

Short Communication

Routine HIV Testing in the Emergency Department: Assessment of Patient Perceptions

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Abstract

The CDC released revised HIV testing guidelines in 2006 recommending routine, opt-out HIV testing in acute care settings including emergency departments (ED). Patient attitudes have been cited as a barrier to implementation of routine HIV testing in the ED. We assessed patients' perceptions of HIV testing in the ED through a contextual qualitative approach. The study was conducted during a 72-h period. All adults presenting to the ED without life-threatening trauma or psychiatric crisis completed a standardized questionnaire. The questionnaire explored HIV testing history, knowledge of testing resources, and qualitative items addressing participant perceptions about advantages and disadvantages to ED testing. After completion of the interview, participants were offered a free, confidential, rapid HIV test. Among 329 eligible individuals approached, 288 (87.5%) completed the initial interview. Participants overwhelmingly ($n=247$, 85.8%) reported support for testing and identified increased knowledge (41%), prevention (12.5%), convenience (11.8%), and treatment (4.9%) among the advantages. Fear and denial about one's HIV status, reported by <5% of patients, were identified as the most significant barriers to ED testing. Bivariate analysis determined race and ethnicity differences between individuals completing the interview and those who refused ($p<0.05$). Among individuals consenting for testing ($n=186$, 64.6%), no positives were detected. Most patients support HIV testing in the ED, noting knowledge of status, prevention, convenience, and linkage to early treatment as distinct advantages. These data are of particular benefit to decision makers considering the addition of routine HIV testing in EDs.

THE CENTERS FOR DISEASE CONTROL (CDC) first published HIV testing guidelines in 1987. A diagnosis of HIV was uniformly fatal at the time, and guidelines drew from the norms for testing for lethal genetic conditions and included extensive and time-consuming pretest and posttest counseling.¹ In the mid-1990s, the advent of combination antiretroviral therapy (ART) transformed HIV into a treatable, chronic condition, and by 2008, life expectancy estimates exceeded the age of 70 in developed nations.² Despite the favorable prognosis of treated HIV, testing strategies remained unchanged, and HIV testing was offered in limited healthcare settings.

By 2003, the incidence of HIV infections in the United States had been stable for approximately 5 years; however, an estimated 252,000–312,000 cases, or 25% of persons living with HIV in the United States, remained undetected.¹ Many believed that the established testing paradigm had reached its maximal potential. In an effort to expand the reach of testing, the CDC released revised guidelines in 2006 recommending

routine opt-out HIV testing for all patients aged 13–64 years in all healthcare settings, with particular emphasis placed on high-volume acute care settings.³ The CDC identified emergency departments (EDs) as key locations for routine HIV testing in part due to the prevalence of HIV reported among individuals seeking emergency care.^{3,4} Advantages to ED testing would include (1) service to a diverse population that more closely resembles the changing demographic trends of the national epidemic, and (2) the potential for earlier diagnosis and treatment initiation, favorably impacting longitudinal health outcomes.³ Additionally, EDs are often used as a last resort for individuals faced with multiple barriers to healthcare and who lack health-seeking behaviors^{5,6} and, therefore, may be optimally positioned to identify HIV infection in vulnerable populations who often use them as a surrogate location for primary care.

Though a growing body of research investigates the feasibility and early outcomes of routine HIV testing in the ED,^{7–11} scant research has focused specifically on the essence and

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extent of patients' attitudes toward routine HIV testing in the acute care setting. The aim of this analysis is to assess patients' perceptions of HIV testing in the ED at a university-affiliated teaching hospital using a contextual qualitative approach to enrich data obtained from a quantitative survey.

