

# Do point-of-care HIV testing technologies affect linkage to care? Results from a large-scale US HIV testing initiative

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## Background

- Rapid point-of-care (POC) tests play a critical role in identifying persons with HIV infection who might be missed with traditional laboratory tests in clinical settings.
- The role of different POC rapid HIV testing technologies – tests that deliver results in 60-seconds, or those tests that return results in 15 minutes or greater – in successfully linking persons to medical care is unknown.
- Some have suggested that the 60-second test could decrease counselors' rapport with clients, who then may not adequately access medical services.

## Objectives

- Compare the association of 60-second vs. 15-20 minute rapid HIV testing technologies with successful linkage to medical care in a variety of non-clinical settings
- Describe settings in which 60-second versus 15 minute or greater HIV POC tests might increase linkage to care among MSM and TG.

## Methods

- We used data from the MSM (men who have sex with men) and Transgender (TG) Testing Initiative, an HIV testing project conducted in 25 cities across the US during 2013-2015. Goals of the project were to identify MSM and TG with previously undiagnosed HIV infection and link them to medical care within 90 days post-diagnosis. To be eligible, participants had to report unknown or negative HIV status.
- A total of 71,322 participants were recruited in a variety of settings; this analysis excluded persons recruited in clinical settings to focus on venues where POC rapid tests are commonly used.
- We calculated the percentages of participants testing preliminary positive and linked to care by where they were tested and diagnosed and the type of POC test (60-second vs. 15-20 minute) used.
- We calculated adjusted risk ratios for successful linkage to medical care among MSM and TG with a new HIV diagnosis, adjusting for variables significant at  $\leq .05$  in the bivariate analysis: type of POC test used, age, race/ethnicity, receiving the rapid test result, and venue type where the participant was diagnosed.

## Results

Figure 1. Percentage of MSM and TG diagnosed with HIV and linked to care: MSM and TG Testing Initiative, 2013–2015, United States<sup>1</sup>

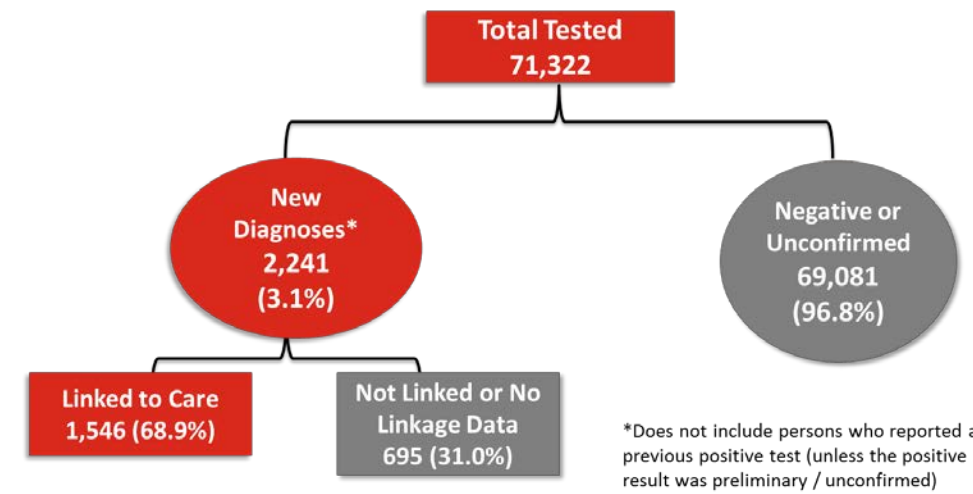


Figure 2. Percentage of preliminary HIV-positive MSM and TG participants tested during venue-based recruitment events who received their rapid POC test result, by type of POC test: MSM and TG Testing Initiative, 2013–2015 (N=64,568)

