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Emergency department patient perceptions and preferences on opt-in rapid HIV screening program components

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Abstract

The aim of this investigation was to assess emergency department (ED) patients' perceptions and preferences about an opt-in, universal, rapid HIV screening program and identify patient groups who expressed stronger beliefs about components of the testing program. From July 2005 to July 2006, ED patients in the opt-in, universal, rapid HIV screening program were interviewed in person. Multivariable regression models were used to compare participants on their beliefs about the program components. Of the 561 participants, 62.0% had previously been tested for HIV. The majority of participants (58.8%) believed the rapid and standard/conventional HIV tests to be equally accurate, 27.7% believed the rapid test to be less or much less accurate, and 8.7% believed the rapid test to be more or much more accurate. Almost two-thirds (65.1%) favored having a rapid instead of a standard/conventional HIV test, 94.6% wanted the test results within one hour, and 61.3% would be likely or very likely to undergo testing in the ED if it prolonged their ED visit. Almost all (92.5%) believed that their medical care was "not at all" delayed because of being tested, 94.1% believed that testing did "not at all" divert attention from the reason for their ED visit, and 80.9% thought that testing in the ED was "not at all" stressful. In multivariable logistic regression models, males and those with more than 12 years of formal education showed greater concerns about the rapid HIV test's accuracy. Hispanic/Latinos, participants with governmental insurance, and those previously HIV tested were more apt to be screened for HIV even if testing delayed their ED departure. Overall, participants were highly accepting of the components of this opt-in rapid HIV screening program. However, concerns regarding the accuracy of the rapid HIV test might limit test acceptance and should be addressed during pre-test information procedures.

Keywords

HIV; HIV diagnostic testing; questionnaires; emergency medicine; patient satisfaction

Introduction

The Centers for Disease Control and Prevention (CDC) and emergency medicine clinicians are advocating for expanded HIV diagnostic testing and HIV screening in US emergency departments (EDs) (Babcock Irvin, Wyer, & Gerson, 2000; Branson et al., 2006; Rhodes, Gordon, & Lowe, 2000; Rothman, Ketlogetswe, Dolan, Wyer, & Kelen, 2003). The rationale for this measure is based on the observations that some US EDs provide medical care to large numbers of patients who are at higher risk of HIV infection (Alpert, Shuter, DeShaw, Webber, & Klein, 1996; Glick, Silva, Zun, & Whitman, 2004; Goggin, Davidson, Cantril, O'Keefe, & Douglas, 2000; Kelen et al., 1996; Kelen, Shahan, & Quinn, 1999; Lyons, Lindsell, Ledyard, Frame, & Trott, 2005a; Mehta et al., 2007), some US EDs have a high prevalence of patients known to be HIV infected (Alpert et al., 1996; Goggin et al., 2000; Kelen et al., 1995; Nagachinta, Gold, Cheng, Heseltine, & Kerndt, 1996; Sloan et al., 1995), and several ED-based HIV screening studies have successfully identified patients with a previously undiagnosed HIV infection (Centers for Disease Control and Prevention, 2007; Glick et al., 2004; Goggin et al., 2000; Kelen et al., 1999; Lyons et al., 2005a,b; Lyss et al., 2007; Mehta et al., 2007; Silva et al., 2007).

Despite studies demonstrating the feasibility of HIV screening in EDs, the optimal methods for conducting screening are not yet known. To facilitate ED-based HIV screening, we now need to assess the effectiveness of current and proposed screening methods and procedures. As part of that assessment, knowing which components of ED-based HIV screening facilitate or limit the process from the patients' perspectives can help plan future screening efforts.

We conducted an opt-in rapid HIV screening program as part of a research study at a high patient volume, urban, academic ED. The objective of this study was to determine which components of the HIV screening process, from the participants' viewpoint, appear to facilitate or limit ED-based HIV screening efforts. In specific, our first aim was to assess participant: (1) perceptions and beliefs about the rapid HIV test; (2) preferences on the form of rapid HIV pre-test information they would like to receive; (3) preferences regarding HIV testing methods and procedures in the ED; and (4) perceptions regarding the testing experience in the ED. Our second aim was to determine if there were subgroups of participants (according to their demography or history of previously having been tested for HIV) who held stronger preferences, beliefs, or concerns. These groups might be more or less responsive to HIV testing in the ED; understanding their needs may assist in the planning and development of more effective HIV screening programs.

Methods

Study design

This study was conducted as the final segment of a universal (instead of targeted) opt-in rapid HIV screening program from July 2005 to July 2006 at a large, urban, academic ED in New England. Research assistants (RAs), who were state-certified HIV test counselors but were not part of the ED staff, conducted the screening program.

The screening program was conducted on randomly selected dates and eight-hour shifts 24 hours/day, seven days/week, except for eight hospital-mandated holidays. The selection of shifts were weighted according to the time-dependent influx of patients into the ED (40% of shifts were day, 50% evening, and 10% night shifts). The days of the week and of the month were sampled with equal weight.

