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

Les Harmon, DNP, RN, ANP-BC, AAHIVS
Julie Barroso, PhD, RN
Duke University School of Nursing

HIV in the South: 2009 CDC Surveillance Data

- Eight of the ten states with the highest rates of new HIV infections were in the south
- Half of the newly reported cases of HIV were in the south
- 46% of new AIDS diagnoses were in the south
- NC ranked 8th in the US for the number of new HIV infections, and 11th for the rate of AIDS diagnoses

NCDHHS, 2011

In North Carolina in 2010

- The rate of new HIV infections among adult blacks was more than ten times greater than the rate of new infections among whites
- The highest rate of new infections was among black males
- Men who have sex with men (MSM) accounted for 75% of new adult HIV cases
- Black MSM had nearly twice the number of cases as white MSM
- The 2010 HIV rate for black females was approximately 17 times higher than white females

NCDHHS, 2011

Rural North Carolina

- 25% of HIV cases in NC have been in rural areas since the early 1990s
- In 2006 NC had the highest reported rates among rural areas within the US for both HIV infection and AIDS
- Rural Vance County, NC, had the 12th highest HIV disease rate in NC between 2008 and 2010

NCDHHS, 2011

Why expand testing?

- Roughly 20% of the nearly 1.2 million people in the US who are HIV infected do not know their HIV antibody status, and therefore may unknowingly infect others (CDC, 2011)
- Marks et al. (2006) estimated that those who are unaware of their HIV status account for 54%-70% of new infections
- 40% to 50% are being diagnosed late in infection with CDC-defined AIDS (Krawczyk, et al., 2006: Mugavero, Castellano, Edelman, & Hicks, 2007)

Treatment as Prevention

- HIV treatment works!
- 20 year old with HIV in treatment can expect to live to 70 (Hogg et al., CROI 2012)
- 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)
- Becoming aware of one's HIV status is known to lead to behavior changes that reduce the risk of transmission (Weinhardt, Carey, Johnson, & Bickham, 1999)

The 2006 CDC Recommendations

- Offer HIV testing to everyone age 13-64 in all healthcare settings
- Those at high risk should be screened at least annually
- Separate written consent should not be required
- Pre/post counseling should not be required
- The whole idea is to make HIV screening a routine part of medical care

Branson, et al., 2006

A response to the CDC recommendations

- 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 (2006 - 2008) (Myers, Modica, Dufour, Bernstein, & McNamara, 2009)
- Success of the pilot led to development of an innovative model for integrating HIV screening into routine primary care (Modica, 2009)
- Model integrates routine testing into a clinic's work flow utilizing existing staff while adding only a few minutes to the patient visit

Our Project

- A collaboration between the Ryan White-funded Northern Outreach Clinic (NOC) and a local primary care clinic in Henderson, NC
- NOC staff skilled in rapid HIV testing
- The NACHC HIV testing model was adapted and utilized
- Rapid HIV testing kits were provided by the NC Rapid HIV Testing Program
  - QA requirements consistent with CDC and NACHC model
  - Program will provide kits as long as they are available and sites are willing to report data

Setting

- Henderson, NC, had a population of 15,368 in 2010, 64% of which were African American
- 33.3% of the population of Henderson lived below the federal poverty level in 2010 (US Census Bureau, 2012)
- The primary care clinic serves a predominately African-American population from the surrounding rural area
- NOC provides medical care and case management services for >200 HIV/AIDS patients from Henderson and the surrounding rural area

Project Aims

- 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 socio-demographic variables and acceptance of HIV testing.

In this presentation

- Explain how the NACHC model was adapted for use in our setting
- Describe the challenges involved in the planning and initial implementation of the NACHC model
- Report the testing rates and discuss the socio-demographic variables associated with test acceptance that were derived from survey data during early implementation

Methods

- Rapid testing program implemented in the primary care clinic based on the NACHC model
- During February and March, 2012, 100 patients underwent rapid HIV antibody testing during routine office visits
- Testing was performed by nursing assistants and medical assistants
- Anonymous surveys regarding socio-demographic variables and routine HIV testing were completed by 138 adult patients that were offered a test
- Patients were asked to complete the survey regardless of whether or not they chose to undergo testing

NACHC Implementation Model

- Model for integrating routine HIV screening into community health centers (Modica, 2009)
- 90-day implementation plan
- Eight essential steps for planning and developing the infrastructure for routine rapid testing

Step 1: The Pre-work Phase

- Choose a test
- Identify point person for managing test kits
- Solidify referral arrangements
- Set a target date

