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Efficacy of an Emergency Department-Based HIV Screening Program in the Deep South

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ABSTRACT *Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) continue to be a significant public health concern in the United States. It disproportionately affects persons in the Deep South of the United States, specifically African Americans. This is a descriptive report of an Emergency Department (ED)-based HIV screening program in the Deep South using the 2006 Centers for Disease Control and Prevention (CDC) recommendations for rapid testing and opt-out consent. Between May 2008 and March 2010, patients presenting for medical care to the ED Monday through Friday between 10 AM and 10 PM were approached for HIV screening. Patients were eligible for screening if they were 18 or older, had no previous history of positive HIV tests, were English-Speaking, and were not incarcerated, medically unstable, or otherwise able to decline testing. All patients were tested using the OraQuick® rapid HIV 1/2 antibody test. Patients with non-reactive results were referred to community anonymous testing sites for further testing. Patients with reactive results had confirmatory Western blot and CD4 counts drawn and were brought back to the ED for disclosure of the results. All patients with confirmed HIV positive via reactive Western blot were referred to the hospital-based infectious disease clinic or county health department. We tested 7,616 patients out of 8,922 approached. The overall test acceptance rate was 85.4%. 91.0% of patients tested were African American. The most common reason for refusal was recent HIV test. 1.7% of patients tested were confirmed HIV positive via Western blot. 95.2% of patients testing HIV positive were African American. The average CD4 count for patients testing positive was 276 cells/μl, with 42.0% of patients having CD4 counts ≤200 μl, consistent with an AIDS diagnosis. 88.4% of patients who had reactive oral swabs returned for Western blot results and 75.0% of patients attended their first clinic visit. We have been able to successfully carry out an ED-based HIV screening program in a resource-poor urban teaching facility in the Deep South. We define our success based on our relatively high test acceptance rate and high rate of attendance at first clinic visit. Our patient population has a relatively high undocumented HIV prevalence and are at advanced stage of disease at the time of diagnosis.*

KEYWORDS *Rapid HIV screening, Emergency Department, Southeastern United States*

INTRODUCTION

Over 1.1 million people in the United States are infected with the Human Immunodeficiency Virus (HIV), and 21% of these are unaware of their infection.[1]

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Approximately 56,000 new HIV infections occur annually.[2] Furthermore, regional, ethnic, and racial disparities exist regarding HIV prevalence. In comparison to other regions in the United States, the Deep South (AL, GA, LA, MS, NC, SC) has the highest HIV prevalence rate and is experiencing an increase in AIDS incidence.[3,4] African Americans in this region are disproportionately affected by HIV/AIDS and are more likely to be tested late in their disease course.[5]

To improve detection and decrease disease transmission, the Centers for Disease Control and Prevention (CDC) recommends that Emergency Departments (EDs) with an HIV prevalence rate >0.1% routinely provide voluntary HIV screening to all patients aged 13–64.[6] ED-based screening programs are feasible and well received by patients.[7–11] However, the majority of studies have been conducted outside of the Deep South. This article is a descriptive report of an ED-based rapid HIV screening program in the Deep South using the 2006 CDC recommendations.

METHODS

The rapid HIV screening program was implemented in an ED that is part of a county-supported teaching institution in a large southeastern city. There are >100,000 visits per year, almost half of which are self-pay.

HIV screening was offered to patients who presented to the ED for medical care between 10 A.M. and 10 P.M. Monday through Friday. Testing took place in the waiting room and treatment areas. Patients were ineligible for testing if they were less than 18 years of age, known to have HIV/AIDS, non-English speaking, incarcerated, medically unstable, or unable to decline testing.

Eligible patients were approached by a trained HIV counselor, who explained that rapid HIV testing was part of routine medical care. Patients were given the opportunity to decline testing and were asked to sign a form indicating their decision to accept or decline. Patients accepting testing received pre-test counseling. Both the written consent and counseling were required by state law and hospital regulations, but are not part of the current CDC recommendations.

The OraQuick® Rapid HIV 1/2 Antibody Test, OraSure Technologies, Bethlehem, PA was administered, and the patients were informed of their results during their ED stay. Patients with non-reactive (negative) tests were referred to local community-based HIV/AIDS organizations for routine testing.

Confirmatory Western blot analysis and CD4 counts were performed for all patients with reactive ("preliminary positive") rapid tests. The results of the Western blot and CD4 count were disclosed at a follow-up appointment. Patients with negative Western blots were instructed to follow-up for repeat testing in 3–6 months. Patients with positive Western blots were given an appointment at either the local health department or hospital-affiliated infectious disease program. All patients confirmed to be HIV positive were reported to the state.