Although this was a universal instead of a targeted screening program, a random sample of ED patients were selected for inclusion. We chose to random select patients so to capture an unbiased sample of ED patients that would be representative of the larger ED population and avoid any factors involved in patient selection that might produce a biased sample. RAs reviewed the ED medical records of a random sample of 70% of the patients present in the ambulatory care and urgent care areas of the ED during each eight-hour shift. Patients were randomly selected according to the terminal digit of their medical record number. This number is permanently assigned to patients as they enter any aspect of the health care system and is not associated with their demographic characteristics or reasons for medical care. We employed a computerized random selection program to identify which medical record digits would be selected for each shift. Patients were eligible for the study if they were 18–55 years old; English speaking; did not have a mental, psychiatric, or physical disability that prevented them from being in the study; were not prison inmates; not pregnant; not critically ill or injured; were not known to be HIV infected; and were not in an HIV vaccine study. The exclusion criteria were necessary to conduct the research aspects of this testing program, but their usage did not constitute targeted instead of universal screening since patients were not chosen according to their level of risk for an HIV infection.

Patients eligible for the study were offered a free rapid HIV test using a fingerstick for blood. Those who agreed to be tested were randomly assigned to receive rapid HIV pre-test information from a video or an in-person discussion. The video and in-person discussion contained equivalent content and have been described previously (Merchant et al., 2007). Standard/conventional HIV tests and rapid HIV tests were described in terms of the methods of obtaining the sample for the test, the time needed for the tests to process, and the possible test results. Participants were told that a rapid HIV test is equal in accuracy to the standard/conventional HIV test. Afterwards, participants underwent fingerstick rapid HIV testing with OraQuick® (OraSure Technologies, Bethlehem, PA). In the final segment, participants were asked to complete the “Rapid HIV testing satisfaction” questionnaire (described below), prior to receiving their test results.

Questionnaire development and composition

We created a draft version of the “Rapid HIV testing satisfaction” questionnaire after reviewing prior studies about patient satisfaction with HIV testing. The draft was first evaluated through cognitive-based assessments through intensive interviews of 20 ED patients chosen for inclusion according to a defined quota based on patient demographic characteristics. Of these, 11 were female and nine male; 11 were white and nine were non-white; five were in each of four age groups (18–27, 28–37, 38–46, and 47–55 years); and seven had fewer than 12 years, six had 12 years, and seven had more than 12 years of formal education. Using a script, the RAs interviewed each patient about their comprehension of the questions. The questionnaire was modified based on the results of these evaluations. The questionnaire was pilot tested on a random sample of 20 ED patients and minor as needed changes were implemented.

The final “Rapid HIV testing satisfaction” questionnaire contained 19 questions in four sections. Eight questions were closed-ended with four or five-level scalar response options that allowed participants to indicate the level or extent of their beliefs, perceptions, or preferences. The scalar responses were based on the work of Bass, Cascio, and O’Connor (1974). There were four other closed-ended questions with fixed response options. The remaining questions were open-ended follow-up questions that asked participants to supply their reasons for their responses.

Data collection

The RAs administered the “Rapid HIV testing satisfaction” questionnaire to participants while they awaited medical care. RAs read aloud the questions and the response options for the closed-ended questions. Questions were repeated as needed, but were not interpreted for the participants. All study data were recorded onto a QDS™ (Nova Research, Bethesda, MD) database. Anticipated responses to the open-ended questions were available as selections to the RA in the study database computer. RAs could also type in unique responses as necessary. To ensure data accuracy, all entries were made in duplicate with immediate data entry verification.

Data analysis

All analyses were performed using STATA 9.2 (STATA Corporation, College Station, TX). Summary statistics on patient demography and HIV testing history were calculated. Participants who dropped out of the study and those who declined to answer the questions were not included in the analyses. Two sample tests of binomial proportions were used to compare groups by their demographic characteristics, HIV testing history, and type of pre-test information (video vs. in-person discussion) they received. Differences at the $\alpha=0.05$ level were considered significant.

Ordinal logistic and multinomial regression models were employed to determine if there were subgroups of participants who had stronger preferences, concerns, or beliefs on some topics in the questionnaire. Questions with little variability in the responses were not modeled. Odds ratios (ORs) for logistic regression models and relative risks (RRs) for multinomial regression models were estimated along with 95% confidence intervals (CIs). Variables from univariable analyses significant at the $\alpha=0.05$ level were entered into multivariable models.

Results

Demography and HIV testing history of survey participants

Of 2155 randomly selected ED patients eligible for the study, 571 (24%) agreed to be tested for HIV. Of these, 561 (98.2%) completed all survey questions. All those screened had a negative rapid HIV test. Table 1 provides the demographic characteristics and the HIV testing history of the participants.

Perceptions about the rapid HIV test

Participant beliefs about the accuracy of the rapid HIV test and the reasons cited for their beliefs are shown in Table 2. A slight majority of participants (58.8%) believed the rapid and standard/conventional HIV tests to be equally accurate, 27.7% believed the rapid HIV to be less or much less accurate, and few (8.7%) believed the rapid HIV test to be more or much more accurate. In the multivariable ordinal logistic regression analysis of participant perception of the accuracy of the rapid HIV test, compared with the standard/conventional HIV test, females were more likely to believe that the rapid HIV test has greater accuracy, while participants with more than 12 years of formal education were apt to believe a rapid HIV test has lesser accuracy (Table 3).

