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Integrating Routine HIV Screening Into a Primary Care Setting in Rural North Carolina

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Abstract

African Americans living in the southern United States are disproportionately affected by HIV infection. Identifying and treating those who are infected is an important strategy for reducing HIV transmission. A model for integrating rapid HIV screening into community health centers was modified and used to guide implementation of a testing program in a primary care setting in a small North Carolina town serving a rural African American population. Anonymous surveys were completed by 138 adults who were offered an HIV test; of the 100 (72%) who accepted an HIV test, 61% were female and 89.9% were African American. Among those African American survey respondents who accepted an offer of testing, 58% were women. The most common reason for declining an HIV test was lack of perceived risk; younger patients were more likely to get tested. Implementation of the testing model posed challenges with time, data collection, and clinic flow.

Keywords

African American; HIV; rural; screening; south; primary care

HIV infection continues to be a significant worldwide source of morbidity and mortality in spite of advances in the medical management of people living with HIV (PLWH) infection;

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within the United States, the South has been disproportionately affected by the epidemic (Centers for Disease Control and Prevention [CDC], 2011). According to the 2009 HIV/AIDS surveillance data from the CDC, 8 of the 10 states reporting the highest rates of new HIV infections were in the South, 46% of new AIDS diagnoses were in the South, and half of the newly reported cases of HIV were in the South (CDC, 2011). Of the 40 states and 5 territories that reported new HIV diagnoses in 2009, North Carolina ranked eighth with 23.8 new infections per 100,000 population, slightly higher than the overall U.S. rate of 21.1 per 100,000, and the rate of AIDS diagnoses was the eleventh highest in the country (North Carolina Department of Health and Human Services [NCDHHS], 2011). Since the early 1990s, roughly 25% of HIV-infected persons in North Carolina have lived in rural areas (NCDHHS, 2009). In 2006 North Carolina had the highest reported rates among rural areas within the United States for both HIV infection and AIDS, and rural Vance County, where this project was conducted, had the twelfth highest rate of newly reported HIV-infected individuals in the state between 2008 and 2010 (NCDHHS, 2011).

North Carolina has the eighth highest percentage of the African American population in the United States, and in 2010 the rate of new HIV infections among adult/adolescent African Americans in North Carolina was more than 10 times greater than the rate of new infections among adult/adolescent Whites (NCDHHS, 2011). The highest rate of new infections in 2010 in North Carolina was found among adult/adolescent African American males (94.0 per 100,000 population), and the largest disparity in HIV diagnoses in North Carolina existed between adult and adolescent White and African American females; the 2010 HIV rate for African American females was approximately 17 times higher than White, non-Hispanic females (NCDHHS, 2011).

The risk of HIV transmission in North Carolina is highest among men who have sex with men (MSM) who accounted for 75% of new adult/adolescent HIV cases in 2010; African American MSM had nearly twice the number of cases as White non-Hispanic MSM. Heterosexual transmission, which accounted for 95% of cases among adult/adolescent females, accounted for 21% of all new cases in 2010 (NCDHHS, 2011).

It is estimated that 20% of the nearly 1.2 million PLWH in the United States do not know their HIV antibody status, and therefore may unknowingly infect others (CDC, 2011); those who are unaware of their HIV status account for an estimated 54%-70% of new infections (Marks, Crepaz, & Janssen, 2006). Additionally, 40% to 50% are being diagnosed late in infection with CDC-defined AIDS (Krawczyk et al., 2006; Mugavero, Castellano, Edelman, & Hicks, 2007). Treatment for HIV infection substantially reduces morbidity and mortality; early initiation of antiretroviral therapy can reduce a person's risk of transmitting the virus to an uninfected partner by as much as 96% (Cohen et al., 2011), and becoming aware of one's HIV status is known to lead to behavior changes that reduce the risk of transmission (Marks, Crepaz, Senterfitt, & Janssen, 2005; Weinhardt, Carey, Johnson, & Bickham, 1999). All of these facts underscore the need for effective HIV prevention and screening strategies.

