



# NHBS BALTIMORE: THE BESURE STUDY 2015 UPDATE

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# OVERVIEW

- BESURE to date
- MSM data
  - Sample characteristics (MSM3 & MSM4)
  - HIV status, unrecognized infection & testing (MSM3 & MSM4)
  - Standard indicators (MSM4)
  - Local questions (MSM4)
- Local data use and analyses in progress
- Upcoming IDU4 cycle



# NHBS BALTIMORE/ BESURE TO DATE



# BESURE TO DATE

## Wave 1

2004-2005:  
MSM1  
n=645

2006: IDU1  
n=539

2007: HET1  
n=310

## Wave 2

2008: MSM2  
n=448

2009: IDU2  
n=507

2010: HET2  
n=338

## Wave 3

2011: MSM3  
n=404

2012: IDU3  
n=617

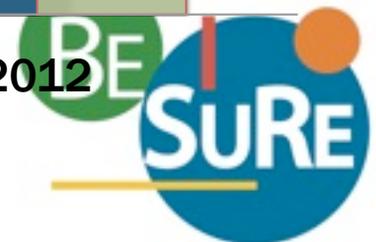
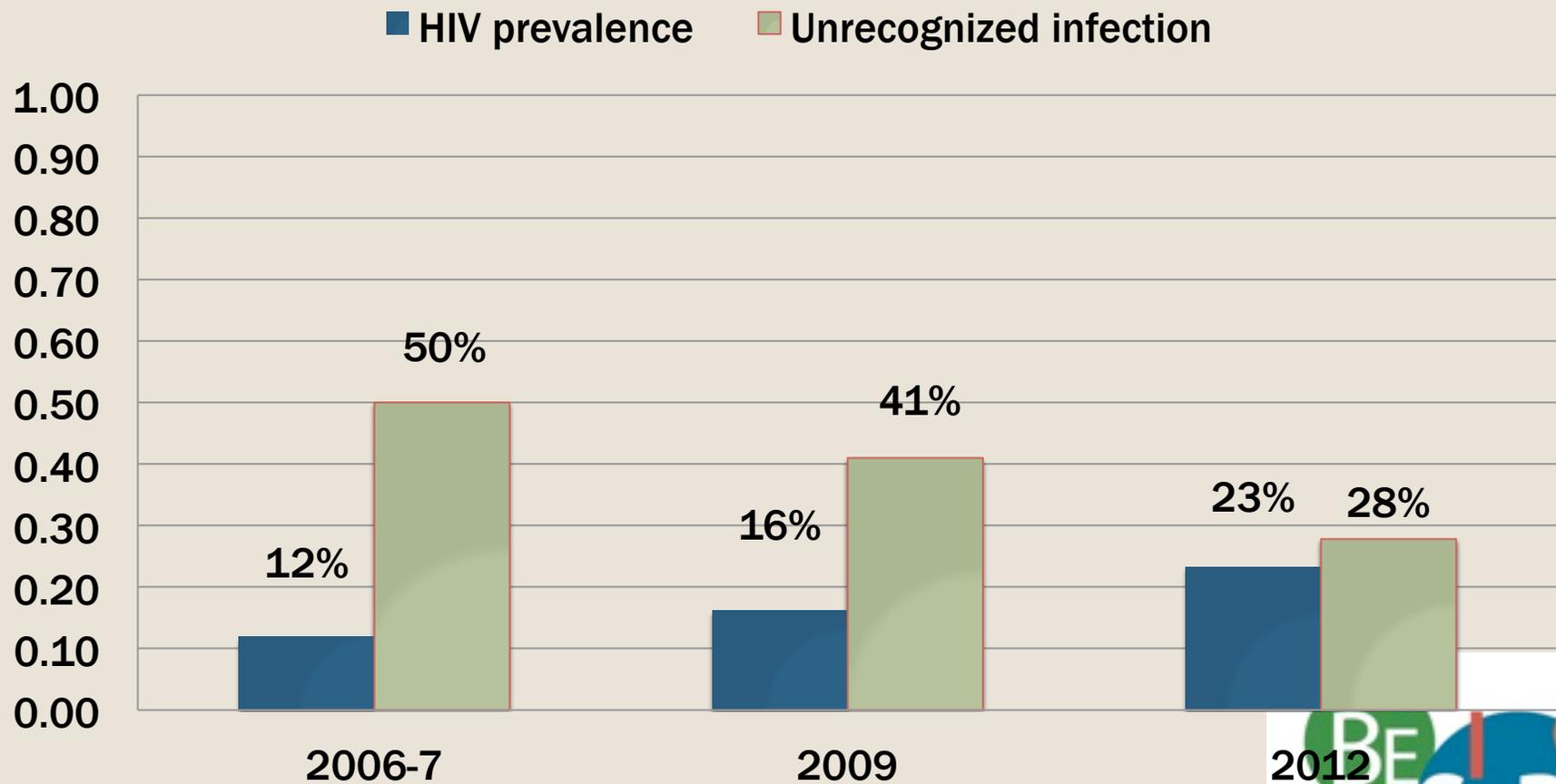
2013: HET3  
n=505

## Wave 4

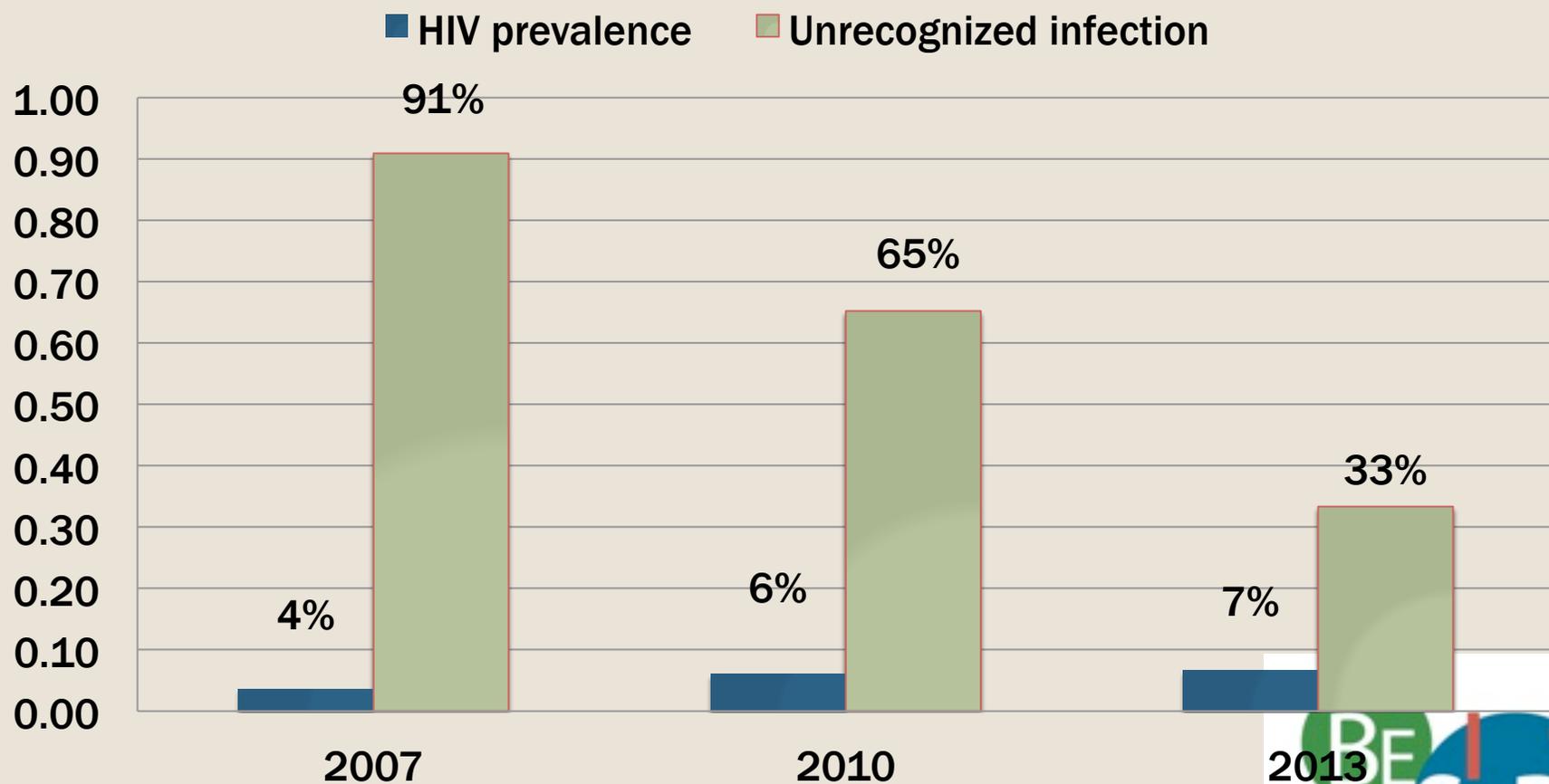
2014: MSM4  
n=455



# HIV AMONG INJECTION DRUG USERS, 2006-2012



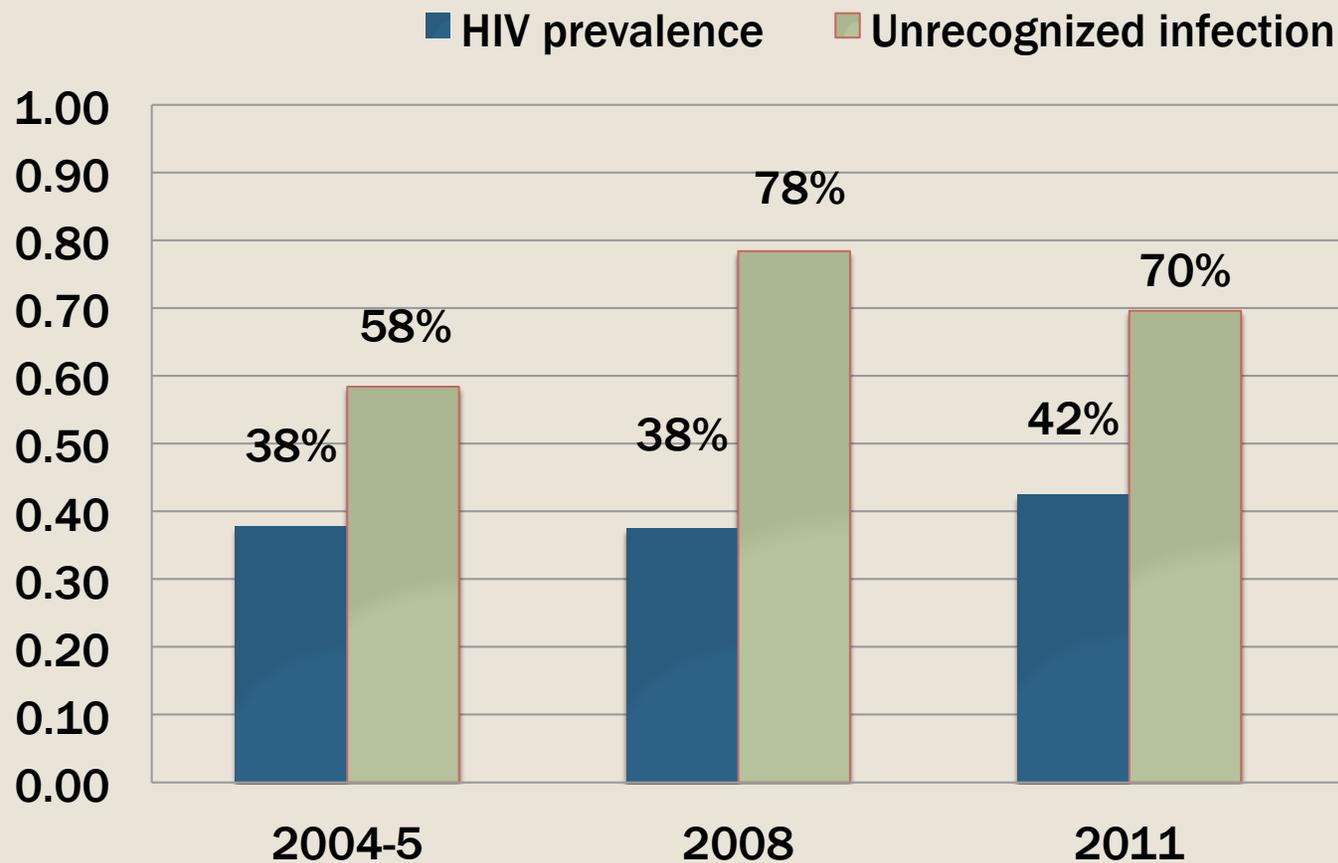
# HIV AMONG HETEROSEXUAL MEN AND WOMEN, 2007-2013



