

IMPROVING ROUTINE HUMAN IMMUNODEFICIENCY VIRUS SCREENING IN A  
PRIMARY CARE SETTING

Ashley Elizabeth Ross

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Approved by:

Jean Davison

Julie Jacobson Vann

Robert Dodge

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## **ABSTRACT**

Ashley Elizabeth Ross: Improving Routine Human Immunodeficiency Virus Screening in a  
Primary Care Setting  
(Under the direction of Jean Davison)

According to the Centers for Disease Control and Prevention, in 2017, over 38,700 people receive an human immunodeficiency virus (HIV) diagnosis in the US. The United States Preventive Services Task Force (USPSTF) published recommendations in 2013 for routine HIV screening of patients ages 15 to 65 years old. Primary care providers who offer routine HIV screening can identify patients with a positive result and promptly connect them to care to decrease transmission of HIV.

This process improvement project targeted health care providers and staff, using evidence-based interventions, 2013 USPSTF recommendations, and the Chronic Care Model, to improve HIV screening at a primary care site. Information sessions were held with health care providers and staff pre- and post-intervention. Participants were given a pre-survey ( $n=28$ ) and post-survey ( $n=25$ ) questionnaires, information on the electronic medical record screening reminder and educational materials about routine HIV screening. Monthly visits were made to the clinic by the primary investigator who conducted semi-structured interviews with participants. A retrospective chart review evaluated HIV screening data during the months of September, October, and November for 2017, (baseline year), compared to September - November 2018, intervention months.

The pre- and post-intervention surveys were confidential and paired by the number assigned to each provider participant ( $n=6$ ). The results were analyzed using descriptive

statistics and paired *t*-tests to determine if perspectives on HIV screening changed from pre- to post-survey. There were no statistically significant findings from the survey questionnaire results, however, the mean Likert scores improved in the post-survey in most topics.

Twenty-five percent of encounters during the 2017 baseline months and 2018 intervention months had an HIV test ordered. During the 2018 intervention year, September had a 3.5% increase and October had a 1.0% increase in percentage of tests ordered when compared to 2017; however, November 2018 had a 5.8% decrease from November 2017.

This project piloted interventions to increase provider and clinic staff's knowledge on routine HIV screening practices to help further reduce HIV transmissions among patients with an unknown serostatus. Further work is needed to identify ways to improve screening rates, such as clinic staff-initiated screening and rapid screening.

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## **LIST OF ABBREVIATIONS**

AIDS	Acquired Immunodeficiency Syndrome
CCM	The Chronic Care Model
CDC	Centers for Disease Control and Prevention
CDS	Clinical Decision Support
CIS	Clinical Information System
CITI	Collaborative Institutional Training Initiative
CMA	Certified Medical Assistant
CPT	Current Procedural Terminology
DNP	Doctor of Nursing Practice
EMR	Electronic Medical Record
FDA	Food and Drug Administration
GDMS	Generic Disease Management System
HIV	Human Immunodeficiency Virus
ICD-10	International Statistical Classification of Diseases – 10 <sup>th</sup> Revision
IRB	Institutional Review Board
IT	Information Technology
IVDU	Intravenous Drug User
N.C.	North Carolina
NRC	Nursing Research Council
PLWH	People living with HIV
PLWHIV	People living with HIV
PrEP	Pre-exposure Prophylaxis
RN	Registered Nurse

STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
U.K.	United Kingdom
U.S.	United States
USPSTF	United States Preventive Services Task Force
VA	Veterans Affairs

## **CHAPTER 1: BACKGROUND AND SIGNIFICANCE**

### **Introduction**

There are over one million individuals in the United States (U.S.) living with a diagnosis of human immunodeficiency virus (HIV), with an estimated one out of seven being unaware of their diagnosis (Centers for Disease Control and Prevention [CDC], 2017a). Individuals unaware of their HIV diagnosis are responsible for approximately 40% of ongoing transmissions (Dailey, Hoots, Hall, Song, Hayes, Fulton, Prejean, Hernandez, Koenig, Valleroy, 2017). Delays in diagnosis can lead to serious consequences, such as ongoing transmission to unaffected individuals, decreased immune function leading to opportunistic infections, increase in morbidity and mortality and the likelihood of progression to acquired immunodeficiency syndrome (AIDS) (Dailey et al., 2017). In 2015, the median delay in diagnosis was estimated to be three years with an interquartile range of 0.7-7.8 years (Dailey et al., 2017).

Over the past decade the “test and treat” model has evolved to regularly test adults and treat all HIV infected individuals with antiretroviral therapy, regardless of their cluster of differentiation 4 (CD4) count to aid in the elimination of HIV in society (U.S. Department of Health and Human Services, 2012). The advancement in HIV care and antiretroviral medications have made it possible to achieve viral suppression to reduce the risk of opportunistic infections and progression to AIDS, thus allowing the HIV patient to live a healthy life with minimal risk of transmission to others (Dailey et al., 2017). There is evidence available that shows if a person living with HIV (PLWHIV or PLWH) has been on antiretroviral therapy and had an undetected viral load for at least six months, then there is no-risk of transmitting the virus

to an unaffected partner, therefore, preventing new HIV infections (Eisinger, Dieffenbach & Fauci, 2019).