In 2006 the CDC issued a recommendation that all people ages 13-64 should be offered HIV antibody testing as a routine part of primary care (Branson et al., 2006). In response to and in support of those recommendations the National Association of Community Health

Centers (NACHC) conducted a pilot implementation study of HIV testing programs in six community health centers in Mississippi, North Carolina, and South Carolina from December 2006 through April 2008 (Myers, Modica, Dufour, Bernstein, & McNamara, 2009). The success of that pilot led to the development of an innovative national model for integrating HIV screening into routine primary care (Modica, 2009). The NACHC model integrated routine testing into a clinic's workflow utilizing existing staff, while adding only a few minutes to the patient visit.

A privately-owned primary care clinic (referred to in this paper as PCC) and the Northern Outreach Clinic (NOC), a grant-funded HIV clinic with a staff skilled in rapid HIV testing, are located in the town of Henderson, NC, the county seat of rural Vance County. The two clinics, which provide care for a predominantly underserved African American population, joined together to integrate a routine HIV screening program adopted from the NACHC testing model in February and March of 2012 at the PCC, utilizing rapid HIV testing kits provided by the North Carolina Rapid HIV Testing Program.

The primary aim of this project was to increase HIV testing in the Henderson community and surrounding rural area by integrating rapid HIV testing into the primary care setting. The second aim of the project was to examine the relationship between sociodemographic variables and acceptance of HIV testing. In this paper the HIV testing rates for the first 7 weeks of project implementation are reported, the challenges involved in the planning and initial implementation of the project are described, and the sociodemographic variables associated with test acceptance that were derived from survey data are discussed.

Methods

Study Sample

Between February 1 and March, 20, 2012, 100 patients underwent rapid HIV antibody testing at the PCC by a team of nursing and medical assistants during routine office visits.

Anonymous surveys regarding sociodemographic variables and routine HIV testing were completed by 138 adult patients who were offered a test; patients were asked to complete the survey regardless of whether or not they chose to undergo testing.

Setting

Henderson, NC, had a population of 15,368 in 2010, of which 55.6% were female, 64% were African American, and 30% were White. From 2006-2010 median household income was $26,164 and 33.3% of the population lived below the federal poverty level (U.S. Census Bureau, 2012). The primary care clinic where the project was conducted is the oldest African American-owned private medical practice in the community, and the clinic serves a predominately African American clientele from Henderson and the surrounding rural area. Our project was unique in this geographic area as no other primary care practices had routinized the practice of HIV screening. It was also unique in that the population under focus represented a constellation of social factors that influence health and behavior such as religion, racial minorities, poverty, low literacy, homophobia, and stigma.

Project Implementation

The implementation plan for this project was adopted from the NACHC model for integrating routine HIV screening into community health centers (Modica, 2009). The model was designed to coordinate the implementation process over a 90-day timeline. Eight essential steps were outlined, including guidance in how to (a) build the infrastructure for testing, (b) establish essential links and partnerships, (c) develop quality assurance standards, (d) organize the patient flow process, (e) solidify a protocol for handling reactive test results, (f) finalize data collection methods, (g) train the staff, and (h) launch the project. Table 1 summarizes the key elements and primary implementation tasks involved in each step.

Data Collection

Each time a test was offered, testers were responsible for entering into the electronic medical record whether or not the test was accepted, and the results of the test. When a patient accepted a rapid HIV test, the tester was responsible for recording the following information in a test results log: patient ID, test date, test lot number, developing time, test result (negative, reactive, or invalid), presence of built-in control, and the name of the tester/reader.

After being offered an HIV test, patients were asked to complete an anonymous survey that captured self-reported sociodemographic data, and, for those who declined an offer of HIV testing, the reason(s) that testing was refused. In the original NACHC testing model that information was gathered by the testers and entered onto a paper data collection sheet. We decided to collect those data by means of a survey because we thought patients might be more honest about why they refused an offer of testing if they were able to list the reason(s) anonymously. The survey (Figure 1), which was derived primarily from the NACHC model and developed by the first author, was reviewed by six faculty members at the Duke University School of Nursing prior to being approved by the Duke University Institutional Review Board (IRB). Although rapid testing was offered to anyone 13 years and older in keeping with CDC recommendations, survey data were collected only on patients 18 years and older (no minors), which was an IRB restriction. To collect data on patients younger than age 18, we would have been required to obtain written informed consent; introducing written informed consent into the testing process would have posed a significant barrier to rapid HIV testing. Survey data were transferred from paper to an electronic database utilizing REDCap™ (Research Electronic Data Capture) software and stored on a secure server at the Duke University School of Nursing. Data were converted to an Excel format prior to being downloaded to Statistical Package for the Social Sciences (SPSS) for analysis.