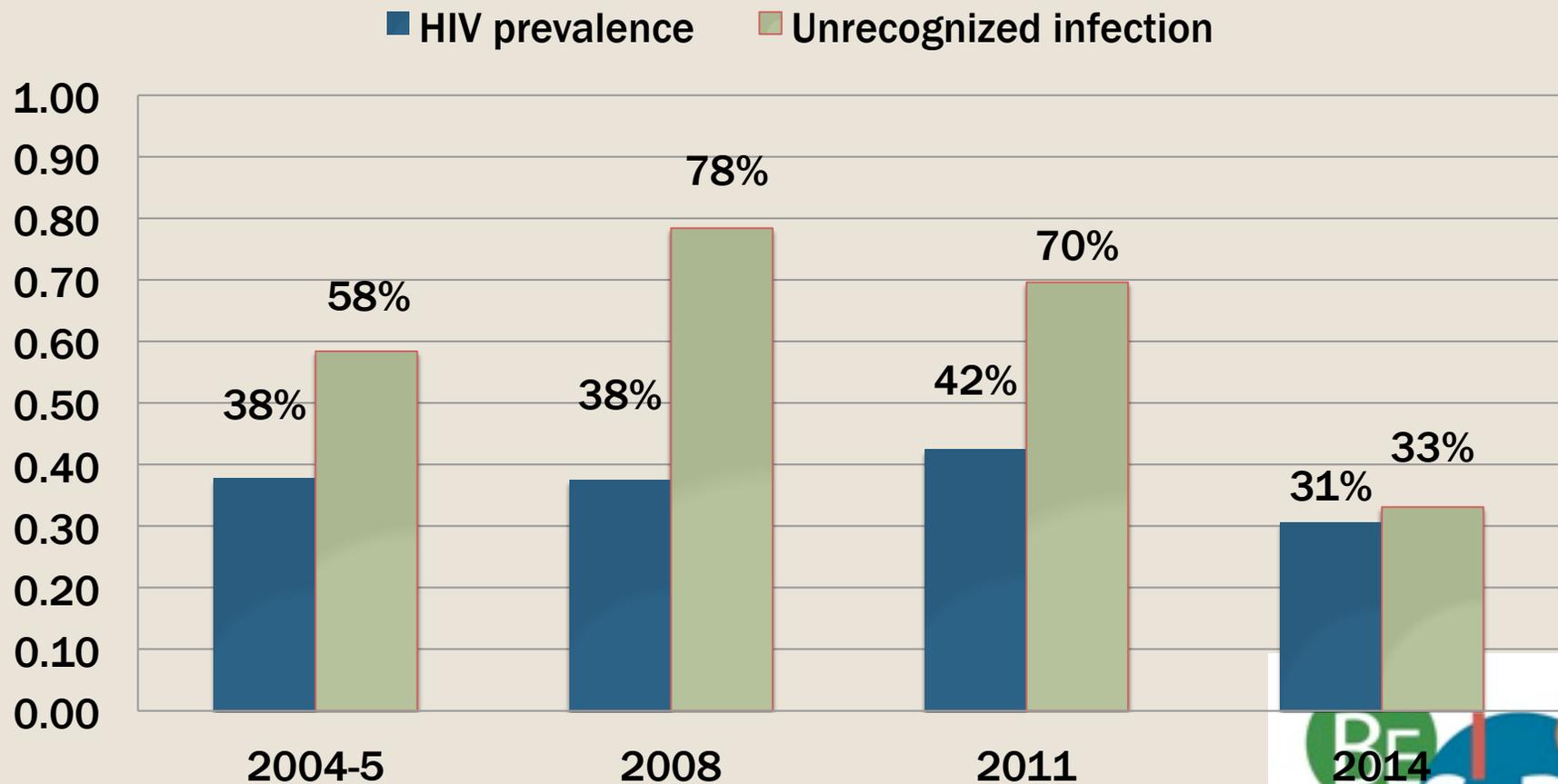
\*rapid HIV test started in 2013



# HIV AMONG MEN WHO HAVE SEX WITH MEN, 2004-2014



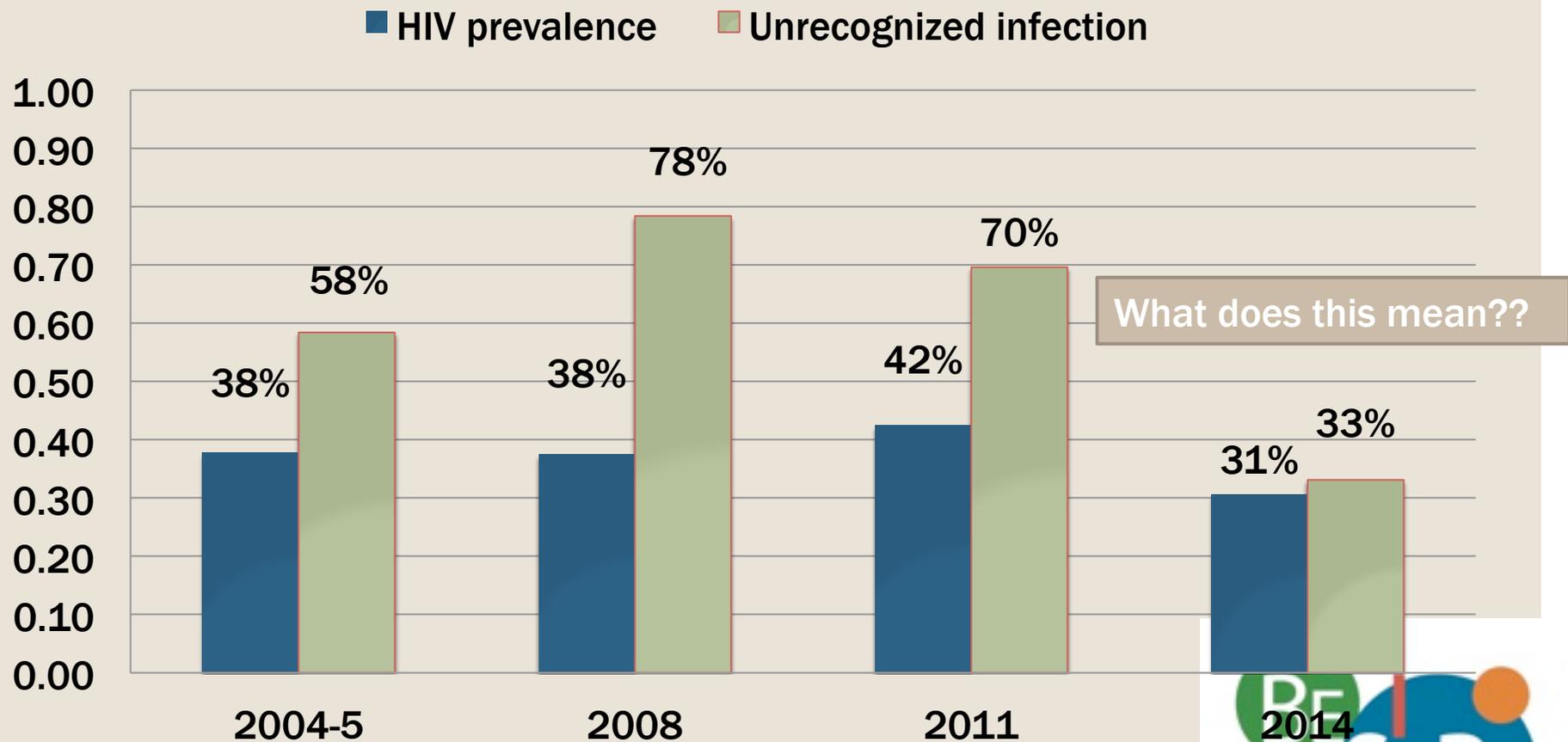
# HIV AMONG MEN WHO HAVE SEX WITH MEN, 2004-2014



\*rapid HIV test started in 2013



# HIV AMONG MEN WHO HAVE SEX WITH MEN, 2004-2014



\*rapid HIV test started in 2013



# BACKGROUND



# PARTICIPATION

2011

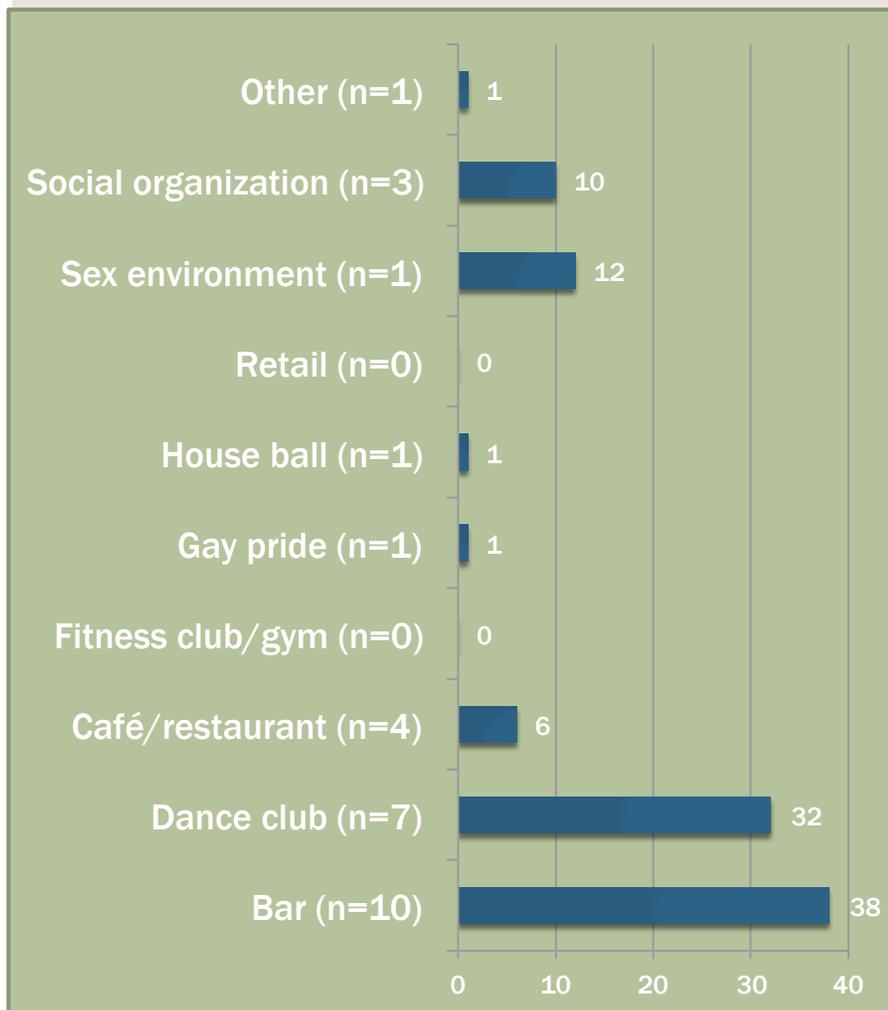
2014

<b>Approached: 1487</b>	<b>Approached: 3907</b>
Screened: 602 (40%)	Screened: 830 (21%)
Eligible: 495 (82%)	Eligible: 568 (68%)
Complete information: 432 (87%)	Complete information: 514 (91%)
MSM in past year: 404 (94%)	MSM in past year: 455 (89%)