All data were entered into a secure database on a password-protected computer and were analyzed using the SPSS (version 16; SPSS, Chicago, IL). The program coordinator queried the database for patients approached and tested between May 2008 and March 2010. Standard descriptive statistics were calculated for test acceptance rate, patient demographics, and average CD4 counts at the time of diagnosis. The university institutional review board and the hospital research oversight committee approved the protocol.

RESULTS

During this program period, 8,922 eligible patients were approached, and 7,616 were tested, representing an overall test acceptance rate of 85.4%. The most common reasons for refusal were recent HIV testing and lack of interest. For patients tested, the average age was 39 years, the male-to-female ratio was 1:1, and 91.0% of the patients were African American (Table 1).

For patients confirmed HIV positive (1.7%), the average age was 38 years, the male-to-female ratio was 3:1, and 95.2% of the patients were African American. The average CD4 count was 276 cells/μl. Sixty-seven percent of the patients were eligible for antiretroviral therapy at the time of diagnosis (CD4 count ≤350 cells/μl), and 42.0% of patients had CD4 counts ≤200 cells/μl, which is consistent with an AIDS diagnosis.

Of the patients, 88.4% who tested preliminary positive returned to receive their Western blot results, and 75.0% of patients attended their initial clinic visit. Typically, less than one third of the patients attended follow-up appointments at other hospital-affiliated clinics.

DISCUSSION

Our patient population has a high undocumented prevalence of HIV infection, and many are at a late stage of the disease at the time of diagnosis. This is consistent with the results from other urban EDs.[12] As mentioned above, it is also consistent with HIV care in the Deep South. Unfortunately, patients who institute treatment at later stages of their disease have a poorer prognosis.[13]

In 2009, the CDC began investigating a "test and treat" strategy to reduce HIV transmission, in which antiretroviral (ARV) therapy is initiated at the time of diagnosis, regardless of CD4 count. The goal of early treatment is to reduce an individual patient's infectivity and improve survival. The majority of our patients went to their first clinic appointment; however, the rates of retention and ARV use are unknown at this time. While the "test and treat" strategy is still being studied, it is thus far most successful for newly diagnosed patients with high entry and retention rates in HIV medical care.[14]

The primary limitation of our program is that we were not able to offer testing to every patient in the ED. Our test acceptance rate indicates we should be successful in testing the remaining ED patients, if we are able to expand our testing efforts. Secondly, our program is reliant on external funding for purchasing of tests, Western blot and CD4 counts, counselor salaries, and clerical supplies. This is true for the majority of ED-based testing programs.[10] Strategies to reduce reliance on external funding include integrating screening into triage nurse responsibilities and testing into laboratory responsibilities.

CONCLUSION

Our HIV screening program, located in the Deep South, has found a relatively high rate of undocumented HIV infection and low CD4 counts in our ED patients. We are constrained by reliance on external funding and inadequate staffing. As the CDC develops its strategy for HIV testing and treatment, our program continues to coordinate with institutional and local HIV clinics for patient follow-up.

TABLE 1 Patient demographics

	Test Administered[a]	Negative Screen	Western Blot Positive[b]	Declined Testing[c]
Total Patients	7,616	7,474	126	1,306
% of patient	85.4%	98.1%	1.7%	14.6%
Gender				
Male	50.2%	49.8%	75.2%	48.3%
Female	49.8%	50.2%	24.0%	51.7%
Race				
AA	91.0%	90.9%	95.2%	86.7%
Caucasian	6.9%	7.0%	3.2%	7.4%
Hispanic	1.1%	1.1%	1.6%	0.9%
Asian	0.3%	0.3%	–	0.5%
Native American	0.1%	0.1%	–	0.0%
Other	0.6%	0.6%	–	4.5%
Ethnicity				
Hispanic	1.2%	1.1%	1.6%	
Non-Hispanic	98.8%	98.9%	98.4%	
Age				
Average (median), all	39 (38)	39(39)	38 (38)	
Average (median), male	40 (41)	40(41)	38 (38)	
Average (median), female	37 (36)	37 (36)	39 (41)	
By age group (%)				
18–25	20.6%	20.6%	19.0%	
26–30	12.1%	12.1%	14.3%	
31–40	19.5%	19.5%	23.0%	
41–50	25.1%	25.1%	28.6%	
>50	22.4%	22.5%	15.1%	

[a]Includes known positives, invalid result, or non-result. This accounts for <0.2% of tests administered

[b]One hundred twenty-nine patients tested preliminary positive; 126 confirmed by Western blot. One patient refused confirmatory testing and two patients testing preliminary positive for HIV had negative Western blots. There is a <0.1% false positive rate

[c]There are missing data on gender and race for <1.0% of those patients who declined testing

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