Disparities in HIV Treatment Engagement, Adherence, and Outcomes

Gregorio Millett

International Conference on HIV Treatment and Prevention Adherence

June 4, 2013

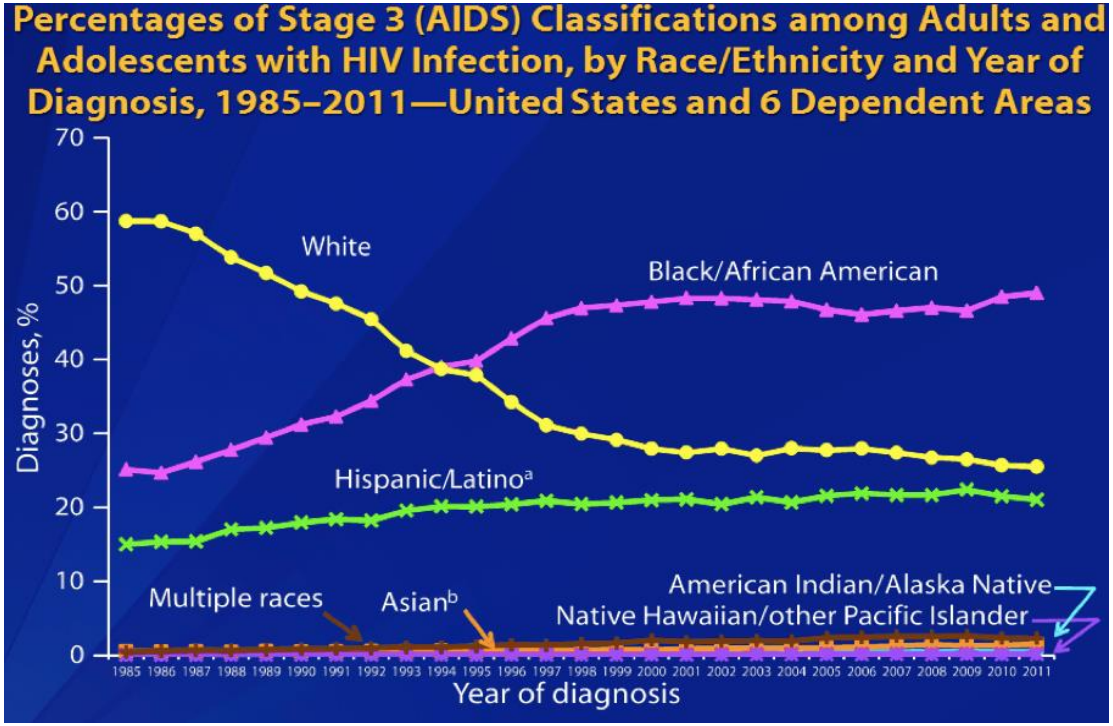
Outline

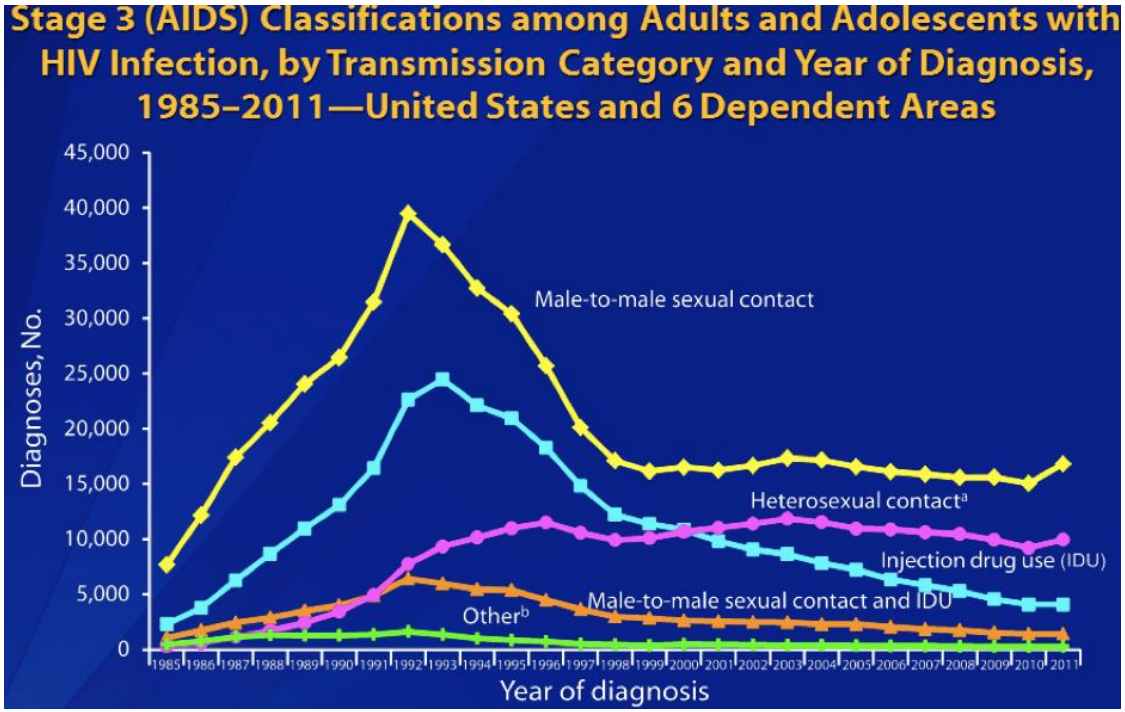
- HIV/AIDS disparities in U.S.
- Demographic disparities across treatment cascade
- Structural disparities and the treatment cascade
- Similar disparities in resource rich nations
- Successes in overcoming disparities
- Summary

Likelihood of HIV Infection by Demographics

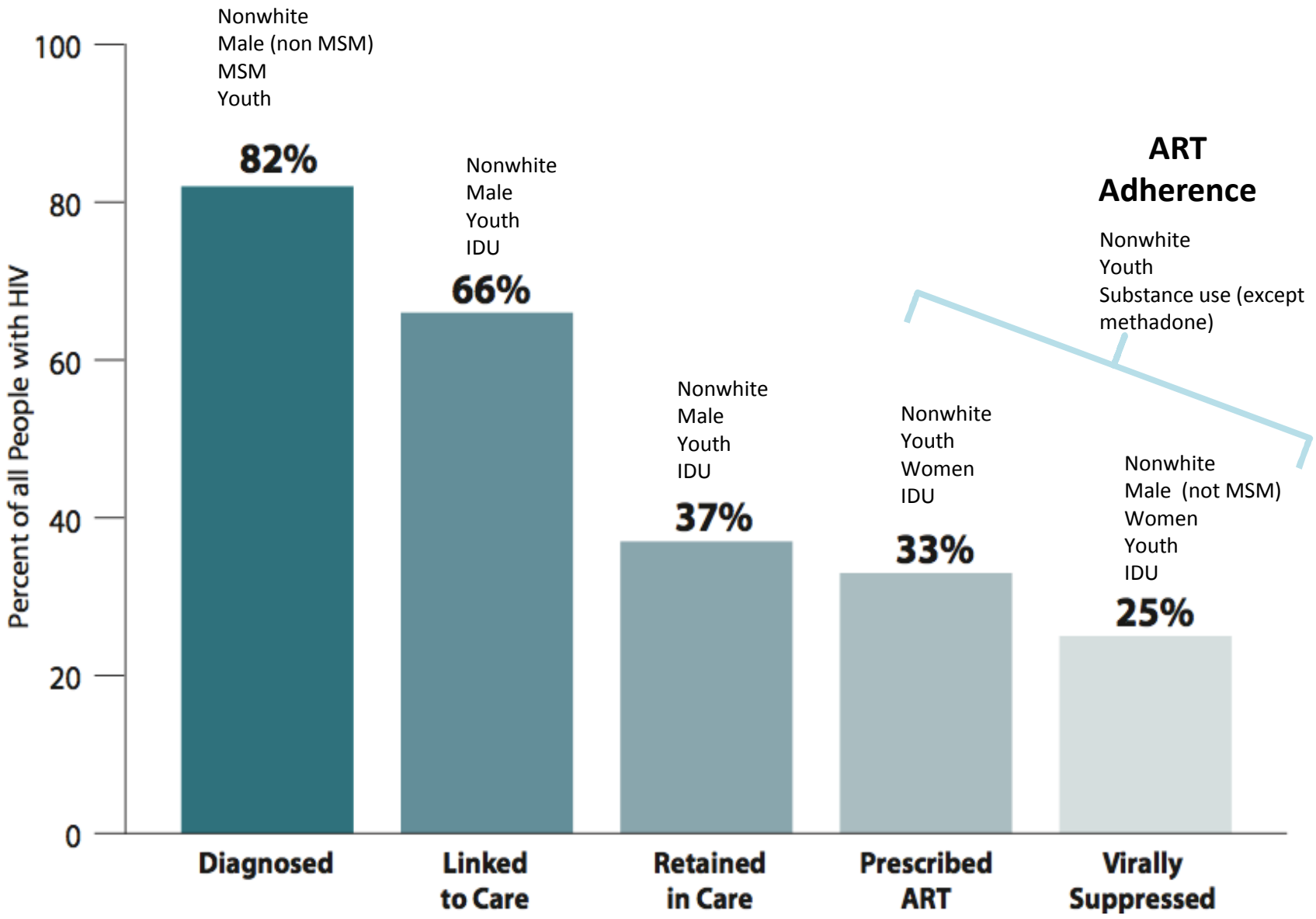
New infections among youth (13-24), 2010

- 26% of new infections nationally
- 60% African Americans
- 4 in 5 new infections among males (70% MSM)
- Young MSM only US population where new infections increasing
  - ★ 48% increase young black MSM (2006-2009)
  - ★ Young black MSM 55% of new infections among MSM in 2010


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
Diagnoses, %
70
60
50
40
30
20
10
0
White
Black/African American
Hispanic/Latino[a]
Multiple races
Asian[b]
American Indian/Alaska Native
Native Hawaiian/other Pacific Islander
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Year of diagnosis