Data Analysis and Results

A number of discrepancies in the data were extracted from the PCC electronic medical records due to inconsistencies in data collection and reporting, particularly during the first 3 weeks of testing, so meaningful use of those data was not possible. Therefore, data analysis for this paper is restricted to data that were obtained from the surveys only.

Between February 1 and March 20, 2012, 138 patients were offered an HIV test and then asked to complete an anonymous survey. One hundred (72%) of the survey respondents agreed to be tested. There were no invalid or reactive test results. Among those who declined an offer of testing, 35/38 (92%) chose to list their reason (Table 2). *I do not think I am at risk* was the most common reason (28.6%), followed by *I already know my status* (25.7%), *I was recently tested for HIV* (22.9%), *I do not want to be tested for personal reasons* (14.3%), *I did not have time for an HIV test today* (5.7%), and *I am worried about my privacy* (2.8%).

The mean age of the survey respondents was 43.55 years (SD = 14.86). Sixty-one percent were female and most of the participants were African American (89.90%). The aim of the survey analysis was to understand sociodemographic factors contributing to one's agreement (*Yes/No*) to undergo HIV testing.

To determine the relationship between variables of interest and agreement to undergo testing, a logistic regression was conducted, using backward conditional elimination. Given the exploratory nature of the study, we included 11 predictor variables (Table 3) although the suggested sample size is 10 participants per predictor (Peduzzi, Concato, Kemper, Holford, & Feinstein, 1996). Included in the model were age, race, gender, sexual orientation, high school graduate, college graduate, medical insurance recipient, knowing someone with HIV, employment status, agreement with CDC recommendations, and experience with HIV testing prior to this visit. Each categorical predictor variable was recoded as necessary to reflect a status of 1= *presence of the variable* and 0 = *absence of the variable*. Statistical analysis was conducted using SPSS Statistical Analysis software version 19.

Results revealed that age was significantly related to agreement to undergo testing (final model η^2 [n = 138] = 13.79, $p < .001$). Specifically, an increase of 1 year in age corresponded to a 6% decrease in the odds of a person agreeing to be tested. All other variables were non-significant in the overall model.

Discussion

An emerging body of evidence composed primarily of pre- and post-implementation testing data has suggested that HIV testing rates improve in a variety of health care settings when a universal approach to screening is adopted (Anaya et al., 2008; Brown et al., 2007; Criniti, Aaron, Hilley, & Wolf, 2011; Cunningham et al., 2009; Liddicoat, Losina, Kang, Freedberg, & Walensky, 2006; Myers et al., 2009; Walensky et al., 2011; Weis et al., 2009). The study in the Southeast by Myers and colleagues (2009) that led to development of the NACHC model reported an overall 67% HIV test acceptance rate that ranged from 56% to 83% across centers during a 13-month period, which represented a nearly 3-fold increase in testing compared to the prior year.

A number of barriers to implementing the CDC recommendations for routine HIV screening have been identified and reported in the literature. These include state and/or local laws that interfere with the CDC recommendations for testing, concerns about pre-test and post-test

counseling, fear of discrimination, stigma associated with an HIV diagnosis, cost of testing and the perception that risk-based HIV testing is more cost-effective, and lack of effective mechanisms to link newly diagnosed HIV-infected patients to care (Bartlett et al., 2008). The absence of several of these barriers facilitated success for our particular project: North Carolina law no longer requires separate written consent or pre- and post-test counseling for HIV testing, test kits were provided free by the North Carolina Rapid HIV Testing Program in exchange for data reporting to the CDC, and anyone who was identified as HIV-infected at the PCC had a direct link to comprehensive HIV care through the NOC.