The study consisted of a 72-h period during which a convenience sample of individuals presenting to a Level I trauma and academic medical center in Alabama that provides care for over 60,000 patient visits annually was obtained. Patients were deemed eligible for study inclusion if they were over the age of consent (19 years by state law), presented without significant physical trauma or psychiatric crisis, and were not known to be HIV infected. Those unable to provide informed consent or otherwise found to be ineligible (e.g., self-reported too much pain, altered mental status, life-threatening trauma) were excluded. Although CDC guidelines for routine HIV testing suggest limiting testing to those aged 13–64 years, current treatment guidelines recommend lifelong therapy, and a new HIV diagnosis with an appropriate CD4⁺ T cell count, regardless of age, would merit treatment. As Alabama does not currently provide the statutory framework to support the implementation of the new testing guidelines, "opt-in" HIV testing was employed.¹² HIV testing and management of test results were coordinated by the outreach and prevention staff at the hospital center's associated primary care clinic for HIV-infected persons in collaboration with ED personnel and the state Department of Public Health HIV/AIDS Division.

A brief interview was conducted that included basic demographic information (gender, age, race, and ethnicity) and five additional questions. Of these, the first question inquired about the participant's HIV testing history (yes/no/don't know) (Table 1). Those indicating previous HIV testing were asked about the location and date of the last test. A six-point Likert scale was used for participants to provide their level of comfort in being offered an HIV test in the ED. Next, participants were asked if they were aware of other community HIV testing options (yes/no). The remaining two open-ended questions focused on participants' perceptions of the advantages and disadvantages to routine HIV testing in the ED setting (Table 2). Specifically, we asked "What do you think the *advantages* are to being tested for HIV in the emergency department?" and "What do you think the *disadvantages* are to being tested for HIV in the emergency department?"

A planning period preceded study implementation. During this time, researchers attended a national update on the CDC's 2006 recommendations for routine HIV testing in acute care settings (San Antonio, Texas 2008), further developed collaborative relationships with the ED, negotiated study implementation with departmental administration, and trained volunteers to conduct point-of-care rapid HIV testing in the acute care environment. Additionally, research questions were proposed and revised, and, ultimately, the final interview and study protocol were completed and approved by the university's Institutional Review Board (IRB).

During the 72-h period (Friday at 5:00 p.m. through Monday at 5:00 p.m.), two to three volunteer testing staff members were scheduled during predetermined 4-h shifts. This ensured 100% coverage and sufficient personnel to perform study enrollment, documentation, and patient testing at all times during the study period. Patient arrival was monitored through the ED's existing computer software program. One

TABLE 1. DEMOGRAPHICS

<i>Descriptive statistics</i>	<i>Eligible participants overall (n = 288)</i>
Gender	
Male	131 (45.5%)
Female	157 (54.5%)
Race	
White	176 (61.1%)
Black	103 (35.8%)
Other	5 (1.7%)
Unknown	4 (1.4%)
Ethnicity	
Hispanic	3 (1.0%)
Non-Hispanic	268 (93.1%)
Unknown	17 (5.9%)
Age (years)	
19–24	37 (12.8%)
25–34	66 (22.9%)
35–44	43 (14.9%)
45–54	61 (21.2%)
55–64	36 (12.5%)
> 64	45 (15.6%)
Previously tested for HIV	
No	76 (26.4%)
Yes	192 (66.7%)
< 6 months ago	42 (14.6%)
More than 6 months ago to 1 year	28 (9.7%)
More than 1 year ago to 2 years	32 (11.1%)
More than 2 years ago to 5 years	43 (14.9%)
> 5 years ago	33 (11.5%)
Unspecified date	3 (1.0%)
Unknown	11 (3.8%)

testing team member was dispatched to each patient room, and all tests were completed and interpreted by two additional team members in the central location. The convenience sample of eligible patients presenting to the busy, urban ED was asked to respond to questions regarding HIV testing. After completion of the brief interview, patients were asked if they would be interested in receiving a free, confidential, rapid HIV test. HIV testing utilized OraQuick *ADVANCE* HIV-1/2 rapid oral (sensitivity 99.3%, specificity 99.8%) HIV kits¹³ provided at no cost by the state Department of Public Health for the purposes of this study. If the patient agreed, written informed consent for HIV testing was obtained (as required by state law), and the participant was provided with pretest and posttest counseling by the trained study team. In the case of a positive HIV screen, the study team was prepared to notify the ED physicians to request that further confirmatory testing be ordered. A predetermined plan for referral for linkage to treatment at the university-affiliated HIV primary care clinic was also part of the comprehensive testing strategy.

