measuring Engagement in HIV Medical Care

<table>
<thead>
<tr>
<th>Measure</th>
<th>Missed visit data needed?</th>
<th>Ease of calculating</th>
<th>Observation time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missed visit</td>
<td>Yes</td>
<td>Easy</td>
<td>~1 day</td>
</tr>
<tr>
<td>Visit adherence</td>
<td>Yes</td>
<td>Moderate</td>
<td>~1 year</td>
</tr>
<tr>
<td>No-show rate</td>
<td>Yes</td>
<td>Moderate</td>
<td>~1 year</td>
</tr>
<tr>
<td>Constancy: Visit per interval</td>
<td>No</td>
<td>Moderate</td>
<td>~1 year</td>
</tr>
<tr>
<td>Gap in care</td>
<td>No</td>
<td>Easy</td>
<td>~1 year</td>
</tr>
<tr>
<td>HRSA/HAB</td>
<td>No</td>
<td>Moderate-to-difficult</td>
<td>1 year</td>
</tr>
<tr>
<td>DHHS</td>
<td>No</td>
<td>Moderate-to-difficult</td>
<td>2 years</td>
</tr>
</tbody>
</table>

CDC/HRSA REPC Efficacious for HIV Care Engagement

- RCT at 6 HIV clinics
- N=1838
- 3 study arms (1:1:1)
  * Enhanced Contact (EC)
  * EC + skills (EC+)
  * SOC
- Outcomes @ 12-months:
  * Visit adherence
  * 4-month visit constancy
- EC & EC+ superior to SOC
- Efficacy in certain subgroups
- Not efficacious with youth, substance use, unmet needs

Gardner LI et al. Clin Infect Dis 2014;59; Shrestha RK et al. JAIDS 2015; 68
Healthcare Systems Barriers

- Lack of nearby HIV providers
- Advanced Scheduling Requirements
- Clinic Location (transportation, parking)
- Insurance/Payment Coverage
- Long Wait Times
- Difficult-to-Navigate Phone Trees
- Late Arrival Policies
- Limited # Same Day Appts

Patient → Completed Appointment

Slide courtesy of Julie Dombrowski (CROI 2018)
Delivery Features of Successful Care Models

• Teamwork
• Coordination
• Responsiveness
• Feedback
• Medication management
• Outreach into community
• Integration with social services
• Prompt f/u after hospital stays

Effective Care for High-Need Patients
Opportunities for Improving Outcomes, Value and Health

Tiered strategies match intensity & spectrum of support to patient needs

National Academy of Medicine, Effective Care for High-Need Patients, 2017
The Max Clinic (Seattle, WA): HIV Care for the Hardest-to-Reach Patients

**Low-Threshold Care**
- Walk-in access to medical care: 5 afternoons/wk, 5 days/wk
- Direct phone line to MAX case managers (no phone tree)
- Text message communication
- Harm reduction approach

**Incentives**
- Snacks each visit, $10 meal vouchers 1x/wk
- Cell phone
- Bus pass
- $25 - visit + blood draw q 2 months
- $50 - VL<200 q 2 months

**Graph:**
- Viral Suppression (≥1 VL<200)
- Percent of Patients
- Pre: Max Patients 51, Control Patients 20
- Post: Max Patients 82, Control Patients 65

**Results:**
- aRR* (95% CI): 3.2 (1.8-5.9)

Dombrowski et al, AIDS Patient Care STDs (in press), CROI 2018; abstract 1125
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State Medicaid Expansion Decisions, February 2018