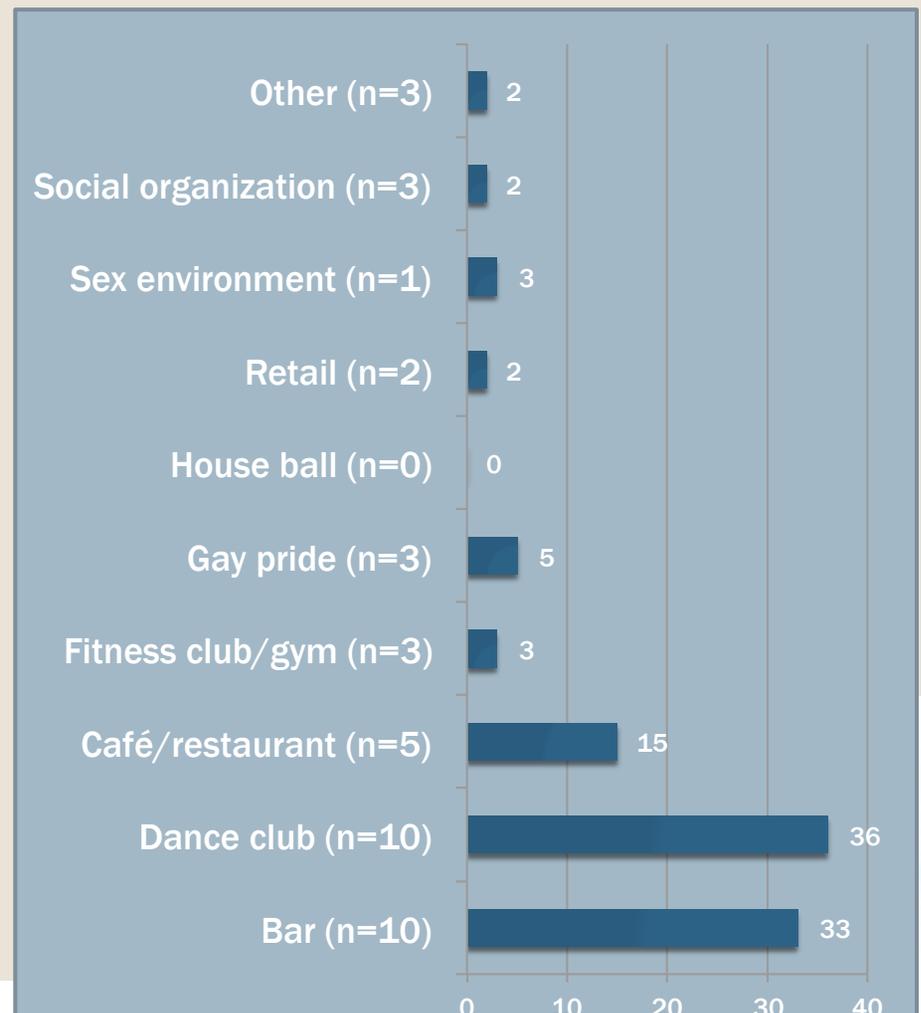


# VENUE COMPOSITION

## 2011 (% of total)

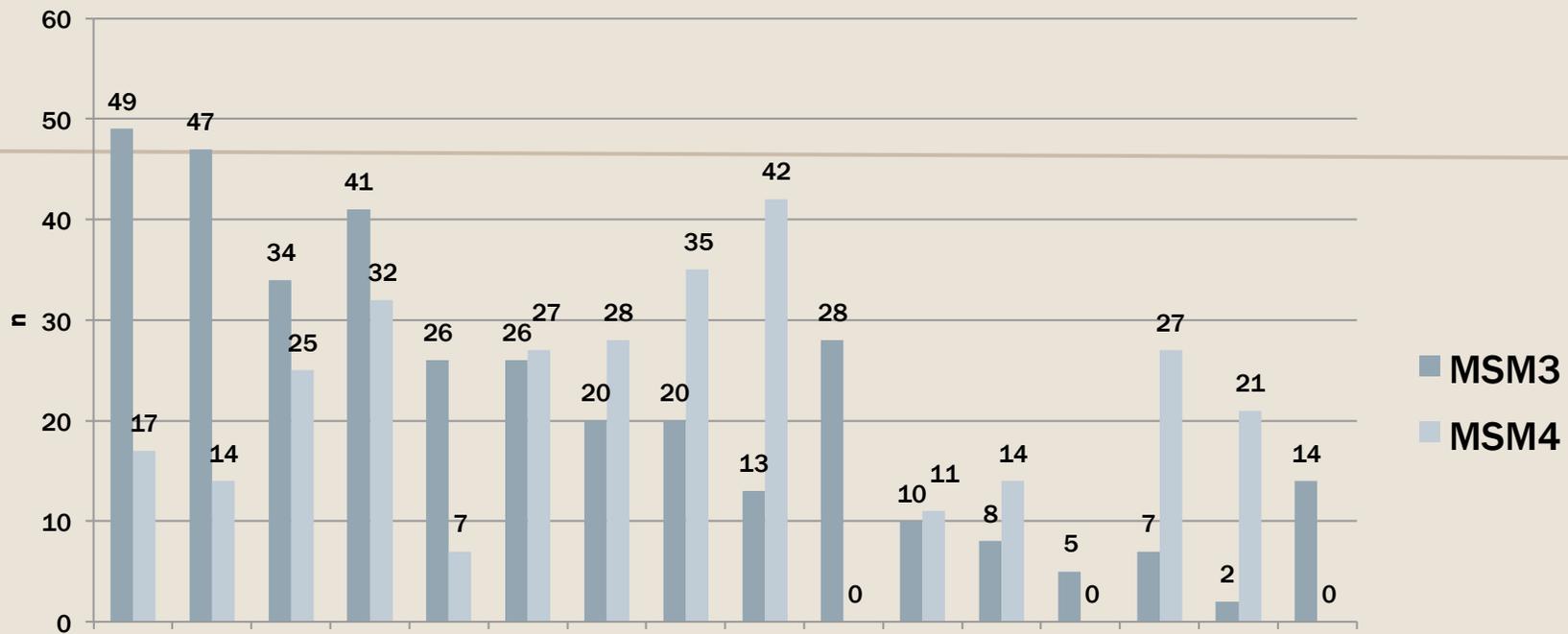


## 2014 (% of total)

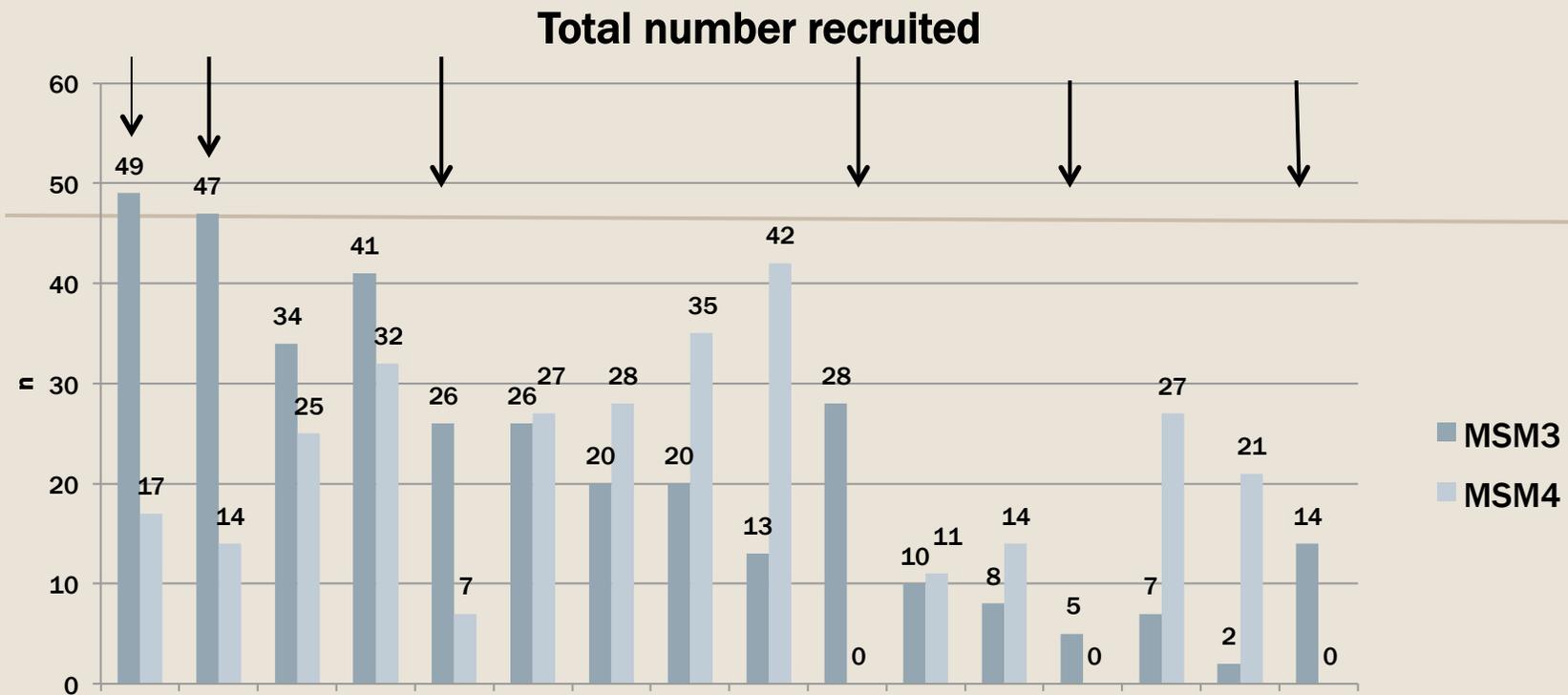


# HIGHEST RECRUITMENT VENUES, 2011 AND 2014

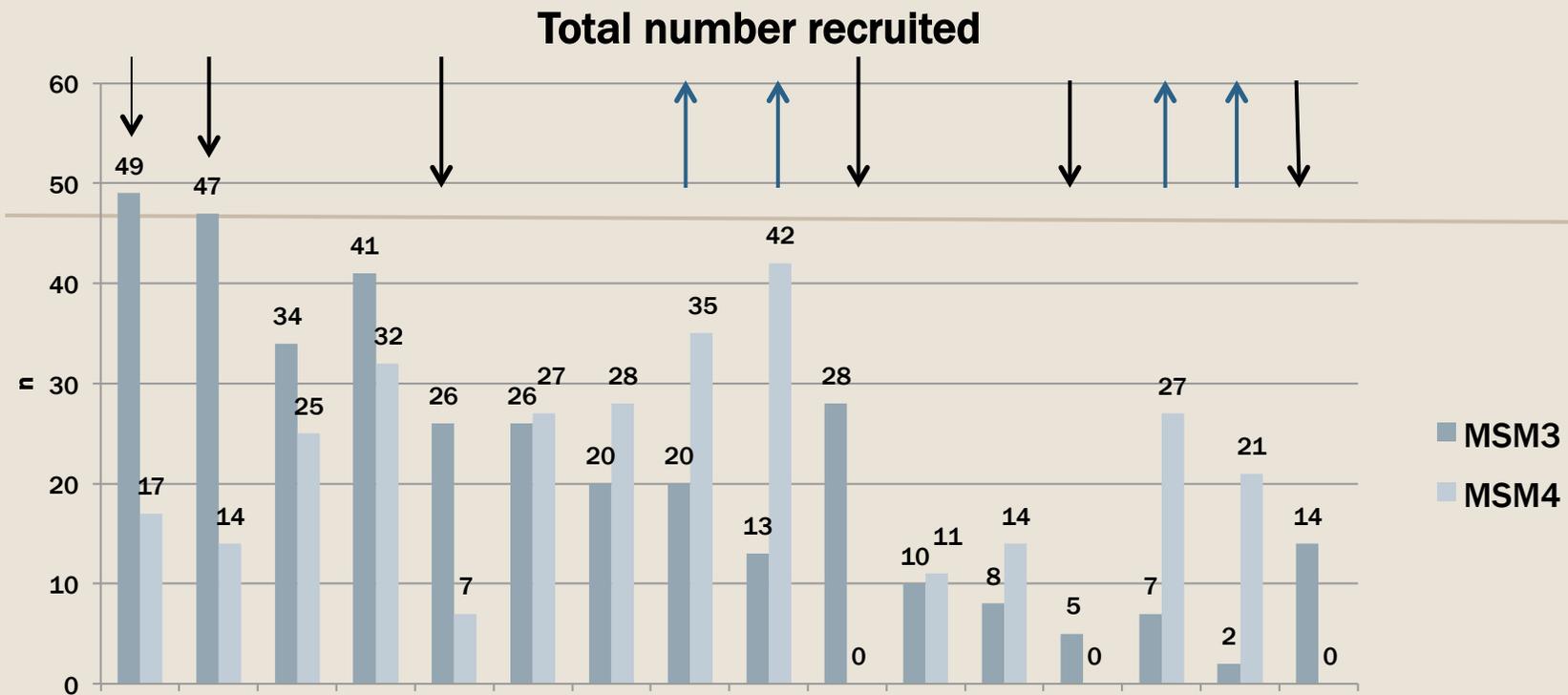
Total number recruited



# HIGHEST RECRUITMENT VENUES, 2011 AND 2014



# HIGHEST RECRUITMENT VENUES, 2011 AND 2014



# HIV TESTING

- Change to rapid testing in 2014
- Increased HIV testing and service provision at venues in years preceding data collection



# CHARACTERISTICS OF MEN WHO HAVE SEX WITH MEN, NHBS BALTIMORE



# SAMPLE CHARACTERISTICS: MSM3 AND MSM4

Characteristic		MSM3 (n=404)	MSM4 (n=455)
Race/Ethnicity **	White, not Hispanic	14%	23%
	Black, not Hispanic	77%	64%
	Hispanic	2%	4%
	Other	7%	9%
Age **	18-25	31%	24%
	25-34	27%	38%
	35-44	17%	15%
	45-60	26%	23%
Sexual identity	Straight/heterosexual	3%	3%
	Gay/Homosexual	64%	69%
	Bisexual	33%	28%
Education ***	High school/GED or less	58%	40%
	College or some	33%	60%

\* $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$



# SAMPLE CHARACTERISTICS: MSM3 AND MSM4

Characteristic		MSM3 (n=404)	MSM4 (n=455)
Employment ***	Unemployed	31%	19%
	Full or Part-time	50%	61%
Median annual household income ***	(mid-point)	\$10,000- \$19,999	\$20,000- \$39,999
Homelessness *	Past year	17%	12%
	Current	7%	6%
Incarcerated **	Past year	14%	8%
Injection drug use	Ever	9%	8%

