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Journal of Adolescent Health 46 (2010) 162–168

JOURNAL OF ADOLESCENT HEALTH

Original article

Adolescent Preferences for Human Immunodeficiency Virus Testing Methods and Impact of Rapid Tests on Receipt of Results

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Manuscript received January 27, 2009; manuscript accepted June 16, 2009

Abstract

Purpose: Rapid human immunodeficiency virus (HIV) tests may be more acceptable to adolescents and may improve receipt of test results. We conducted a study to determine (a) adolescent preferences for different HIV testing methods (rapid oral fluid vs. rapid fingerstick vs. traditional venipuncture), (b) factors associated with choice of a rapid vs. traditional test, and (c) whether those who chose a rapid method were more likely to receive test results.

Methods: Participants (N = 99, 13–22 years old, both genders) were recruited from an urban hospital-based adolescent primary care clinic, agreed to HIV testing with their choice of method, and completed a questionnaire assessing demographic characteristics and attitudes about HIV testing. Logistic regression modeling was used to determine factors associated with choice of a rapid versus traditional test.

Results: Half (50.5%) of participants chose rapid oral fluid testing, 30.3% traditional venipuncture testing, and 19.2% rapid fingerstick testing ($p < .01$). Factors independently associated with choice of a rapid versus traditional method included preference for an oral fluid versus blood test and perceived approval of HIV testing by one's healthcare provider. Participants who chose a rapid test were more likely to receive their test results within the follow-up period than participants who chose a traditional test (91.3% vs. 46.7%, $p < .001$).

Conclusions: In this study, 70% of adolescents preferred rapid to traditional HIV testing, and rapid testers were more likely to receive their results within the follow-up period. Offering rapid testing may lead to improved receipt of results among adolescents in urban primary care settings.

Keywords: Adolescent; AIDS serodiagnosis; Point-of-care systems; Health knowledge, attitudes, and practice; Cross-sectional studies; Questionnaires; Humans

The Centers for Disease Control and Prevention (CDC) estimate that over 53,000 new human immunodeficiency virus (HIV) infections occurred annually in the United States between 2000 and 2006, with 34% of these infections occurring in 13- to 29-year-olds [1]. An estimated 25% of HIV-infected individuals in the U.S. are unaware of their HIV status [2,3], and thus do not receive counseling or interventions aimed at decreasing the transmission of HIV. Therefore, in an effort to improve identification of HIV-positive individuals, in 2006 the CDC released their current HIV testing guidelines recommending routine testing for those age 13 to 64 years regardless of risk factors, unless testing is specifically declined by the individual (opt-out testing) [4].

Although universal testing of adolescents is currently recommended in the United States, previous studies have demonstrated that only 41% to 61% of adolescents offered a nonrapid HIV test agree to testing [5–7], and only 33% to 66% of adolescents who are tested return to receive their results and post-test counseling [5,8–10]. Newer methods

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1054-139X/10/$ – see front matter
doi:10.1016/j.jadohealth.2009.06.015

of HIV testing (e.g., oral fluid testing) that are less invasive than traditional venipuncture tests (e.g., enzyme immunoassay [EIA]) may be more acceptable to adolescents. Offering tests that adolescents prefer may, in turn, improve uptake of HIV testing in this vulnerable population. In addition, rapid testing methods may improve receipt of test results because they provide results in as little as 20 minutes. Among U.S. adults, test accuracy, time to results, and privacy of results were the most important HIV test characteristics, whereas method of sample collection was less important [11]. Other studies demonstrate that Australian adults preferred oral to venipuncture sampling [12], and Thai women preferred rapid fingerstick HIV testing to traditional venipuncture testing [13].