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
Diagnoses, No.
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
Male-to-male sexual contact
Heterosexual contact[a]
Injection drug use (IDU)
Male-to-male sexual contact and IDU
Other[b]
1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Year of diagnosis

Disparities by Demographic Group Across Treatment Cascade



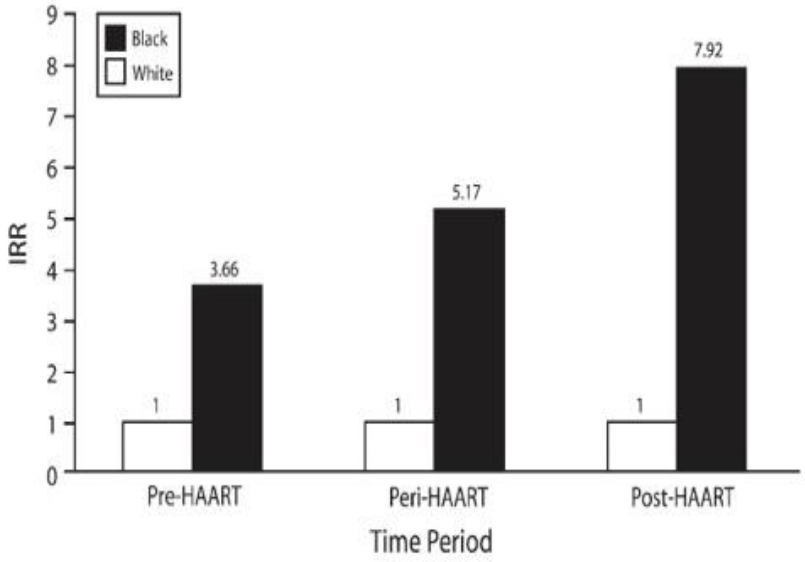
(Sources: Rebeiro, 2013; Muthulingam, 2013; Hannah, 2013; CDC, 2012; Hall, 2012; Traeger, 2012; Dennis, 2011; Hartzell, 2011; Torian, 2011; Tripathi, 2011; Campsmith, 2010; Giordano, 2010; Knowlton, 2010; Geetanjali, 2009; Lemly, 2009; Mugavero, 2009; Weintrop, 2009; Anaston, 2005; Giordano, 2005; Klein, 2003)

AIDS Mortality by Race

- AIDS deaths have declined least in the ART era
  - Among PWAs living in the South (Prejean et al, 2012)
  - 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

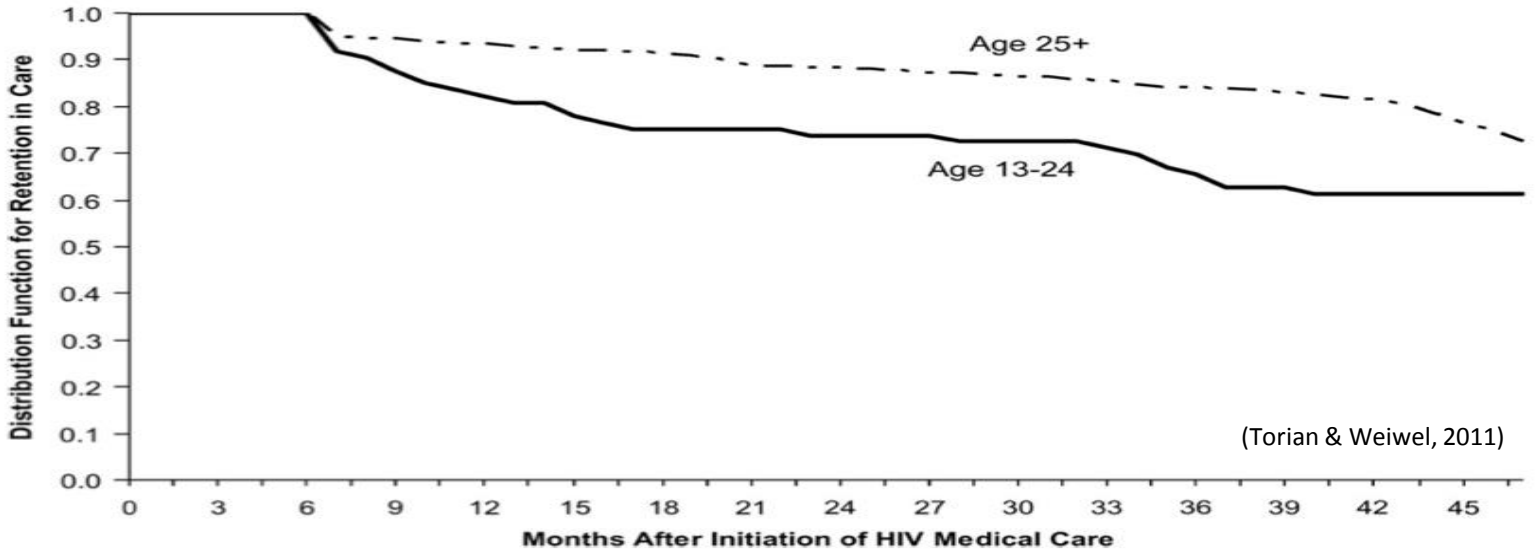
- Reason: Less access to healthcare in racial minority communities



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)

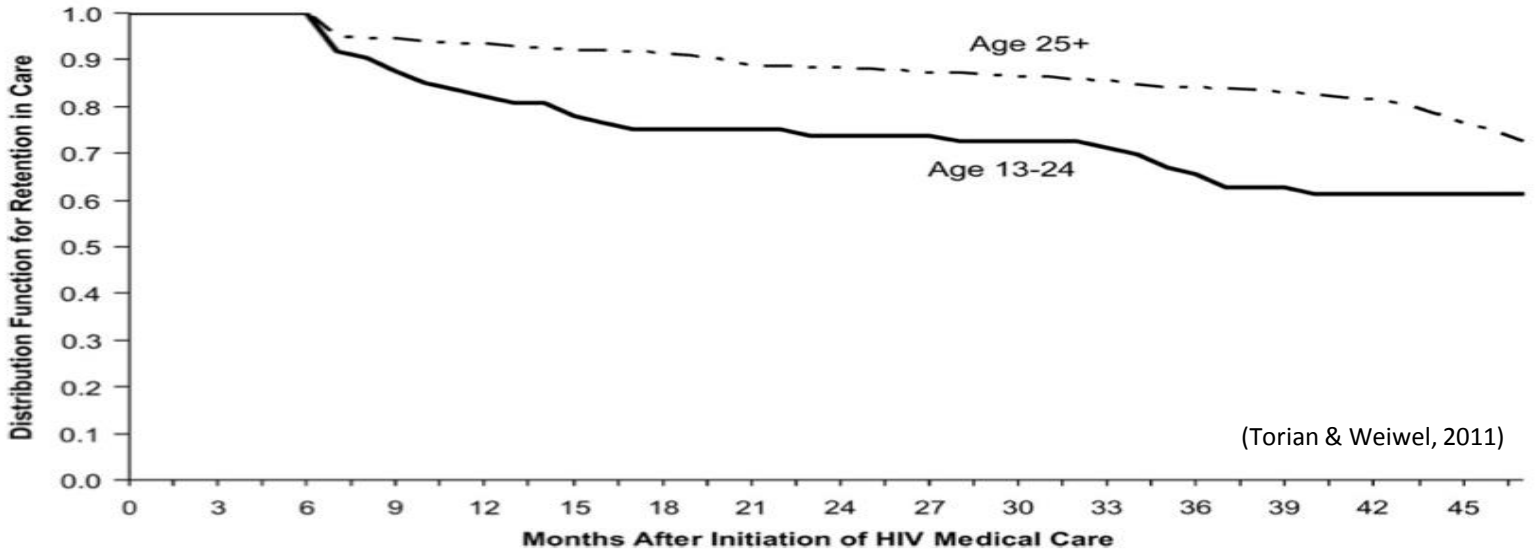
Youth and HIV-Related Disparities



(Torian & Weiwel, 2011)

FIG. 1. Retention in care over time among persons newly diagnosed with HIV and initiating care, by age group, in New York City, 2005–2009.

Youth and HIV-Related Disparities



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	ART Initiation (at 6 mo of Eligibility)		Viral Load Suppression (at 1 y of Eligibility)[a]		Viral Load Suppression (1 y After ART Initiation)[b]	
	No.	Adjusted HR (95% CI)	No.	Adjusted HR (95% CI)	No.	Adjusted HR (95% CI)
Age at eligibility						
18–29	1848	Ref.	1639	Ref.	910	Ref.
30–39	3434	1.10 (1.02, 1.19)	2987	1.06 (.97, 1.14)	1728	1.08 (.99, 1.19)
40–49	3618	1.14 (1.06, 1.24)	3056	1.11 (1.02, 1.21)	1777	1.11 (1.01, 1.21)
50–59	1460	1.23 (1.12, 1.36)	1236	1.28 (1.16, 1.42)	750	1.24 (1.11, 1.38)
≥60	332	1.13 (.97, 1.33)	268	1.29 (1.10, 1.52)	164	1.12 (.94, 1.34)