\* $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$



# SAMPLE CHARACTERISTICS: MSM3 AND MSM4

Characteristic		MSM3 (n=404)	MSM4 (n=455)
Sex partners in past year	Male only	75%	79%
	Male and female	25%	21%
# male partners in past year	1	27%	30%
	2-3	39%	34%
	4-8	22%	24%
	9+	12%	12%
Condomless anal sex past year **	Any	52%	66%
Condomless anal sex past year	With partner of opposite HIV status	18%	15%
Received money or goods in exchange for sex **	Past year	24%	15%



# SAMPLE CHARACTERISTICS BY RACE/ ETHNICITY: MSM4

Characteristic		NH Black (n=291)	NH White (n=104)
Age *	18-25	27%	14%
	25-44	47%	64%
	45-60	26%	21%
Sexual orientation **	Straight/heterosexual	3%	3%
	Gay/Homosexual	64%	83%
	Bisexual	33%	14%
Education *	High school/GED/less	50%	19%
	College or some	50%	81%
Employment *	Unemployed	22%	14%
	Full or Part-time	56%	71%
Median annual income ***	(mid-point)	\$10,000-\$19,999	>\$40,000
Homelessness	Past year/ Current	13%/ 7%	9%/ 3%
Incarcerated	Past year	10%	5%
Injection drug use	Ever	6%	12%

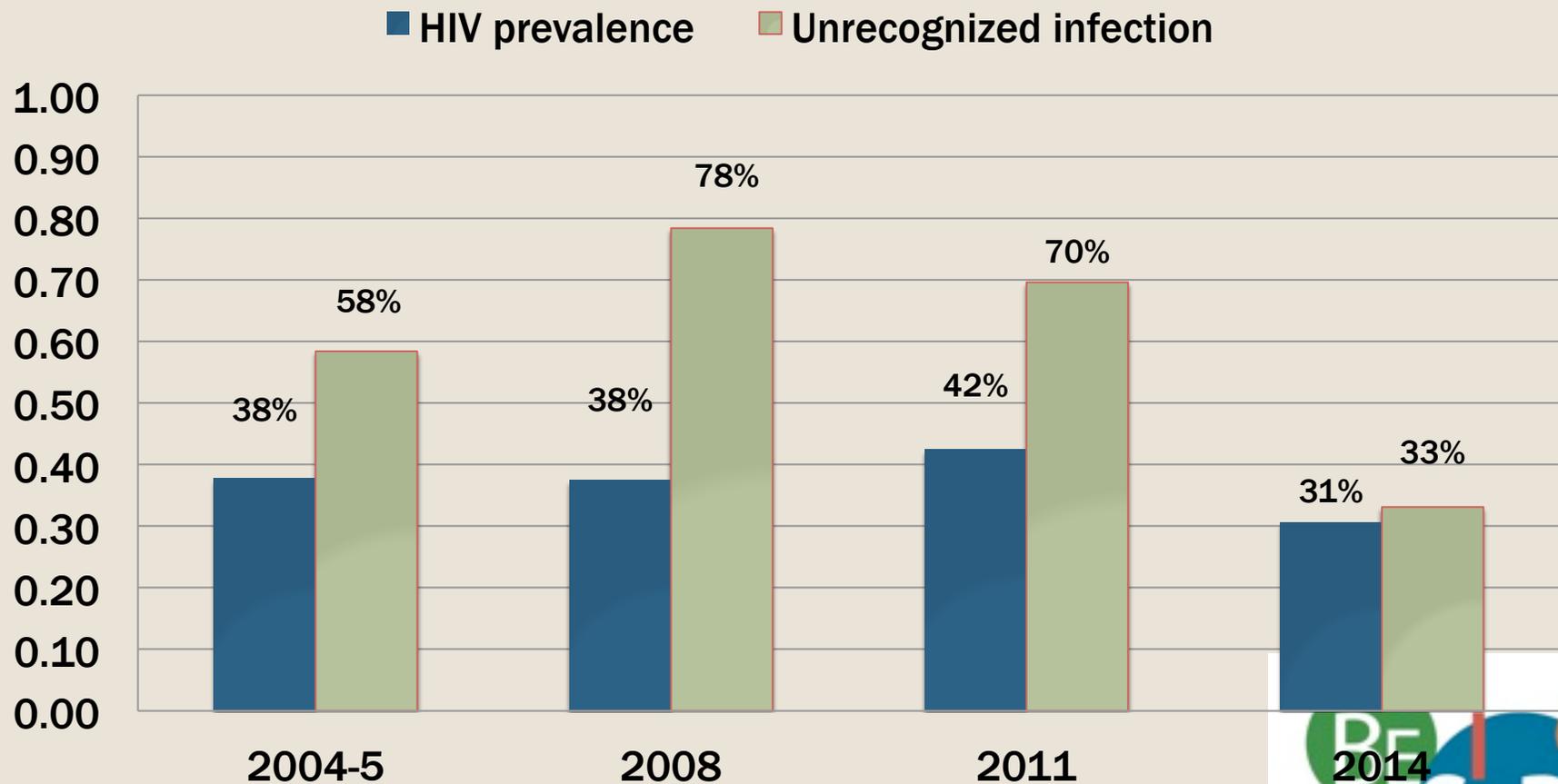
# SAMPLE CHARACTERISTICS BY AGE: MSM4

Characteristic		18-24 (n=108)	25+ (n=347)
Race/ethnicity *	NH Black	73%	61%
	NH White	14%	26%
	Other	13%	13%
Sexual orientation	Straight/heterosexual	3%	3%
	Gay/Homosexual	71%	68%
	Bisexual	27%	29%
Education **	High school/GED/less	48%	37%
	College or some	52%	64%
Employment *	Unemployed	18%	19%
	Full or Part-time	66%	60%
Median annual hh income	(mid-point)	\$10,000-\$19,999	\$10,000-\$19,999
Homelessness	Past year/ Current	7%/ 7%	13%/ 3%
Incarcerated	Past year	7%	8%
Injection drug use	Ever	0%	10%

**HIV INFECTION AND  
UNRECOGNIZED HIV  
INFECTION 2011-2014:  
BALTIMORE MSM**



# HIV AMONG MEN WHO HAVE SEX WITH MEN, 2004-2014

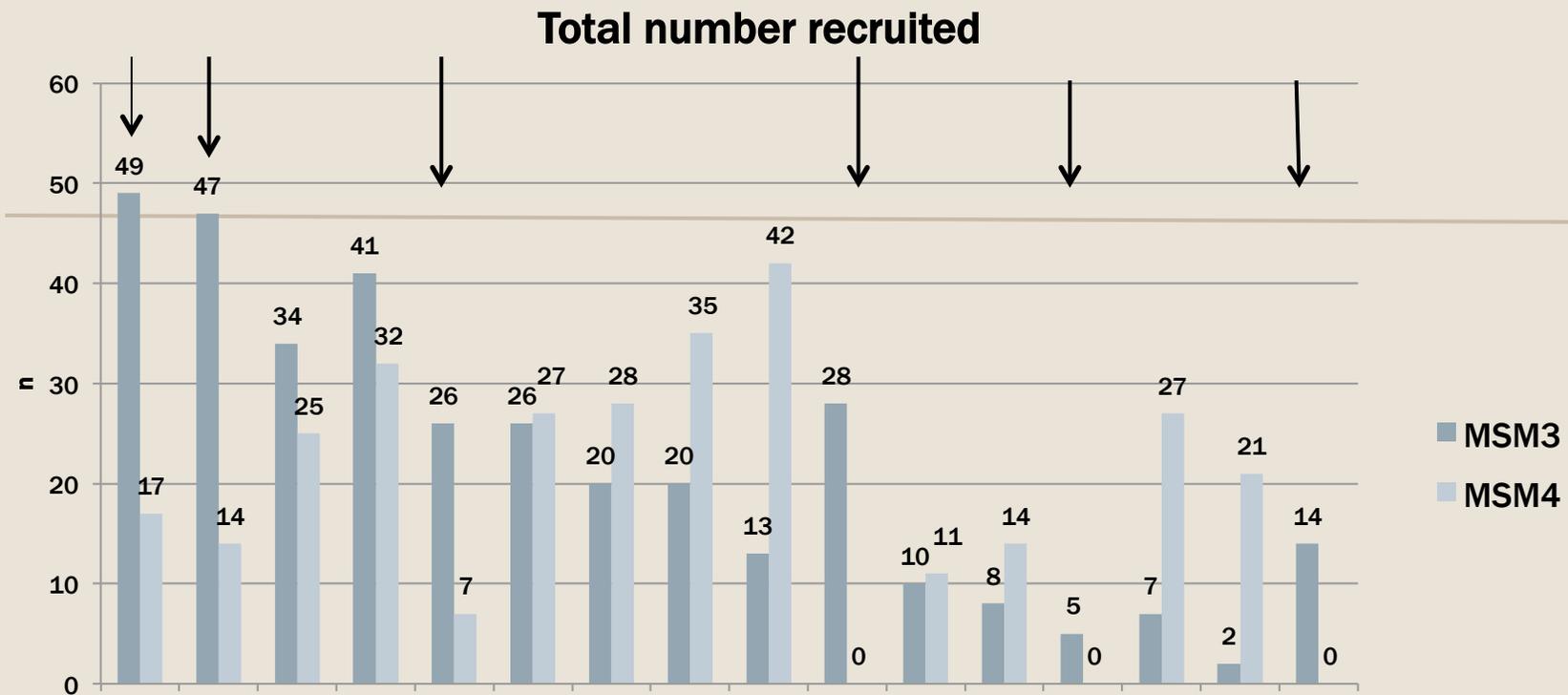


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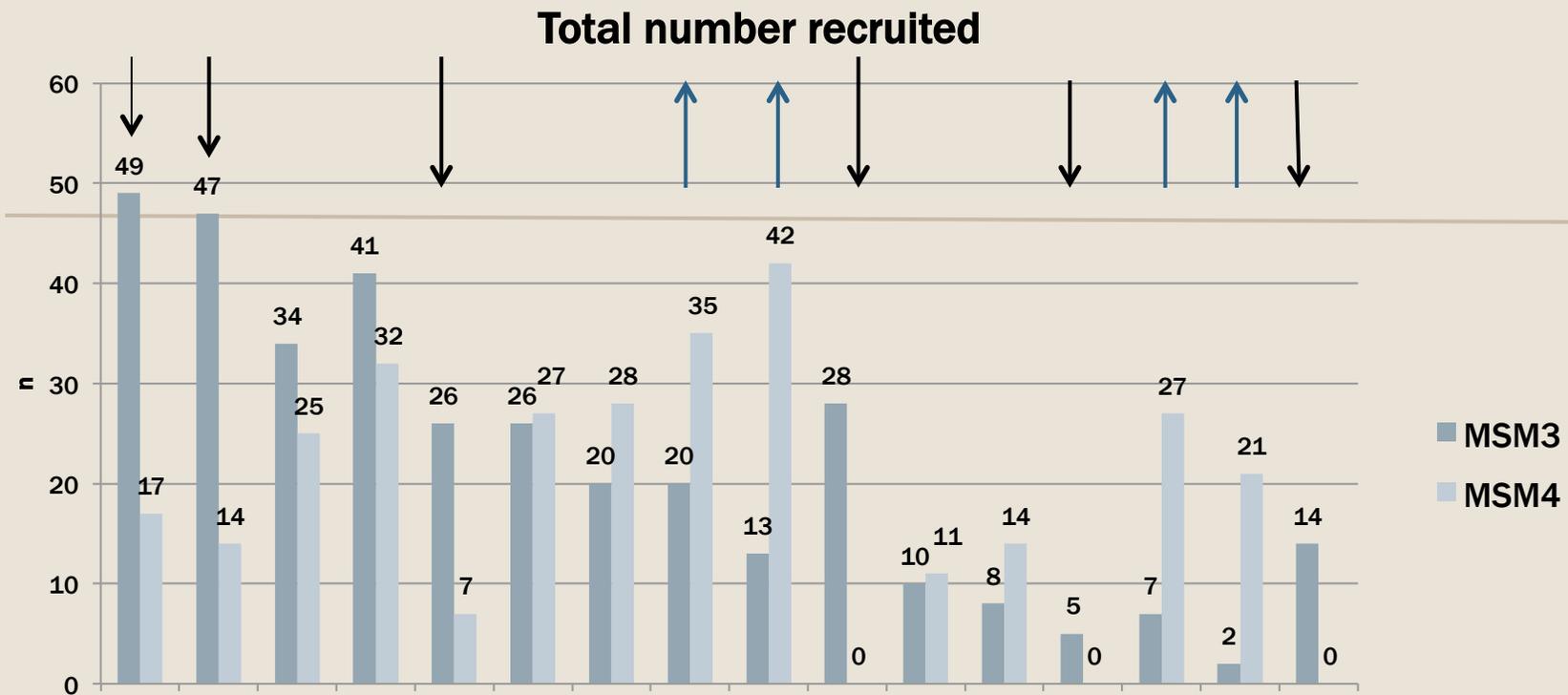


