

Initiation of a HIV Screening Protocol and Pathway in the Emergency Department: A Quality

Improvement Initiative

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### Abstract

There is currently a nationwide campaign to address human immunodeficiency virus (HIV) prevention and treatment. The emergency department (ED) is a significant venue in the HIV prevention and treatment campaign. The quality improvement (QI) project was based on the multiple national HIV/AIDS agencies advocacy, as well as the Centers for Disease Control and Prevention's (CDC's) HIV screening recommendations. The project goal was to increase HIV screening in the emergency department (ED) at Cape Fear Valley by utilizing a targeted screening approach. Patients between the ages of 19 to 64 with a sexually-transmitted related disease complaint were offered screening. The ED is an 80-bed adult department that serves Cumberland County, NC. Patient-centeredness and accountability were the foundation of the project's aims. A retrospective chart review was completed to verify the need for an HIV screening protocol and pathway. Originally the project was designed for HIV screening to occur in secondary triage; however, due to concerns related to patient privacy the project was adapted to allow screening to occur in the patient treatment room. Twenty-eight patients were offered screening with 13 patients accepting HIV screening; one patient had a reactive result. Additionally, the project identified the various aspects of provider perspectives related to HIV screening. Understanding provider perspectives contributes to knowledge necessary to combat bias and screening hesitance. Although the project increased HIV screening in the ED, the need to comply with the CDC's recommendations remains present. Provider and staff bias, financial burdens, systems processes, and time burdens are obstacles that must be addressed before a successful HIV screening protocol can be initiated in an ED.

**Keywords:** human immunodeficiency virus (HIV), screening, prevention, acquired immunodeficiency syndrome (AIDS), quality improvement

## **Introduction**

Three decades ago, a fatal disease, acquired immunodeficiency syndrome (AIDS), was discovered and quickly became a pandemic (Piot & Quinn, 2013). Shortly after the discovery of AIDS, the human immunodeficiency virus (HIV) was identified as the cause. A HIV diagnosis was once considered a death sentence; however, years of research have led to the development of highly sensitive screening tests and subsequent effective treatment with antiretroviral therapy (ART). Recent HIV/AIDS research led to the revision of the Centers for Disease Control and Prevention (CDC) and the U.S. Preventative Services Task Force (USPSTF) screening guidelines. Each guideline demonstrates the need for screening at an early age; the CDC recommendations start at age 13, while the USPSTF recommends screening to start at age 15. Screening is no longer based on risk factors, rather aimed at the general population. The purpose of the quality improvement (QI) project was to establish a HIV screening protocol and pathway in the emergency department (ED) at Cape Fear Valley Medical Center (CFV).

## **Problem**

The ED is a critical venue in the HIV prevention and treatment campaign. An estimated 240,000 people in the United States are unaware they are infected with HIV (McAfee et al., 2013). The delay in HIV diagnosis leads to increased mortality, morbidity, and transmission rates. Despite strong supporting evidence and governmental recommendations, HIV screening continues to be a missed opportunity within the ED setting. Several factors are related to failure to offer HIV screening in the ED, including provider reluctance. Providers in the ED may be discouraged by several factors related to HIV screening including: (a) screening deficit in relation to legislation, recommendations, testing, and follow-up; (b) time constraints; (c) insufficient resources; (d) financial burden; (e) preconceived notions related to preventative care

versus acute/emergent care in the ED; (f) and the perception that HIV screening is beyond the emergency medicine scope of practice (Schnall, Clark, Olender, & Sperling, 2013).

In 2012, 1,409 new cases of HIV were diagnosed in North Carolina; approximately 26 percent of those newly diagnosed HIV cases had advanced to AIDS (North Carolina Department of Health and Human Services [NCDHHS], 2012). The disproportionate impact of HIV on racial, sexual, and ethnic minorities is demonstrated by data from NCDHHS (2012). The data highlights the fact that African Americans are more affected by HIV than Caucasians or Hispanics; however, Hispanics who were diagnosed were in later stages of HIV, again demonstrating the need for testing patients with limited access to healthcare. The greatest disparity was found between Caucasian and African American females, with the African American females having a 17-times higher HIV diagnosis than Caucasian females (NCDHHS, 2012b). Notably, the ED at CFV serves Cumberland County, North Carolina, which ranks 4<sup>th</sup> in the state for newly diagnosed HIV cases.