Patient testing data, including the number of patients approached, accepted, and refused, as well as demographics, were entered in real time into a study database. For open-ended items, we applied qualitative methodologies to provide added meaning to the context data. Participants' responses were recorded on paper by volunteers and entered into the study database within 2 weeks of study completion. *In vivo* coding (Colaizzi's Method) was used to identify recurring words and phrases in both advantage and disadvantage items.^{14,15} Through this process, identified recurring words or

TABLE 2. QUALITATIVE THEMES: ADVANTAGES AND DISADVANTAGES FOR EMERGENCY DEPARTMENT HIV TESTING

Qualitative Themes: Samples of Participant Responses for ED HIV Testing Advantages	
Knowledge (<i>n</i> = 118, 41%)	<ul style="list-style-type: none"> • <i>It would be good for people who are afraid to get tested</i> • <i>People who are sick, but undiagnosed could find out</i> • <i>Find out whether you have it or not</i> • <i>It is very important; my partner may mess around</i> • <i>Let you know about your health—more knowledgeable</i>
Prevention (<i>n</i> = 36, 12.5%)	<ul style="list-style-type: none"> • <i>Make sure you do not have it so you will not spread [the virus]</i> • <i>Don't have to worry about transmitting it to anyone else</i> • <i>Keeps community and staff safe</i> • <i>Doctor and patient would know status</i> • <i>Could stop the spreading of the disease</i>
Convenience (<i>n</i> = 34, 11.8%)	<ul style="list-style-type: none"> • <i>Good way to approach people that never took a test</i> • <i>Fast results</i> • <i>More private than a clinic</i> • <i>Already in hospital, already getting tests</i> • <i>Good to have the option</i>
Treatment (<i>n</i> = 14, 4.9%)	<ul style="list-style-type: none"> • <i>It could save your life</i> • <i>Staying alive if you are sick</i> • <i>If you have it, they can help you there</i> • <i>Start treatments sooner if found sooner</i> • <i>Good because you know who to treat in different ways</i>
Qualitative Themes: Samples of Participant Responses for ED HIV Testing Disadvantages	
No disadvantages (<i>n</i> = 175, 60.8%)	<ul style="list-style-type: none"> • <i>Don't see any disadvantage</i> • <i>I think it is something everyone should know</i> • <i>Can't think of any</i> • <i>Only advantages</i> • <i>Not really—think it's a good idea</i>
Fear (<i>n</i> = 12, 4%)	<ul style="list-style-type: none"> • <i>I would be scared</i> • <i>Come in with something small, find out you have HIV</i> • <i>If someone is afraid to find out</i> • <i>Knowing I have AIDS</i> • <i>Scared because it's the ER</i>
Denial (<i>n</i> = 2, 0.7%)	<ul style="list-style-type: none"> • <i>If I'm fixing to die, don't want to know</i> • <i>Don't want to know</i> • <i>Shouldn't be tested</i> • <i>Finding out</i> • <i>Know you are HIV⁺ and might die</i>

ED, emergency department.

phrases were coded or categorized to determine prominent themes. The coding process continued until no new codes or categories could be identified (i.e., thematic saturation was reached). Each participant's response could potentially contribute to more than one identified theme. Efforts to ensure study rigor included use of peer review that allowed the researchers to discuss study interpretation and conclusions with

local experts. To confirm the accuracy of the emerging themes, the researchers instituted triangulation techniques during several research team meetings. This strategy involves validating data through cross-verification and gaining consensus that the information documented is accurate both in terms of content and meaning. All descriptive analyses were completed using the Statistical Package for the Social Sciences (SPSS) version 16.0.