Several challenges arose during early implementation of this project that deserve mention. First, the 90-day timeline for implementation proved to be insufficient for the amount of preparation that was required; coordinating schedules and organizing the necessary groups of people was more time-consuming and difficult than anticipated. In addition to the groundwork outlined in the implementation plan, certain requirements for participating in the North Carolina Rapid HIV Testing Program had to be met, including submission of a Clinical Laboratory Improvement Amendments (CLIA) certificate of waiver, obtaining a certificate for HIV testing, making sure that quality assurance measures were in compliance with the program's requirements, and ordering and receiving test kits from the state-run program. Once the December 1, 2011, target implementation date had passed, it became increasingly difficult to coordinate the final steps due to erratic holiday schedules, and testing did not begin until February, 2012. A 6-month goal for implementation would have been more reasonable.

A second problem that occurred during early project implementation concerned data collection. Although training sessions with PCC staff included the data collection process, data collection and entry into the electronic medical record was inconsistent among the testers, especially in the first 3 weeks of testing, which compromised the ability to conduct certain analyses such as comparing total acceptance/refusal rates. Inconsistencies in data collection and recording were cited as potential limitations when rapid testing was implemented at community health centers in South Carolina (Weis et al., 2009), although nurses involved in that study were not trained in data collection procedures. In the original NACHC model, all data, including reasons for test refusal, are collected by testers and entered onto a single data collection sheet. Perhaps having a single data sheet to complete, as opposed to administering a survey and entering data into a log book and the electronic medical record, would have streamlined the data collection process and allowed for more consistency in recording.

A third problem concerned patient volume and flow. Patients were scheduled every 15 minutes at the PCC, and unscheduled walk-in patients were always accommodated. When the clinic was particularly busy, when they were running behind schedule, or when emergent issues arose, the testers felt there was insufficient time to perform the test. Lack of time has been cited in the literature as a barrier to routine testing (Demarco, Gallagher, Bradley-Springer, Jones, & Visk, 2012; Thornton et al., 2012). In a recent study of routine HIV testing in a primary care clinic that reported a low rate of HIV testing (8.75%), a survey of health care workers who participated in testing revealed that busy days or days when the

clinic was short-staffed resulted in fewer tests being offered (Valenti, Szpunar, Saravolatz, & Johnson, 2012).

In our survey analysis we found that younger patients were more likely than older patients to undergo testing. The Kaiser Family Foundation (KFF, 2011), *2009 Survey of Americans on HIV/AIDS*, showed that younger adults were more likely to undergo testing than older adults. Younger age has been associated with higher test acceptance rates in other studies (Brown et al., 2007; Cunningham et al., 2009; Valenti et al., 2012; Weis et al., 2009), and age has been shown to be negatively associated with HIV testing in at-risk African American women in particular (Akers, Bernstein, Henderson, Doyle, & Corbie-Smith, 2007).

The majority of those who accepted an offer of HIV testing in this study were African American women, so we were successful in reaching that particular group at high risk for HIV infection. We were not, however, successful in reaching African American MSM, the group at highest risk in the South. This may have been due in part to lower numbers of MSM seeking medical care. Perhaps adopting a strategy of home-based HIV testing would better reach those who do not routinely seek out medical care, or those in rural areas who may live far away from testing sites. This type of strategy has proved to be effective in rural areas of Malawi (Helleringer, Kohler, Frimpong, & Mkandawire, 2009) and Uganda (Menzies et al., 2009), and home-based testing as part of online HIV prevention research has been shown to be acceptable with high-risk MSM in the United States (Sharma, Sullivan, & Khosropour, 2011).