Test Choice and Test Kit Management

- The Uni-Gold ™ Recombigen® HIV rapid test chosen for its reliability
- Blood from a finger stick
- 10 minutes to develop
- Low false-positive rate
- Specificity of 100% and sensitivity of 99.7% (Greenwald, Burstein, Pincus, & Branson, 2006)
- Kits obtained free from the NC Rapid HIV Testing Program in exchange for data reporting to CDC
- Medical assistant designated to manage kit inventory, maintain test/control logs, and ensure that kits are current

Referral Arrangements

- NOC provides medical care, case management, and linkage to social services, regardless of the ability to pay
- NOC Bridge Counselor and Case Manager can ensure linkage to other facility
- Links to Duke and UNC
- Target date set for World AIDS Day, December 1, 2011

Step 2: The Framework Phase

- Data collection plans finalized
- Test logs, patient educational materials, and draft staff tools prepared
- EMR: demographic data, acceptance or rejection of the test, and the test results
- An anonymous survey designed to gather data regarding socio-demographic variables related to test acceptance or rejection, and reasons for test rejection

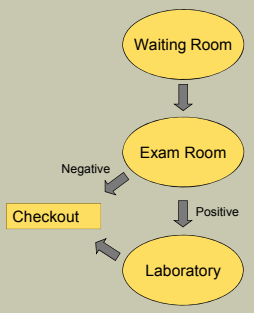
Tools From the NACHC Model

- A reactive tracking tool
  - used to collect data regarding follow-up of any positive test result.
- Rapid HIV test results logs and test control results logs
  - test lot numbers, dates/times tests were performed and by whom, and details of internal and external test controls
- Patient brochures in English and Spanish
  - adapted from the NACHC model placed in patient waiting areas
- Scripts from the model
  - appropriate language for offering HIV testing, and delivering results

Step 3: Refining the Patient Visit Process

- Patient visit process refined to include rapid HIV testing
- An algorithm defining the process for responding to test results was established

Patient Visit Flow Process with Routine HIV Screening



HIV educational materials are available in patient waiting areas.

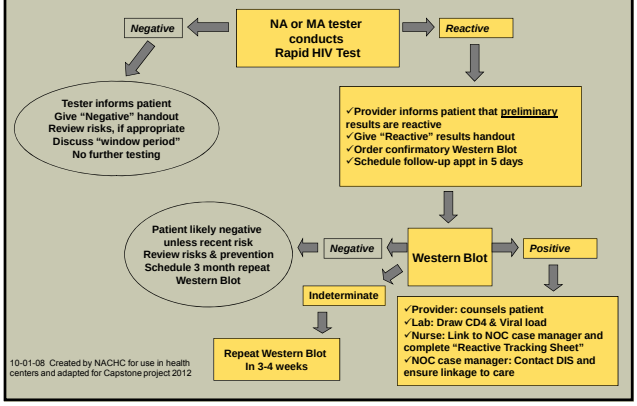
Patient escorted from vitals area into exam room by NA or MA and rapid HIV test is offered and, if accepted, a finger stick sample is obtained.
Patient is asked to fill out anonymous survey.
Test results are read by the NA or MA and entered into the EMR. Negative results reported by the NA and information on HIV risk reduction given to patient.

Reactive results are given to patient by the provider following the HIV Screening Algorithm.

If confirmatory Western Blot sample is necessary, the provider enters an order via the electronic record system. Patient is escorted to the in-house lab for blood draw.

Flow diagram adapted from NACHC/Modica model 2012

HIV Screening Algorithm



10-01-08 Created by NACHC for use in health centers and adapted for Capstone project 2012

Step 4: Billing and Coding

- *Coding Guidelines for Routine HIV Testing in Health Care Settings*
- Document contains guidance in reimbursement issues
- Developed by the American Academy of HIV Medicine and the American Medical Association
- May bill for test kits and test administration in future

Step 5: Commitment and Training

- Initial forum in September 2011
- Training sessions in September and December 2011
- HIV-101 lecture prior to Uni-Gold ™ rapid test training
- Return demonstrations required
- Planning meetings (November to January) with clinic nursing manager, QI, and IT
- January 2012 primary care providers met with NOC to discuss diagnosing HIV infection and delivering HIV test results

Step 7: The Launch

- Delays with scheduling and completing staff training and obtaining test kits
- Test kits, logs, patient brochures, and protocol manuals delivered to test site in January, 2012
- Launch date rescheduled for February 1, 2012
- NOC staff available during launch

Step 8: Realignment

- Weekly meetings to discuss problems and develop new ideas, tools, and methods to improve service delivery
- Protocol manuals
- Use of reminder cards
- Direct observation of testers

Data Collection: Patient Logs and EMR

- Test log book:
  - patient ID
  - test date
  - test lot number
  - developing time
  - test result (negative, reactive, or invalid)
  - presence of built-in control
  - name of the tester/reader
- EMR:
  - Was test offered?
  - Did patient accept?
  - Result?