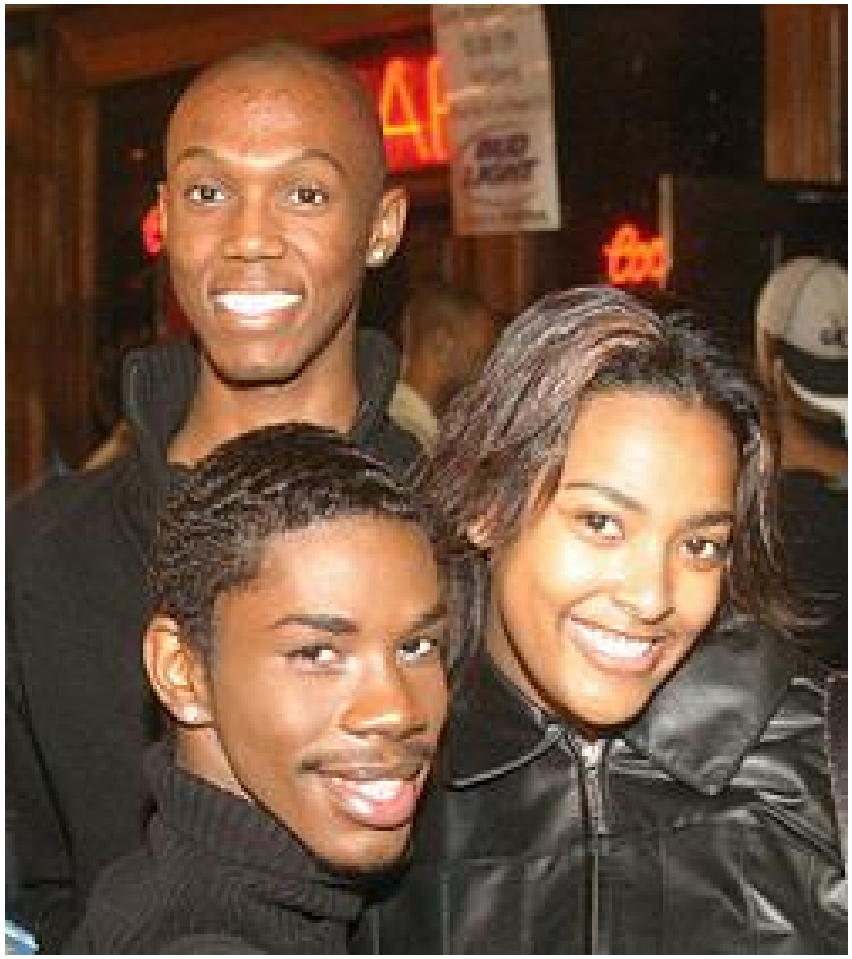
ART eligibility: Incident AIDS-defining illness or a recorded CD4+ count of <350 cells/µL

(Hanna, CID, 2013)

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

- HIV-1 viral suppression at 6 months OR, 0.330 (95% CI 0.125, 0.870)
- Viral rebound OR, 11.94 (95% CI 3.25, 43.85)
- LTFU OR, 6.22 (95% CI 2.07, 18.68)



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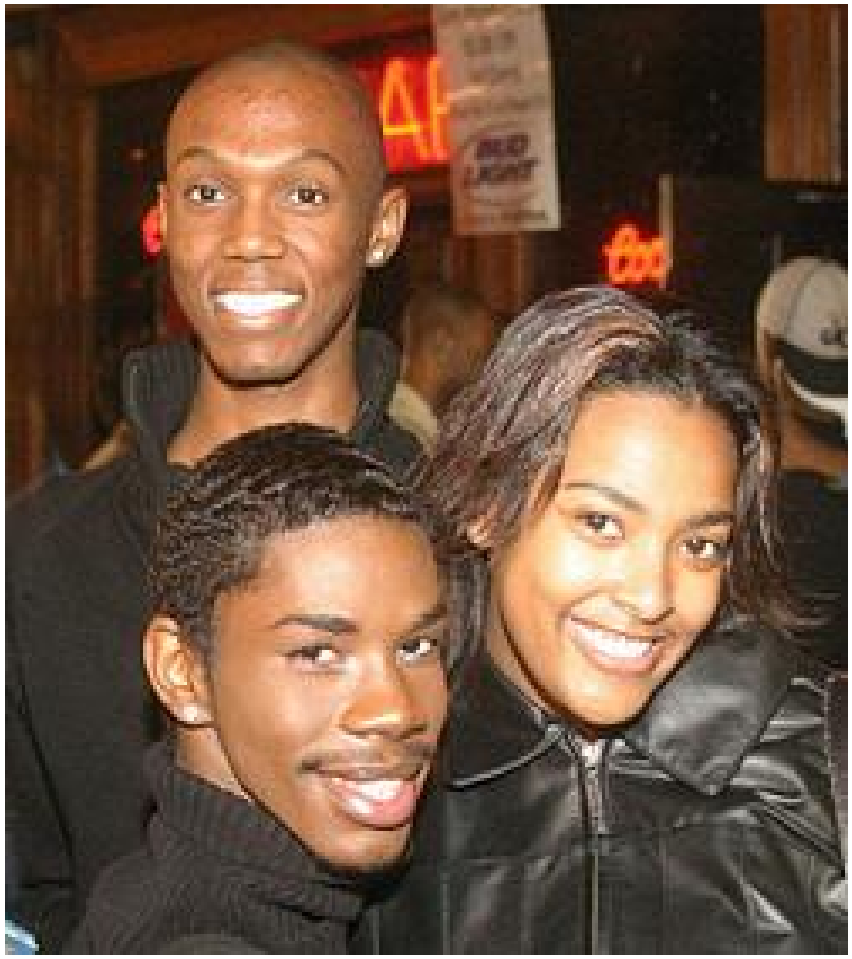


Black youth lowest probability of virologic suppression at 6 months (44%), compared to

- 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 (Machtinger, 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

Foreign-Born Latinos & HIV Outcomes

Factors in the Delayed HIV Presentation of Immigrants in Northern California: Implications for Voluntary Counseling and Testing Programs

Vivian Levy · Diane Prentiss · Gladys Balmas · Sanny Chen · Dennis Israelski · David Katzenstein · Kimberly Page-Shafer

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 ($n = 391$)

Variable	Immigrants ($n = 94$) N(%) or median (IQR)	U.S.-Born[a] ($n = 297$) N(%) or median (IQR)	p-value
Male[b]	71 (75.5%)	219 (73.7%)	0.649
Median age	31 (27–38)	35 (29–41)	0.001
Hispanic ethnicity	74 (78.7%)	20 (6.7%)	<.001
Monolingual (non-English)[c]	66 (70.2%)	1 (0.34%)	<.001
Country of birth			
Mexico	57 (61.3%)		
Central America	13 (14.0%)		
Asia	12 (12.9%)		
Other	11 (11.8%)		
Mean initial CD4+ count	287 cells/mm^3	333 cells/mm^3	0.143
Prevalence of OIs	28 (29.8%)	51 (17.2%)	0.009
Hospitalizations ($n = 59$)	19 (20.2%)	37 (12.5%)	0.064

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

	Adjusted OR (95% CI)
Immigrants	2.98 (1.21–7.38)
Monolingual status	1.17 (0.40–3.43)
Hispanic	0.51 (0.19–1.34)

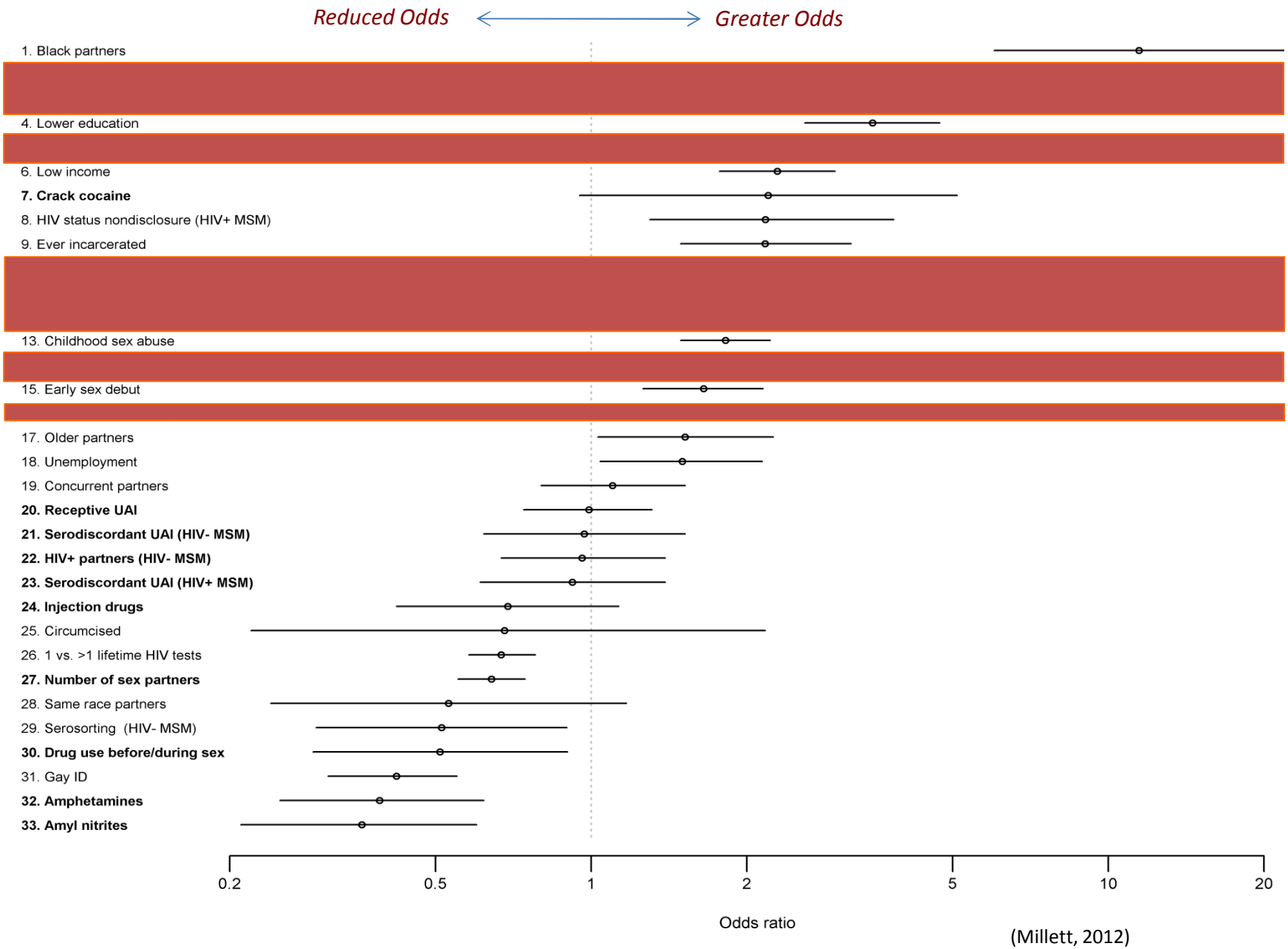
US-Mexico border: 46% Latinos dx late vs. 37% Whites (Espinoza, 2009)