- Not expanding (18 states)
- Expanding - traditional (24 states and DC)
- Expanding - waiver (8 states)

https://www.macpac.gov/subtopic/medicaid-expansion/
<table>
<thead>
<tr>
<th>Year</th>
<th>New HIV Cases</th>
<th>Time (mos) to VS Median (IQR)</th>
<th>Proportion w/ VS @ 12 mos</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>671</td>
<td>10 (9, 13)</td>
<td>53%</td>
</tr>
<tr>
<td>2013</td>
<td>631</td>
<td>8 (8, 10)</td>
<td>60%</td>
</tr>
<tr>
<td>2014</td>
<td>674</td>
<td>6 (5, 7)</td>
<td>67%</td>
</tr>
<tr>
<td>PHA 1</td>
<td>31</td>
<td>6 (4, 8)</td>
<td>84%</td>
</tr>
<tr>
<td>PHA 2</td>
<td>177</td>
<td>7 (6, 9)</td>
<td>66%</td>
</tr>
<tr>
<td>PHA 3</td>
<td>139</td>
<td>13 (9, 21)</td>
<td>49%</td>
</tr>
<tr>
<td>PHA 4</td>
<td>511</td>
<td>8 (7, 10)</td>
<td>59%</td>
</tr>
<tr>
<td>PHA 5</td>
<td>98</td>
<td>7 (5, 9)</td>
<td>70%</td>
</tr>
<tr>
<td>PHA 6</td>
<td>104</td>
<td>6 (4, 6)</td>
<td>70%</td>
</tr>
<tr>
<td>PHA 7</td>
<td>68</td>
<td>5 (5, 7)</td>
<td>66%</td>
</tr>
<tr>
<td>PHA 8</td>
<td>369</td>
<td>6 (6, 7)</td>
<td>63%</td>
</tr>
<tr>
<td>PHA 9</td>
<td>89</td>
<td>10 (7, 14)</td>
<td>55%</td>
</tr>
<tr>
<td>PHA 10</td>
<td>109</td>
<td>6 (5, 9)</td>
<td>63%</td>
</tr>
<tr>
<td>PHA 11</td>
<td>284</td>
<td>13 (10, 19)</td>
<td>46%</td>
</tr>
</tbody>
</table>

"All Health Care is Local"

"HIV/AIDS has plagued families across this State for too long."
NY Gov. Andrew Cuomo

If You Can Make It There (You Can Make It Anywhere):
Ending the HIV Epidemic in New York

Demetre C Daskalakis MD MPH
Acting Deputy Commissioner for the Division of Disease Control
New York City Department of Health and Mental Hygiene
ddaskalakis@health.nyc.gov

New York Ending the Epidemic: Science + Community + Political Will
Ending the Epidemic...Getting to Zero

Empowered Individuals & Communities

State and Local Government

Community Agencies

Clinical Agencies

Scientific Community

Status Neutral Continuum of HIV Prevention & Care

HIV Stigma
HIV Deaths
HIV Infections

90-90-90

GET PREVENTION
TAKE PrEP

#GettingToZeroSD

U=U

UNDETECTABLE = UNTRANSMITTABLE
Ending the Epidemic...Getting to Zero...in Alabama
Summary

• Multidimensional disparities are pervasive on a status neutral continuum of HIV prevention and care
• Paramount to move beyond describing disparities to understanding mechanisms to inform action
• Missed clinic visits represent one contributor to disparities that are immediately actionable in clinical settings
• Imperative to address disparities in local context by empowered individuals & communities in collaboration with clinical, governmental & scientific partners
How Can We Reduce Disparities?

- Practice with cultural humility
- Engage & empower care team
- Develop new partnerships
- Establish and/or enhance community coalitions
- Endorse community driven campaigns (e.g., U=U)
- Act upon missed clinic visits
- Consider alternative care models where locally feasible
- Advocate & VOTE!
Acknowledgments

Presentation content
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• Aadia Rana (UAB)
• Latesha Elopre (UAB)
• H. Irene Hall (CDC)

Alabama EtE / Getting to Zero
• Consumers / Community
• ASONA
• AL Quality Management Group
• Jefferson County HIV/AIDS Community Coalition
• Birmingham, AL, Mayors William Bell and Randall Woodfin
• JCDH and ADPH