**VENUE COMPOSITION?**

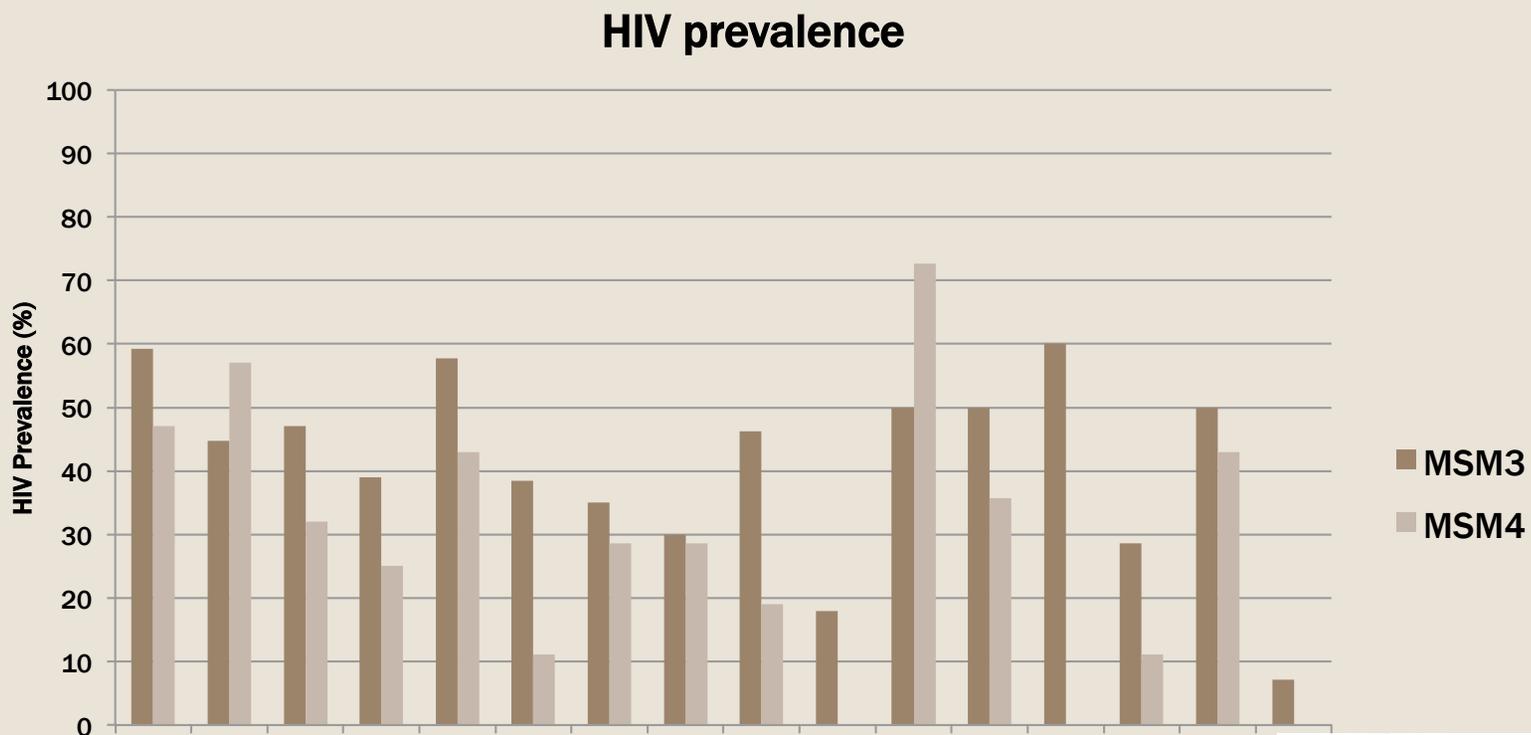
# HIGHEST RECRUITMENT VENUES, 2011 AND 2014



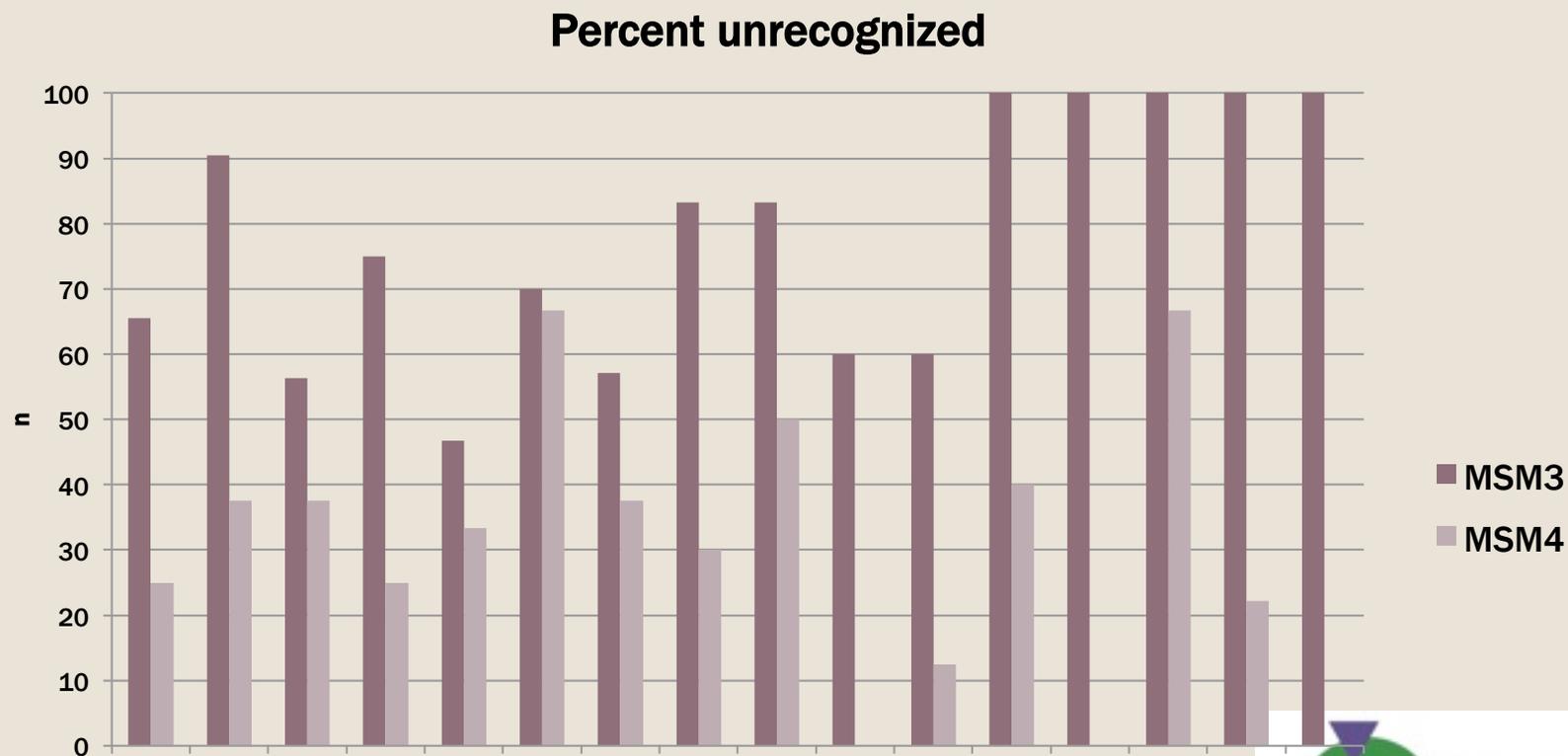
# HIGHEST RECRUITMENT VENUES, 2011 AND 2014



# PERCENT HIV POSITIVE BY VENUE, MSM3 & MSM4

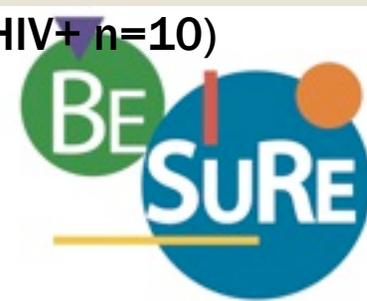
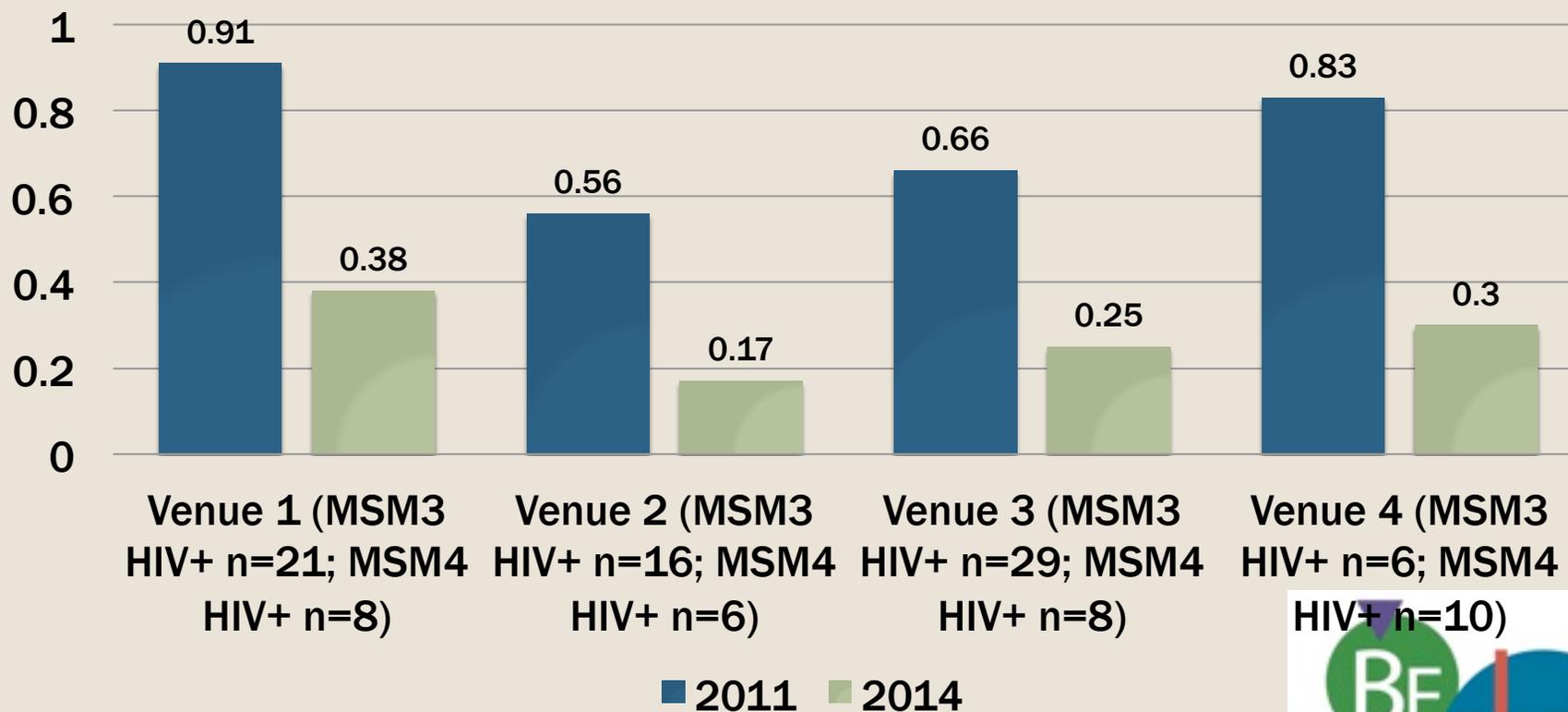