Data Collection: Surveys

- Offered whether or not patient agreed to HIV testing
- Survey captured self-reported socio-demographic data, and reason(s) that testing was refused
- Reviewed by six faculty peers prior to being approved by the Duke IRB
- Completed by patients 18 years and older (no minors)
- Data transferred to electronic database utilizing REDCap™ (Research Electronic Data Capture)
- Stored on a secure server

Data Analysis and Results

- Meaningful use of EMR data was not possible
- Inconsistencies in data entry
- Data analysis was restricted to survey data

- 100 patients tested during first six weeks of implementation (72% acceptance rate)
- No invalid or reactive results

Analysis of Survey Data

- 138 surveys completed
- Mean age 43.55 years (SD=14.86)
- 61% female
- African American (89.90%).
- Aim of the survey analysis was to understand socio-demographic factors contributing to one's agreement to undergo HIV testing
- A logistic regression using backward conditional elimination was conducted to determine the relationship between variables of interest and agreement to undergo testing

Variables of Interest

- Age
- Race
- Gender
- Sexual orientation
- Education level
- Insurance coverage
- Employment status
- Agreement with CDC recommendation
- Been tested before
- Know anyone with HIV/AIDS
- Feel uncomfortable being asked

Regression Analysis

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

Evidence Supporting Routine Testing

- Body of evidence is emerging
- Pre- and post-implementation studies
- Data suggest HIV testing rates improve when a routine approach to screening is adopted

Anaya et al., 2008; Brooks, Rietmeijer, McEwen, Subiadur, & Mettenbrink, 2009; Brown et al., 2007; Creek et al., 2007; Criniti, Aaron, Hilley, & Wolf, 2011; Cunninghan et al., 2009; Dukers-Muijrers, Niekamp, Vergoossen, & Hoebe, 2009: Heijman et al., 2009; Liddicoat, Losina, Kang, Freedberg, & Walensky, 2006; Moses et al., 2008 Myers et al., 2009; Price et al., 2009: Stanley, Fraser, & Cox, 2003; Walensky et al., 2011; Weis et al., 2009: Yudin, Moravac, & Shaah, 2007

The Parent Study

- The Myers, Modica, Dufour, Bernstein, & McNamara study in the southeast (2009) led to development of the NACHC model
- Overall 67% HIV test acceptance rate that ranged from 56% to 83% across centers during a 13 month period
- Nearly a three-fold increase in testing compared to the prior year
- Ohio has adopted the NACHC model for community health centers

Barriers and Facilitators

- Barriers to CDC recommendations (Bartlett et al., 2008)
  - State and/or local laws
  - Concerns about pre-test and post-test counseling
  - Fear of discrimination and HIV-related stigma
  - Cost of testing and the perception that risk-based HIV testing is more cost-effective
  - Lack of effective mechanisms to link HIV-infected patients to care
- Absence of several barriers facilitated our success
  - NC law no longer requires written consent or pre- and post-test counseling
  - Test kits were provided free
  - Direct link to care through NOC

Challenges: Timeline

- 90 day timeline insufficient
- Coordinating schedules and organizing groups more time-consuming and difficult than anticipated
- NC Rapid HIV Testing Program requirements
- Delays in purchasing test kits
- Erratic schedules after December 1 target date had passed

- Six month goal for implementation would have been more reasonable

Challenges: Data Collection

- Inconsistent data collection and entry limited data analysis
- In the original pilot all data, including reasons for test refusal, were collected by testers and entered onto a single data collection sheet
- Our project utilized data collection sheet, EMR, and anonymous surveys
- A single data sheet may have streamlined the data collection process and allowed for more consistency

Challenges: Patient Flow

- Patients scheduled every 15 minutes
- "Walk-ins" are always accommodated
- Insufficient time to perform the test on busy days
- Lack of time cited in in the literature as a barrier (Bokhour, Solomon, Knapp, Asch, & Gifford, 2009; Demarco, Gallagher, Bradley-Springer, Jones, & Visk, 2012)
- Recent study in a primary care clinic revealed that busy days or short-staffing resulted in a low rate of HIV testing offers (8.75%) (Valenti, Szpunar, Saravolatz, & Johnson, 2012)

Our Findings

Younger patients were more likely to undergo testing

- Younger age 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)
- 2009 KFF *Survey of Americans on HIV/AIDS* found that younger adults more likely to undergo testing than older adults
- Age has been shown to be negatively associated with HIV testing in at-risk African American women (Akers, Bernstein, Henderson, Doyle & Corbie-Smith, 2007)

Who did we reach?