The majority (85%) of participants believed the fingerstick to be less or much less painful than phlebotomy for a standard/conventional HIV test. In the multivariable ordinal logistic regression analysis of participant perception about the pain induced from a fingerstick for the rapid HIV test compared with phlebotomy, patients who had not previously been tested for HIV were more likely to perceive the fingerstick as less or much less painful (Table 3).

Preferences for rapid HIV pre-test information

Participant preferences about the type of rapid HIV pre-test information they would like to receive and reasons for those preferences are in Table 4. Most participants (94.2%) believed they were “well” or “very well informed” by the pre-test information they received. Of the 266 participants in the video group, 40.6% indicated that they felt “very well informed”, 50.8% “well informed”, 8.7% “somewhat informed.” Of the 295 participants in-person discussion group, 59.3% felt “very well informed”, 37.3% “well informed”, 3.1% “somewhat informed”, and 0.3% “not well informed.” More participants in the in-person discussion than the video group believed that they were “very well informed” by the type of rapid HIV pre-test information they received (59.3% vs. 40.6%; $p<0.001$). In a multivariable logistic regression model, participants with governmental instead of private healthcare insurance and those in the in-person discussion instead of the video group were more likely to state that they were better informed by the type of pre-test information they received (Table 3).

Slightly more than half (54.2%) of all participants preferred receiving rapid HIV pre-test information from a person than a video (Table 4). Of those in the in-person discussion group, 74.9% preferred receiving pre-test information from a person, 1.7% from a video, and 23.4% from either a person or a video. Of the video group, 31.2% preferred receiving pre-test information from a person, 14.3% from a video, and 54.5% from either a person or a video. More participants in the video than the in-person discussion group had no preference for type of pre-test information (54.5% vs. 23.4%; $p<0.001$). In a multivariable multinomial regression model, participants in the video group were more likely to favor either the video over the in-person discussion or to have no preference than those in the in-person discussion group (Table 5).

Preferences about HIV screening in the ED

Participant preferences about HIV testing methods in the ED are shown in Table 6. The majority (65.1%) of participants favored having a rapid HIV test (Table 6). In a multinomial multivariable regression model, Hispanic/Latinos were more likely than whites to prefer a standard/conventional instead of a rapid HIV test (Table 5). In a model comparing no preference for either test to preference for the rapid HIV testing, there were no differences by race, years of education, or history of HIV testing.

Almost all (94.6%) participants wanted to receive their rapid HIV test results within one hour while 61.3% were likely or very likely to be tested in the ED even if it delayed their ED departure (Table 6). In a multivariable ordinal logistic regression model, Hispanic/Latinos, participants with some form of governmental health care insurance, and those previously tested for HIV were more willing to be tested even if it delayed their departure from the ED (Table 3).

Perceptions on undergoing rapid HIV testing in the ED

Most participants believed that their medical care was “not at all delayed” and that the purpose of their visit was not diverted by undergoing rapid HIV testing in the ED (Table 7). In addition, most believed that their privacy was “very much” respected while receiving HIV pre-test information and undergoing testing for HIV. Although the majority (80.9%) of participants believed that it was “not at all” stressful to be tested for HIV in the ED, a significant percentage (13.4%) noted that it was “somewhat” stressful.

Discussion

The study results reveal areas that support and areas of potential concern that may hinder opt-in HIV screening in EDs. Although from a clinician's perspective rapid HIV testing will likely be the preferred testing method of conducting HIV screening in the ED, patients appear less enthusiastic. Some participants did not trust the accuracy of the rapid test, despite being told that rapid and standard/conventional HIV tests are equally accurate. Concerns about the newness of the technology and the testing methods, perceptions that a laboratory-based test is better, hesitation about the speed at which test results could be rendered, and the need for confirmatory testing will need to be addressed in HIV pre-test information to improve acceptance of this testing method. More widespread use of rapid HIV testing and greater familiarity by patients with the testing method should also help allay concerns. It is reassuring that most patients did not mind the fingerstick for the rapid HIV test, and generally found it less painful than phlebotomy, particularly among those who had never before been tested for HIV. This finding could be used to encourage people who have avoided testing because of a dislike of phlebotomy.

In regards to pre-test information delivery, the results suggest that although participants are more accepting of the video if they received their pre-test information from this source, efforts to streamline the testing process with videos might be more successful if test participants have an opportunity to ask questions and discuss their concerns with a "live" person afterwards. Participants in the in-person discussion group were more apt to report feeling better informed compared to those in the video group; however, we are concerned that this was a biased assessment. There could be an element of social desirability or intimidation present since respondents might have wanted to reassure the RA that the in-person discussion was helpful. It would have been preferable for participants to have answered this question anonymously.

It was an unexpected finding that only 65.1% of participants preferred the rapid over the standard/conventional HIV test since the overwhelming majority of them wanted their test results in the ED and within one hour of being tested. Participants justly want the speed of the rapid HIV test with the assurances of accuracy that standard/conventional HIV testing offers. However, it is possible that those who preferred either test did not understand that standard/conventional HIV testing takes longer. It is not clear why Hispanic/Latinos favored the standard/conventional HIV test. Further research will clarify this difference. We were surprised to find that in the multinomial multivariable analysis that participants who had previously been tested did not favor the rapid HIV test, and in fact, favored the standard/conventional HIV test in the univariable analysis. We suspect that concerns about the accuracy of the rapid compared to the standard/conventional test was the driving factor.