In addition to better outcomes and decreased transmission rates for persons who are HIV positive who know their status and are in treatment, there are also options for their partners who are HIV negative to prevent acquiring HIV if exposed (CDC, 2018). In 2012, a single-daily dose of Truvada was approved for pre-exposure prophylaxis or (PrEP) therapy, which reduces the risk of individuals becoming infected with HIV if they are at a high-risk for infection (CDC, 2018). With better treatment and prevention of transmission, it is more important than ever to be screened and know your status; that is why both the Centers for Disease Control and Prevention (CDC, 2006) along with the United States Preventive Services Task Force (USPSTF, 2013) revised their recommendations for routine HIV screening.

### **Incidence of HIV in the United States**

The incidence of new HIV diagnoses has been on the decline over the past several years due to various prevention programs and advances in available treatments to decrease the rates of transmission (CDC, 2017d). From 2008 to 2014, there was an 18 percent decline in the estimated number of new HIV diagnoses in the U.S. from 45,700 to 37,600 (CDC, 2017d). In 2017, a total of 38,730 individuals received a new HIV diagnosis in the U.S with 67% of the diagnoses from male-to-male sexual contact, 24% from heterosexual contact, six percent related to intravenous drug use, and three percent from male-to-male contact and intravenous drug use (CDC, 2018e).

### **Prevalence of HIV in the United States**

The prevalence of HIV varies between different geographic regions in the United States along with different at-risk groups, such as men who have sex with men, intravenous drug users (IVDU), being in your twenties with multiple sexual partners and being African American

(CDC, 2018e). Overall, people living in the South make up about 37% of the U.S. population; however, an estimated 44 percent of individuals living with a diagnosis of HIV reside in the South (CDC, 2016). In 2017, the South had the highest prevalence of HIV, at 16.1 per 100,000 population, with the Northeast at 10.2 per 100,000 population, followed by the West, at 9.4 per 100,000 population. Last, the prevalence in the Midwest was at 7.4 per 100,000 population (CDC, 2018a).

### **North Carolina HIV Statistics**

North Carolina is one of the 16 states in the South where both HIV prevalent and incident cases are much higher in relation to other parts of the country (CDC, 2016). The number of individuals living in North Carolina with HIV in 2017 was 35,045, with 1,310 new diagnoses or incident cases, with a proportion of 15.2 per 100,000 population (North Carolina Health and Human Services, 2018). In 2017, nearly 65% of HIV in men living in North Carolina was among men who have sex with men (North Carolina Health and Human Services, 2018). Individuals between the ages of 20 to 29 years old living in North Carolina accounted for 41% of prevalent HIV cases in 2017 (North Carolina Health and Human Services, 2018).

African Americans living in North Carolina have the highest disparity for HIV out of all other racial or ethnic groups (CDC, 2018e). The African American population represents 64.8% of all HIV infections in both adolescents and adults in North Carolina (North Carolina Health and Human Services, 2018). In both men and women, African Americans in North Carolina with HIV have the highest incidence of new HIV cases with a proportion of 45.5 per 100,000 population (North Carolina Health and Human Services, 2018). African American men have the highest proportion of HIV infections at a level of 78.0 per 100,000 population (North Carolina Health and Human Services, 2018).

## **Guilford County, North Carolina HIV Statistics**

Guilford County, located in North Carolina, where this Doctor of Nursing Practice (DNP) project took place, is considered one of three large metropolitan areas in the state with a population greater than 500,000 (North Carolina Health and Human Services, 2018). Guilford County is one of the top 10 counties for individuals living with HIV, with 2,597 prevalent cases in 2017 (North Carolina Health and Human Services, 2018). Guilford County had a total of 124 new HIV incident cases, with a cumulative incidence of 28.0 per 100,000 population in 2017 (North Carolina Health and Human Services, 2018). This number is down from the previous year in 2016, which had 138 new HIV incident cases (North Carolina Health and Human Services, 2018).

### **Cost of HIV**

Like other chronic disease diagnoses, HIV carries a burden of health care costs to patients for screening, treatments and long-term management of their disease (CDC, 2017b). The lifetime cost of HIV treatment for each new diagnosis of HIV was estimated to be \$379,668 in the U.S in 2010 (CDC, 2017b). The cost of a new HIV diagnosis in 2010 varied between \$1,900 to \$10,000 per diagnosis, which was based on diagnoses from clinical settings such as primary care practices, emergency departments, or sexually transmitted disease (STD) clinics (CDC 2017b). The costs of the various testing strategies used, such as rapid testing or standard testing via venipuncture, also play a role in cost and vary from state to state (CDC, 2017b). The cost of HIV care and treatment in community-based settings varied by state from \$10,334 to \$20,413 per new diagnosis in 2010 (CDC, 2017b). Some of the community-based settings vary in cost because of testing being completed in jails and the high number of inmates who test positive, and the cost to implement testing in jails varying from state to state. In 2009, the total lifetime treatment cost for new HIV diagnoses in North Carolina was 631 million dollars, which during

that same year had 1,719 new HIV diagnoses (CDC, 2017b). Early diagnosis and treatment can decrease the number of transmissions of new cases along with the cost of illness with patients living with HIV (CDC, 2017b).