Regarding stigma associated with HIV testing, the KFF (2011) 2009 survey reported that 69% of the public (up from 62% in 2006) felt that being tested would not make a difference in how people they knew would think of them, yet those who perceived a threat of testing-related stigma (those who felt people they knew would think less of them if it were found out they had been tested) were much less likely to have ever undergone testing in the first place. Although the stigma surrounding HIV testing was not addressed in our survey, respondents were asked about sexual orientation, and interestingly, only 89/138 (64.5%) chose to disclose their sexual orientation (76 heterosexual, 9 bisexual, and 4 homosexual), which may reflect the fear of stigma associated with homosexuality that is prevalent within African American communities (Glick & Golden, 2010). The low response rate to the question of sexual orientation may have also been influenced by how the question was asked. The Sexual Minority Assessment Research Team (SMART), a multidisciplinary panel of experts that has explored the question of how to ask about sexual orientation, has recommended a question developed and tested by researchers at the National Center for Health Statistics (NCHS). The question reads: Do you consider yourself to be: a) Heterosexual or straight; b) Gay or lesbian; or c) Bisexual? (Badgett, 2009, p. 8). The SMART panel also discouraged the use of the terms sexual orientation or sexual identity in the stem of the question as it confused many respondents (Badgett, 2009). Perhaps avoiding the term sexual orientation and including the terms gay, lesbian, or straight would have yielded a higher response rate.

Lack of perceived risk was the most common reason our survey respondents cited for not accepting an HIV test, which was consistent with what has been seen in other studies (Akers et al., 2007; Cunningham et al., 2009; McCoy et al., 2009; Myers et al., 2009; Weis et al., 2009). Similarly, 69% of respondents to the KFF (2011) 2009 survey who said they had never been tested cited not being at risk as their reason. Future research should explore strategies for increasing HIV risk awareness in PCC clinic attendees (many of whom comprise identified at-risk groups), such as increasing visibility of posters and other patient education materials in patient waiting areas and examination rooms. Other commonly cited reasons in our survey for test refusal were current knowledge of HIV status and having been recently tested. And lastly, in the KFF (2011) 2009 survey, 27% said that they never underwent HIV testing because their doctor had never recommended it, a finding that further supported a routine testing strategy over traditional targeted, risk-based testing. Prior to project implementation, the PCC did not routinely ask patients if they would like an HIV test; testing was performed only if the patient requested it, if the provider determined the patient to be at risk, or if the patient presented with a symptom complex that suggested HIV infection. Simply asking patients if they would like to have an HIV test in the PCC resulted in increased screening rates.

Greenhalgh, Robert, Bate, Macfarlane, and Kyriakidou (2005) identified a number of key attributes that facilitated successful innovations and predicted sustainability, and a number of these attributes characterized the NACHC model and its adoption in the PCC. There are obvious relative advantages to adoption: (a) increased testing can lead to earlier identification of HIV infection and a corresponding reduction in HIV morbidity, mortality, and transmission in the community; (b) the testing program is compatible with the existing organizational structure and the adopters' values; (c) rapid HIV testing demonstrates low complexity, trialability, and observability; and (d) the NACHC model is malleable and easy to modify. One of the nursing assistants offering and performing rapid testing at the PCC emerged as a "champion" during the study, and the PCC had a direct link to HIV clinical care through the NOC. Both of these factors have positively influenced sustainability of rapid HIV testing programs in other clinical settings (Criniti et al., 2011). Other factors that may positively influence the sustainability of the current project include the availability of free rapid test kits in exchange for data reporting to the CDC, and the ability to purchase kits and bill for testing should the supply of test kits from the North Carolina Rapid HIV Testing Program be interrupted. A primary threat to sustainability is the impact on clinic work flow; therefore, a strategy of including rapid HIV testing in a battery of routine yearly screenings may be a more sustainable alternative in busy primary care settings.

Study Limitations

A limitation of this study is the lack of baseline data, specifically the HIV testing rate at the PCC before project implementation. Anecdotally, only a few patients had been screened for HIV infection during the previous year, and none of those screenings was a routine part of primary care. Another limitation was the lack of accurate data regarding the number of patients who are routinely seen at the PCC, and the number of patients seen during the time of data collection, which made it impossible to ascertain the actual percentage of patients seen during the time period who were offered a test. The lack of an accurate demographic

profile of the PCC patient population was also a limitation, which made it difficult to determine if the large number of African American women and the small number of MSM who were tested reflected the PCC clientele.