Most participants were pleased with their experience in this ED-based opt-in HIV screening program. This observation is encouraging given the chaotic environment of EDs where critical medical decisions take precedence over preventive health, such as HIV screening. These results suggest that patients are comfortable being screened for HIV in the ED even though the primary reason for their visit was unrelated to HIV. Although most participants did not appear to mind a potential delay in their ED departure if they are screened for HIV, those who had not been tested previously were less interested in screening if their ED departure would be delayed. This observation is concerning because this group is a primary focus for expansion of HIV screening. Streamlining testing and reassuring ED patients who have not previously been tested might encourage these patients to participate in HIV screening programs. It is encouraging to report that Hispanic/Latino participants and those with governmental insurance are less concerned about potential delays in ED departure in

order to be screened for HIV since these groups historically have reduced access to preventive health programs.

Limitations

There are several limitations of the study that impact its findings and utility. First, the study was conducted at one urban, academic medical center ED in the USA, so the findings might not be generalizable to all other EDs. However, the random selection of patients reduces selection bias and increases the likelihood that the participants are representative of patients at least at this ED. The diversity of participants included in the sample make inferences from this study easier to apply to other ED populations. Second, given the exclusion criteria for the study, the low baseline HIV prevalence, and the low HIV incidence, it is likely that the study sample primarily included people at low risk for an HIV infection. Accordingly, those at higher risk of an HIV infection might have responded differently to the questions in the survey. For example, they might view HIV testing as more stressful in the ED or have greater privacy concerns, given a potential self-perception that they might have a positive HIV test. Third, we suspect that there was an element of bias toward socially acceptable responses as the person providing testing asked for feedback on the testing process. As a result, we would not be surprised that the enthusiasm for HIV testing in the ED might have been dampened if participants could have responded anonymously to the questionnaire.

Fourth and most importantly, the study involved ED patients who participated in the rapid HIV screening program. As a consequence, the satisfaction these patients reflect that of people who had agreed to be tested for HIV. We cannot determine the opinions of other ED patients about HIV testing from the results of this study. However, the aim was to investigate components of the program in which they had engaged, and not survey all ED patients on their opinions of ED-based rapid HIV testing.

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References

- Alpert PL, Shuter J, DeShaw MG, Webber MP, Klein RS. Factors associated with unrecognized HIV-1 infection in an inner-city emergency department. *Annals of Emergency Medicine*. 1996; 28(2):159–164. [PubMed: 8759579]
- Babcock Irvin C, Wyer PC, Gerson LW. Preventive care in the emergency department, Part II: Clinical preventive services – an emergency medicine evidence-based review. Society for Academic Emergency Medicine Public Health and Education Task Force Preventive Services Work Group. *Annals of Emergency Medicine*. 2000; 7(9):1042–1054.
- Bass BM, Cascio WF, O'Connor EJ. Magnitude estimations of expressions of frequency and amount. *Journal of Applied Psychology*. 1974; 59(4):313–320.
- Branson BM, Handsfield HH, Lampe MA, Janssen RS, Taylor AW, Lyss SB, et al. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recommendation Reports*. 2006; 55(RR-14):1–17.
- Centers for Disease Control and Prevention. Rapid HIV testing in emergency departments – three U.S. sites, January 2005–March 2006. *MMWR Morbidity and Mortality Weekly Report*. 2007; 56(24): 597–601. [PubMed: 17585288]
- Glick NR, Silva A, Zun L, Whitman S. HIV testing in a resource-poor urban emergency department. *AIDS Education and Prevention*. 2004; 16(2):126–136. [PubMed: 15134121]