### **Routine HIV Screening Recommendations**

#### **The CDC Recommendations for Routine HIV Screening**

The Centers for Disease Control and Prevention (CDC) revised their evidence-based HIV screening recommendations in 2006 in response to the continued increase in the number of individuals receiving a diagnosis of HIV after several years of living with the disease despite the numerous visits to a variety of health care settings (CDC, 2006). The CDC HIV screening revision includes routine screening of HIV in patient's ages 13 to 64 years old in all health care settings, screening all pregnant women and screening at all STD clinic visits (CDC, 2006). The CDC eliminated the need for a separate written consent for HIV screening and allowed it to be a part of the general consent. A separate consent was previously required, but now in many health systems, including where this DNP project took place, HIV screening is a part of the general consent for treatment that patients sign when receiving medical care (Appendix 1). Healthcare providers, including advanced practice providers and physicians must disclose to patients they will be performing the HIV screening and allow the patient to accept or decline screening in what is known as "opt-out" screening (CDC, 2006). The CDC recommends screening all patients at least once; however, patients who are considered high-risk, such as intravenous drug users, men who have sex with men, an individual who has a sexual partner that is HIV-positive, someone that exchanges sex for goods, or an individual who is heterosexual with multiple sexual partners, should be screened at least annually (CDC, 2006). The CDC recommendations for routine HIV screening are included in the most recent update to the 2015 CDC STD evidence-

based guidelines to try to enhance the likelihood that HIV screening is being conducted during STD testing visits (CDC, 2015).

### **The United States Preventive Services Task Force Recommendation for Routine HIV Screening**

In 2013, the USPSTF revised their recommendations for routine HIV screening that includes screening all patients ages 15 to 65 years old as well as screening patients older than 65 years old or younger than 13 years old who are at risk for HIV infection (Figure 1). The screening is voluntary similar to the CDC recommendations and patients can opt-out of screening once the provider has offered the screening. The USPSTF recommendations state there is insufficient evidence to recommend testing intervals for patients; however, patients at a higher risk for becoming infected with HIV should be offered screening at least annually (USPSTF, 2013). The USPSTF has assigned a grade of “A” to this recommendation, meaning this service should be offered or provided by health care providers (USPSTF, 2013). For the purpose of this DNP project, the 2013 USPSTF guidelines were utilized for screening patients at the primary care clinic located in Guilford County that participated in the project.

**Table 1.** *The United States Preventive Services Task Force 2013 Recommendations for Routine HIV Screening.*

<b>Population</b>	<b>Recommendation</b>	<b>Grade</b>
Adolescents and Adults 15-65 Years Old	The USPSTF recommends that clinicians screen for HIV infection in adolescents and adults aged 15 to 65 years. Younger adolescents and older adults who are at increased risk should also be screened.	A

### **Problem Statement**

One in seven individuals are unaware of their HIV diagnosis and therefore experience a delay in HIV care (CDC, 2017a; Dailey et al., 2017). People who are aware of their HIV status can reduce behaviors to decrease HIV transmission to others, be linked into HIV care and begin



antiretroviral medications to achieve viral suppression (Dailey et al., 2017). As viral suppression is achieved through antiretroviral therapy, an individual's immune system can be preserved, decreasing the risk of morbidity and mortality and also reduces HIV transmission to others (Dailey et al., 2017).

The CDC's Division of HIV/AIDS Prevention Strategic Plan for 2017 to 2020 outlines four main goals for HIV prevention (Table 2).

**Table 2.** *The CDC's Division of HIV/AIDS Prevention Strategic Plan for 2017 to 2020 (CDC, 2017c).*

<b>Division of HIV/AIDS Prevention Strategic Plan 2017-2020</b>	
<b>Goals</b>	<b>Objectives</b>
<b>Prevent New HIV Infections</b>	<ol style="list-style-type: none"> <li>1. Increase the percentage of persons living with HIV who know their serostatus to at least 90%.</li> <li>2. Increase the number of persons who are using PrEP by 500%.</li> </ol>
<b>Improve Health Outcomes for Persons Living with HIV</b>	<ol style="list-style-type: none"> <li>1. Increase the percentage of persons with diagnosed HIV who are linked to care within one month of diagnosis.</li> <li>2. Increase the proportion of PLWH with sustained viral suppression.</li> </ol>
<b>Reduce HIV-related Disparities and Health Inequities</b>	<ol style="list-style-type: none"> <li>1. Reduce disparities in the rate of diagnoses among (1) gay, bisexual men; (2) young black gay and bisexual men; (3) black women; and (4) persons living in the South.</li> <li>2. Increase the percentage of youth and persons who inject drugs who are virally suppressed.</li> <li>3. Reduce stigma and discrimination associated with the acquisition and transmission of HIV.</li> </ol>
<b>Continually Improve Effectiveness and Efficiency of Operations</b>	<ol style="list-style-type: none"> <li>1. Recruit and retain a highly qualified, satisfied, and motivated workforce.</li> <li>2. Ensure effective use of intramural and extramural resources through robust resource and program management.</li> <li>3. Maximize the efficiency of administrative processes.</li> </ol>

The first goal to prevent new HIV infections was the focus of this DNP project. Screening is an important part of prevention – secondary prevention- to know one's status to get into early treatment to decrease the viral load and transmission to others. A main objective of this prevention goal is to have at least 90 percent of individuals living with HIV to know their

serostatus by the year 2020 (CDC, 2017c). To meet this goal of the Strategic Plan, increasing provider adherence to the 2006 CDC HIV screening recommendations is advised as well as increasing the awareness of HIV, reducing HIV-related stigma and promoting HIV screening (CDC, 2017c). In 2015, the U.S. National HIV/AIDS Initiative established a five-year plan with similar goals to the CDC's Strategic Plan to include reducing new HIV infections and increasing the percentage of people living with HIV who know their status to at least 90 percent (Kahn & Nicosia, 2017).