The need for an HIV screening protocol in the ED at CFV was determined with a SWOT analysis (Appendix A) and Gap analysis (Appendix B). Additionally, there has been a national and statewide push for EDs to begin HIV screening. For example, New York State mandates that all health care settings, including EDs, offer HIV screening to all patients between the ages of 13 and 64 (Schnall, Clark, Olender, & Sperling, 2013). The NCDHHS developed the Early Identification of Individuals with HIV/AIDS (EIIHA) Strategy and Plan, which includes collaboration with four major University Health system EDs in North Carolina to offer HIV screening (NCDHHS, 2012). National and international governing bodies, as well as HIV/AIDS organizations, heavily advocate expanded HIV screening throughout the healthcare continuum.

### **Literature Review**

An extensive literature review clarified the undeniable benefit and need for an HIV screening protocol in the ED at CFV. Screening for HIV is recommended in all healthcare settings, including the ED (Branson, Viall, & Marum, 2013; Cohen et al., 2011; Moyer, 2013). Early HIV diagnosis and subsequent early ART have been shown to decrease mortality and morbidity by decreasing a patient's viral load. A decreased viral load is associated with a decreased risk of sexual transmission, mother-to-child transmission, and improved patient outcomes (Moyer, 2013; Schmidt et al, 2012; Mejia Villatoro, 2012). Literature further demonstrates the ED is a crucial venue in the HIV prevention and treatment campaign. Since the ED serves a large percentage of patients from a low socio-eco status and/or racial/ ethnic minority, screening will reach patients with greater health disparities, including increased risks for HIV (Haukoos & Hopkins, 2013).

### **Specific Aims and Purpose**

#### **Purpose**

Delivering conscientious evidence-based care is every provider's responsibility. Consequently, ED providers must redefine their practice approach to include health prevention and education. The ED can no longer be viewed as a place for emergent/urgent care only, but as the safety net for patients who otherwise do not seek alternative healthcare resources (Haukoos & Hopkins, 2013). The purpose of initiating an HIV screening protocol and pathway was to provide the Cumberland County community and CFV patients with an indispensable resource.

#### **Project Aims**

The mission, vision, and values of CFV speak of providing exceptional patient care and improving quality of life through commitment of accountability, teamwork, cultural diversity,

integrity, and patient-centeredness (Cape Fear Valley Health System, 2012). The former and later concepts, accountability and patient-centeredness, were the cornerstone to HIV screening in the ED. Improved patient and community health was the objective for initiating the HIV screening QI project.

The Institute of Medicine's (IOM's) aims for improvement aligned with the HIV screening project were:

- **Effectiveness, Timeliness:** Early HIV diagnosis and subsequent antiviral therapy decrease HIV morbidity, mortality and transmission rates (Branson, Viall, & Marum, 2013).
- **Efficiency:** Implementing an HIV testing protocol and pathway will increase HIV screening in the ED and subsequent care for HIV-positive patients (AHRQ, 2012).
- **Patient-Centered:** HIV screening in the ED reaches patients who have limited access to health care and who have health disparities due to ethnic and racial minorities, low socioeconomic status, uninsured, or Medicaid dependent (Torres, Heffelfinger, Pollack, Barrera, & Rothman, 2011).

The IOM's aims and CFV's vision statement of accountability have been the cornerstones to the HIV screening project initiative.

Provider accountability toward overall quality patient outcomes strongly correlates with HIV screening. Although the environment of the ED traditionally has been viewed as a venue for acute/emergent care, allowing preventative care to fall to the wayside, provider accountability necessitates a practice shift toward a more holistic approach. Providers in the ED must incorporate preventative and educational healthcare services into the scope of emergency medicine.

## Methods

The scholarly project began with a needs assessment, comprehensive literature review, and a stakeholder analysis that revealed a need for a HIV screening protocol to be initiated in the ED. Prior to project implementation, IRB exemption was obtained from the hospital and the University of South Alabama (USA). The planning phase required collaboration of several key stakeholders and multiple meetings concerning appropriate linkage of care for reactive patients. Additionally, a clinical question, QI and evidence-based practice (EBP) model, and nursing theory were selected to guide the project planning.