# PERCENT UNRECOGNIZED BY VENUE, MSM3 & MSM4



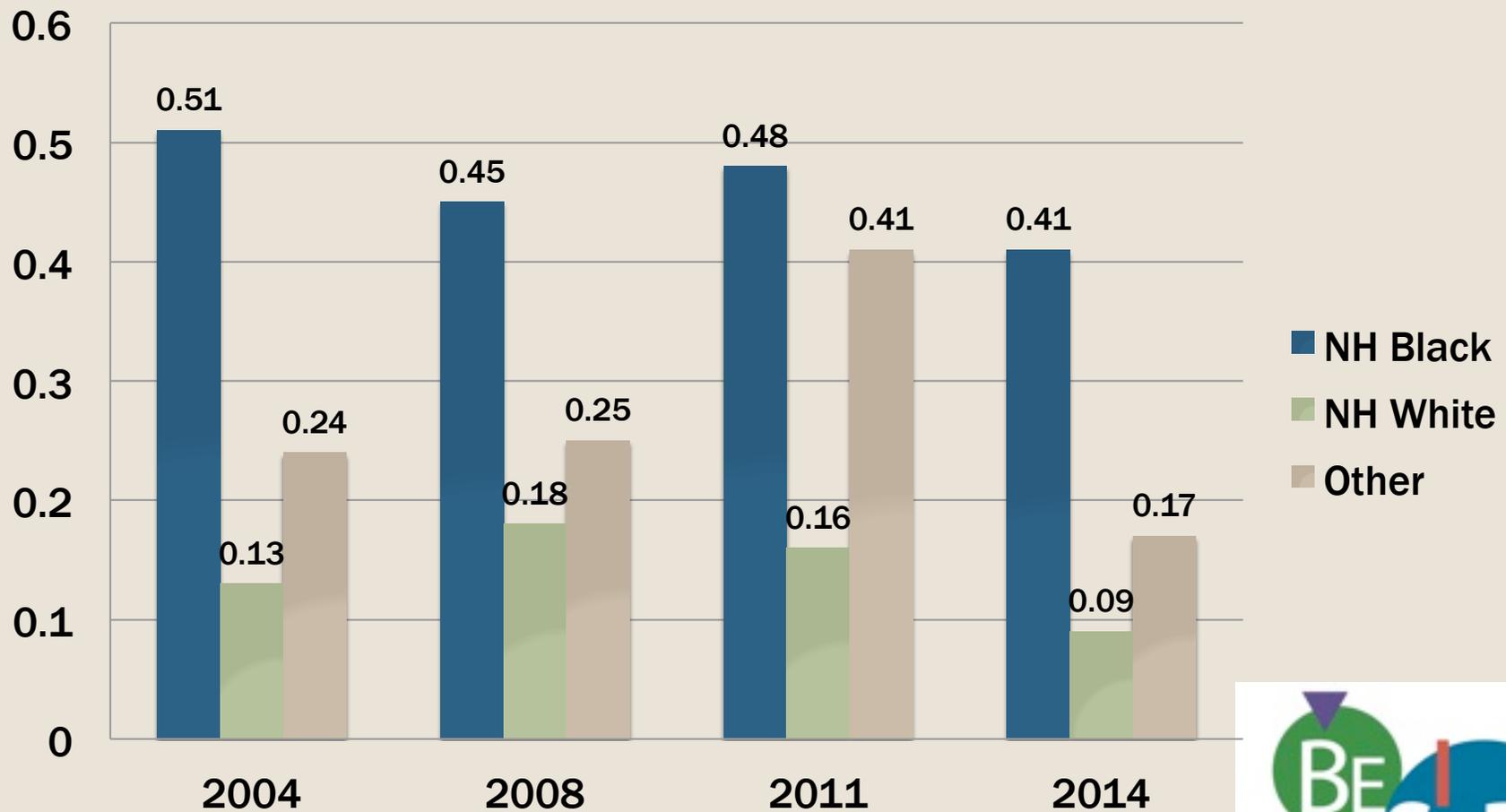
# EXAMPLE VENUE CHANGES FROM 2011-2014

**% unrecognized HIV infection**

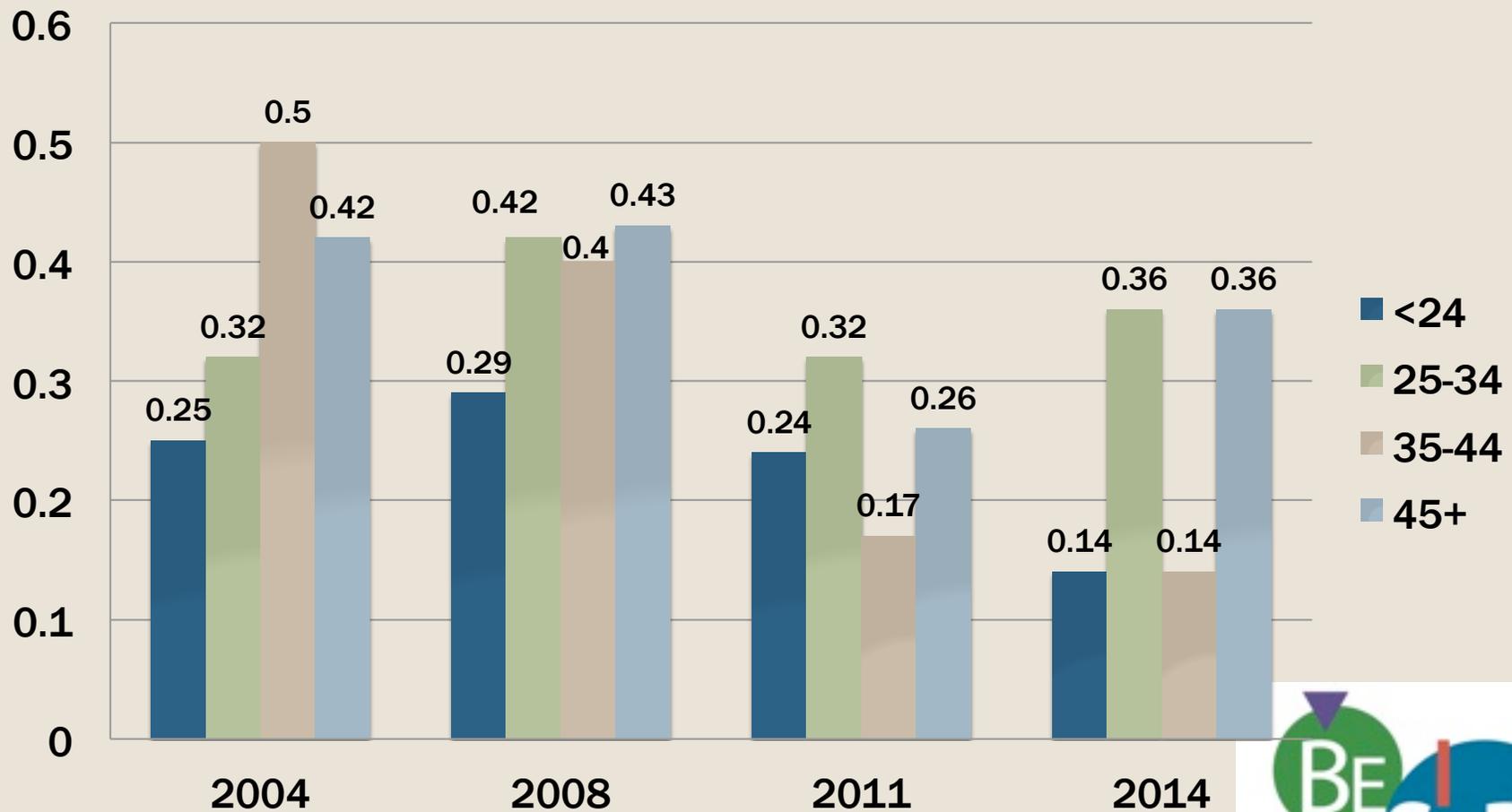


**SAMPLE COMPOSITION?**

# HIV PREVALENCE BY RACE/ETHNICITY: 2004-2014



# HIV PREVALENCE BY AGE: 2004-2011

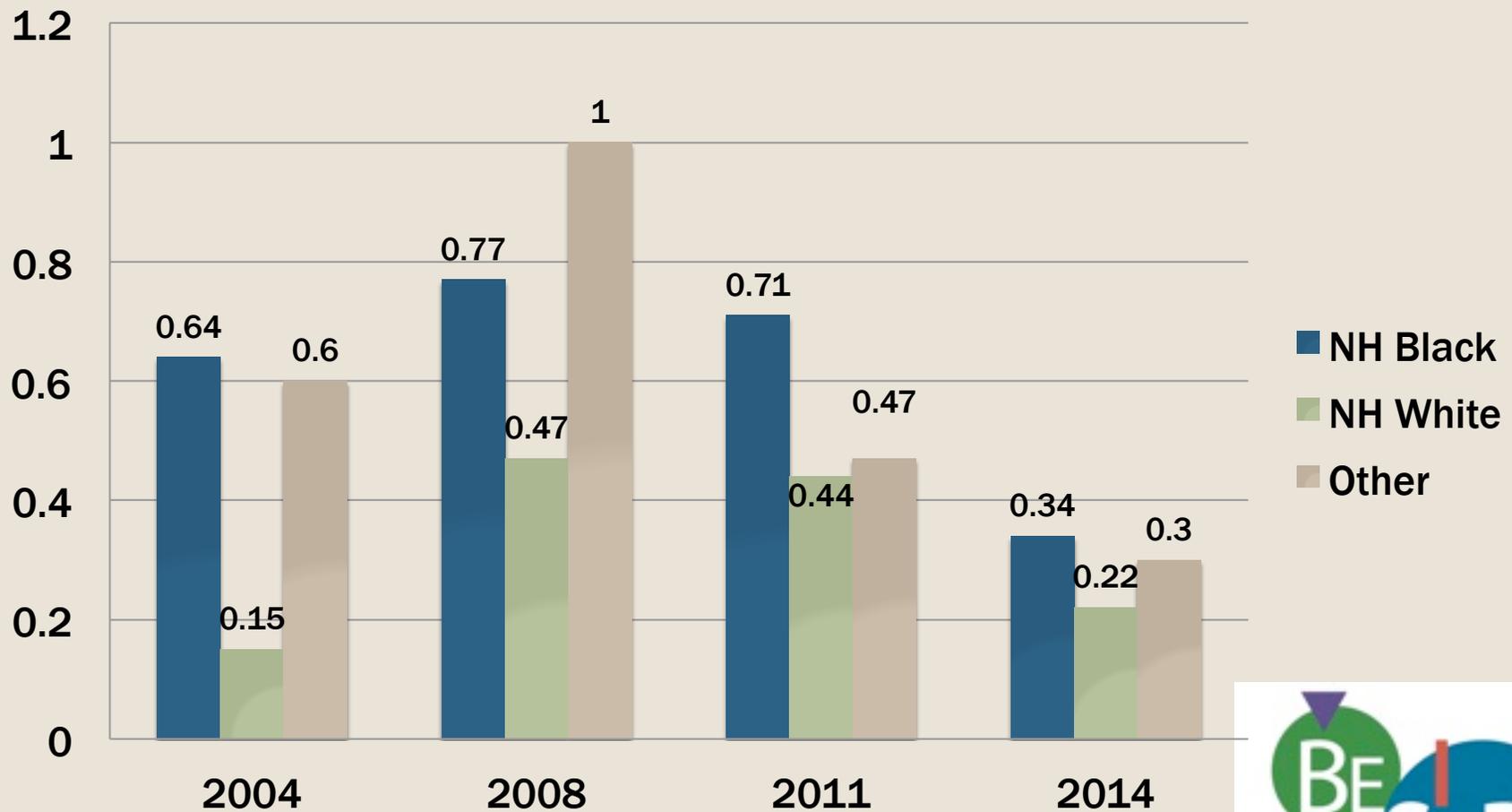


# IS HIV PREVALENCE DIFFERENT BETWEEN 2011 AND 2014?

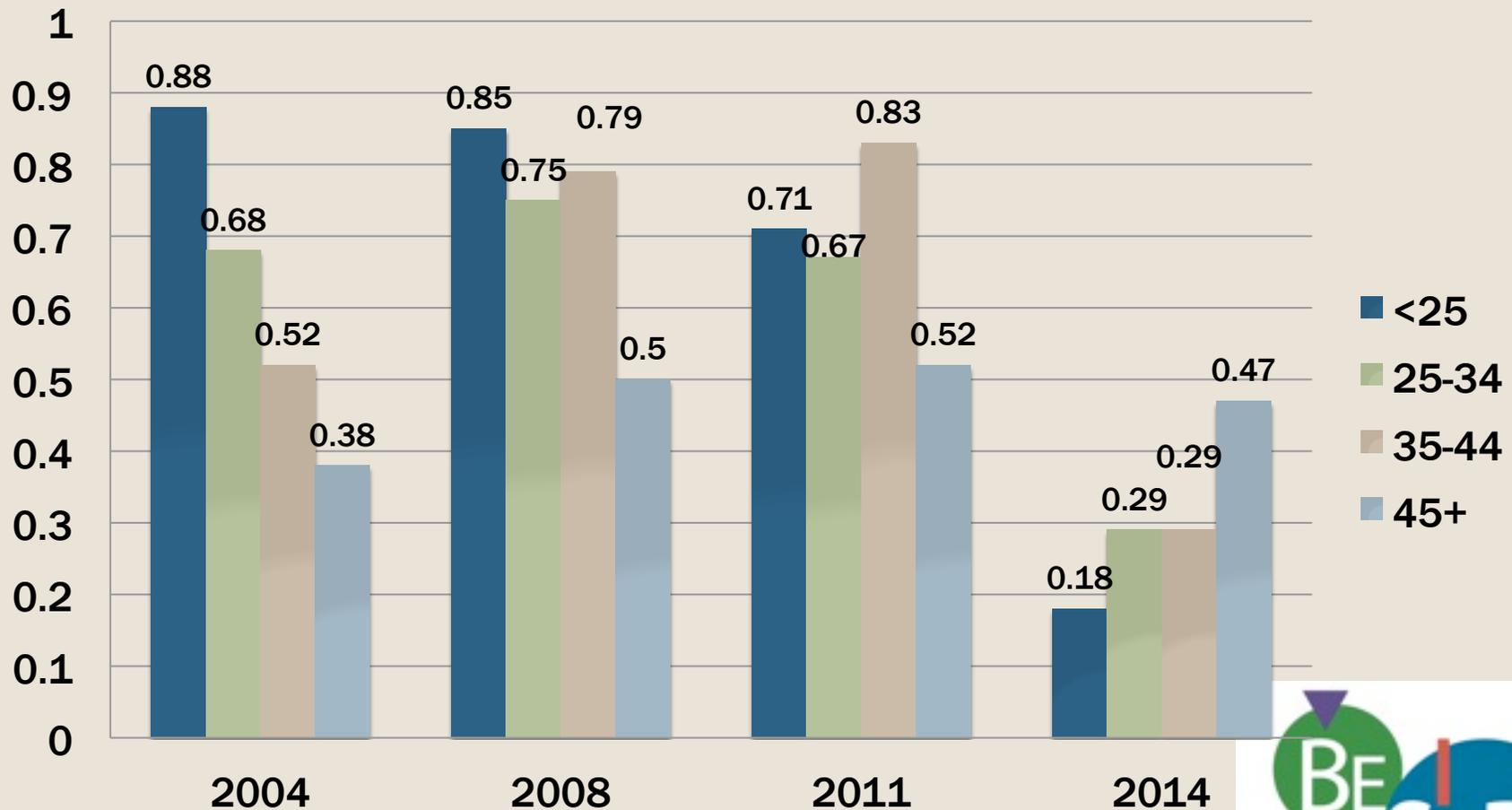
- Multivariate regression of HIV infection, accounting for race/ethnicity, age, education, employment status, sex work, interview location, venue change, and survey wave; stepwise selection
- HIV significantly associated with:
  - NH Black race/ethnicity:
    - NH White compared to NH Black: OR = 0.13 \*\*\*
    - Other race/ethnicity compared to NH Black: 0.40 \*\*\*
  - Increasing age:
    - Compared to 18-24, 25-34: OR = 2.21 \*\*\*
    - 35-44 : OR = 2.22 \*\*\*
    - 45+ : OR = 3.03 \*\*\*
- Controlling for demographics and other factors:
  - HIV in MSM4 significantly lower than in MSM3: OR = 0.61  $p < 0.001$



# PERCENT UNRECOGNIZED HIV INFECTION BY RACE/ETHNICITY: 2004-2011



# PERCENT UNRECOGNIZED HIV INFECTION BY AGE: 2004-2014



# IS UNRECOGNIZED HIV INFECTION DIFFERENT BETWEEN 2011 AND 2014?

- Multivariate regression of unrecognized infection, accounting for race/ethnicity, age, education, employment status, sex work, interview location, venue change, and survey wave; stepwise selection
- Unrecognized infection significantly associated with:
  - Lower education:
    - College compared to HS/GED/less: OR = 0.21
    - Graduate education compared to HS/GED/less: OR = 0.32 \*
  - Sex work: OR = 2.75 \*\*
  - Age 35-44 compared to 18-24 \*
- Controlling for demographics and other factors:
  - Unrecognized infection in MSM4 significantly lower than in MSM3: OR = 0.24  $p < 0.001$



# WHAT ELSE CHANGED?

- Same modeling approach
- No significant change:
  - Sex work (O.R. 0.81,  $p < .310$ )
  - Incarcerated past year (O.R. 0.68,  $p < .095$ )
  - Homeless in past year (O.R. 1.04,  $p < .845$ )