The purpose of this DNP project was to increase routine HIV screening in a primary care practice in Guilford County, North Carolina using evidence-based interventions and the 2013 USPSTF HIV screening recommendations. The review of the literature and the framework of the Chronic Care Model guided this project.

## **CHAPTER 2: REVIEW OF LITERATURE**

### **Review of the Literature: Interventions for Improving Routine HIV Screening**

This review of the literature will summarize the most up-to-date evidence-based interventions to increase screening for HIV in various primary care settings. The emphasis was on strategies that work to increase screenings using the recommendations from the USPSTF and the CDC. The purpose of the review of literature was to determine the most feasible and acceptable methods providers can use to routinely screen patients for HIV in a primary care setting.

### **Description of Literature Search for Evidence-Based HIV Screening Interventions**

A literature search was performed for evidence-based HIV screening interventions after consulting with the school's librarian on 10/31/2017. The Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycInfo, Embase and PubMed databases were searched using major search terms "HIV" AND screen\* OR test\* AND "primary care." Searches were limited to English language articles and articles with a publication date from 2006 to 2017. The search had a yield of 506 results between the four databases before inclusion and exclusion criteria were applied, and a total of 14 articles were retained after duplicates. The inclusion criteria for the literature review were articles published from 2006 to 2017 that discussed HIV screening in primary care settings in patients ages 13 to 64 years old or 15 to 65 years old, based on the CDC and USPSTF recommendations. Exclusion criteria for the literature review includes studies conducted with participants who are pregnant, children 12 years old and younger, inpatient or hospital settings, HIV clinics, and HIV positive patients at the time of

recruitment and infants. Between the four databases, most articles were duplicated or were articles about HIV positive patients or HIV clinics. For the purpose of the literature review, only those articles that discussed routine HIV screening or testing in a primary care setting were utilized; therefore, a significant number of articles found were excluded, leaving only 14 articles to be used in the review of literature

### **The Evidence for Improving HIV Screening**

Three major themes for improving HIV screening emerged from the review of literature. There are several strategies that have been used in studies over the years since routine HIV screening recommendations were published to improve screening in primary care settings. These strategies include; the use of rapid HIV testing, electronic medical record interventions, and staff-initiated HIV screening (Avery, Del Toro, Caron, 2014; Harmon, Collins-Ogle, Bartlett, Thompson, Barroso, 2014; Knapp, Anaya, Feld, Hoang, Goetz, 2011).

#### **Rapid HIV Testing**

Rapid HIV testing for HIV has led to an increase in HIV screening rates among primary care settings in not only the U.S., but in the United Kingdom (U.K.) (Harmon et al., 2014; Leber et al., 2015; Schwandt et al., 2012; Valenti et al., 2012). Rapid HIV testing uses a finger-stick sample that can be used to obtain results in about 20 to 30 minutes and is initiated by a trained staff member of the clinic, usually a nurse or medical assistant, with results available to deliver to the patient during the clinic visit with the provider (Harmon et al., 2014; Leber et al., 2015; Schwandt et al., 2012; Valenti et al., 2012). The use of rapid HIV screening has been found to be favorable among patients and providers, allowing more patients to be screened and prevent the patient from having to return to the clinic to obtain the results (Harmon et al., 2014; Leber et al., 2015; Schwandt et al., 2012; Valenti et al., 2012).

One of the barriers found to rapid HIV testing was related to time (Harmon et al., 2014; Valenti et al., 2012). Decreased rates of testing were noted if the clinic was short-staffed or busy (Harmon et al., 2014; Valenti et al., 2012). Most often providers are seeing patients every 15 minutes and having to discuss a positive HIV result will take longer than a 15-minute visit (Harmon et al., 2014; Valenti et al., 2012). But, rapid testing is found to be positive in terms of the patient's perspective. Patients reported time constraints as barriers to accept tradition HIV screening through venipuncture and would not return for results if they had to wait several days for results (Harmon et al., 2014; Schwandt et al., 2012; Valenti et al., 2012).

In some cases, primary care clinics had seen a large percentage of patients screened for HIV using rapid testing and others did not despite the intervention of rapid testing. In 2015, a cluster-randomized controlled trial in the U.K. used rapid point-of-care testing for HIV as a modality to improve HIV screening rates in primary care (Leber et al., 2015). This study had 45% acceptance rate of patients who were offered screening for HIV (Leber et al., 2015). A seven-week study offering rapid screening at routine office visits to 138 patients had 72% acceptance rate (Harmon et al., 2014). In another study, only six percent of patients seen were screened for HIV; however, of the 6,125 patient visits used during the intervention period, only 536 patients were offered HIV screening with 367 accepting the screening (Valenti et al., 2012).