- Goggin MA, Davidson AJ, Cantril SV, O'Keefe LK, Douglas JM. The extent of undiagnosed HIV infection among emergency department patients: Results of a blinded seroprevalence survey and a pilot HIV testing program. *Journal of Emergency Medicine*. 2000; 19(1):13–19. [PubMed: 10863112]
- Kelen GD, Hexter DA, Hansen KN, Humes R, Vigilance PN, Baskerville M. Feasibility of an emergency department-based, risk-targeted voluntary HIV screening program. *Annals of Emergency Medicine*. 1996; 27(6):687–692. [PubMed: 8644953]
- Kelen GD, Hexter DA, Hansen KN, Tang N, Pretorius S, Quinn TC, et al. Trends in human immunodeficiency virus (HIV) infection among a patient population of an inner-city emergency department: Implications for emergency department-based screening programs for HIV infection. *Clinical Infectious Diseases*. 1995; 21(4):867–875. [PubMed: 8645832]
- Kelen GD, Shahan JB, Quinn TC. Emergency department-based HIV screening and counseling: Experience with rapid and standard serologic testing. *Annals of Emergency Medicine*. 1999; 33(2):147–155. [PubMed: 9922409]
- Lyons MS, Lindsell CJ, Ledyard HK, Frame PT, Trott AT. Emergency department HIV testing and counseling: An ongoing experience in a low-prevalence area. *Annals of Emergency Medicine*. 2005a; 46(1):22–28. [PubMed: 15988422]
- Lyons MS, Lindsell CJ, Ledyard HK, Frame PT, Trott AT. Health department collaboration with emergency departments as a model for public health programs among at-risk populations. *Public Health Reports*. 2005b; 120(3):259–265. [PubMed: 16134565]
- Lyss SB, Branson BM, Kroc KA, Couture EF, Newman DR, Weinstein RA. Detecting unsuspected HIV infection with a rapid whole-blood HIV test in an urban emergency department. *Journal of Acquired Immune Deficiency Syndrome*. 2007; 44(4):435–442.
- Mehta SD, Hall J, Lyss SB, Skolnik PR, Pealer LN, Kharasch S. Adult and pediatric emergency department sexually transmitted disease and HIV screening: Programmatic overview and outcomes. *Academic Emergency Medicine*. 2007; 14(3):250–258. [PubMed: 17331918]
- Merchant R, Gee E, Clark M, Mayer K, Seage GI, DeGruttola V. Comparison of patient comprehension of rapid HIV pre-test fundamentals by information delivery format in an emergency department setting. *BMC Public Health*. 2007; 7(7)
- Nagachinta T, Gold CR, Cheng F, Heseltine PN, Kerndt PR. Unrecognized HIV-1 infection in inner-city hospital emergency department patients. *Infection Control and Hospital Epidemiology*. 1996; 17(3):174–177. [PubMed: 8708358]
- Rhodes KV, Gordon JA, Lowe RA. Preventive care in the emergency department, Part I: Clinical preventive services – are they relevant to emergency medicine? Society for Academic Emergency Medicine Public Health and Education Task Force Preventive Services Work Group. *Academic Emergency Medicine*. 2000; 7(9):1036–1041. [PubMed: 11044001]
- Rothman RE, Ketlogetswe KS, Dolan T, Wyer PC, Kelen GD. Preventive care in the emergency department: Should emergency departments conduct routine HIV screening? A systematic review. *Academic Emergency Medicine*. 2003; 10(3):278–285. [PubMed: 12615596]
- Silva A, Glick NR, Lyss SB, Hutchinson AB, Gift TL, Pealer LN, et al. Implementing an HIV and sexually transmitted disease screening program in an emergency department. *Annals of Emergency Medicine*. 2007; 49(5):564–572. [PubMed: 17113684]
- Sloan EP, McGill BA, Zalenski R, Tsui P, Chen EH, Duda J, et al. Human immunodeficiency virus and hepatitis B virus seroprevalence in an urban trauma population. *Journal of Trauma*. 1995; 38(5):736–741. [PubMed: 7760401]

Table 1

Demographic profile and HIV testing history of study participants.

Demography	<i>n</i>=561
Median age (range) [years]	30 (18–55)
Gender	%
Female	54.2
Male	45.8
Race	
White	64.0
Black	20.1
Hispanic	13.9
Other	2.0
Health care insurance status	
Private	36.9
Governmental (Medicare/Medicaid)	35.5
Private and governmental	1.9
None	25.5
Don't know	0.2
Partner status	
Married	18.9
Divorced/Widowed/Separated	17.5
Never married/Single	48.5
Unmarried couple	15.1
Years of education	
Grades 1–8	3.9
Grades 9–11	2.5
Grade 12 (or GED)	34.4
College 1–3 years	27.1
College 4 years or graduate school	11.9
<i>HIV testing history</i>	
Previously tested for HIV	
Yes	62.0
No	36.5
Don't know	1.5
Time since last HIV test	<i>n</i> =347
>5 years	19.3
>2 years but <5 years	19.6
>1 year but <2 years	17.6
>6 months but <1 year	21.3
<6 months	22.2
Type of last HIV test	<i>n</i> =347
Standard blood test	92.8

Demography	<i>n</i>=561
Standard oral test	4.6
Rapid HIV test	1.7
Don't know	0.9

Table 2

Perceptions about the rapid HIV test.

Beliefs about accuracy of the rapid HIV test		n=561			
1	Today you had a <i>rapid</i> HIV test. For a <i>standard</i> HIV blood test, your blood is drawn and sent to a laboratory. How accurate do you believe the <i>rapid</i> HIV test is, as compared with a <i>standard</i> HIV blood test?	Much less accurate	1.5%	More accurate	4.1%
		Somewhat less accurate	26.2%	Much more accurate	4.6%
		Just as accurate	58.8%	Don't know	4.8%
		n=155			
1a	What is the <i>main</i> reason you believe a rapid HIV test is <i>less</i> accurate than a standard HIV test?	Rapid needs to be confirmed	26.4%	Rapid is too new	11.0%
		Rapid makes mistakes	18.1%	Rapid has less quality control	9.7%
		Rapid uses less blood	15.5%	Other	1.3%
		Rapid testing is too fast	14.8%	Don't know	3.2%
		n=330			
1b	What is the <i>main</i> reason you believe a rapid HIV test is <i>just as</i> accurate as a standard HIV test?	Both are blood tests	40.3%	Equally accurate	9.4%
		Both are approved tests for HIV	14.6%	I was told today they are the same	2.4%
		No difference in test methods	14.6%	Other	1.5%
		Hospital uses both	11.2%	Don't know	6.0%
		n=49			
1c	What is the <i>main</i> reason you believe a rapid HIV test is <i>more</i> accurate than a standard HIV test?	Rapid is newer technology	42.9%	Rapid is better tested/certified	4.1%
		Rapid test is faster	22.4%	Other	6.1%
		Rapid test uses less blood	8.2%	Don't know	8.1%
		Hospital uses rapid test	8.2%		
Perceptions about fingerstick for a rapid HIV test		n=561			
2	Compared to having blood drawn with a needle from your arm, was getting a fingerstick for a rapid HIV test:	Much more painful	0.9%	Less painful	32.1%
		More painful	1.1%	Much less painful	52.9%
		About the same amount of pain	13.0%		