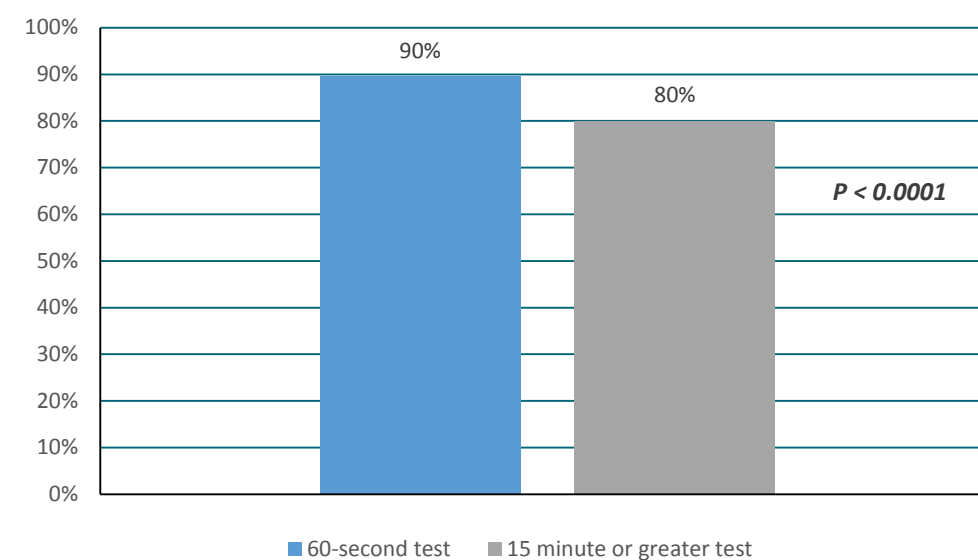


Table 2. Results of multivariate logistic regression models of the association of linkage to medical care within 90 days among participants testing preliminary HIV-positive identified during venue-based recruitment events in non-clinical settings<sup>1, 5</sup> (n= 1,843)

Characteristic	Linkage to care		Risk ratio (95% CI)	Adjusted risk ratio (95% CI)
	Yes N (%)	No N (%)		
<b>Age</b>				
Less than 18	13 (43.3)	17 (56.7)	0.75 (0.49 - 1.13)	0.73 (0.48 - 1.12)
18–24	295 (55.6)	236 (44.4)	0.96 (0.86 - 1.07)	1.01 (0.90 - 1.12)
25–34	471 (61.3)	298 (38.8)	1.06 (0.96 - 1.16)	1.08 (0.99 - 1.19)
35+	297 (57.9)	216 (42.1)	Ref	Ref
<b>Race</b>				
Hispanic	384 (60.8)	248 (39.2)	1.01 (0.90 - 1.12)	1.04 (0.93 - 1.17)
Non-Hispanic white	189 (60.4)	124 (39.6)	Ref	Ref
Non-Hispanic black	434 (55.2)	352 (44.8)	0.91 (0.82 - 1.02)	1.03 (0.91 - 1.16)
Other	57 (62.6)	34 (37.4)	1.04 (0.86 - 1.24)	1.11 (0.93 - 1.33)
<b>HIV rapid test type</b>				
60-second test	888 (58.9)	620 (41.1)	1.08 (0.95 - 1.22)	<b>1.17 (1.04 - 1.33)</b>
Other rapid tests (15 minutes +)	129 (54.7)	107 (45.3)	Ref	Ref
<b>Venue category</b>				
CBOs <sup>2</sup>	546 (72.4)	208 (27.6)	Ref	Ref
Bars, public events <sup>3</sup>	530 (48.7)	559 (51.3)	<b>0.67 (0.62 - 0.72)</b>	<b>0.67 (0.62 - 0.73)</b>
<b>CBOs</b>				
60-second test	416 (70.2)	177 (29.9)	<b>0.87 (0.78 - 0.96)<sup>4</sup></b>	<b>0.87 (0.79 - 0.97)<sup>4</sup></b>
Other rapid tests	96 (80.7)	23 (19.3)	Ref	Ref
<b>Bars, public events</b>				
60-second test	472 (51.6)	443 (48.4)	<b>1.83 (1.36 - 2.46)<sup>4</sup></b>	<b>1.74 (1.29 - 2.33)<sup>4</sup></b>
Other rapid tests	33 (28.2)	84 (71.8)	Ref	Ref
<b>Total</b>	1076 (58.4)	767 (41.6)		

<sup>1</sup> Predicted marginal risk ratios estimated from logistic regression model controlling for all variables

<sup>2</sup> Testing was conducted in CBO (community-based organization) store front or retail space

<sup>3</sup> Testing was conducted on street, mobile unit, in bars or large scale events in public settings

<sup>4</sup> Interaction term

<sup>5</sup> Model also controlled for whether or not participants received their rapid test result.

## Summary and Discussion

- Test type was related to linkage to care, and varied depending on where testing events took place.
- In public areas/bars/large events, 60-second tests were associated with higher linkage compared to 15 minute or greater tests.
- In community-based organization locales, linkage to care was lower for those tested with 60-second tests compared with 15 minute or greater tests.

## Conclusions

- In settings such as public areas/bars and events where MSM with HIV infection may risk being lost to medical care, a 60-second POC test could be beneficial for providing immediate linkage to medical care.
- Additional research should investigate how test type and settings affect linkage to care.

## Limitations

- Infection status is uncertain for participants in this analysis whose rapid test result was HIV positive but Western blot test was negative.
- MTI activities were reserved for persons who reported being HIV negative; however an evaluation using HIV surveillance data revealed that some persons who had been previously diagnosed chose to be tested. Because it was impossible to know which participants were previously diagnosed, these persons could not be removed from the analysis and may have biased the results.

## Acknowledgements

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