Rapid HIV screening can be useful; however, providers are hesitant to initiate rapid testing because of not being guaranteed reimbursement (Valenti et al., 2012). Only one of the four studies that was a randomized-controlled trial showed the highest quality of evidence using rapid HIV testing; however, it was not conducted in the U.S. and did not use the CDC or USPSTF recommendations for screening (Leber et al., 2015). The site where this DNP project took place at does not offer rapid HIV testing because of time constraints, cost for

reimbursement and the availability of laboratory testing that is more specific and sensitive that can be covered by insurance.

### **Electronic Medical Record Interventions**

The use of an electronic medical record reminder has been used in several studies for improving screening rates for HIV in primary care (Avery, Del Toro, Caron, 2014; Marcelin et al., 2015; Rodriguez et al., 2016). Besides using an electronic medical reminder, other interventions to improve screening included: providing education about the screening recommendations to providers, facilitating a discussion on local epidemiology and the benefits of early detection, and access to treatment for positive results (Avery et al., 2014; Marcelin et al., 2015; Rodriguez et al., 2016)

In 2010 at a large Ohio hospital, an electronic medical reminder was added to the electronic medical record that passively reminded providers to screen patients once for HIV and then mark the task completed (Avery et al., 2014). However, a disadvantage discussed in this study was that providers often ignored the reminder in the patient's electronic medical record leaving patients not tested for HIV at the clinic (Avery et al., 2014). The intervention was evaluated by control chart methodology that looked for trends in screening and non-screening, finding an increase in the number of patients who received screening for HIV (Avery et al., 2014). This study also identified 33 new cases of HIV during the intervention period from 2010 to 2011 (Avery et al., 2014).

A clinical decision support (CDS) tool was used at a primary care practice in Minnesota, which worked similarly to other studies; however, this was developed from the Generic Disease Management System (GDMS) (Marcelin et al., 2016). The CDS tool is frequently used to manage chronic diseases, medications and diagnoses, and delivers alerts to providers when certain tasks are due (Marcelin et al., 2016). In a four-month period after the implementation

period, 218 individuals were screened for HIV after the CDS tool was implemented versus the 109 screened prior to the start of the intervention (Marcelin et al., 2016).

The electronic medical record in a community health center network was modified in 2011 to have a prompt with a specific script read by the medical assistant to offer the HIV screening (Rodriguez et al. (2016). This study implemented in the Bronx and Queens in New York, was shown to increase testing rates from 61% of 76,649 in 2011 to 89% of 100,369 tested in 2013, which resulted in 166 new HIV diagnoses between 2011 and 2013 (Rodriguez et al., 2016). The prompt discussed in the study denotes it as a clinical decision support alert, but it does not provide additional information about the prompt with exception that it complies with HIV testing laws of the State of New York (Rodriguez et al., 2016).

One study used the electronic medical record in a different way than the other studies and was shown to be effective at increasing the rate of individuals who were tested for HIV (Golden et al., 2017). The electronic medical record was used to identify the patients with upcoming appointments at the clinic in the State of Washington to determine if they had ever had an HIV test with the specific laboratory affiliated with the clinics used in the study. The list of patients that needed an HIV screening were given to a staff member that was designated to work on the study, while medical assistants entered the pre-orders for testing for eligible patients (Golden et al. 2017). This method of using the electronic medical record increased HIV screening from 14.9% to 30.8% ( $P<0.0001$ ) over the four-year period of the intervention (Golden et al., 2017).

The utilization of the electronic medical record does show slight improvement in screening practices for HIV (Avery et al., 2014; Marcelin et al., 2015; Rodriguez et al., 2016). However, higher-quality studies are needed to make further improvements for the way screening practices should take place utilizing the electronic medical record. The DNP project site utilizes

the Epic Systems software for their electronic health record and the software has a reminder embedded into the patient's health maintenance list. For the remainder of this paper, the word Epic will be used when discussing Epic Systems software.

### **Staff-Initiated HIV Screening**

Four identified published studies discuss the initiation of HIV screening by a nurse or certified medical assistant in a primary care setting (Anaya et al., 2008; Anim et al., 2013; Kinsler et al., 2013; Knapp et al., 2011). The nurse or medical assistant is designated as the champion or the lead for initiating the discussion with the patient about HIV screening at the visit, and will prepare to test the patient whether it is through venipuncture or rapid testing (Anaya et al., 2008; Anim et al., 2013; Kinsler et al., 2013; Knapp et al., 2011).

One study used rapid testing along with promotional brochures and displays to promote HIV testing in patients at one Veterans Affairs (VA) outpatient clinic (Knapp et al., 2011). From year one to year two after the intervention, nurse-initiated testing was associated with a 70% increase in screening (Knapp et al., 2011). In another study at a different VA outpatient clinic in Los Angeles, nurse-initiated and physician-initiated testing were compared to one another which showed that 55% of tests were offered by a nurse and 45% by a physician (Kinsler et al., 2013).