Four hundred and ninety-six patients arrived at the ED during the study period. Of these, 407 (82.1%) were approached for study participation. Of the approached patients, 329 (80.8%) met the eligibility criteria, among whom 288 (87.5%) agreed to an interview. Overall, patients were female (*n* = 157, 54.5%), predominantly white (*n* = 176, 62%), and non-Hispanic (*n* = 268, 93.1%). Ages ranged from 19 to 85 (mean age = 45, SD ± 18). Individuals who answered interview questions differed from those who refused only in terms of race and ethnicity (*p* < 0.05) with whites and individuals self-reporting as non-Hispanic more frequently completing interviews. The majority of participants who completed the interview subsequently consented for rapid HIV testing (*n* = 186, 64.6%), and we found no demographic differences between those who agreed to HIV testing and those who refused. Among those tested, no new cases of HIV were detected. Three known HIV-positive individuals attended the ED during the 72-h study period.

Of the participants who provided HIV testing history information (*n* = 268), 28% (*n* = 76) had never been tested for HIV, while 26% (*n* = 70) had tested for HIV within the past year, and 40% (*n* = 108) reported a history of a prior negative test over 1 year ago. Most participants (*n* = 202, 69.7%) indicated that they were "very comfortable" receiving HIV testing in the ED. Less than 20% of participants rated their level of comfort below the midpoint on the Likert scale. Over 25% of the sample did not know of places in the community where they could receive HIV testing. Sixty-four percent of participants reported an awareness of alternative community HIV testing venues such as local health departments.

With regard to patient perceptions, the predominant favorable theme was *knowledge* of one's HIV status as an advantage to routine testing in the ED (*n* = 118, 41%). Codes referencing variations of the term *knowledge* were included in this theme and were defined by participant responses including, "Good to know for sure," "Let you know about health, more knowledgeable," and "Know how to handle your situation." The remaining most frequently detected themes include *prevention*, *convenience*, and *treatment*. *Prevention* was considered an advantage for some participants (*n* = 36, 12.5%). This particular theme was defined in two ways: prevention of HIV for the patient and the general population (e.g., "protecting yourself as well as others" and "To be safer for the next person") and prevention specifically for the protection of ED staff (e.g., "To determine staff protection...," "Let staff know," and "to protect healthcare workers"). Other participants (*n* = 34, 11.8%) suggested that *convenience* was an advantage. The perception that HIV testing in the ED was "free," "available," and "quicker" contributed to the *convenience* theme. *Treatment* emerged as an advantage to HIV testing in the acute care setting. Participants (*n* = 14, 4.9%) acknowledged the importance of routine HIV testing as an intervention that could lead to early treatment, indicated by responses such as "Get it taken [care] of,"

"Staying alive if you are sick," and "Start treatments sooner if found sooner."

Of the 288 study participants, 175 (60.8%) explicitly stated there were no disadvantages to routine HIV testing in the ED. Of the 113 remaining participants, the themes of *fear* and *denial*, reported by $n=12$ and $n=2$, were the most frequently identified. Four percent of study participants indicated that *fear* associated with testing was a disadvantage. These participants stated that "fear," "being afraid," and "scared" contributed to their reservations with HIV testing in the acute care setting. Other study participants (0.7%) acknowledged that their own *denial* adds to the disadvantage of testing in this setting (e.g., "If I'm fixing to die, I don't want to know").

In this study, we were able to implement opt-in HIV testing in a busy, urban emergency department setting for a 72-h period, approaching over 80% of patients evaluated in the ED. Whereas patient acceptance (ranging from 39% to 87%) has been highlighted as a potential barrier to routine testing in acute care settings,^{10,16} our results indicate that many individuals readily accept HIV testing in the ED (65%). In this study, several contextual themes emerged related to participants' perceptions of both the advantages and disadvantages of testing in this environment. For advantages to ED testing, *knowledge*, *prevention*, *convenience*, and *treatment* emerged as the predominant themes. *Fear* and *denial* emerged as notable themes for the disadvantages to testing; however, the majority of participants identified no disadvantages to testing in the ED.