- 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)

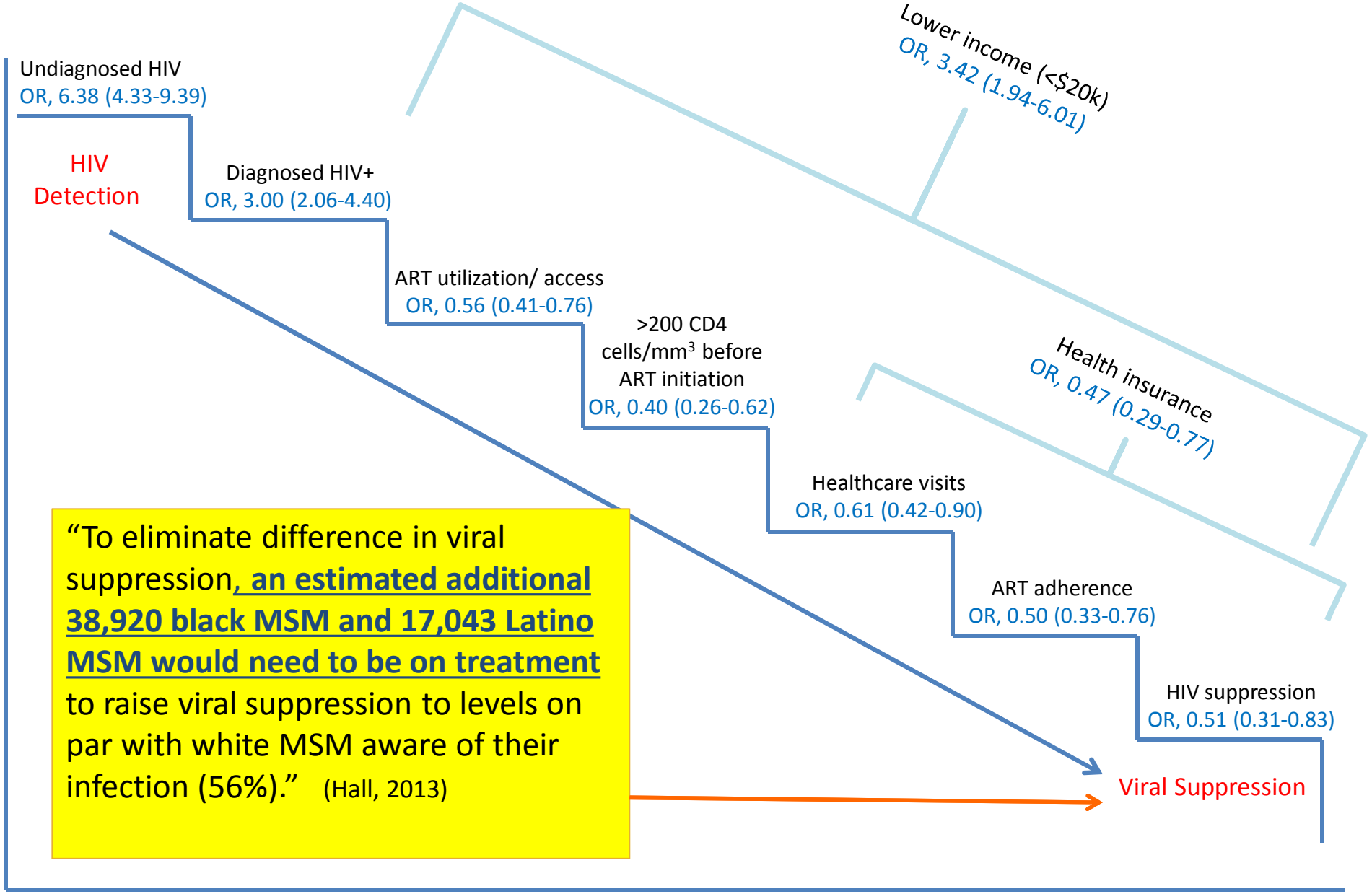
Greater mortality rates among Latinos born in Puerto Rico than mainland US (Hanna, 2008; Nash, 2005)

Where are HIV-Related Disparities Greatest Between Black vs. Other MSM?



(Millett, 2012)

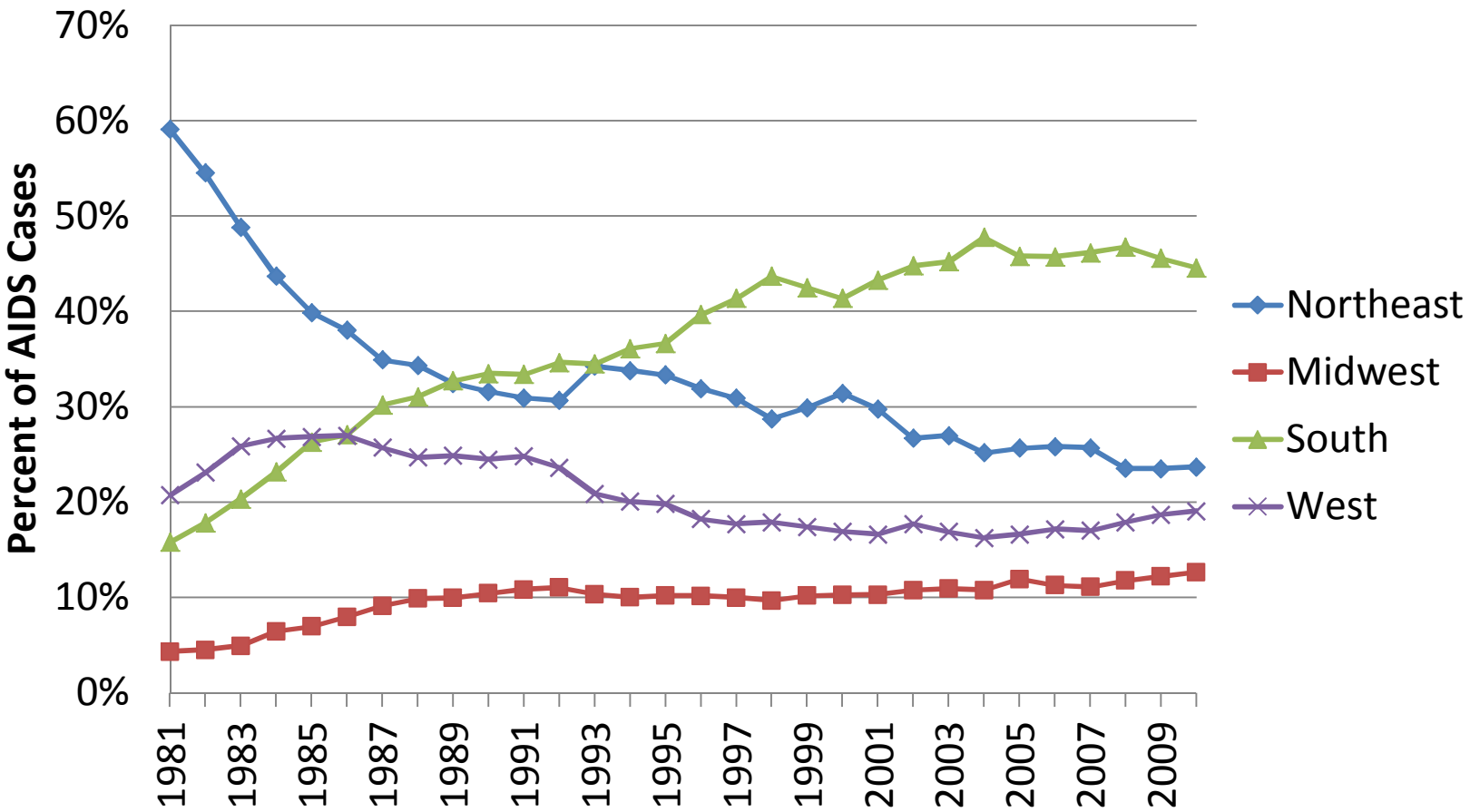
Disparities persist between black and other MSM throughout treatment cascade (24 comparative studies)



"To eliminate difference in viral suppression, **an estimated additional 38,920 black MSM and 17,043 Latino MSM would need to be on treatment** to raise viral suppression to levels on par with white MSM aware of their infection (56%)." (Hall, 2013)

(Millett, 2012)

Figure 1. Percent of estimated diagnoses[a] of AIDS by region[b] and year, United States, 1981-2010



[a] Diagnoses of AIDS were adjusted for reporting delay, but not for incomplete reporting

[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)

ART Initiation and Survival, Southern US vs. Other Regions

Compared to South, PWAs from other regions more likely to initiate treatment (Hazard Ratio [HR], 1.26, 95% CI, 1.0–1.57; P= 004 (Meditz, 2011)

Table 2. Proportional Hazards Models for Time to Antiretroviral Therapy Initiation by Race and Sex and by Race Within Region

	HR	(95% CI)	*P*
Race and sex			
White men	1.0	Reference	...
White women	1.42	(1.01–1.99)	.040
Nonwhite women	.55	(.36–.83)	.004
Nonwhite men	.80	(.68–.93)	.005
Race within region			
South			
Nonwhite	1.0	Reference	...
White	.80	(.51–1.25)	.33

NOTE. CI, confidence interval; HR, hazard ratio.