### Clinical Question

The clinical question related to the project was structured utilizing the PICO (patient, intervention, comparison, outcome) framework:

- **Patients:** ED patient over the age of 18 with a sexually transmitted disease (STD) complaint and/or symptoms.
- **Intervention:** Develop an HIV screening protocol and pathway for the ED.
- **Comparison:** Number of patients currently screened for HIV in the ED, negligible amount.
- **Outcome:** Increased HIV screening, early diagnosis, and linkage of care.

Respectively, the PICO question is, “Will the implementation of an HIV screening protocol in the ED increase HIV screening rates, early HIV diagnosis, and referral for treatment?”

### Quality Improvement Model

The Institute for Healthcare Improvement (IHI) Model for Improvement (Appendix C) was the QI framework that guided the HIV screening project. The model is composed of two parts: (1) three core questions address the need for change, and (2) the Plan-Do-Study-Act

(PDSA) cycle represents the principal elements of quality improvement (IHI, 2012). The questions relevant to the Model for Improvement concern aim setting, measure establishment, and change selection. The PDSA is a rapid-cycle test that allowed various components of the scholarly project to be evaluated, then adopted or modified prior to a full-scale implementation (Shapiro & Donaldson, 2008).

### **Evidence-Based Practice Model**

Initiating an EBP change is a complex, nonlinear process that involves a series of steps (Titler, 2013). The Stetler Model Research Utilization to Facilitate Evidence-Based Practice is a five-step process (preparation, validation, comparative evaluation/decision making, translation/application, and evaluation) that is used by a practitioner and/or organization to disseminate evidence into practice (Burns & Grove, 2009). Each phase of the Stetler model uses evidence to determine the effectiveness of project implementation.

### **Nursing Theory**

Leading a change initiative is best accomplished through a theory-based praxis framework. The Theory of Human Caring (THC) is an evolving theory that encompasses several ethical and moral concepts, such as self-reflection, empathy, compassion, human-to-human relationships, human-to-environment relationships, concern for human welfare, humanity preservation, and social justice (Watson, 2012). The THC, with the notion of social justice as the underpinning concept, was the nursing theory chosen to guide the HIV screening protocol and pathway project. Additionally, incorporating THC into practice may encourage providers to identify with a patient's humanity and corroborate the benefit of HIV screening in the ED. Screening for HIV/AIDS provides a standard of attainable health that is an element of basic human rights (Open Society, 2007).



**Setting**

Cape Fear Valley Medical Center is a 485-bed hospital located in Cumberland County, NC. The adult ED has 80 beds, divided into five zones, including a fast track area. The annual visit rate in the ED is approximately 95,000.

**Participants**

Patients aged 19 to 64 presenting to the ED with complaints related to a possible sexually transmitted disease were offered an HIV screening. Any patients needing emergent intervention were excluded from the project. The initial project goal was test 10 to 15 qualifying participants a week to equal 80 to 120 patients for a two-month evaluation period; however, the goal fell severely short. At project's end only 23 patients were tested. Several encompassing factors were related to an unexpectedly low testing rate that will be discussed in the results and conclusion portion of this paper.

**Design**

The HIV screening patient flow model (Appendix D) was designed to coincide with the traditional ED patient flow. Qualifying patients were given an HIV screening patient education handout (Appendix E) during the primary nursing assessment in the treatment room. Patients were then offered screening during the provider assessment with verbal consenting. Serum was collected and sent to the lab for testing, all results were called to the provider. Reactive results were automatically sent for confirmation testing. Patients were given results by the provider along with a reactive handout (Appendix F) or non-reactive handout (Appendix G), whichever was pertinent. Additionally, reactive patients were referred to infectious disease and the hospital's HIV case manager. To further ensure linkage of care, the HIV case manager was informed of any reactive patients.

### **Data Analysis**

Data analysis was accomplished through data provided by the EMR. The project manager, the ED IT systems coordinator, and the QI administrator analyzed the data (Table 1). All data was processed via Excel spreadsheet. Outcome measures followed measures outlined by the national quality forum (NQF, 2012) and HIV/AIDS Bureau performance measures (2013).