A two-site, three arm randomized controlled trial was developed evaluating nurse-initiated HIV screening versus traditional screening in three VA clinics in Southern California (Anaya et al., 2008). Data results were from two different sources, the EMR, and patient-based surveys regarding the reason for HIV screening, how they want to receive the results, how to reduce the risk of transmission and how to improve HIV knowledge (Anaya et al., 2008). The three models for HIV screening are; Model A: traditional HIV counseling and testing; Model B: nurse-initiated screening and traditional counseling and testing; Model C: nurse-initiated screening with streamlined counseling and rapid testing. Model C was the most effective with an



89.3% rate for testing for HIV. Model B had the second highest rate for HIV testing with 84.5%. The use of Model C being more favorable for HIV screening relates back to rapid testing because patients prefer to have rapid testing that is initiated by nursing staff to get results at the same visit without the inconvenience of having to return to the clinic (Anaya et al., 2008).

The final study used a medical assistant to offer HIV screening to all patients as they entered the clinic over a three-month period (Anim et al., 2013). Patients had to pay out of pocket for testing, which led to only 17% of the patients accepted screening for HIV (Anim et al., 2013). However, rates previously for HIV screening were less than 1%; so, 17% is a significant increase at this practice even with patients having to pay out of pocket for testing (Anim et al., 2013).

### **Summary of the Literature Search**

There were several studies that shared a connection between staff-initiated and rapid screening as ways to improve HIV screening rates. Even with the use of electronic medical record reminders, screenings were missed or ignored by staff and providers (Avery et al., 2014). As more primary care settings begin to implement routine HIV screening, there is the potential for higher-quality studies to be conducted. Further research is needed into screening practices for HIV to understand the role that electronic medical record reminders, rapid-testing and staff-initiated screenings play in improving screening rates and increasing the number of people who know their HIV status. From the literature, one of the most effective ways for providers to increase HIV screening rates in primary care is to integrate rapid testing at the beginning of the visit, that is initiated by a nurse or medical assistant after viewing a prompt in the electronic medical record to offer the HIV screening. The practice site where this DNP project takes place

does not currently do rapid HIV testing because of time constraints, cost and lack of reimbursement from third party payers. Most insurance carriers will cover the fourth generation HIV antibody serum laboratory test ordered by providers.

## **CHAPTER 3: THEORETICAL FRAMEWORK**

### **The Chronic Care Model**

The plan for this DNP project was to design and implement a performance improvement project to increase routine HIV screening in a primary care setting. The Chronic Care Model (CCM) was used as the framework to guide the design and implementation of the DNP project. The CCM is an evidence-based and team-based approach to deliver high quality care that is patient-centered to manage chronic diseases to improve health outcomes (Coleman, Austin, Brach, Wagner, 2009; Group Health Research Initiative, 2018; Pasricha, Deinstadt, Moher, Killoran, Rourke, Kendall, 2012; Tu, Belda, Littlejohn, Somlak-Pederson, Valle-Rivera, Tyndall, 2013; Wagner, Austin, Davis, Hindmarsh, Schaefer, Bonomi, 2001). Previously, the CCM has been used in chronic diseases such as hypertension, diabetes mellitus, congestive heart failure and chronic obstructive pulmonary disease (Group Health Research Initiative, 2018; Pasricha et al., 2012; Tu et al., 2013; Wagner et al., 2001). More recently, the CCM has been used for improving care among patients who are HIV-positive as well as patients who are HIV-negative for increasing the number of people screened for HIV (Goetz, Bowman, Hoang, Anaya, Osborn, Gifford, Asch, 2008; Tu, et al., 2013).

The CCM is made up of six components for delivering disease care: the health system, decision support, delivery system design, clinical information system, self-management support, and the community (Coleman et al., 2009; Goetz et al., 2008; Group Health Research Initiative, 2018, Pasricha et al., 2012; Tu et al., 2013; Wagner et al., 2001). This DNP project used all six

of the components to guide the practice change and improve patient outcomes related to HIV screening (Table 3).

**Table 3.** *The Six Components of the Chronic Care Model Utilized in this DNP Project.*

<b>The Health System</b>	Engaged stakeholders in the practice setting and identified practice champions to support this DNP project to improve routine HIV screening.
<b>Decision Support</b>	Educated staff and providers on HIV screening recommendations, evidence-based practices to increase screening and increasing their knowledge of the link to the USPSTF (2013) recommendations as well as the electronic medical record reminder already integrated in the electronic medical record.
<b>Delivery System Design</b>	Supported team-based practice for staff and providers to offer HIV screening to patients using the USPSTF (2013) recommendations during routine visits, annual examinations or STD or STI screening visits.
<b>Clinical Information Systems</b>	Utilized an integrated electronic medical record (EMR) reminder into the health maintenance list in the EMR for each patient. Collected monthly reports for data on HIV screening based on the Epic code PROC_CODE LAB3107 and patient encounters for clinic visits.
<b>Self-Management Support</b>	Providers and staff offered HIV information to patients on screening; supported shared-decision making allowing patients to make informed decisions to accept or decline screening at the practice site. Informed patients of other HIV testing options in the community.
<b>The Community</b>	Introduced community resources to providers and staff around options for free screening, pre-exposure prophylaxis (PrEP), or HIV diagnosis treatment and management.