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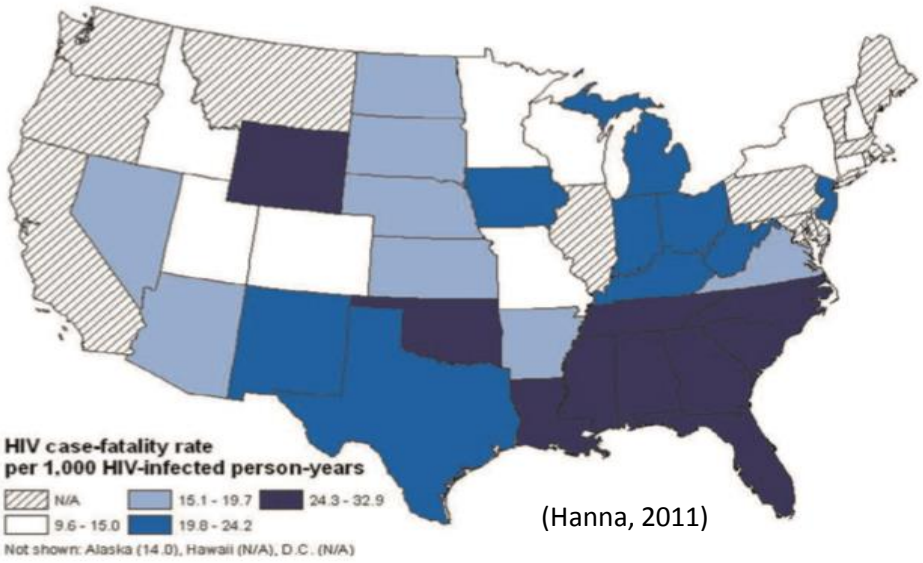
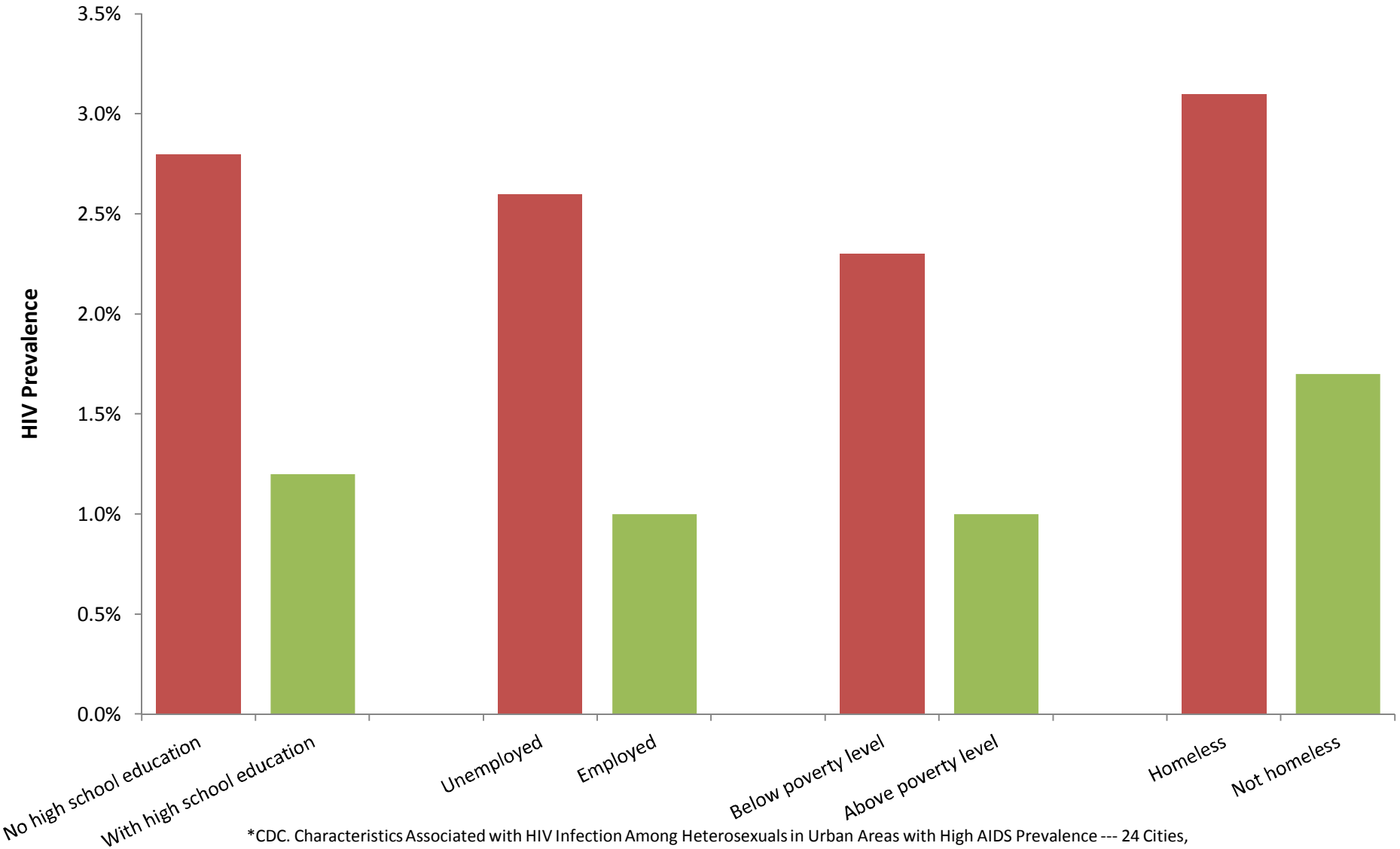


(Hanna, 2011)

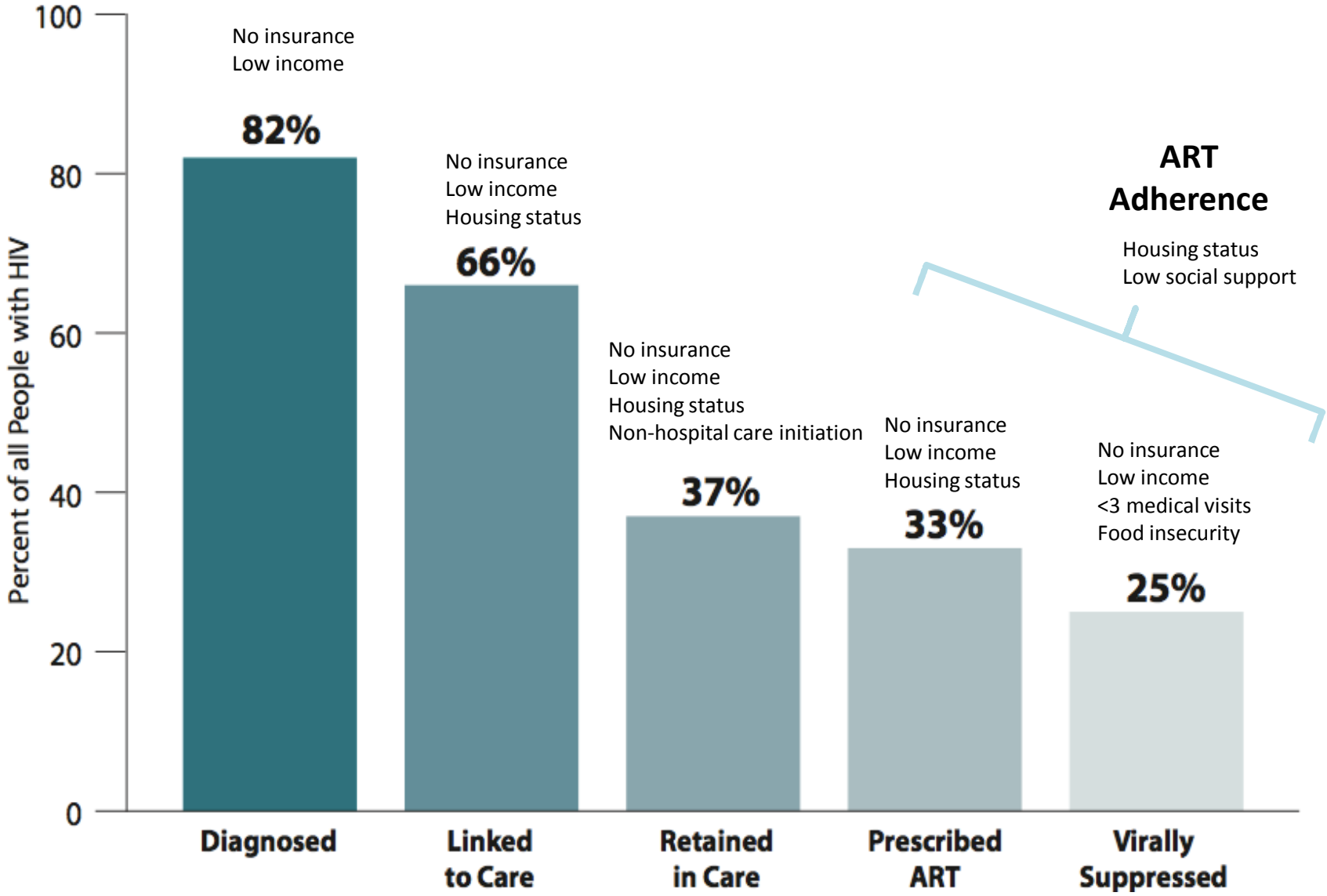
- Among blacks and Latinos, survival after HIV dx worse in the South than other regions (Prejean, 2012)
- Within the South
  - survival at 36 months after HIV dx best for whites vs blacks or Latinos
  - males in urban areas at HIV dx had higher survival rates at 36 months vs males in suburban or rural areas

HIV Infection Among Heterosexuals in Urban Areas, by Socio-Economic Indicators, 2006-2007, N=14,837- Structural/Environmental



*CDC. Characteristics Associated with HIV Infection Among Heterosexuals in Urban Areas with High AIDS Prevalence --- 24 Cities, United States, 2006--2007. MMWR 2011;60:1045-1049.

