# Acceptability of Home Self-Tests for HIV in New York City, 2006

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Data from a 2006 telephone survey representative of New York City adults showed that more than half (56.2%) of those aged 18 to 64 years responded favorably to a question about acceptability of a rapid home HIV test. More than two thirds of certain subpopulations at high risk for HIV reported that they would use a rapid home HIV test, but approximately half who expressed interest had indications of financial hardship. The match of acceptability and HIV risk bodes well for self-testing utility, but cost might impede uptake. (*Am J Public Health.* 2014;104:e46–e48. doi:10.2105/AJPH.2014.302271)

In 2012, the US Food and Drug Administration approved an over-the-counter rapid HIV test which is available for US $40.[1] This new option offers opportunities to further expand testing among those at highest risk.

Recent population-based data on the acceptability of HIV self-testing are scarce.[2] Acceptability of free rapid self-tests was high among men who have sex with men (MSM) at high risk for HIV[3,4] but concerns about affordability have been raised.[5]

In New York City (NYC), a jurisdiction highly affected by HIV,[6] we aimed to determine the acceptability of such a test, the characteristics associated with acceptability, and whether financial barriers might exist that could influence uptake.

## METHODS

The Community Health Survey (CHS) is a cross-sectional, neighborhood-stratified, random-digit–dial telephone survey based on the Behavioral Risk Factor Surveillance System survey of the Centers for Disease Control and Prevention. Conducted annually since 2002 by the NYC Department of Health and Mental Hygiene, CHS randomly samples approximately 10 000 noninstitutionalized adults to obtain neighborhood-level estimates of health behaviors, health care access indicators, and health conditions.[7,8] We used data from NYC's 2006 CHS, the only year it included a question about acceptability of in-home HIV testing.

The primary outcome was response to "If a rapid home test kit for HIV was available and you could get results within 20 minutes at home, would you use such a kit?" A number of key covariates were also included (demographic, behavioral, and financial measures).

We performed statistical analysis with SAS version 9.2 (SAS Institute, Cary, NC) and SUDAAN version 10.0.1 (Research Triangle Institute, Research Triangle Park, NC). We limited the analytic population to adults aged 18 to 64 years. We weighted and age-adjusted data per usual CHS protocol: primary weights, to account for unequal selection probabilities, consisted of the number of adults in each household divided by the number of residential telephone lines; we also applied poststratification weights to adjust the sample estimates according to the precise age, race/ethnicity, and gender composition of each neighborhood based on the 2000 US Census.[7,8] We estimated the prevalence of acceptability of the self-test overall and for key covariates. We used logistic regression to build age-adjusted models for acceptability of rapid HIV self-testing and each covariate.

## RESULTS

Of individuals contacted and eligible, 90.7% participated. Of adults aged 18 to 64 years who completed the survey, 89% (n = 6639) answered the question about the rapid home HIV test with either "yes" or "no," 6.4% (n = 619) answered "don't know/not sure," 4.3% (n = 416) had no response recorded, and 0.3% (n = 32) refused to answer. Among those who answered the question "yes" or "no," 56.2% (95% confidence interval [CI] = 54.7, 57.7) said they would use a rapid home HIV test if it were available.

More than two thirds of those aged 18 to 24 years, non-Hispanic Blacks, Hispanics, persons with 2 or more sexual partners in the past 12 months, MSM, and persons who reported HIV testing in the past 12 months said they would use the home test. Whites and persons aged 45 to 64 years were least likely to say they would use the home test (Table 1).

In a fully adjusted model that included gender and recent (i.e., past 12 month) MSM behavior, factors independently associated with acceptability of rapid home HIV testing were younger age, non-White race/ethnicity, having 2 or more sexual partners in the past 12 months, and having had an HIV test in the past 12 months (Table 2). The strongest independent correlates of acceptability were age 18 to 24 years, non-Hispanic Black race/ethnicity, Hispanic ethnicity, and having 2 or more sexual partners in the past 12 months.

Although the acceptability of rapid home testing in the age-adjusted model was marginally significantly greater among those who reported recent MSM behavior than among those who did not ($P = .049$), this difference was no longer significant in the fully adjusted model ($P = .068$) that controlled for race/ethnicity, number of recent sexual partners, and recent HIV testing behavior.

Fifty-one percent (95% CI = 49.7, 53.6) of persons who reported that they would use the self-test had a household income less than 200% of the federal poverty level[9] or a history of not accessing care or medication for financial reasons. Specifically, among those persons who said they would use the home test, 40.9% (95% CI = 39.0, 42.9) reported a household income less than 200% of the federal poverty level, and 24.5% (95% CI = 22.8, 26.2) reported that, because of cost, they failed to obtain needed medical care or to fill a prescription in the previous year.

## DISCUSSION

The potential public health benefit of an over-the-counter rapid HIV self-test depends on how many persons purchase and use it and their probability of having HIV infection. More than half (56.2%) of NYC adults aged 18 to 64 years reported that they would use a hypothetical rapid HIV self-test. Acceptability was highest among many of the subpopulations of