- Number of eligible patients (NQF #0573)
- Number of patients tested
- Number of reactive results
- Number of non-reactive results
- CD4 count for reactive patients' to stage HIV (NGF #1999)
- Number of reactive patients' provided linkage of care
- Number of ED providers receptive to HIV screening

### **Results**

#### **Provider Survey**

Forty provider surveys (Appendix G) were distributed among the ED providers with a small number of 12 returned. The surveys were analyzed using Microsoft Excel. The results demonstrate the various areas of HIV screening provider perspectives (Table 2). Interestingly, the provider surveys were favorable towards HIV screening, with the majority of the respondents confident that HIV screening was an acceptable part of routine healthcare and did not interrupt patient care. Patient education, confidentiality, and follow-up were concerns expressed by the majority of the respondents.

## **HIV Screening**

A chart review for the year 2013-2014 revealed that one patient screened in the ED for HIV was subsequently positive for HIV. Additionally, the chart review revealed that although there is a high prevalence of HIV positive patients seen at CFV ED, a negligible number of patients are screened. Project implementation began May 7<sup>th</sup> and ended July 8<sup>th</sup>, 2014, during which time 28 patients were offered screening, 13 declined screening, 14 patients had a non-reactive result, and 1 patients had a reactive result. Notably, the patient with a reactive result had a history of multiple ED visits and hospitalizations and never was screened. Additionally, the project brought HIV screening to the forefront of providers' assessment and decision-making when evaluating patients with a certain set of symptoms such as fever, thrush, or multiple visits due to unknown causes.

## **Discussion**

### **Limitations**

The project was originally designed to have HIV screening occur in secondary triage during the triage provider's assessment. However, provider and staff concerns that the triage area lacked the necessary privacy needed to ask sensitive questions related to HIV exposure and screening. Additionally, hospital policy did not allow nursing staff to screen and order HIV tests; therefore, screening had to take place in the treatment area. Sole reliance on ED providers to initiate HIV screening has been a major barrier in project implementation. Unfortunately, provider reluctance to offer HIV screening impacted the evaluation of the effectiveness of the project.

Understanding provider perspectives is crucial with any QI project, especially one as controversial as HIV screening. Although provider surveys show support for HIV screening, the

validity of the overall data is questionable due to the small number of surveys completed. One may assume that the providers who responded to the survey may support HIV screening.

### **Conclusions**

Despite existing obstacles related to HIV screening in the ED, the need for screening is evident. The role of the ED in the fight against HIV/AIDS is significant. According to Mermin (2011), EDs are critical in the fight to end the HIV epidemic in the United States through screening, education, and linkage of care. The ED's inherent access to the general population provides a unique opportunity to provide a screening safety net (Haukoos & Lyons, 2009). Screening for HIV leads to early diagnosis has been shown to have positive patient outcomes related to decreased mortality and morbidity (Moyer, 2013). Positive community outcomes are related to early diagnosis and treatment; decreased viral loads are associated with decreased transmission (Prejean et al., 2011).

Although the project goals were not met relative to the number of patients screened, positive outcomes were realized. For example, pre-project demonstrated only one screening was performed in the previous calendar year. Of important note, the lab standard of practice (SOP) was to process rapid tests only for maternal and employee exposure; however, post-project has changed the hospital's lab SOP to allow rapid screening ordered by any provider. There has been a visible shift in the ED providers' practice behavior in relation to HIV screening. The providers have become more conscious concerning HIV as a differential diagnosis.

Screening for HIV in the ED is a significant element in holistic quality patient care. Providers must be diligent in prescribing care and prevention treatments that demonstrate high quality patient outcomes. Institutional support and provider perspectives are the keys to the successful implementation of a HIV screening protocol in the ED.

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## Appendix A.