Disparities by Structural Factors Across Treatment Cascade



(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

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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)

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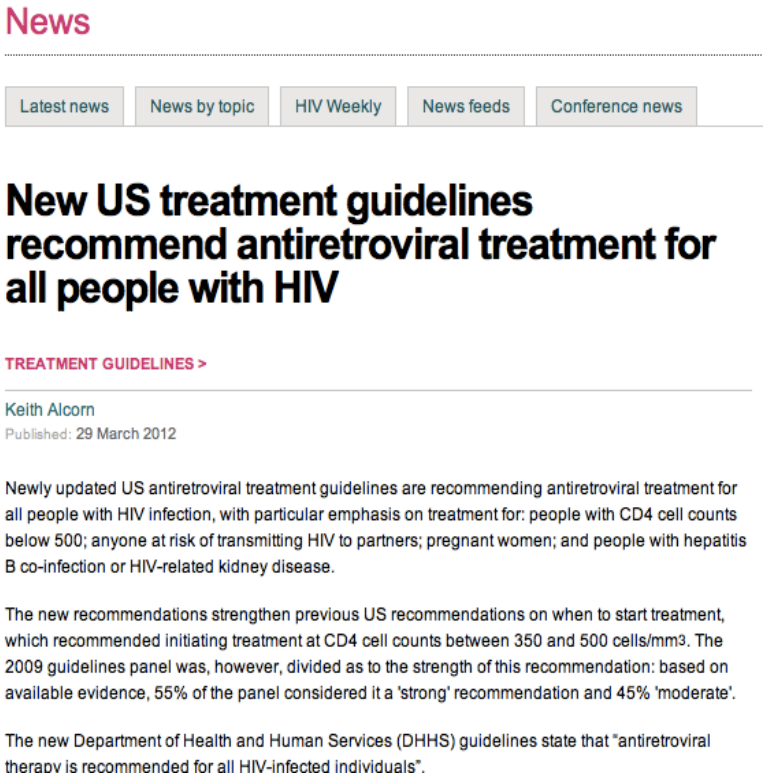

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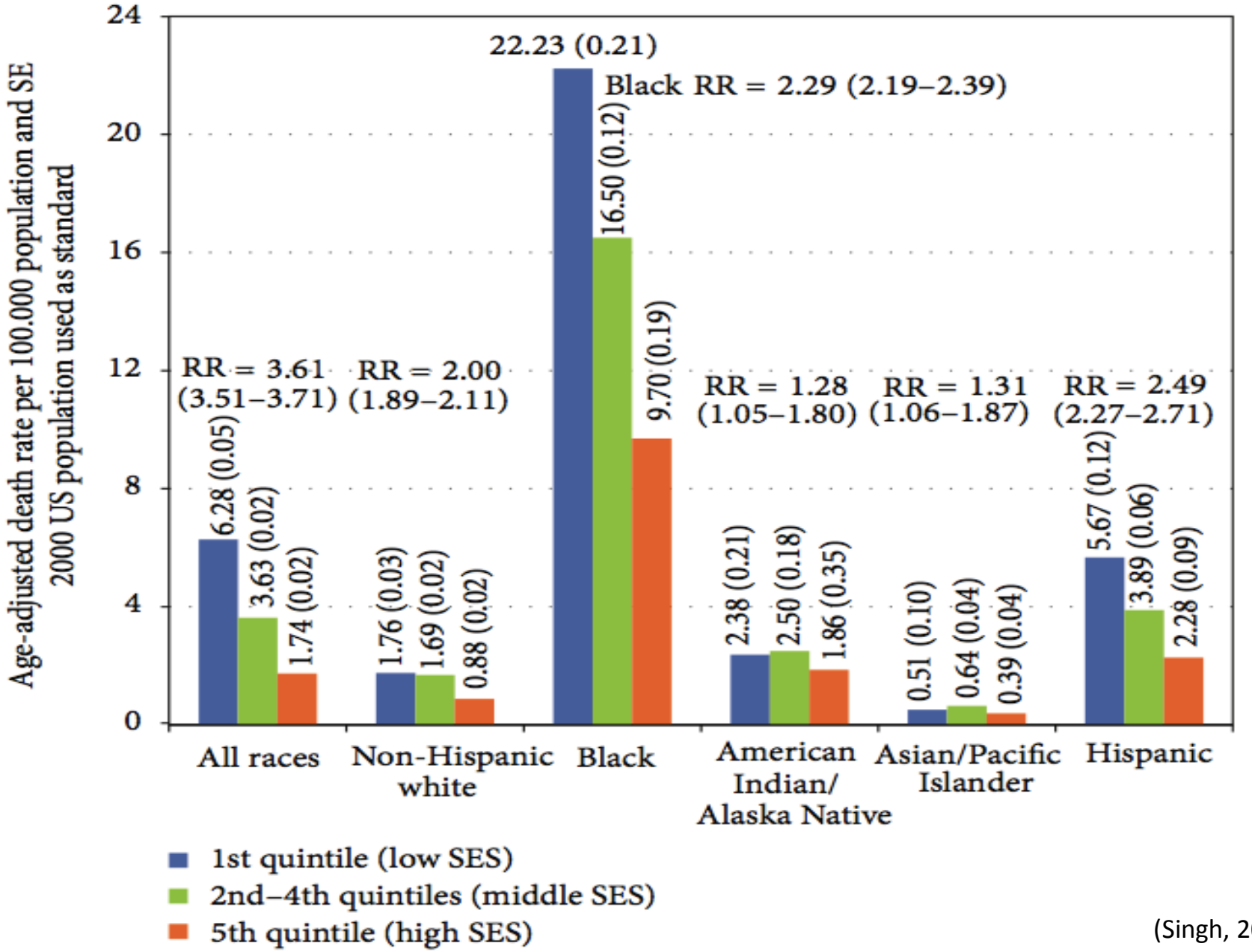
(Geng, CROI, 2012)

- Initiating ART at higher CD4 leaves disenfranchised and most at-risk populations behind.
- People who started ART at higher CD4 (above 500 cells/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 and Income, 1987-2011



(Singh, 2013)

Failure to Dx Populations at Highest Risk for HIV

- Kaiser Permanente: Medical record review past 5 years in care before HIV dx of 440 KP patients at 8 sites (Klein, 2003)
- 86% belonged to HIV risk group (MSM or IDU)
  - Risk factors recorded in only 26% of patients >1 year before HIV diagnosis.
- Nearly one half with newly diagnosed HIV had AIDS-defining CD4 or another AIDS-defining condition
  - 62% were clinically eligible for ART
- Access to medical care is not sufficient for early detection.

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- 1208 MSM (597 black, 611 Latino) not previously diagnosed with HIV
  - 105 black, 33 Latino MSM HIV-positive unaware (Millett, 2011)
- Black MSM who were HIV-positive unaware
  - 3x more likely than HIV- black MSM to have health insurance
  - 3x more likely to have disclosed sexuality their healthcare provider
  - 94% less likely to have more than 3 lifetime HIV test
- Of 44 undiagnosed HIV+ black MSM who disclosed sexuality to provider
  - UIAI with 9 HIV- partners past 3 mos
  - URAI with 14 HIV- partners past 3 mos

Cultural congruence and HIV care

Early Linkage and Retention in Care: Findings from the Outreach, Linkage, and Retention in Care Initiative Among Young Men of Color Who Have Sex with Men

Lisa B. Hightow-Weidman, M.D., M.P.H.,[1] Karen Jones, M.S.,[2] Amy R. Wohl, Ph.D.,[3]
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for The YMSM of Color SPNS Initiative Study Group

- Å 334 young black and Latino MSM
- Å Latino MSM more likely than Black MSM to be retained in care(96.2% vs. 79.9%; p = 0.006).
- Å Black MSM more likely to report feeling respected by clinic (OR: 1.73, 95% CI: 1.10 to 2.75, P , 0.02)

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Trust in Physicians and Racial Disparities in HIV Care

Somnath Saha, M.D., M.P.H.,[1,4] Elizabeth A. Jacobs, M.D., M.P.P.,[2] Richard D. Moore, M.D., M.H.S.,[3] and Mary Catherine Beach, M.D., M.P.H.[3]

Cohort study: 1,104 African-American and 201 white PWAs between 2005 and 2008

- Compared to white patients, nonwhites had lower levels of trust, ART initiation, adherence, and viral suppression.
- Adjusting for patient's perceived cultural distance from provider did not significantly affect disparities (p-values for mediation >.10).

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Table 3 Key characteristics of "more routine"[a] versus "less routine"[b] testers for HIV in the past year[c]

More routine testers (n=173) were more likely to:	Less routine testers (n=157) were more likely to:
Be OB/GYN[d] (47%) ←	Not be OB/GYN (only 12% are OB/GYN)
Report testing patients as routine practice (74%)	Report testing only patients who have risk factors (39% test routinely)
Be <40 years old (32%; mean age 46 yrs)	Be >40 years old (81%; mean age 49 yrs)
Be women[e] (60%)	Be men (55%)
Have been tested for HIV themselves in past year (37%)	Not have been tested for HIV themselves in past year (only 16% were tested)
Perceive a higher local prevalence of HIV at the county (16%) and state (16%) levels	Perceive a lower local prevalence of HIV at the county (10%) and state (11%) levels
Have relatively more patients who are:	Have relatively fewer patients who are:
Black (62%)	Black (52%)
Low SES (34%)	Low SES (27%)
On Medicaid (30%) ←	On Medicaid (18%)
HIV positive (9%)	HIV positive (4%)

(Jordan, 2013)

Disparities persist even when healthcare available, VA studies

Race and Mental Health Diagnosis Are Risk Factors for Highly Active Antiretroviral Therapy Failure in a Military Cohort Despite Equal Access to Care

Joshua D. Hartzell, MD,†‡ Katherine Spooner, MD,*‡§ Robin Howard, MA,‖ Scott Wegner, MD,§ and Glenn Wortmann, MD*†‡*

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

Rural Residence and Adoption of a Novel HIV Therapy in a National, Equal-Access Healthcare System

Michael Ohl, Brian Lund, Pamela S. Belperio, Matthew Bidwell Goetz, David Rimland, Kelly Richardson, Amy Justice, Eli Perencevich, Mary Vaughan-Sarrazin

"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**."