Conclusions and Implications for Practice

Early implementation of the NACHC model in our setting posed challenges in terms of time involved in initial planning, consistent data collection and reporting, and patient flow. In spite of these challenges, 100 patients were screened for HIV infection who might not have been screened otherwise, and they were given HIV risk reduction handouts after testing, an education intervention that may raise awareness and lead to behavior changes. Younger patients were more likely to undergo testing. The majority of patients who were tested, African American women, represented a high-risk group in North Carolina and the South, and yet African American MSM, those with the highest risk, were underrepresented in our sample. Although nurse-led rapid HIV testing has been shown to be an effective strategy and the NACHC model has been shown to be effective in community health center settings, more studies are needed to establish best practices for HIV screening in busy rural primary care settings, and novel strategies are needed for increasing testing rates among MSM.

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Age: _____

Race: □ African American
□ White (non-Hispanic)
□ Hispanic
□ American Indian
□ Asian/Pacific Islander
□ Other

Gender: □ Male □ Female If female, are you pregnant? Y/N

Sexual orientation: □ Heterosexual □ Homosexual □ Bisexual

Are you a high school graduate? Y/N

Are you a college graduate? Y/N

Do you have medical insurance? Y/N

Do you have Medicare or Medicaid? Y/N

Are you employed? Y/N

The CDC recommends that all people between the ages of 13 and 64 should be tested for HIV infection. Do you agree that HIV testing should be a routine part of your medical care? Y/N

Have you ever been tested for HIV before? Y/N

Do you know anyone who has HIV infection or AIDS? Y/N

Were you asked if you would like to be tested for HIV today? Y/N

If you were asked if you would like to be tested for HIV, were you asked by the nurse or the doctor? □ Nurse □ Doctor

If you were asked if you would like to be tested for HIV, did it make you feel uncomfortable? Y/N

Did you agree to be tested for HIV today? Y/N

If you did NOT agree to be tested for HIV today, please check the reason why from the list below:

□ I do not think I am at risk for HIV

□ I was recently tested for HIV

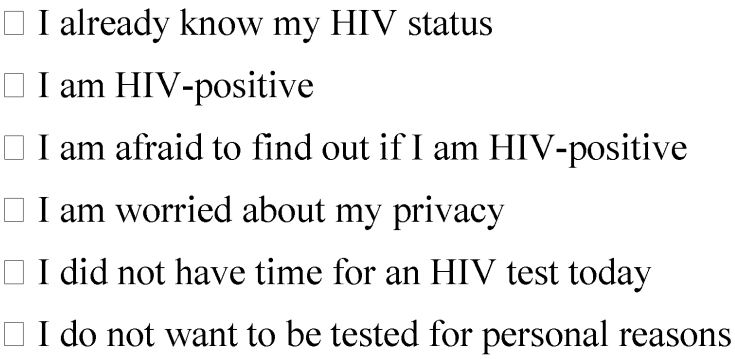

Figure 1.
HIV testing survey.

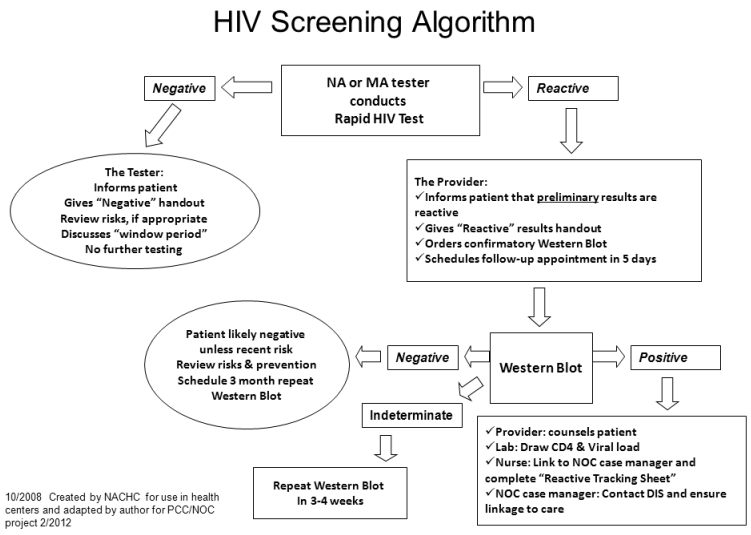

Figure 2.