## **The Six Components of the Chronic Care Model**

### **The Health System**

In this component, the health system is considered as an organization that thrives on a culture of patient safety and the delivery of high-quality care (Coleman et al., 2009; Group Health Research Initiative, 2018, Tu et al., 2013; Wagner et al., 2001). The leadership in the organization must be supportive of practice changes and delivery methods by utilizing quality improvement teams to set goals to improve patient care and prevent errors and mistakes (Coleman et al., 2009; Group Health Research Initiative, 2018, Tu et al., 2013; Wagner et al., 2001). In this project, engaging the stakeholders and identifying the practice champions to allow

this process improvement project to take place in the clinic and increase routine HIV screening applied the concept of the health system.

### **Decision Support**

The decision support component of the model promotes the use of evidence-based practices by health care providers to improve care (Coleman et al., 2009; Goetz et al., 2008; Group Health Research Initiative, 2018; Pasricha et al., 2012; Tu et al., 2013; Wagner et al., 2001). The use of clinical practice guidelines and recommendations should be discussed with patients for them to gain a better understanding of recommended treatment modalities. As health care evolves, new guidelines and recommendations are being published or updated and health care providers will need to adopt new practices. When facilitating a practice change, several support systems can be integrated to promote change such as reminders, distributing educational materials, using case studies, or using audit and feedback (Coleman et al., 2009; Goetz et al., 2008; Group Health Research Initiative, 2018; Pasricha et al., 2012; Tu et al., 2013; Wagner et al., 2001). In the context of this project, the decision support component was applied through increasing the knowledge of the national HIV screening guidelines for all staff and providers of the clinic and using the link to the screening recommendations along with the electronic reminder in the health maintenance section in the electronic medical record.

### **Delivery System Design**

The delivery system design is a component of the CCM that promotes health prevention and thrives on a team-based approach. These components of the CCM involves staff being assigned to specific roles for tasks to be completed and are involved in promoting the delivery of evidence-based care (Coleman et al., 2009; Goetz et al., 2008; Group Health Research Initiative, 2018; Tu et al., 2013; Wagner et al., 2001). For a change in practice to occur, the staff and providers must be aware of each other's roles in this process improvement. Staff in the clinic

needed to expand on their role in the practice to include the discussion of the HIV screening to aid in improving screening rates. According to the literature, using certified medical assistants or nurses as the first staff members to offer screening to patients was shown to be effective at improving screening rates (Anaya et al., 2008; Anim et al., 2013; Kinsler et al., 2013; Knapp et al., 2011). Other clinic staff such as receptionists and schedulers, were also educated on the screening recommendations for routine HIV screening and could discuss with patients why the clinic is promoting routine HIV screening and the importance of patients knowing their HIV status. Support for the delivery system design component for this project was through team-based practice using the staff and providers to offer HIV screening to patients using the USPSTF (2013) recommendations during routine visits, annual examinations or STD or STI screening visits.

### **Clinical Information Systems**

The clinical information systems (CIS) component of the CCM is used for organizing patient data for facilitating and improving quality patient-centered care which can be done through the electronic medical record using clinical reminders and audit and feedback reports (Coleman et al., 2009; Goetz et al., 2008; Group Health Research Initiative, 2018; Pasricha et al., 2012; Tu et al., 2013; Wagner et al., 2001). This component of the CCM was used in the DNP project by utilizing an electronic medical reminder already integrated in the health maintenance list in each patient's electronic medical record. When using an electronic medical reminder, patient data can be tracked and linked to testing to determine who has had the screening, and can be used to determine those patients who had not been screened previously. Reports were collected after the end of the intervention at the project site for data on HIV screening based on the code from Epic - PROC\_CODE LAB 3107 and the ICD-10 codes for office visits for physicals and STD or STI examinations.

## **Self-Management Support**

The self-management support component of the CCM identifies the critical role patient's play in managing their own care (Coleman et al., 2009; Group Health Research Initiative, 2018; Tu et al., 2013; Wagner et al., 2001). This component emphasizes patient making their health care decisions based on the knowledge received from providers and perhaps conducting their own research (Coleman et al., 2009; Group Health Research Initiative, 2018; Tu et al., 2013; Wagner et al., 2001). The self-management support component was applied to this project through the providers offering HIV screening to their patients, allowing them to make their own decision about accepting the screening or not. When offering HIV screening, the providers and staff were expected to educate patients on the screening recommendations, but again allowing the patient to make their own decision in regards to the screening. For patients who refuse to be screened at the clinic, the providers or clinic staff were educated to advise the patient to utilize other options of various community resources that offer confidential and free HIV screening. Handouts, flyers and posters were given to the providers and staff to display throughout the clinic in waiting areas and clinic rooms to provide further information on routine HIV screening to patients who are waiting to be seen and to begin the process of contemplating accepting or declining to be screened for HIV (Appendix 2).

## **The Community**

The community component is the final component of the CCM and involves utilizing the resources within the community to foster partnerships to meet the patient's needs and assist with self-management support (Coleman et al., 2009; Group Health Research Initiative, 2018; Tu et al., 2013; Wagner et al., 2001). Community programs can assist patients with the resources needed to cope with chronic diseases and promote self-care (Tu et al., 2013; Wagner et al., 2001). Patients that do not wish to be screened for HIV may do so at other community-based

settings. This final component was applied to the project by introducing the providers to the various community resources for HIV care and support. Through these organizations, the providers can work to establish professional relationships to facilitate referrals for patients who are HIV-positive or for patients who are at a high-risk for HIV infection to receive additional services or even initiate the pre-exposure prophylaxis medication. Handouts, flyers and posters were given to the providers and staff to display throughout the clinic in waiting areas and clinic rooms to provide further information on routine HIV screening to patients who are waiting to be seen (Appendix 2).