Virologic Response Differences Between African Americans and European Americans Initiating Highly Active Antiretroviral Therapy With Equal Access to Care

Amy C. Weintrob, MD,† Greg A. Grandits, PhD,*‡ Brian K. Agan, MD,* Anuradha Ganesan, MD,*§ Michael L. Landrum, MD,*¶ Nancy F. Crum-Cianflone, MD, MPH,*‖ Erica N. Johnson, MD,*¶ Claudia E. Ordóñez, MA,** Glenn W. Wortmann, MD,*† and Vincent C. Marconi, MD*¶ and the IDCRP HIV Working Group*

"Despite similar durations of HIV infection and equal access to health care, AAs were significantly **less likely to achieve viral suppression** compared with European Americans"

Retention in Care: A Challenge to Survival with HIV Infection

Thomas P. Giordano,[1,2] Allen L. Gifford,[3,4,5] A. Clinton White, Jr.,[1,a] Maria E. Suarez-Almazor,[1,2,a] Linda Rabeneck,[7] Christine Hartman,[1,2] Lisa I. Backus,[6] Larry A. Mole,[6] and Robert O. Morgan[1,2]

"Equal access to care yields high efficacy rates with HAART but does not fully equilibrate **racial differences in virologic failure**."

HIV infection disparities and access to ART black MSM, U.S. and U.K.

	Canadian studies		UK studies		US studies	
	k	Summary OR (95% CI)*	k	Summary OR (95% CI)*	k	Summary OR (95% CI)*
HIV-positive status	4	1·46 (0·62–3·41)	9	1·86 (1·58–2·18)†	19	3·00 (2·06–4·40)†
Sexual risk						
UAI with male partners	8	0·85 (0·69–1·05)	11	1·07 (0·91–1·18)	35	0·91 (0·79–1·55)
UAI main male partner	2‡	0·67 (0·40–1·12)	..	..	6	0·61 (0·50–0·73)†
UAI casual male partner	4	0·98 (0·72–1·36)	..	..	6	1·07 (0·85–1·36)
UAI receptive	..	..	4	0·92 (0·79–1·07)	12	0·99 (0·74–1·31)
Number of male sex partners	..	..	6	0·87 (0·68–1·11)	14	0·58 (0·50–0·68)†
Substance use						
Any substance use	6	0·53 (0·38–0·75)†	2‡	1·01 (0·66–1·54)	31	0·67 (0·50–0·92)†
Injection drug use	3	0·40 (0·22–0·72)†	..	..	12	0·69 (0·42–1·13)
Substance use before or during sex	2‡	0·78 (0·28–2·15)	..	..	6	0·51 (0·29–0·90)†
STI						
Any STI	2‡	1·12 (0·32–3·98)	4	2·66 (1·53–4·64)†	40	6·01 (5·39–6·72)†
Any viral STI	..	..	3	2·08 (1·17–3·68)†	11	1·62 (1·05–2·51)†
HIV prevention (HIV-negative MSM)						
HIV testing	5	0·88 (0·40–1·94)	7	1·75 (1·39–2·21)†	7	1·05 (0·72–1·52)
Knowledge of PEP or PrEP	..	..	3	0·71 (0·61–0·83)†	3	0·77 (0·50–1·18)
HIV care (MSM diagnosed HIV positive)						
cART use	..	..	2‡	0·78 (0·69–0·88)†	4	0·40 (0·26–0·62)†
Network or partner characteristics						
Serodiscordant UAI	3	0·89 (0·62–1·29)	5	1·40 (0·93–2·11)	12	0·98 (0·72–1·33)
Reported sex with HIV-positive partner (only HIV-negative samples)	4	1·02 (0·69–1·52)	3	1·58 (0·99–2·50)	8	0·96 (0·67–1·39)
Structural barriers						
Low income	3	1·56 (1·89–2·06)†	..	..	23	2·29 (1·77–2·96)†
Any protective behaviours	19	1·02 (0·75–1·38)	22	1·16 (0·94–1·43)	41	1·39 (1·23–1·57)†

(Millett, 2012)

Disparities in time between VL tests by region or demographics, Canada

Table 4 Multivariate GEE regression models of testing intervals and of probability of >9 and >6 months between viral load measurements

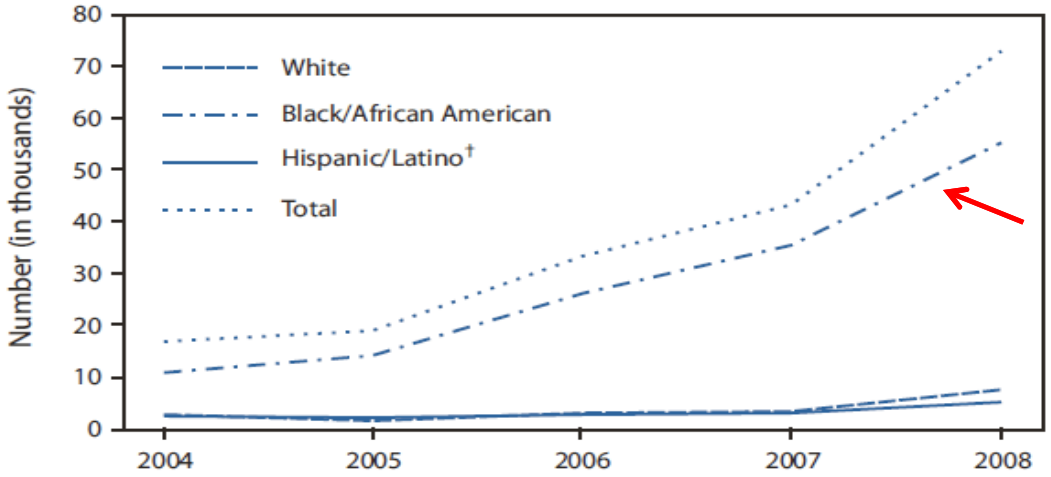
	Interval (days) between successive tests		*Probability of an interval >9 months*		*Probability of an interval >6 months*	
Covariates	***Estimate (95% CI)***	***p value***	***Odds Ratio (95% CI)***	***p value***	***Odds Ratio (95% CI)***	***p value***
Intercept	125.8 (118.8, 132.9)	<.0001	0.09 (0.07, 0.11)	<.0001	0.20 (0.16, 0.23)	<.0001
Region						
Quebec	20.3 (15.5, 25.0)	<.0001	1.72 (1.39, 2.14)	<.0001	1.61 (1.37, 1.89)	<.0001
Ontario	18.7 (14.3, 23.0)	<.0001	1.78 (1.37, 2.31)	<.0001	1.77 (1.47, 2.14)	<.0001
BC	0		1		1	
Age (per 10 years)	-3.8 (-5.4, -2.2)	<.0001	0.77 (0.70, 0.85)	<.0001	0.77 (0.72, 0.83)	<.0001
Risk factor						
MSM	-9.2 (-13.1, -5.4)	<.0001	0.62 (0.49, 0.78)	<.0001	0.66 (0.56, 0.77)	<.0001
IDU	16.0 (11.1, 20.9)	<.0001	1.68 (1.38, 2.05)	<.0001	1.71 (1.48, 1.99)	<.0001

(Raboud, 2009)

Overcoming disparities

Expanded HIV Testing and Trends in Diagnoses of HIV Infection --- District of Columbia, 2004--2008

FIGURE. Number of publicly funded HIV tests among adults and adolescents,* by race/ethnicity --- District of Columbia, 2004--2008



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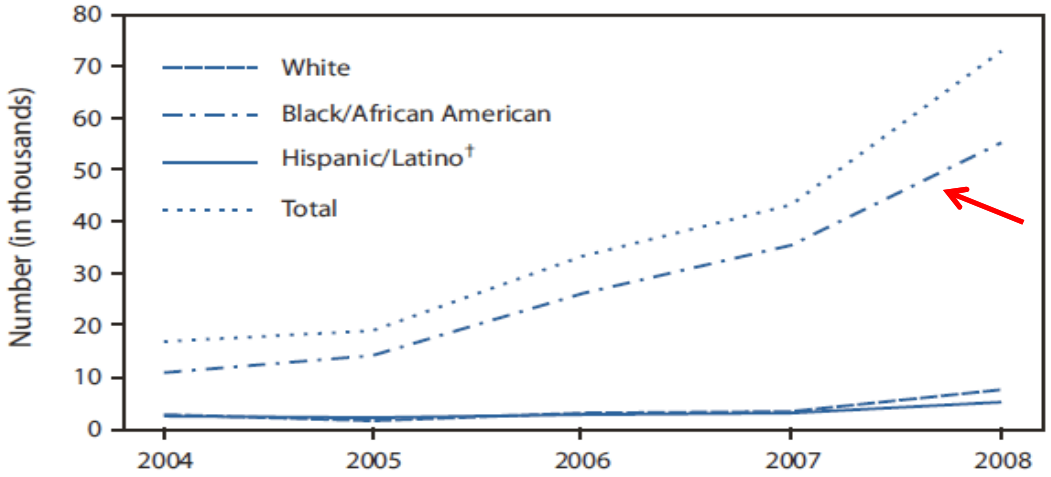


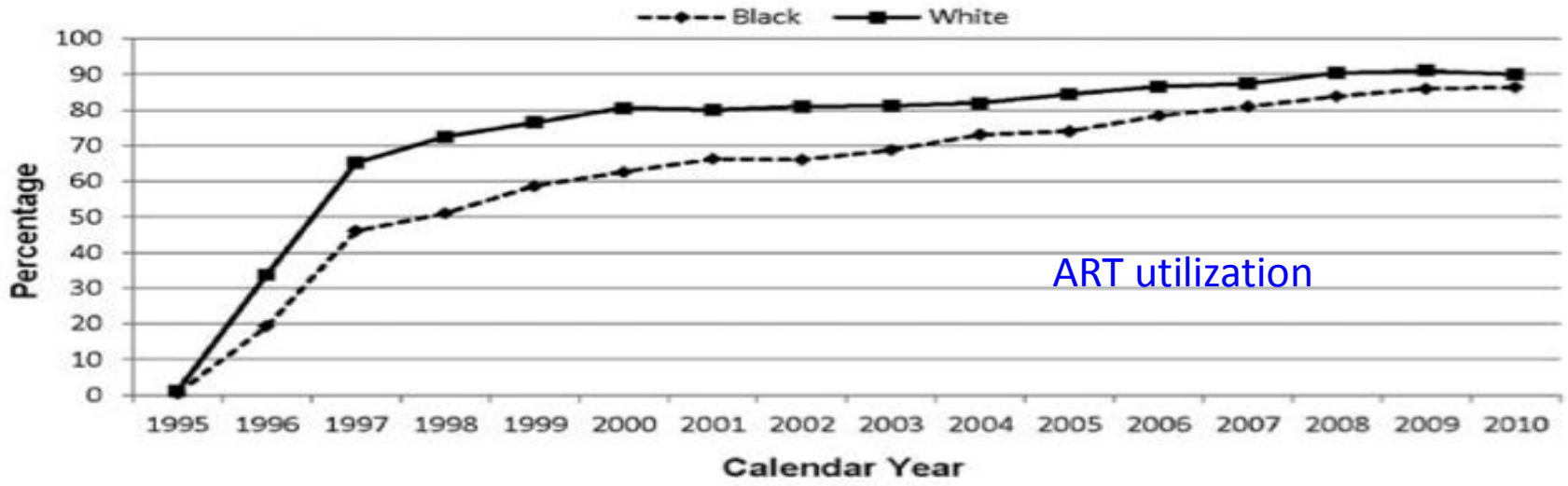
TABLE 1. Number and rate* of adults and adolescents† newly diagnosed with AIDS, by race/ethnicity and sex --- District of Columbia, 2004--2008