Table 3

Ordinal logistic regression analyses.

Factor	Accuracy of rapid vs. standard HIV testing			Pain of fingerstick vs. phlebotomy			Quality of pre-test information			Greater willingness to be tested in ED even if departure delayed		
	Univariable n=561 ² OR (95% CI)	Multivariable n=553 ² OR (95% CI)		Univariable n=561 ² OR (95% CI)	Multivariable n=553 ² OR (95% CI)		Univariable n=561 ² OR (95% CI)	Multivariable n=553 ² OR (95% CI)		Univariable n=561 ² OR (95% CI)	Multivariable n=553 ² OR (95% CI)	
Age (continuous) ¹	1.01 (1.00–1.03)			0.99 (0.98–1.01)			0.99 (0.97–1.00)			1.00 (0.98–1.01)		
Female vs. male	1.50 (1.06–2.12)	1.63 (1.13–2.35)		1.02 (0.74–1.40)			1.39 (0.94–1.80)			1.28 (0.95–1.73)		
Race/ethnicity												
White	1.00	1.00		1.00	1.00		1.00			1.00	1.00	
Black	1.58 (1.01–2.47)	1.38 (0.88–2.19)		0.64 (0.43–0.95)	0.69 (0.46–1.03)		1.25 (0.83–1.89)			1.35 (0.92–1.98)	1.17 (0.79–1.73)	
Hispanic/Latino	0.89 (0.53–1.50)	0.76 (0.44–1.31)		0.59 (0.37–0.93)	0.63 (0.39–1.01)		1.41 (0.87–2.28)			1.94 (1.24–3.04)	1.73 (1.09–2.75)	
Other	1.61 (0.48–5.43)	1.45 (0.43–4.94)		2.22 (0.59–8.29)	2.37 (0.63–8.89)		0.69 (0.20–2.36)			0.49 (0.15–1.59)	0.42 (0.13–1.35)	
Insurance												
Private	1.00	1.00		1.00			1.00	1.00		1.00	1.00	
Governmental	1.51 (1.02–2.25)	1.12 (0.72–1.75)		0.86 (0.59–1.24)			1.57 (1.08–2.31)			1.62 (1.14–2.29)	1.45 (1.00–2.08)	
None	1.54 (0.99–2.39)	1.32 (0.82–2.14)		0.91 (0.60–1.38)			0.92 (0.61–1.39)			1.27 (0.86–1.87)	1.15 (0.77–1.70)	
Partner status												
Married	1.00			1.00			1.00			1.00		
Divorced/Widowed/ Separated	1.64 (0.93–2.90)			0.89 (0.53–1.51)			1.15 (0.67–1.97)			1.40 (0.85–2.31)		
Never married/Single	1.37 (0.86–2.18)			0.94 (0.61–1.45)			0.92 (0.59–1.42)			1.09 (0.73–1.63)		
Unmarried couple	1.03 (0.59–1.83)			1.02 (0.59–1.75)			1.09 (0.62–1.91)			1.26 (0.75–2.13)		
Education												
<12 years of education	1.00	1.00		1.00			1.00			1.00		
12 years of education	1.00 (0.64–1.57)	1.00 (0.63–1.59)		1.38 (0.92–2.08)			0.95 (0.63–1.45)			0.79 (0.54–1.16)		
>12 years of education	0.58 (0.37–0.90)	0.60 (0.37–0.98)		1.34 (0.90–2.00)			0.97 (0.65–1.46)			0.80 (0.55–1.17)		
Ever vs. never previously tested for HIV	0.96 (0.67–1.37)			0.66 (0.47–0.92)	0.70 (0.49–0.98)		1.07 (0.77–1.50)			1.78 (1.30–2.44)	1.62 (1.17–2.24)	
Pre-test information												
Video	1.00			1.00			1.00	1.00		1.00		
In-person discussion	0.89 (0.63–1.25)			0.98 (0.71–1.35)			2.18 (1.57–3.03)	2.28 (1.63–3.19)		0.87 (0.64–1.17)		

¹ Age as a curvilinear (quadratic) or categorical variable had the same null results for all analyses.

² Analysis excludes one participant who responded “don’t know” to insurance type and eight to ever having been tested for HIV.

Table 4

Preferences for pre-test information.

