EXAMINATION OF UNRECOGNIZED AND MISREPORTED HIV STATUS AMONG MSM AND PWID IN BALTIMORE

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BACKGROUND

- Identifying individuals with unrecognized HIV infection critical to deploying HIV testing, prevention, and surveillance resources.
- In our previous study (2008), 33% of men who have sex with men (MSM) in Baltimore classified with unrecognized HIV infection had evidence of recent antiretroviral (ARV) medication.
- The current study used ARV biomarkers to validate self-reported HIV infection in two additional data collection waves among MSM (2011 and 2014) and among people who inject drugs (PWID; 2012) to assess changes in misrepresentation and obtain a better assessment of unrecognized HIV infection over time.

METHODS

Data: HIV+ participants in CDC's National HIV Behavioral Surveillance System-Baltimore MSM (2011, n=175 and 2014, n=121) and PWID (2012, n=132); Venue-based time location sampling (MSM) and respondent driven sampling (PWID). Informed consent for survey and voluntary HIV test; anonymous; interviewer administered CAPI survey; remuneration for survey and HIV test.

Eligibility: 18 or older, live in Baltimore-Towson MSA, participate once per cycle. MSM only: Male, ever sex with a man; analysis limited to MSM in past year. IDU only: IDU in past year. Only those with valid HIV positive test results who provided consent for serological storage and future testing included in analysis.

Serological testing: Venipuncture, EIA with WB confirmation. Sera tested for ARV presence using liquid chromatography-high resolution accurate mass (HRAM) mass spectrometry (Thermo Fisher Q-Exactive) which detects 20 antiretroviral (ARV) drugs. Same procedures conducted with 10% random sample of HIV-negative participants for validation.

Analysis: Misreported HIV status defined as presence of at least 1 ARV, indicating use within at least 24 hours. Analyses compared hypothesized socio-demographic and behavioral characteristics of participants with self-reported vs misreported HIV status. After removing those with ART evidence, prevalence of unrecognized HIV infection was recalculated and analysis examined associated characteristics.

RESULTS

Figure 1. Among participants originally classified with unrecognized HIV infection, proportion tested positive and negative for non-prophylactic ARV drugs among NHBS Baltimore MSM in 2011 and 2014 and PWID in 2012

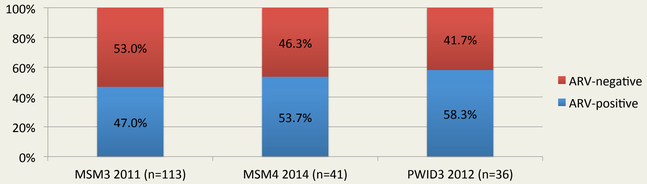


Table 1. Demographic and socio-behavioral characteristics of NHBS Baltimore participants with self-reported vs misreported HIV infection (on ART only), MSM in 2011 and 2014 and PWID in 2012

Characteristic	MSM 2011		MSM 2014		PWID 2011	
	Mis-report (n=53)	Self-report (n=43)	Mis-report (n=22)	Self-report (n=63)	Mis-report (n=21)	Self-report (n=51)
Gender: male	100%	100%	100%	100%	67%	73%
Age; median (IQR)	38 (29-49)	41 (29-49)	47 (40-53)	36 (27-52)	51 (46-54)	52 (47-57)
Race/ethnicity						
NH White	4%	12%	0%	13%	5%	2%
NH Black	89%	72%	96%	83%	95%	94%
Hispanic	2%	2%	0%	2%	0%	0%
Other	6%	14%	4%	3%	0%	4%
Highest education						
HS or less	60%	44%	77%	40%	86%	78%
College or more	40%	44%	23%	54%	14%	22%
Annual HH income						
$0-$9,999	32%	23%	41%	25%	57%	59%
$10,000-$19,999	11%	28%	32%	27%	33%	24%
$20,000+	47%	42%	27%	43%	10%	14%
Current employment						
Unemployed	34%	19%	27%	24%	33%	26%
FT or PT	42%	51%	41%	52%	10%	6%
Homeless past year	13%	9%	23%	13%	29%	28%
Sexual identity: Gay	65%	91%	55%	70%	5%	10%
Binge drink, past month	32%	37%	46%	19%	33%	10%
Non-IDU heroin, cocaine	23%	16%	41%	16%	43%	41%

Figure 2. Among participants with HIV positive test result, prevalence of self-reported HIV status, misreported HIV status, and recalculated unrecognized HIV infection in NHBS Baltimore among MSM in 2011 and 2014 and PWID in 2012

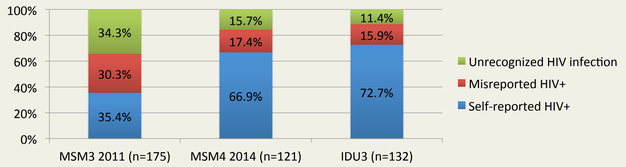


Table 2. Demographic and social characteristics of NHBS Baltimore PWID with unrecognized HIV infection, MSM in 2011 and 2014 and PWID in 2012

Characteristic	MSM 2011 (n=60)	MSM 2014 (n=19)	PWID 2011 (n=15)
Gender: male	100%	100%	67%
Age; median (IQR)	28 (22-37)	30 (24-39)	47 (44-54)
Race/ethnicity			
NH White	2%	5%	0%
NH Black	93%	84%	93%
Hispanic	2%	0%	0%
Other	3%	11%	7%
Highest educ: HS or less	67%	79%	93%
Annual HH income			
$0-$9,999	42%	47%	60%
$10,000-$19,999	13%	32%	27%
$20,000+	40%	16%	13%
Current employment			
Unemployed	42%	42%	40%
FT or PT	45%	42%	13%
Unable to work	2%	11%	47%
Other	12%	5%	0%
Homeless in past year	20%	16%	20%
Sexual identity: Gay	60%	63%	13%
Exchange sex past year	23%	26%	13%
HIV testing			
Ever	85%	90%	93%
Past year	55%	58%	27%

SUMMARY

- Approximately half of those originally classified as unrecognized HIV infection tested positive for non-prophylactic ARV drugs. Among MSM, misreporting increased with each time interval. Among PWID, misreporting was comparable to that of MSM.
- Compared to MSM who self-reported HIV+ status and ARV use, MSM misreporters in 2011 and 2014 were more commonly non-Hispanic Black, had less education, lowest income, bisexual, and more binge drinking. MSM misreporters in 2014 also were older, more commonly homeless, and reported non-injection heroin or cocaine use.
- Among PWID, misreporters had lower education and employment and increased binge drinking.
- Recalculated prevalence of unrecognized HIV infection among HIV+ MSM was 34.3% in 2011 and substantially reduced to 15.7% in 2014. Recalculated prevalence of unrecognized HIV infection among HIV+ PWID was 11.4%.

CONCLUSIONS

- This bio-behavioral approach across time points and populations highlights a set of characteristics among those more likely to misreport HIV status and suggests hypotheses that may help to improve self-reported data collection of HIV status.
- There is a critical need to enhance assessment of this important metric and to understand the role of economic and social factors such as perceived stigma, social desirability, and trust on self-report validity related to HIV status in epidemiological research.
- Addressing unrecognized HIV infection remains an important priority for reducing HIV transmission in Baltimore, particularly among younger, African-American, and low SES MSM and African-American low SES PWID.

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