## SWOT Analysis



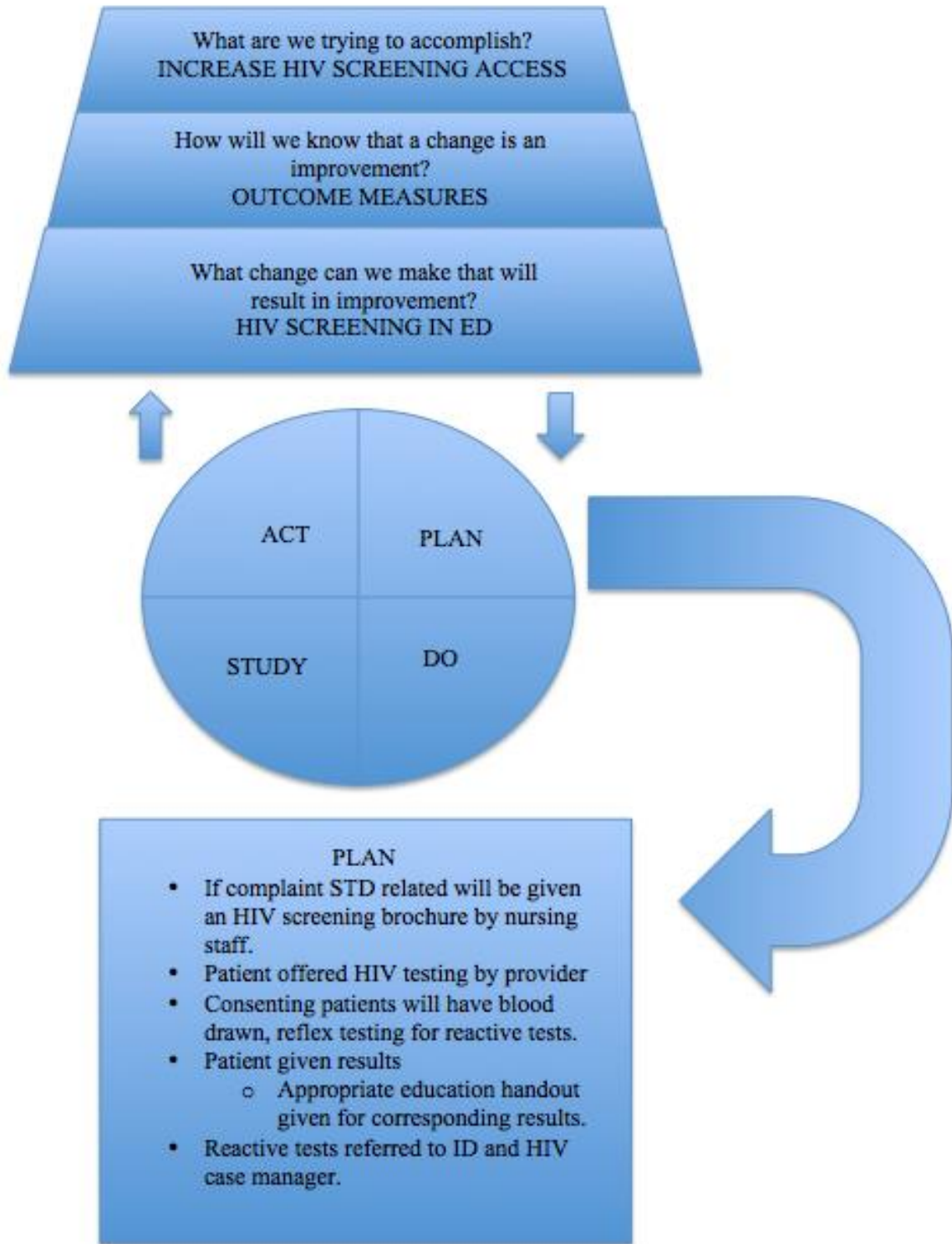
## Appendix B.