Adolescents may differ from adults in their medical decision-making based on their cognitive development [14]. However, little is known about preferences for different HIV testing methods among adolescents, factors influencing choice of a particular method, and whether rapid testing improves receipt of results in primary care settings. This study sought to explore adolescent HIV testing preferences using constructs derived from theory (Health Belief Model and Theory of Planned Behavior) and relevant literature. The primary objectives were to: (a) define the percentage of participants choosing each of three available HIV testing methods (rapid oral fluid vs. rapid fingerstick blood vs. traditional venipuncture EIA tests); (b) determine factors associated with choice of rapid vs. traditional HIV testing; and (c) determine whether those who chose a rapid method were more likely to receive their test results. The primary study hypotheses were (a) choice of a rapid testing method would be associated with reported barriers to HIV testing and preference to obtain same visit results, and (b) those who chose a rapid testing method would be more likely to receive their results by the time of follow-up.

Methods

Participants were recruited from an urban adolescent primary care clinic between September 6, 2006 and October 1, 2007, and were a subset of participants in a larger study designed to assess adolescent agreement to HIV testing. Eligible participants for the larger study were 13 through 22 years old, sexually experienced, and English speaking. Participants who had previously participated in the study were excluded. The study differed from standard clinic procedure in that HIV testing was routinely offered to every participant, and rapid HIV testing was not available for general clinic use. To minimize recruitment bias, participants were not aware of the availability of rapid testing prior to consenting to study participation. The study received approval with a waiver of parental consent from the hospital's institutional review board.

Eligible patients attending any primary care visit were consecutively approached by their provider to assess interest in meeting with the researcher. The same researcher obtained written informed consent from all participants and described three U.S. Federal Drug Administration (FDA)-approved HIV testing methods (rapid oral fluid, rapid fingerstick blood, and traditional venipuncture EIA tests) in a standardized manner, including discussion of test characteristics and the confirmatory testing protocol. All participants were offered HIV testing. Those who declined testing proceeded to the study survey. Those who accepted testing chose one of the three available tests with which to be tested. The researcher then asked participants an open-ended question regarding their choice of test (''Why did you choose that HIV test?'') and recorded responses. Following selection of the testing method, participants who chose to be tested for HIV completed the study survey. After completion of the survey, pretest counseling (based on the CDC recommendations for counseling with rapid testing methods) and testing were performed in a standardized manner by the researcher. For those who chose a rapid test, results were provided to participants as soon as 20 minutes after sample collection. Follow-up appointments were scheduled by the researcher for all participants who chose the traditional test and any participant who chose a rapid test and elected not to stay to receive his/her results. Follow-up appointments were scheduled to occur 2 to 3 weeks after the study visit, and appointment information was provided in writing to participants.

The larger study included all participants who enrolled in the study, whether or not they agreed to HIV testing; these analyses focus only on the subset who agreed to testing. The main outcome measures were (a) choice of a rapid versus traditional HIV test, and (b) receipt of test results among adolescents who chose rapid versus traditional testing methods. Participants were considered to have received their test results by the time of the follow-up visit if they (a) received their rapid test results at the study visit or (b) kept the scheduled follow-up appointment for either traditional or rapid test results. Chart review was performed to assess whether follow-up appointments were kept. For participants who failed to keep their scheduled follow-up appointment for results, an additional chart review was performed 5 months after the close of the study to evaluate for subsequent visits at which HIV test results were provided. These participants were considered to have ever received their test result.

The 99-item self-administered survey included measured constructs derived from the Theory of Planned Behavior and the Health Belief Model [15,16]. Specific items were adapted from similar previous studies of adolescent health behavior. Responses were measured using Likert-type scales. Items and constructs are presented in Table 1. Items also assessed demographics (age, race, ethnicity, gender, parental education) and HIV risk behaviors (number of lifetime partners, condom use). Scale scores were created by estimating the mean response to scale items. Mean scale scores were dichotomized to reflect the original scale responses (positive vs. neutral/negative). Likert-type responses that were analyzed individually were also dichotomized into positive versus neutral/negative. Choice of testing method was dichotomized into rapid testing (oral and fingerstick) versus