  - Ever tested for HIV (O.R. 1.30,  $p < .347$ )
- Significant change:
  - Condomless anal sex (O.R. 1.88,  $p < .001$ )
  - HIV test in past year (1.4,  $p < .019$ )
  - STI test in past year (2.1,  $p < .000$ )
  - Health insurance (2.3,  $p < .000$ )



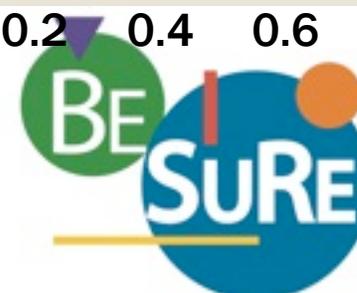
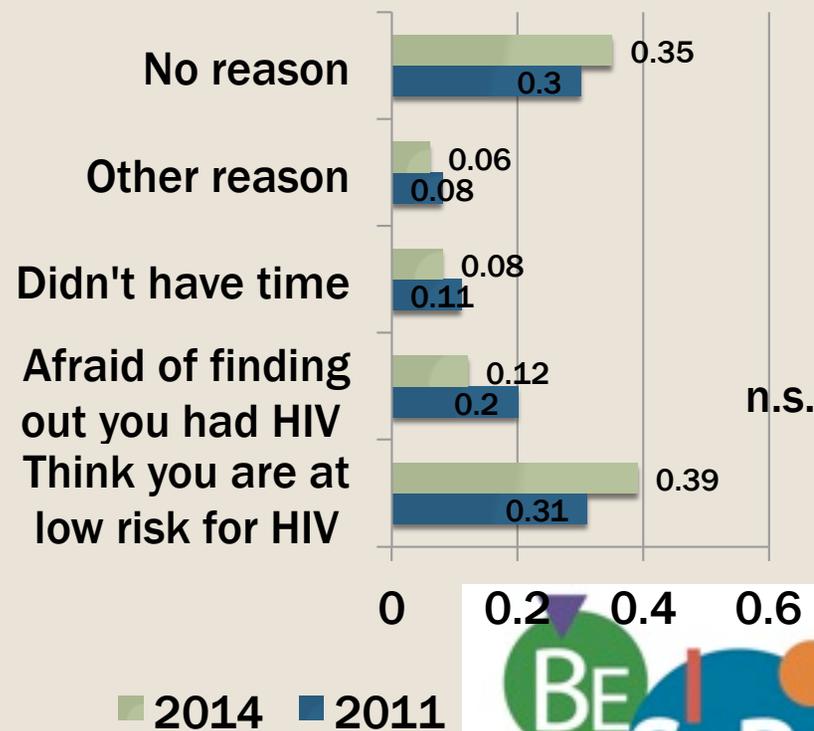
**HIV TESTING?**

# HIV TESTING

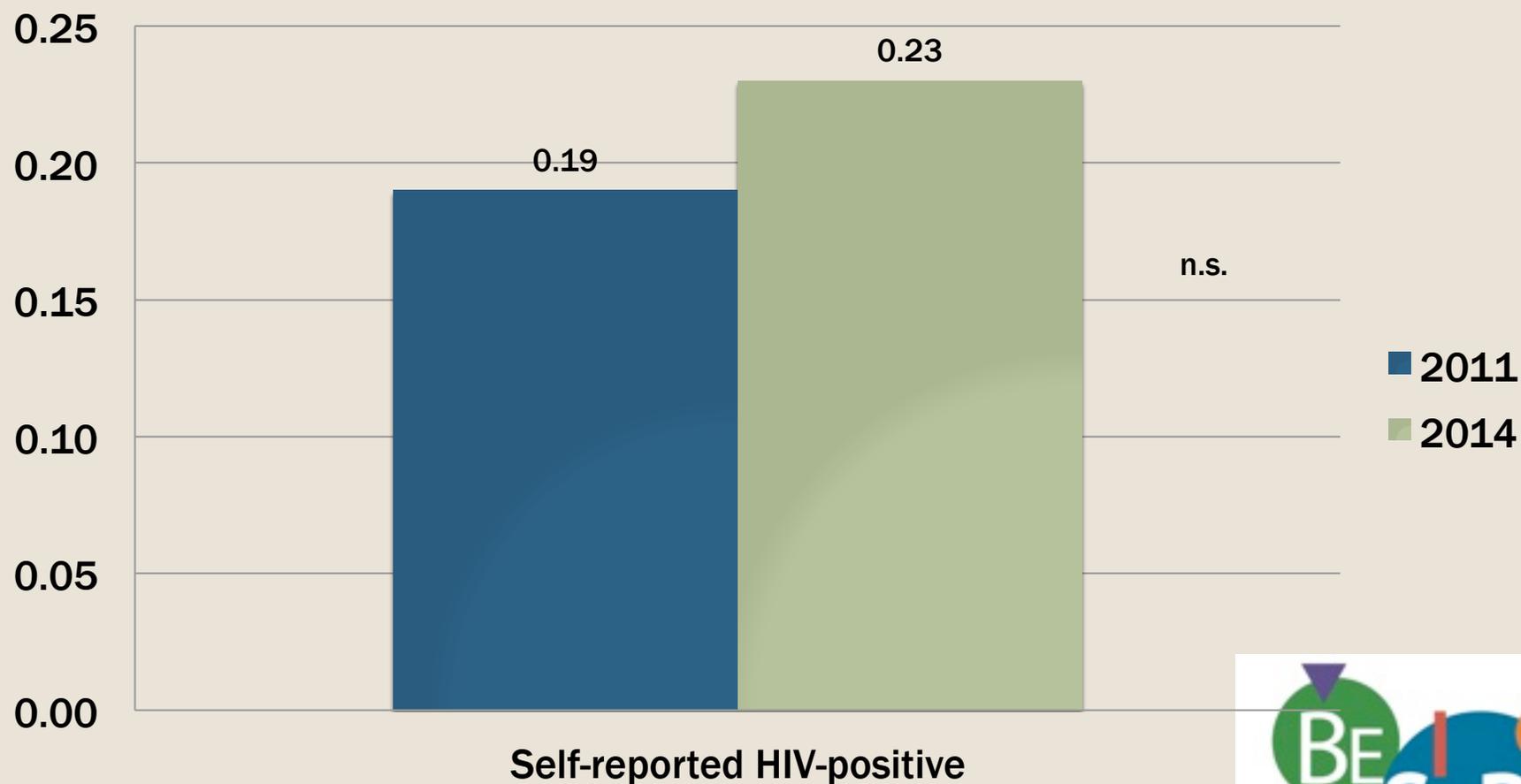
## Testing and diagnosis

	2011	2014
Ever test *	90%	94%
Test in past year *	56%	64%
Average # years diagnosed (sd)	10.5 (9.4)	11.3 (8.9)
Diagnosed in past 3 years *	35%	19%
Diagnosed in past year *	15%	5%

## Reason for not testing in past year



# PREVALENCE OF SELF-REPORTED HIV INFECTION, 2011 AND 2014



# IS THE PROPORTION OF SELF-REPORTED HIV INFECTION DIFFERENT BETWEEN 2011 AND 2014?

- Multivariate regression of unrecognized infection, accounting for race/ethnicity, age, education, employment status, sex work, interview location, venue change, and survey wave; stepwise selection
- Self-reported HIV infection significantly associated with:
  - NH Black race/ethnicity:
    - NH White compared to NH Black: OR = 0.18 \*\*\*
    - Other race/ethnicity compared to NH Black: 0.53 \*
  - Increasing age:
    - Compared to 18-24, 25-34: OR = 2.05 \*\*
    - 45+ : OR = 3.4 \*\*\*
- Controlling for demographics and other factors:
  - Proportion self-reported HIV in MSM4 is NOT significantly different than in MSM3: OR = 1.27  $p < 0.224$



# CHARACTERISTICS OF BALTIMORE MSM WITH HIV AND UNRECOGNIZED HIV INFECTION, 2011 & 2014



# CHARACTERISTICS OF HIV-POSITIVE MSM IN 2011 AND 2014

Characteristic		2011 (n=172)	2014 (n=139)
Race/ethnicity	NH White	5%	7%
	NH Black	86%	86%
	Other	9%	2%
Age *	18-25	24%	14%
	25-44	32%	36%
	45-60	17%	50%
Sexual orientation	Gay/Homosexual	75%	70%
	Bisexual	25%	29%
Education	High school/GED/less	56%	52%
Employment	Unemployed	32%	27%
	Full or Part-time	48%	50%
Median annual income	(mid-point)	\$10,000-\$19,999	\$10,000-\$19,999
Homelessness	Past year/ Current	15/ 5%	15%/ 8%
Incarcerated	Past year	13%	9%
Injection drug use	Ever	11%	11%