## Gap Analysis

<b>Best Practice</b>	<b>Best Practice Strategies</b>	<b>CFV Practices Differences</b>	<b>Barriers to Best Practice Implementation</b>	<b>Strategies to Implement Best Practice</b>
HIV Screening	<ul style="list-style-type: none"> <li>• Screen all patients between the ages of 15-64 regardless of risk factors</li> <li>• Opt-out consent</li> <li>• Rapid HIV screening</li> <li>• Linkage of Care</li> <li>• Prevention Education</li> </ul>	<ul style="list-style-type: none"> <li>• Only patients with employee exposure and SANE cases are routinely screened for HIV</li> <li>• Separate consent for HIV screening required</li> <li>• Rapid testing not routinely done unless employee exposure</li> <li>• No HIV pathway to handle positive patients</li> <li>• No formal HIV prevention given</li> </ul>	<ul style="list-style-type: none"> <li>• Time constraints</li> <li>• Provider and staff bias</li> <li>• Financial burden concerns</li> <li>• Lack of employee training</li> <li>• Provider knowledge of state and federal laws</li> </ul>	<ul style="list-style-type: none"> <li>• Develop HIV protocol and pathway</li> <li>• Incorporate prompts and documentation into EHR</li> <li>• Educate staff of HIV screening</li> <li>• Revise hospital consent form</li> <li>• Patient education brochure</li> <li>• Establish linkage of care</li> </ul>

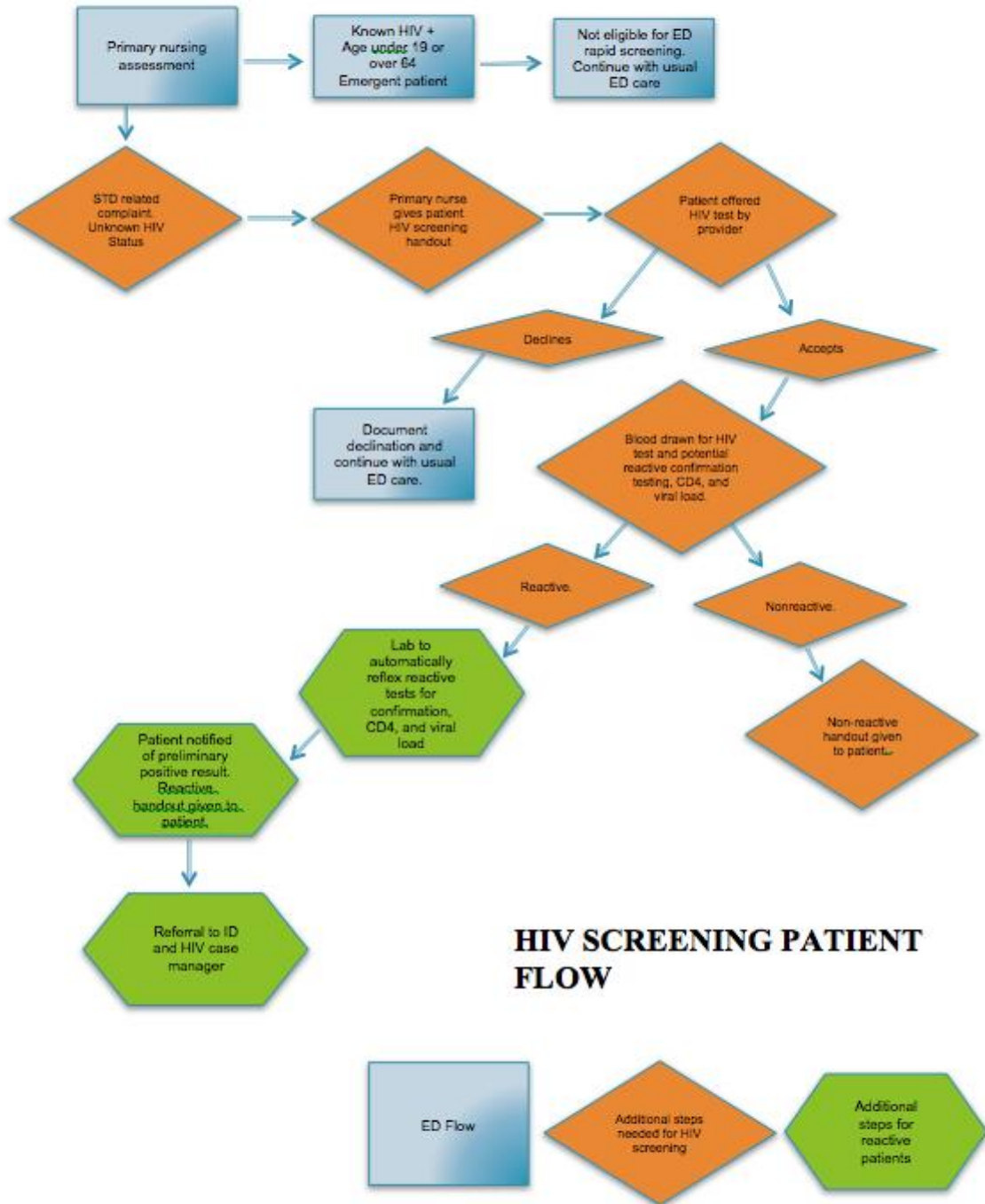
Appendix C.