- 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.
- Not successful in reaching African American MSM, the group at highest risk in the South
- May be due in part to lower numbers of MSM seeking medical care

How to reach MSM?

- Home based testing (HBT) may be a better way to reach those who do not routinely seek out medical care, or those in rural areas who may live far away from testing sites.
- HBT strategy has proved to be effective in rural areas of Malawi (Helleringer, Kihler, Frimpong, & Mkandawire, 2009), and Uganda (Menzies et al., 2009)
- HBT 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)

Stigma/Sexual Orientation/Testing

- Only 89/138 survey respondents (64.5%) chose to disclose their sexual orientation (76 heterosexual, 9 bisexual, and 4 homosexual)
- May reflect the fear of stigma associated with homosexuality within African American communities? (Glick & Golden, 2010)
- KFF 2009 survey: Those who perceived a threat of testing-related stigma were much less likely to have been tested.
- May have been influenced by how the question was asked?

How to ask about Sexual Orientation?

- The Sexual Minority Assessment Research Team (SMART) recommends a question that was developed and tested by researchers at the National Center for Health Statistics (NCHS):
- "Do you consider yourself to be: a) Heterosexual or straight; b) Gay or lesbian; or c) Bisexual?" (Badgett, 2009, p. 8)
- Panel discourages use of terms sexual orientation or sexual identity in the stem of the question as it confuses 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.

Reasons for Test Refusal

(92%) of the 38 respondents who declined testing cited a reason

Reason	n	(%)
Do not think I am at risk	10	28.6
Already know my status	9	25.7
Was recently tested for HIV	8	22.9
Person reasons	5	14.3
Did not have time	2	5.7
Worried about my privacy	1	2.8

Reasons for Test Refusal

- Lack of perceived risk was most common reason
- Consistent with other studies (Akers et al., 2007; Cunningham et al., 2009; McCoy et al., 2009; Myers et al., 2009; Weis et al., 2009)
- 69% of respondents to KFF 2009 survey who had never been tested cited not being at risk as their reason
- 27% never underwent HIV testing because their doctor had never recommended it, which further supports a routine testing strategy over targeted risk-based testing

Conclusions

- Early implementation of the NACHC model in our setting posed challenges with time, data collection and patient flow
- 100 patients were screened for HIV infection who might not have been screened otherwise
- Patients were given HIV risk reduction handouts after testing which may raise awareness and lead to behavioral changes
- The majority of patients who were tested were African American women (high risk group in NC and the South)
- Black MSM, those with the highest risk, were underrepresented in our sample

Study Limitations

- Lack of baseline data
- HIV testing rate before project implementation?
- Number of patients routinely seen?
- Number of patients seen during the time of data collection?
  - Impossible to ascertain the actual percentage of patients seen during the time period that were offered a test
- Accurate demographic profile of patient population?
  - Difficult to determine if the large number of African American women and the small number of MSM who were tested reflected the clinic clientele

Implications for Practice

- Nurse-led rapid HIV testing is an effective strategy and NACHC model effective in community health center settings
- More studies are needed to establish best practices for HIV screening in busy, rural, primary care settings
- Novel strategies are needed for increasing testing rates among men who have sex with men

Parting Thoughts…

- Three patients identified as HIV-infected and all have been referred to NOC and are now in care
- Continue testing and expand initiative to sister clinic in rural Warren County?
- NOC will continue to provide technical assistance
- A testing champion has emerged
- Need to continue refinement of data collection
- CDC will continue to provide kits in exchange for data
- Clinic can purchase rapid test kits and bill for testing

Acknowledgments

- Julie Barroso, PhD
- Michelle Collins-Ogle, MD
- John A. Bartlett, MD
- Julie Thompson, PhD
- Beckford Medical Center in Henderson, NC
- Rita Cozart, Rob Jiggetts, and Sharon Burwell at the Northern Outreach Clinic in Henderson, NC
- Pamela Klein and Janet Alexander, NC Rapid HIV Testing Program
- Kathy McNamara, NACHC
- Fellow DNP students and DNP faculty at DUSON
- Brooks Skinner, my family, and my friends

Thank You!