HIV screening algorithm.

Note. NA = nursing assistant; MA = medical assistant; NOC = Northern Outreach Clinic; DIS = Disease Intervention Specialist; NACHC= National Association of Community Health Centers.

Table 1

Implementation Plan for Rapid HIV Testing Adapted from the NACHC Model

Essential Steps	Key Elements	Implementation Plans
Step 1: Pre-Work	• Choose a rapid HIV testing method. • Establish key personnel for managing kits. • Solidify referral arrangements for HIV care.	• The Uni-Gold ™ Recombigen® HIV rapid test chosen for its reliability; specificity = 100% (99.5100, 95% CI), sensitivity = 99.7% (99-100, 95% CI; Greenwald, Burstein, Pincus, & Branson, 2006). Kits obtained free of charge from the NC Rapid HIV Testing Program in exchange for data reporting to the CDC. • PCC medical assistant is designated to manage kit inventory, maintain test/control logs, and ensure that kits are current and that those closest to their expiration dates are used before those with later expiration dates. • Patients with positive rapid HIV test and positive confirmatory WB are referred to the NOC for comprehensive medical care and case management. NOC Bridge Counselor and Case Manager are responsible for ensuring linkage to other facilities if necessary.
Step 2: Set up the Framework	• Finalize data collection and documentation plans. • Prepare test logs. • Prepare patient education materials and draft staff tools.	• Electronic medical record is used to document demographic data, test acceptance or rejection, and test results. • A reactive tracking tool from NACHC model is used to collect data regarding follow-up of any reactive rapid HIV test result. • Rapid HIV test results logs and test control results logs from NACHC model are used to document test lot numbers, tester names, test date/times, and internal/external test controls. • NACHC patient brochures (English and Spanish) describing HIV testing in simple language are placed in patient waiting areas. Scripts from NACHC model are utilized to help guide nurses and providers in the use of appropriate language for offering/ performing rapid HIV tests, and delivering the results.
Step 3: Design the Patient Visit Process to Include HIV Screening	• Develop a patient visit process for integrating HIV screening into existing work flow. • Define the process for responding to test results (see algorithm, Figure 1).	• After check-in and vital signs, the patient is offered a rapid HIV test by a medical or nursing assistant in the privacy of the exam room, and verbal consent is obtained (sufficient per NC law). If the test is accepted, a blood sample is obtained by finger stick and the Uni-Gold™ rapid HIV test is performed. The HIV test kit is kept in the exam room for the 10 minutes required to obtain results. • *Negative test results* are delivered to the patient by the tester in the exam room, and the patient is given an information sheet that addresses HIV risk reduction and explains the negative result. The patient is informed that antibodies to HIV may not be detected early in infection, and that if there is concern that the patient may have been infected within the previous 3 months, he or she should be tested again in 3 months. • *Reactive test results* are delivered to the patient by the provider, who explains that the WB test is necessary to confirm the HIV status. The provider explains the HIV seroconversion window period, gives the patient a handout explaining the reactive result, orders the WB test (performed same day on site), and ensures that a follow-up appointment is scheduled to deliver the WB results. • *For any patient with a reactive rapid HIV test and a positive WB*, a NCDIS is notified to follow up with the patient. The staff of the NOC are also notified, and the newly diagnosed HIV-infected patient is immediately linked to clinical care and counseling. • *If the WB result is indeterminate*, the test is repeated and if the second WB test is negative, the patient is asked to return in 3 months for repeat testing.
Step 4: Plan for Tracking Reactives	• Identify a point person to track reactives	• The PCC nursing supervisor is responsible for tracking reactive results utilizing a reactive tracking tool adapted from the NACHC model and for ensuring linkage to the NOC.