Model for Improvement



Appendix D.

HIV Screening Patient Flow Model



## Appendix E.

## Patient Education Handout

## National HIV/AIDS Hotlines

CDC AIDS Hotline	1-800-CDC-INFO
Cumberland County Clinic	910-433-3790
HIV Health Infoline	1-866-448-4636
(1pm-7pm M-F)	



## HIV Testing Information

### HIV Information

HIV stands for human immunodeficiency virus.

HIV is the virus that causes AIDS (acquired immunodeficiency syndrome).

Some people have the virus for many years before any signs of the illness appear.

One in four people do not even know they have HIV. This means they can be placing themselves and their loved ones at risk.

You can get HIV from such things as a sex partner who got it from someone else, tattooing or body piercing, sharing of needles or drug equipment.

If you have HIV and learn about it early, there are now many medications that can help you live a long, healthy life. Like other chronic diseases, we can help you manage the disease so that you stay strong and healthy for your family and loved ones.

### About the Test

The test is fast and simple: blood will be drawn and a preliminary test result will be available today.

If your HIV test is **reactive** the blood sample collected today will be further tested for confirmation.

If your test is **non-reactive** or **negative** please remember that it takes 3 weeks to 6 months for HIV to be detected in your blood. If you think you have been recently infected you should be retested in three months. You can go to the health department or your primary care provider to be retested.

Appendix F.

Reactive Handout

## What Does My Reactive Result Mean?

Your lab results showed that you **may** be infected with HIV.

We call your result "**reactive**" or "**preliminary positive**" because we need to do more tests to know whether or not you are infected with HIV.

HIV stands for human immunodeficiency virus. HIV is the virus that causes AIDS (acquired immunodeficiency syndrome).

Being infected with HIV does not always mean you have AIDS. But if you have HIV and learn early, there are many medications you can take. These medications will let you live a long, healthy, life.

Some people have the virus for many years before any signs of the illness appear. The blood we collected from you today will be sent for further testing. This second test will tell us for sure if you are infected with HIV. We will have this second test result in 7 days.

Today we will give you a phone number to make a follow-up appointment to get your confirmation test results. **It is very IMPORTANT that you make the appointment and follow up.**

If the second test shows that you are infected with HIV, there are now many HIV medications available. These medications can help you stay healthy and strong.

You did the important step...you got tested. Now we can provide you with the care you need to stay healthy.

Because your test result was "**reactive**" we ask that you take precautions: do not have sex (vaginal, anal or oral) until we get the second test result back. If you do have sex, use latex condoms every time. Do not share needles or works that may be contaminated with blood through previous use.

Learning you may be infected with HIV is stressful. HIV is not a death sentence. If you are infected, there are many treatments that slow down the HIV virus. You can live a healthy, productive life. **You are not alone!**

We will contact the HIV case manager for Cape Fear Valley and give her your contact information. She will be contacting you within the next week to discuss your concerns and your follow-up.

**National AIDS Hotline**

**Cumberland County STD/HIV Clinic**

**HIV Health Infoline (hours 1pm-7pm M-F)**

**Fran Deshazo-Mock, MSW HIV Case Manager**

**1-800-232-4636**

**910-433-3790**

**1-866-448-4636**

**910-484-4297 ext 37**

## Appendix G.

## Non-Reactive Handout

## What Does My Negative Result Mean?

Your HIV test was not reactive today.

This is very good news.