In contrast to prestudy concerns regarding patient acceptance of routine HIV testing in the acute care setting, the majority of our study population highlighted many positive aspects of HIV testing in the ED. Utilizing similar methodology, prior investigations have found that demographic characteristics, individual concerns about the accuracy of the testing instrument, programs, policies, and laws, and counseling and testing strategies may prevent acceptance of routine HIV testing.^{10,17,18} However, in our study, none of these factors was identified as barriers to acceptance of HIV testing in the ED. In fact, routine HIV testing in the acute care setting was remarkably supported by participants' comments, such as "this may be the only place to find out your status," "[ED testing is a] good way to approach people that never took a test," and "don't worry about being tested somewhere else." Among patients who responded to the disadvantage item and whose responses could be coded into themes, 4.7% noted disadvantages to HIV testing in the ED. The theme of *knowledge*, or the importance of being aware of one's HIV status, was identified as the predominant advantage. The fundamental approval for rapid ED testing may, in part, reflect an increasing awareness of the need for HIV testing and the success of ART and may suggest that the general public is ready to support widespread implementation of this policy.

Thorough study conceptualization and development ensured that testing was achieved with minimal disruption of ED operations. With few additions to staffing and token changes to current practice, we believe that routine HIV testing is a readily achievable goal. Mahajan and colleague's¹² review of current state legislation related to universal HIV testing found that over 30% of U.S. states were not in full compliance with the CDC's 2006 HIV testing guidelines due, in part, to financial concerns related to the associated cost of testing and apprehension regarding patient acceptance. A recent decision by the Centers for Medicare and Medicaid

Services added HIV testing to its list of covered preventive services.¹⁹ Recent reports on successfully implemented ED HIV testing programs suggest increased support by ED physicians when barriers to HIV testing are addressed,²⁰ the program is efficiently designed,²¹ and training is provided to providers.²² Therefore, given study results suggesting patient support for routine HIV testing in the ED and the increasing emphasis on the universal provision of preventive healthcare, this alignment of Federal policy, third-party payer, emergency department provider, and patient support leaves few obstacles to large-scale implementation of universal HIV testing in EDs and other acute care settings nationwide if our findings are ubiquitous.

Our study has a number of limitations. As a single ED in a large, academic medical center in the Southeast United States, our findings may not be applicable to all treatment settings. As with qualitative research, our purpose was to relay the broad-stroke perceptions of our patient population regarding routine rapid HIV testing in acute care settings. Due to concerns over their ability to provide informed consent, we excluded individuals who presented to the ED with severe trauma and psychiatric crisis. These individuals may be at significant risk for HIV, less likely to seek HIV testing in traditional venues, and, therefore, may greatly benefit from expanded testing in the ED. Although the CDC's HIV testing guidelines recommend opt-out testing, we were limited to implementation of opt-in testing procedures. Though this limitation may have constrained our testing of those who feel fear and experience the most stigma, our acceptance rate (65%) among approached eligible patients serves to allay this concern.

The present study yields important insights into patients' perceptions of routine HIV testing in the ED setting. The findings suggest that study participants perceive HIV testing in the ED as advantageous, and they, likewise, perceive few disadvantages to testing in the acute care setting. Hence, state lawmakers', health officials', and hospital administrators' reservations about implementing routine HIV testing in the ED²³ are not consistently confirmed by patient concerns in this study. Continued implementation of routine HIV testing in emergency departments across the country will be a substantial advancement toward ensuring personal and public health by providing low-barrier access to HIV testing and expeditious treatment referral for individuals who are HIV positive.

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