**TABLE 1—Age-Adjusted Prevalence of the Acceptability of Home Rapid Test Kit Use for HIV Among New York City Adults (Aged 18–64 Years): 2006 New York City Community Health Survey**

| Characteristic | Weighted No.[a] | % (95% CI) |
|---|---|---|
| Overall | 2 616 000 | 56.2 (54.7, 57.7) |
| Age group, y | | |
| 18–24 | 491 000 | 70.3 (65.5, 74.6) |
| 25–44 | 1 428 000 | 59.3 (57.1, 61.4) |
| 45–64 | 696 000 | 46.0 (43.9, 48.1) |
| Gender | | |
| Male | 1 236 000 | 55.8 (53.6, 57.9) |
| Female | 1 380 000 | 56.6 (54.6, 58.6) |
| Race/ethnicity | | |
| Non-Hispanic White | 653 000 | 40.0 (37.4, 42.6) |
| Non-Hispanic Black | 763 000 | 70.7 (68.1, 73.2) |
| Hispanic | 895 000 | 73.3 (70.8, 75.7) |
| Other | 305 000 | 44.0 (39.9, 48.1) |
| Sexual partners, past 12 mo | | |
| 0 | 435 000 | 57.9 (54.2, 61.6) |
| 1 | 1 565 000 | 54.9 (52.9, 56.9) |
| ≥ 2 | 431 000 | 73.6 (69.6, 77.2) |
| MSM behavior, past 12 mo[b] | | |
| MSM behavior | 54 000 | 67.6 (57.1, 76.6) |
| No MSM behavior, includes women | 2 459 000 | 56.5 (55.0, 58.0) |
| Recent testing behavior, past 12 mo | | |
| Recent test | 988 000 | 68.2 (65.6, 70.7) |
| No recent test | 1 584 000 | 51.4 (49.6, 53.3) |

*Note.* CI = confidence interval; MSM = men who have sex with men. Age-adjusted to the US 2000 Standard Population. Community Health Survey 2006 data were weighted to the New York City adult population per Census 2000.[7,8] The sample size was n = 6639 for this analysis.
[a]Weighted population estimates are rounded to the nearest thousand.
[b]MSM behavior was defined as all men who reported MSM behavior in the past 12 months (vs all women and all other men who did not report MSM behavior).

NYC adults with the largest number of new HIV diagnoses (e.g., young people, Blacks, and Hispanics),[6] and among those with high-risk behaviors (e.g., multiple sexual partners). This pattern of acceptability bodes well for the impact of this testing modality.[1] Cost, however, might limit uptake of rapid self-testing: approximately half who expressed interest in these tests also had indications of financial hardship. Concern about cost and its impact are cited as reasons that self-testing might not be a true "game-changer."[1]

Limitations include that the survey was conducted before the self-test was approved by the US Food and Drug Administration, so participants were asked about a hypothetical test with no information about cost. In addition, information was not available in 2006 on history of any previous HIV test, so we could not determine rapid HIV self-testing acceptability for the never-tested.

Our results suggest that a majority of NYC adults might consider using a rapid HIV self-test. However, important questions remain about the public health impact of the device now commercially available in the United States. Because of limited mechanisms for postmarketing evaluation of products sold over the counter, these challenging questions await novel research methods for resolution. ■

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## Contributors

J. E. Myers, S. Bodach, and C. Philippou worked on the analysis of the survey data. J. E. Myers wrote the article. All authors reviewed the analysis, critically reviewed the article, and approved the final version.

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## Human Participant Protection

Because the Community Health Survey is considered health surveillance, this study was not subject to New York City Department of Health and Mental Hygiene institutional review board review.

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**TABLE 2—Factors Associated With Reporting Acceptability of Use of Home Rapid HIV Self-Testing Among New York City Adults (Aged 18–64 Years): 2006 New York City Community Health Survey**

| Characteristic | Age-Adjusted–Only Model | | Final Model | |
|---|---|---|---|---|
| | AOR (95% CI) | *P* | AOR (95% CI) | *P* |
| Age group, y | | | | |
| 18–24 | 2.78 (2.20, 3.51) | < .001 | 2.08 (1.58, 2.74) | < .001 |
| 25–44 | 1.71 (1.51, 1.94) | <.001 | 1.47 (1.27, 1.70) | < .001 |
| 45–64 (Ref) | 1.00 | | 1.00 | |
| Gender | | | | |
| Male | 0.96 (0.85, 1.09) | .551 | 0.96 (0.83, 1.12) | .622 |
| Female (Ref) | 1.00 | | 1.00 | |
| Race/ethnicity | | | | |
| Non-Hispanic White (Ref) | 1.00 | | 1.00 | |
| Non-Hispanic Black | 3.76 (3.18, 4.45) | < .001 | 3.52 (2.92, 4.25) | < .001 |
| Hispanic | 4.20 (3.55, 4.98) | < .001 | 4.10 (3.42, 4.92) | < .001 |
| Other | 1.19 (0.97, 1.46) | .092 | 1.31 (1.01, 1.64) | .02 |
| Sexual partners, past 12 mo | | | | |
| 0 (Ref) | 1.00 | | 1.00 | |
| 1 | 0.92 (0.78, 1.09) | .345 | 0.99 (0.83, 1.19) | .914 |
| ≥ 2 | 2.27 (1.76, 2.96) | < .001 | 2.29 (1.73, 3.05) | < .001 |
| MSM behavior, past 12 mo[a] | | | | |
| MSM behavior | 1.62 (1.00, 2.61) | .049 | 1.70 (0.96, 3.02) | .068 |
| No MSM behavior (Ref) | 1.00 | | 1.00 | |
| HIV test, past 12 mo | | | | |
| HIV test | 2.00 (1.73, 2.31) | < .001 | 1.37 (1.16, 1.61) | < .001 |
| No HIV test (Ref) | 1.00 | | 1.00 | |

*Note.* AOR = adjusted odds ratio; CI = confidence interval; MSM = men who have sex with men. Community Health Survey 2006 data were weighted to the New York City adult population per Census 2000.[7,8]

[a]MSM behavior was defined as all men who reported MSM behavior in the past 12 mo (vs all women and all other men who did not report MSM behavior).

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