But if you think you might have been infected within the last three months, the test you took today will not have found the antibodies to HIV yet. Antibodies are cells the immune system makes to fight the HIV virus if a person is infected. **If you are concerned you may have recently been exposed to HIV you should be retested in 3 months.** You can go to the health department or your primary care provider to be retested.

HIV stands for human immunodeficiency virus. HIV is the virus that causes AIDS (acquired immunodeficiency syndrome). Being infected with HIV does not always mean you have AIDS. And if you have HIV, and learn early, new medications can allow you to live a long, healthy life.

Although your test shows you are not infected with HIV, you should still be careful. You can get HIV if you have sex with someone who is infected. You can also get HIV if you share needles or works.

It is important to protect yourself at all times.

It can be hard to change your behaviors even if you want to. It is important to talk honestly with your doctor or counselors. Tell them about risky behaviors. They can help you protect yourself from HIV.

Ask for support, if you need it, in order to stay HIV negative.  
If you want to talk to someone, please call the:

**CDC AIDS Hotline**

**1-800-232-4636**

## Appendix H.

## HIV Screening Provider Perspective

**Circle one response for each of the following items that best describes your personal perspectives about routine HIV testing in your work setting.**

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree	Don't Know	Not Applicable (NA)
1. I think routine HIV testing is an important part of regular health care.	1	2	3	4	5	Don't Know	NA
2. I am concerned about cost and reimbursement for HIV testing.	1	2	3	4	5	Don't Know	NA
3. I am concerned that patients will be offended by being offered routine HIV testing.	1	2	3	4	5	Don't Know	NA
4. I am comfortable discussing routine HIV testing with patients.	1	2	3	4	5	Don't Know	NA
5. Language barriers prevent some patients from receiving routine HIV testing.	1	2	3	4	5	Don't Know	NA
6. Patients often feel like they have to accept routine HIV testing.	1	2	3	4	5	Don't Know	NA
7. Patients receive adequate pre-test information for routine HIV testing.	1	2	3	4	5	Don't Know	NA
8. Patients receive adequate post-test information for routine HIV testing.	1	2	3	4	5	Don't Know	NA
9. Patients are concerned about the confidentiality of routine HIV testing.	1	2	3	4	5	Don't Know	NA
10. Routine HIV testing is voluntary; patients are able to decline screening.	1	2	3	4	5	Don't Know	NA
11. Patients do not expect to be offered routine HIV testing.	1	2	3	4	5	Don't Know	NA



12. I am concerned that routine HIV testing will have a negative effect on patients' opinions about our [health care facility/ clinic/emergency department/practice].	1	2	3	4	5	Don't Know	NA
13. We have the resources needed to implement routine HIV testing.	1	2	3	4	5	Don't Know	NA
14. It is difficult to provide the privacy needed for routine HIV testing.	1	2	3	4	5	Don't Know	NA

**Circle one response for each of the following items that best describes your personal perspectives about routine HIV testing in your work setting. Please note that the response scale has changed.**

	Never	Rarely	About half the time	Most of the time	Almost always or Always	Don't Know	Not Applicable (NA)
1. Routine HIV testing interferes with providing other health care services.	1	2	3	4	5	Don't Know	NA
2. Patients are given HIV test results in a confidential, appropriate manner.	1	2	3	4	5	Don't Know	NA
3. Results of routine HIV testing are documented and available to health care providers taking care of the patient.	1	2	3	4	5	Don't Know	NA
4. Patients are concerned or upset by routine HIV testing.	1	2	3	4	5	Don't Know	NA
5. The presence of family members and visitors makes it difficult to discuss routine HIV testing with patients.	1	2	3	4	5	Don't Know	NA
6. Patients understand the information they receive about routine HIV testing.	1	2	3	4	5	Don't Know	NA
7. Patients who test HIV positive receive appropriate referrals for follow up	1	2	3	4	5	Don't Know	NA

- 1. List any benefits or positive outcomes that have resulted from the implementation of routine HIV testing in your work setting.**

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- 2. List any problems or negative outcomes that have resulted from the implementation of routine HIV testing in your work setting.**

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- 3. Share any other comments about this questionnaire or about the implementation of routine HIV testing in your work setting.**

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Table 1.