Perception of quality of information provided		n=561			
3	After you received information about rapid HIV testing from (the video/me), how informed did you feel?	Not well informed	0.2%	Well informed	43.7%
		Somewhat informed	5.7%	Very well informed	50.5%
<i>Preferences for delivery form of pre-test information</i>					
4a	If you had a choice about how you got information about rapid HIV testing, would you prefer:	A person	54.2%	Either	38.2%
		A video	7.7%		
<i>n=304</i>					
4a	What is the main reason you prefer getting information from a person?	Can ask questions/interact	52.0%	More engaging	3.6%
		More personal than a video	24.7%	Can receive personalized info	2.3%
		Info from a person is more accurate	5.3%	Can get more info from a person	1.6%
		Avoid/dislike technology	4.6%	Other	1.0%
		Can ask for info to be repeated	4.0%	Don't know	0.9%
<i>n=43</i>					
4b	What is the main reason you prefer getting information from a video?	Videos have visual aids	37.2%	Videos contain standardized info	7.0%
		Video is more entertaining	20.9%	Can be more accurate than person	7.0%
		Video provides more info	11.6%	It is easier to watch a video	4.7%
		Can watch/listen privately	9.3%	Watching video is less embarrassing	2.3%
<i>n=214</i>					
4c	What is the main reason you prefer getting information from either a person or a video?	They have different merits	38.3%	Both are accurate/reliable	9.8%
		They give the same info	28.5%	Other	2.8%
		No difference between what they do	16.8%	Don't know	3.7%

Table 5

Multinomial regression analyses.

Factor	Preferences for delivery format of pre-test information				Preferences for testing method			
	Univariable		Multivariable		Univariable		Multivariable	
	Video vs. in-person discussion <i>n</i> =561 ² RR (95% CI)	Video or in-person discussion vs. in-person discussion <i>n</i> =553 ² RR (95% CI)	Video vs. in-person discussion <i>n</i> =561 ² RR (95% CI)	Video or in-person discussion vs. in-person discussion <i>n</i> =553 ² RR (95% CI)	Standard HIV test vs. rapid HIV test <i>n</i> =561 ² RR (95% CI)	Rapid or standard HIV test vs. rapid HIV test <i>n</i> =553 ² RR (95% CI)	Standard HIV test vs. rapid HIV test <i>n</i> =561 ² RR (95% CI)	Rapid or standard HIV test vs. rapid HIV test <i>n</i> =553 ² RR (95% CI)
Age (continuous) ¹	1.02 (0.99–1.05)	0.99 (0.97–1.00)			1.00 (0.97–1.03)	1.00 (0.98–1.02)		
Female vs. male	1.38 (0.72–2.64)	1.11 (0.78–1.57)			0.64 (0.36–1.15)	0.73 (0.49–1.07)		
Race/ethnicity								
White	1.00	1.00			1.00	1.00	1.00	1.00
Black	0.72 (0.29–1.83)	1.45 (0.93–2.24)			1.61 (0.77–3.38)	0.90 (0.54–1.50)	1.33 (0.62–2.83)	0.88 (0.52–1.49)
Hispanic/Latino	1.11 (0.46–2.69)	1.06 (0.63–1.78)			3.20 (1.51–6.78)	1.52 (0.87–2.66)	2.82 (1.31–6.06)	1.47 (0.82–2.61)
Other	∞	0.57 (0.15–2.20)			4.32 (1.05–17.81)	0.37 (0.05–3.06)	3.46 (0.81–14.72)	0.40 (0.05–3.38)
Insurance								
Private	1.00	1.00			1.00	1.00		
Governmental	1.05 (0.52–2.10)	1.33 (0.89–2.00)			1.34 (0.69–2.62)	0.92 (0.58–1.45)		
None	0.43 (0.17–1.13)	0.99 (0.63–1.56)			1.12 (0.51–2.46)	1.34 (0.83–2.18)		
Partner status								
Married	1.00	1.00	1.00	1.00	1.00	1.00		
Divorced/Widowed/Separated	0.83 (0.32–2.18)	1.65 (0.89–3.03)	0.89 (0.31–2.53)	1.72 (0.89–3.32)	1.10 (0.40–3.04)	1.59 (0.85–2.97)		
Never married/Single	0.67 (0.30–1.48)	1.94 (1.17–3.21)	0.53 (0.22–1.25)	1.66 (0.96–2.87)	1.14 (0.51–2.55)	1.16 (0.68–1.98)		
Unmarried couple	0.73 (0.26–2.10)	1.78 (0.95–3.34)	0.70 (0.23–2.15)	1.72 (0.87–3.39)	1.36 (0.52–3.56)	0.78 (0.38–1.60)		
Education								
<12 years of education	1.00	1.00			1.00	1.00	1.00	1.00
12 years of education	1.15 (0.49–2.73)	1.15 (0.73–1.81)			0.58 (0.28–1.18)	1.41 (0.87–2.31)	0.68 (0.33–1.42)	1.42 (0.86–2.34)
>12 years of education	1.35 (0.60–3.06)	1.06 (0.68–1.65)			0.43 (0.21–0.87)	0.64 (0.38–1.07)	0.51 (0.25–1.04)	0.64 (0.37–1.08)
Ever vs. never previously tested for HIV	1.13 (0.57–2.20)	1.14 (0.79–1.65)			2.00 (1.03–3.89)	1.31 (0.87–1.97)	1.69 (0.86–3.34)	1.26 (0.83–1.93)