Essential Steps	Key Elements	Implementation Plans
Step 5: Adopt HIV Screening Codes for Reimbursement	• Establish billing and coding guidelines	• HIV testing is offered free of charge; however, billing and coding information is available from *Coding Guidelines for Routine HIV Testing in Health Care Settings*, a resource for guidance in reimbursement issues developed jointly by the American Academy of HIV Medicine and the American Medical Association (http://www.ama-assn.org/ama1/pub/upload/mm/36/hiv_cpt_guidance.pdf).
Step 6: Commit	• Convene staff forums. • Convene profession-specific training.	• PCC leadership and key staff and NOC staff meet to discuss the project in detail and to state their joint commitment to the project. Planning meetings are held with the PCC nursing supervisor, the QI point person, and the information technology manager. • Experienced testers from the NOC lead training sessions for the nursing assistants and medical assistants performing rapid HIV testing. Lectures regarding HIV pathophysiology, transmission, and prevention are provided prior to rapid HIV test training, and all trainees are required to demonstrate proper technique in test administration. NOC medical providers and staff guide PCC providers in diagnosing HIV infection and delivering and discussing HIV test results, with emphasis on how to manage reactive results.
Step 7: Launch	• Set a target date to begin testing, and arrange for troubleshooting during launch.	• The initial target date is set for December 1, 2011. Scheduling and completing staff training and obtaining rapid test kits from the state delay the launch date to February 1, 2012. The NOC staff is available when the testing project is launched to troubleshoot and respond to problems.
Step 8: Realignment	• Ongoing evaluation and process improvement	• After the testing project is launched, a schedule is developed for meetings between key players to discuss any problems with the testing project and to develop new ideas, tools, and methods to improve service delivery.

Note. CDC = Centers for Disease Control and Prevention; PCC = primary care clinic; NOC = Northern Outreach Clinic (HIV clinic); WB = Western blot; NC = North Carolina; NCDIS = North Carolina Disease Intervention Specialist; NACHC = National Association of Community Health Centers; QI = quality improvement.

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Table 2

Reasons Cited by Survey Respondents (n = 35)[a] for Declining an Offer of HIV Testing

Reason for Declining an Offer of HIV Testing	Respondents Citing Each Reason *n* (%)
"I do not think I am at risk"	10 (28.6)
"I already know my status"	9 (25.7)
"I was recently tested for HIV"	8 (22.9)
"I do not want to be tested for personal reasons"	5 (14.3)
"I did not have time for an HIV test today"	2 (5.7)
"I am worried about my privacy"	1 (2.8)

Note.

[a]35 (92%) of the 38 respondents who declined testing cited a reason.

Table 3

HIV Screening Survey Variables of Interest Included in Logistic Regression Analysis

Survey Variable (number of respondents who answered question)	**Mean**	**SD**
Age in years (*n* = 136)	**43.55**	**14.86**
	***n* (%)**	
Race (*n* = 133)		
African American	124 (89.9)	
White (non-Hispanic)	7 (5.0)	
Hispanic	1 (0.7)	
American Indian	0 (0.0)	
Asian/Pacific Islander	0 (0.0)	
Other	1 (0.7)	
Gender (*n* = 136)		
Female	83 (61.0)	
Male	53 (39.0)	
Sexual orientation (*n* = 89)		
Heterosexual	76 (85.4)	
Bisexual	9 (10.1)	
Homosexual	4 (4.5)	
High school graduate (*n* = 132)		
Yes	78 (59.0)	
No	54 (41.0)	
College graduate (*n* = 90)		
Yes	4 (4.4)	
No	86 (95.6)	
Medical insurance (*n* = 115)		
Yes	82 (71.3)	
No	33 (28.7)	
Know anyone with HIV or AIDS (*n* = 134)		
Yes	33 (24.6)	

Survey Variable (number of respondents who answered question)	Mean	SD
Age in years (*n* = 136)	**43.55**	**14.86**
	***n* (%)**	
No	101 (75.4)	
Employed (*n* = 126)		
Yes	83 (65.9)	
No	43 (34.1)	
Agree that HIV testing should be a routine part of primary care (*n* = 127)		
Yes	112 (88.2)	
No	15 (11.8)	
Previously tested for HIV (*n* = 131)		
Yes	73 (55.7)	
No	58 (44.3)	