# CHARACTERISTICS OF MSM WITH UNRECOGNIZED HIV INFECTION IN 2011 AND 2014

Characteristic		2011 (n=172)	2014 (n=139)
Race/ethnicity	NH White	3%	4%
	NH Black	91%	89%
	Other	6%	7%
Age	18-25	26%	13%
	25-44	32%	33%
	45-60	42%	52%
Sexual orientation	Gay/Homosexual	67%	59%
	Bisexual	33%	39%
Education	High school/GED/less	60%	70%
Employment	Unemployed	36%	35%
	Full or Part-time	47%	47%
Median annual income	(mid-point)	\$10,000-\$19,999	\$10,000-\$19,999
Homelessness	Past year/ Current	15/ 4%	20%/ 11%
Incarcerated	Past year	14%	15%
Injection drug use	Ever	11%	15%

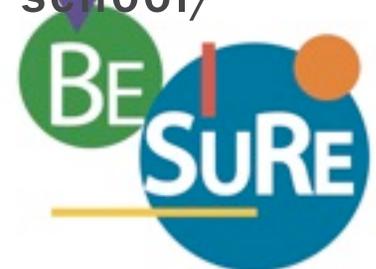
# AMONG HIV-NEGATIVE MSM: CHARACTERISTICS OF MSM WITH UNRECOGNIZED HIV INFECTION

## 2011

- Less likely to be NH White compared to NH Black (OR = 0.13,  $p < .000$ )
- More likely to be 25-34 (OR=1.75,  $p < .04$ ), or 35-44 (OR=1.9,  $p < .04$ ) compared to 18-24

## 2014

- Less likely to be NH White compared to NH Black (OR = 0.09,  $p < .002$ )
- More likely to be 25-34 (OR=3.57,  $p < .02$ ), or 35-44 (OR=5.0,  $p < .008$ ), or 45+ (OR=7.5,  $p < .000$ ) compared to 18-24
- Less likely to have college (OR=0.32,  $p < .003$ ), or graduate (OR=0.11,  $p < .008$ ) compared to high school/GED/less



# WHAT DOES THIS ALL MEAN?

- Do venue differences account for the change in HIV prevalence and unrecognized infection between 2011 and 2014?
  - Partly, but not completely
- Do sample differences account for the change in HIV prevalence and unrecognized infection between 2011 and 2014?
  - Partly, but not completely
- Do operational factors, especially the shift to rapid testing, account for the change in HIV prevalence and unrecognized infection between 2011 and 2014? Maybe.
  - We have lower agreement to participate
  - Participants were more recently tested and less worried about testing
  - Participants were not more recently diagnosed
  - There was no change in the proportion self-reported HIV positives
- Does it matter?
  - HIV prevalence still very high with stark racial and socioeconomic disparities



# STANDARD INDICATORS: MSM4



# SEX AND DRUG-RELATED BEHAVIORS (MSM4)

	% Total (n=455)	% HIV+ (n=139)	% New HIV+ (n=46)
Men who ever had sex with men ^	100%	100%	100%
In the past 12 months	100%	100%	100%
MSM who ever had sex with women	58%	62%	65%
In the past 12 months	21%	23%	35%
Injection drug use ever	8%	11%	15%
In the past 12 months ^	31%	33%	14%
Inject with used needle past yr ^^	36%	40%	100%
Any unprotected sex in past year *	69%	67%	74%
Any unprotected anal sex in past year *	66%	66%	72%

^ among ever IDU

^^ among those who injected in past year

\* note: not partner type specific



# HIV TESTING BEHAVIOR (MSM4)

	% Total (n=455)	% HIV+ (n=139)	% New HIV+ (n=46)
Ever had HIV test	94% *	-	83%
HIV Testing in Last Two Years ^	84%	-	56%
HIV Test in Past Year ^	64% *	-	34%
Obtained Result of Last Test ^^	95%	-	90%
Offered HIV test by health care provider in the last 12 months ^^^	59%	-	61%
Location of last test	Public health clinic (37%), mobile (20%), private doctor's office (14%)		
Most important reason didn't get tested in past year	No particular reason (35%), Think at low risk (32%), Afraid of finding out (20%)		

^of self-reported HIV-negative

^^among those ever tested

^^^among those who saw health provider in past year



# HIV CARE AND PARTNER SERVICES (MSM4)

	% Total (n=455)	% HIV+ (n=139)	% New HIV+ (n=46)
Doctor's visit in the last 12 months for HIV care <sup>^^</sup>	-	100% *	-
Antiretroviral use <sup>^^</sup>	-	88%	-
Asked to provide partner information for contacting after receiving first positive result <sup>^^</sup>	-	66%	-
Provided contact information of any partners when asked <sup>^^^</sup>	-	81%	-

<sup>^^</sup>among those who reported prior HIV positive test result

<sup>^^^</sup>among persons asked to provide partner information



# STD & HCV TESTING/DIAGNOSIS (MSM4)

	% Total (n=455)	% HIV+ (n=139)	% New HIV+ (n=46)
Any STD test in the last 12m	49% **	55% **	39%
Any STD diagnosis last 12m	10%	13%	11%
Among those tested past 12m	20%	23%	28%
Ever diagnosed with Hepatitis	11%	19%	13%
Ever HCV test	72% *	81%	59%
HCV test in the last 12m ^	48%	55%	44%
Ever diagnosed with HCV	6%	12%	7%
Diag. w/HCV in last 12m ^^	12%	6%	0%
Currently have insurance	86% **	91% **	83%



^ Among those ever tested for HCV    ^^ Among those diagnosed with HCV

# HIV COMMUNITY-BASED INTERVENTIONS (MSM4)

	% Total (n=455)	% HIV+ (n=139)	% New HIV+ (n=46)
Received free condoms in past year	70%	78%	70%
Used free condoms*	79%	88%	94%
Received sterile syringes in past year	55%	60%	0%
Used free syringes** [among IDU]	100%	100%	NA
One-on-one conversation with outreach worker/counselor about ways to prevent HIV (excluding HIV testing)	22%	26%	17%
Organized group session to discuss ways to prevent HIV (excluding discussions with friends)	11%	16%	7%

\*Among those who received free condoms, \*\*Among those who received free syringes, \*\*\*Among those who received free kits



Living situation

Economic situation

Cigarette smoking

Depression

HIV serosorting

HIV test location preferences

# LOCAL QUESTIONS: MSM4



# LOCAL QUESTIONS (MSM4): ECONOMIC SITUATION

Item	% Total (n=427)
Concerned about needing a new place to live: Very, extremely, always	18%
Unsure where money would come from in past year: About half, most, always	50%
Been unemployed in the past year	51%
Spend two or more weeks unemployed and looking for work (if unemployed in past year)	76%
Finances compared to 6 months ago	
Better	37%
About the same	47%
Worse	16%



# LOCAL QUESTIONS (MSM4): ECONOMIC SITUATION

Item	% Total (n=427)
In past year, money from:	
Full time job	54%
Part time job	30%
Odd jobs	25%
Day labor	4%
Social security	14%
Food stamps	26%
Welfare/ public assistance	5%
Unemployment	3%
Research studies	6%
Selling drugs	3%
Family/ friends	38%
Sex partners (not exchange)	15%



# LOCAL QUESTIONS (MSM4): HIV TESTING

Item	% Total (n=427)
HIV tested with a partner in the past year	21%
HIV testing with home HIV test that you send away in past year	3%
HIV testing with home HIV test that you process yourself in past year	5%
Place most likely to go for HIV test	
Public health clinic/Community health center	37%
Private doctor	27%
HIV counseling and testing site	11%
Outreach/mobile program	9%
Hospital (inpatient)	8%
Emergency Department	4%
Home	2%
Other	1%



# LOCAL QUESTIONS (MSM4): SMOKING AND LIFE PRIORITIES

Item	% Total (n=427)
Currently smoke cigarettes	73%
E-cigarette in past year	28%
Life priorities:	
HIV most important	24%
Housing most important	16%
Money most important	20%
Safety most important	18%
Food most important	6%
Childcare most important	2%
Work most important	17%
Transportation most important	1%



# LOCAL QUESTIONS (MSM4): LIFE NEARBY

Item	% Total (n=427)
Gone to place or event where gay men hangout, meet, socialize in past year	
in D.C.	44%
in Philadelphia	19%
in NYC	26%
in None of these	47%
Had sex with someone you met at a place or event where gay men hangout, meet, socialize in past year	
in D.C.	18%
in Philadelphia	5%
in NYC	10%
in None of these	73%



# MSM4 LIMITATIONS

- **Cross-sectional: not same samples, not causal**
- **Sample characteristics differ across waves**
- **Venues change; restricted to national sampling approach**
- **Voluntary enrollment**
- **Self-report**
- **Not adjusted for venue recruitment**



# DISCUSSION: MSM4

- High HIV prevalence and racial disparity remains
- Persistent need to identify unrecognized HIV infection
- Notable degree of social and economic instability
- Competing health and social needs
- Operational change of testing method needs further evaluation
- Venues will continue to change – should our methods also change?



# ONGOING ANALYSES



# ANALYSES/MANUSCRIPTS IN PROGRESS

## ■ MSM

- Characteristics of African-American MSM in Baltimore, Philadelphia, and Washington D.C.
- Trends in HIV related behaviors among MSM
- Gay-related stigma and psychosocial correlates among MSM
- Employment among MSM
- Awareness and willingness to take PrEP among MSM
- Hepatitis C infection among MSM

## ■ HET

- HIV and socio-economic instability among heterosexuals at high risk for HIV
- Characteristics associated with sex exchange
- Trends in non-injection drug use

## ■ IDU

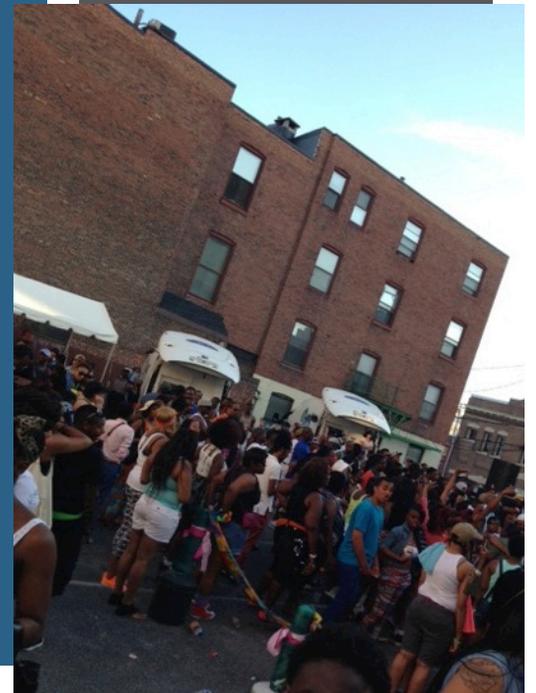
- Trends in HIV related behaviors among injection drug users
- Healthcare utilization among injection drug users
- Homelessness and gender among IDUs

## ■ ...



# BESURE NEXT STEPS

IDU4 –  
Summer  
2015!



# BESURE NEXT STEPS

- Continued analysis
- Dissemination activities, including fact sheets
- Round 4: IDU4 2015
  
- **NEW SPACE!**
  - 10 West Eager, Suite 250



# IDU4: TIMELINE AND PLAN

- April 2015: Concluding formative research
- May 2015: Operational preparations, community awareness, continued community engagement
- July/August 2015: Begin survey and HIV testing
- December 2015 or hopefully sooner: Conclude



IN CONCLUSION...



# HOW TO FIND OUR DATA

- DHMH website  
<http://phpa.dhmh.maryland.gov/OIDEOR/CHSE/SitePages/behavioral-surveillance.aspx>
- Facebook! [www.facebook.com/besurebaltimore](http://www.facebook.com/besurebaltimore)
- Contact us
  - Danielle German [dgerman@jhsph.edu](mailto:dgerman@jhsph.edu)
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# WITH SINCEREST THANKS TO:

- Study participants
- Community partners
  
- Data collection team: Brenda Costley, Glenn Fulton, Demetrius Marcoulis, Demetrius Frazier, Antione Tomlin, Allysha Robinson, John, Miriam Alvarez, Astra Daniels, Eric Filemyer, Cristina Rodriguez-Hart, Maria Sanchez, Susan Fallon, Nancy Tyler, John Mulcahy, Marik Moen, Amanda Long, Bernetha Williams, and the Project Re team (Sarah Walker, Shakia Hill, Kenneth Morrison, Orrin Ware, JP Washington, Daniel Choi, Yanzie Xiao, Himaja Gaddipati & Generation Tomorrow)
- Field Supervisor: Louis Spencer
- Data Manager: Ju Park
- Project Coordinator: Christine Powell
  
- Frangiscos Sifakis, David Holtgrave, David Celentano, Carl Latkin, Vivian Towe, Cathy Maulsby, Andrea Villante, Trang Nguyen, Beth Linas, Tiffany Traylor, Jeffery Chubb, Carol Hilton, many many members of data collection and field operations teams
  
- Colin Flynn
- DHMH, CDC