Factor	Preferences for delivery format of pre-test information			Preferences for testing method		
	Univariable		Multivariable	Univariable		Multivariable
	Video vs. in-person discussion <i>n</i> =561 ² RR (95% CI)	Video or in-person discussion vs. in-person discussion <i>n</i> =553 ² RR (95% CI)	Video vs. in-person discussion <i>n</i> =561 ² RR (95% CI)	Standard HIV test vs. rapid HIV test <i>n</i> =561 ² RR (95% CI)	Rapid or standard HIV test vs. rapid HIV test <i>n</i> =553 ² RR (95% CI)	Standard HIV test vs. rapid HIV test <i>n</i> =561 ² RR (95% CI)
Pre-test information						
Video	1.00	1.00	1.00	1.00	1.00	1.00
In-person discussion	0.05 (0.02–0.13)	0.18 (0.12–0.26)	0.05 (0.02–0.12)	1.02 (0.57–1.82)	1.18 (0.80–1.73)	1.18 (0.80–1.73)

¹ Age as a curvilinear (quadratic) or categorical variable had the same null results for all analyses.

² Analysis excludes one participant who responded “don’t know” to insurance type and eight to ever having been tested for HIV.

Table 6

Preferences about HIV testing methods in the emergency department.

Preferences for test method		n=561	
5	If you had a choice of <i>how</i> you could be tested for HIV in the emergency department, would you prefer:	A rapid HIV test A standard HIV test	65.1% 9.3%
5a	What is the main reason you prefer getting a <i>rapid</i> HIV test?	Faster results with rapid test Rapid test is less painful A afraid of needles Rapid test is more convenient Less blood with rapid test	73.8% 7.4% 6.3% 3.8% 2.5%
5b	What is the main reason you prefer getting a <i>standard</i> HIV test?	Less painful Just as accurate More accurate More thorough More time to think	1.9% 1.9% 65.4% 15.4% 3.9%
5c	What is the main reason you prefer getting <i>either</i> a rapid or a standard test?	No difference Equally accurate Equally painful Each test has its own merits	71.3% 16.8% 3.5% 3.5%
6	If you had a choice of <i>when</i> you could get the results of a rapid HIV test you had in the emergency department, would you rather get them:	Within one hour After one hour, but on the same day After today, but within one week	94.6% 3.0% 0.9%
6a	What is the <i>main</i> reason you want the results then? (<i>shown for those who answered "within one hour"</i>)	I want them as soon as possible Treated faster	76.6% 1.1%

	Less worry/stress	17.9%	Other	1.0%	
	Here now/convenient	2.8%	Don't know	0.6%	
Preferences for where to receive results <i>n</i> =561					
7	If you had a choice of <i>where</i> you could receive the results of a rapid HIV test you had in the emergency department, would you rather get them:	In the emergency department	80.6%	At home by letter	3.6%
		Medical office/clinic at the hospital	5.5%	At home by e-mail	0.9%
		Medical office/clinic elsewhere	2.9%	Some place else	0.6%
		At home by telephone	5.9%		
<i>n</i> =452					
7a	What is the <i>main</i> reason you want to get the results there? (<i>shown for those who answered "in the emergency department"</i>)	I'm here now/convenient	76.8%	More private/confidential	1.3%
		Medical help available	11.5%	Get results from person who did test	1.0%
		Support available if needed	3.5%	Other	2.1%
		Faster to get them here	2.0%	Don't know	0.2%
		Know this facility	1.6%		
<i>n</i> =561					
Time cost/benefit trade-off of being tested in the ED					
8	If getting a rapid HIV test, or waiting to get the test results, meant you would have to stay in the emergency department longer, how likely would you be to get a rapid HIV test?	Extremely unlikely you'd get tested	13.7%	Very likely you'd get tested	22.6%
		Unlikely you'd get tested	24.8%	Don't know	0.2%
		Likely you'd get tested	38.7%		

Table 7
Perceptions of undergoing the HIV testing process in the emergency department.

Perception of interference with medical care: delay		<i>n</i> =561	
9	How much has your medical care in the emergency department been delayed because you were tested for HIV?	Not at all delayed Somewhat delayed Pretty much delayed	92.5% 5.0% 0.9%
		Very much delayed Don't know	0.4% 1.2%
Perception of interference with medical care: diversion		<i>n</i> =561	
10	How much has being tested for HIV in the emergency department taken away from why you are here today?	Not at all Somewhat Pretty much	94.1% 4.6% 0.2%
		Very Much Don't know	0.9% 0.2%
Privacy perception: pre-test information		<i>n</i> =561	
11	How much was your privacy respected when you received information about being tested for HIV?	Not at all Somewhat	1.1% 1.3%
		Pretty much Very much	11.0% 86.6%
Privacy perception: testing		<i>n</i> =561	
12	How much was your privacy respected when you were being tested for HIV?	Not at all Somewhat	0.5% 0.4%
		Pretty much Very much	8.4% 90.7%
Perception of stress induced by testing		<i>n</i> =561	
13	How stressful has it been to be tested for HIV in the emergency department?	Not at all Somewhat	80.9% 13.4%
		Pretty much Very much	1.8% 3.9%