Characteristic	Total no.	%	2004		2005		2006		2007		2008§		2004--2008 EAPC¶	p-value**
			No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate		
Black/African American	**2,836**	**86.0**	**657**	**240**	**563**	**207**	**604**	**223**	**573**	**213**	**439**	**164**	**-7.1**	**0.002**
Males	**1,857**	**56.0**	448	373	364	305	389	328	371	315	285	244	-7.8	<0.001
Females	**979**	**30.0**	209	136	199	130	215	142	202	134	154	102	-5.3	0.050
Hispanic/Latino††	**175**	**5.0**	**48**	**122**	**43**	**109**	**28**	**71**	**35**	**88**	**21**	**51**	**-17.8**	**<0.001**
Males	**129**	**4.0**	37	178	27	130	22	106	27	129	16	74	-15.4	<0.001
Females	**46**	**1.0**	11	59	16	86	6	32	8	42	5	25	-21.6	0.004

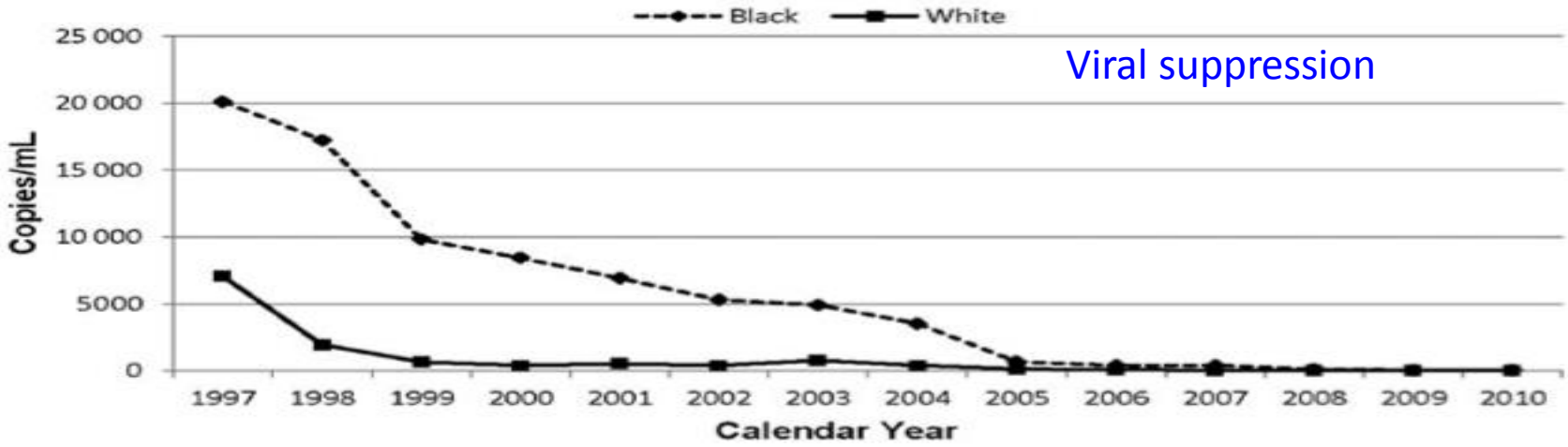
Improvement in the Health of HIV-Infected Persons in Care: Reducing Disparities

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

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



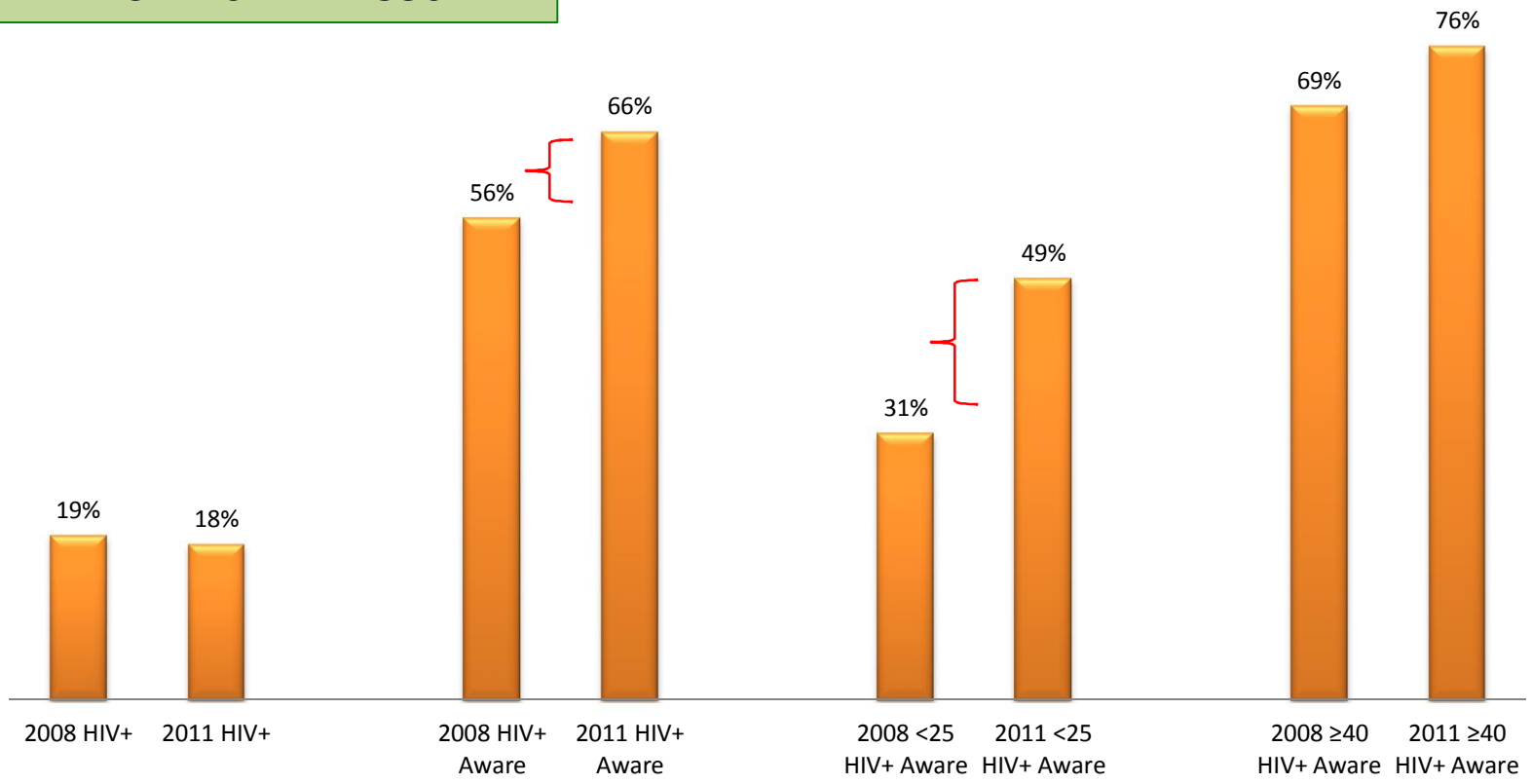
ART utilization



Viral suppression

Increasing HIV+ Awareness among MSM, NHBS 2008 & 2011

HIV+ MSM 2008 n=1520
HIV+ MSM 2011 n=1556



(Wejnert, 2013)

A New Trend in the HIV Epidemic Among Men Who Have Sex With Men, San Francisco, 2004–2011

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 3. HIV- and Risk-Related Variables in 3 Waves of the NHBS Among MSM in San Francisco, 2004–2011

Variable	MSM1 2004		MSM2 2008		MSM3 2011		χ^2 Test for Trend *P*
	%	95% CI	%	95% CI	%	95% CI	
HIV positive (by serological test in this study)	24.0	19.6, 28.1	23.0	19.0, 26.3	23.0	18.9, 26.6	0.73
Unrecognized HIV infection*	21.7	13.2, 30.3	18.0	10.9, 25.2	7.5	2.4, 12.7	0.025
Tested for HIV in the last 6 mos (if not known HIV+)	44.1	35.6, 49.6	55.2	50.4, 59.9	57.8	52.9,62.6	<0.001
HIV incidence (by BED assay, percent per year)	2.6	0.8, 4.3	0.7	0, 1.5	1.0	0.02, 1.9	0.06
Ever on ART*	71.2	60.6, 81.9	—	—	—	—	—
Currently on ART*	—	—	79.3	70.6, 87.3	88.2	82.1, 94.3	—
Gonorrhea history in the last year (by self-report)	6.5	4.0, 8.9	7.7	5.4, 9.9	9.2	6.7, 11.7	0.15
Multiple sexual partners in the last year	79.3	75.2, 83.3	77.5	73.9 81.1	76.5	72.8, 80.2	0.31
Methamphetamine use in the last year	22.8	18.6, 27.0	13.2	10.3, 16.2	11.9	9.1, 14.8	<0.001

*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