### **Summary of the Chronic Care Model**

The CCM was utilized to assist the providers and staff through the practice change to increase routine HIV screening in their clinic to improve both patient outcomes as well as outcomes within the health system. The prevention, screening and treatment of HIV can be well managed when both the patient and the providers take a proactive step to improving health care.



## **CHAPTER 4: PURPOSE STATEMENT**

### **Purpose**

The purpose of this DNP was to increase routine HIV screening in a primary care practice in Guilford County, North Carolina using evidence-based interventions and the 2013 USPSTF HIV screening recommendations.

The goals of the DNP project were to:

1. Increase the percentage of HIV screenings offered to patient's ages 15 to 65 years old following the evidence-based USPSTF (2013) recommendations as a guide for screening.
2. Engage stakeholders of the practice and identify practice champions to support this DNP project to improve routine HIV screening.
3. Understand provider and staff personal perspectives about routine HIV screening at the practice site before and after the intervention using a validated pre- and post- intervention survey (Appendix 4).
4. Inform health care providers and clinic staff at the DNP project site on the routine HIV screening guidelines, HIV prevalence and incidence in Guilford County, North Carolina and the critical need to screen.
5. Identify barriers and process improvements for routine HIV screening using focus groups and semi-structured interviews monthly with clinic staff and providers during the intervention period.

6. Implement evidence-based interventions to improve routine HIV screening such as utilizing an electronic medical record (EMR) reminder, training on CPT code 87389 and ICD-10 codes of office visits for physicals and STD or STI exams, and taking a team-based, patient-centered care approach for shared-decision making.

## CHAPTER 5: METHODOLOGY

### Context

The following text describes the primary care clinic setting where this process improvement project took place. The intervention period was from September 1, 2018 to November 30, 2018.

The DNP project timeline is as follows according to Table 4.

**Table 4.** *The DNP Project Timeline from 2018 to 2019.*

<b>DNP Project Timeline</b>	
April 2018	DNP Project Proposal Defense.
May 2018	Submitted application to Institutional Review Board (IRB).
July 2018	Received IRB approval from the University of North Carolina at Chapel Hill.
August 2018	Received Nursing Research Council and IRB approval from Cone Health. Completed first information session with providers and distributed pre-intervention surveys at project site.
September 2018	Data collection period began; completed information session with clinical staff and distributed surveys.
October 2018	Completed information session with front-desk staff and distributed surveys.
November 2018	Final month for data collection; provided education to staff on World AIDS Day.
December 2018	Received results of data from 2018 and 2017.
January and February 2019	Completed follow up surveys with providers and clinic staff.

### Design

This DNP project was a performance improvement project aimed to increase routine HIV screening in a primary care practice in Guilford County, North Carolina using evidence-based interventions and the 2013 USPSTF HIV screening recommendations. All staff and health care

providers were involved in the project and were educated on offering the screening to patient's ages 15 to 65 years old, following the 2013 USPSTF recommendations during the three-month intervention period. The DNP project intervention period was from September 1, 2018 to November 30, 2018 and was compared to the number of HIV screenings previously completed at the practice during the same three-month time period, the year before the intervention from September 1, 2017 to November 30, 2017.

### **Setting**

The setting for this DNP project was at an internal medicine primary care clinic located in Guilford County, North Carolina. The clinic sees approximately 120 to 130 patients per day. The providers have approximately 2,000 patients assigned to them. The sex of the patient population consists of approximately 55.5% females and 44.5% males. The average age of the patient population is between 55 to 60 years old. The race of the patient population is comprised of approximately 60% White or Caucasian, 30% Black or African American, 3.0% other or two or more races, 2.0% Asian, 3.0% declined to answer or is unknown, and 1.0% American Indian or Alaska Native.

An estimated 60% of the patients who come to the clinic have Medicare, whether that is a traditional or an Advantage plan and the other 40% is patients with commercial insurance. The clinic does not accept Medicaid as a primary insurance, however, according to the practice manager, many of the patients who have Medicare also have Medicaid as a secondary insurance carrier.

This site was selected for this project because of the location of the practice being in an area where a higher number of patients living with HIV reside and the high incidence for new cases of HIV infection. This location is easily accessible by car or public transportation as well.

## **Population**

The population that was the focus of this DNP project included the health care professionals and staff members that offer and encourage patients ages 15 to 65 years old to be screened for HIV at the practice site during routine visits, annual physical examinations, or STD or STI screening visits. As of February 2019, the practice consists of seven providers, which include one nurse practitioner and six physicians who provide primary care services to patients in Guilford County.

## **Interventions**

This was a process improvement project using evidence-based HIV screening recommendations, provider and staff education and an electronic medical record reminder to create a practice change to increase routine HIV screening in a primary care setting. The Chronic Care Model has been used as a guide for this DNP project (Table 3).

## **Use of the United States Preventive Services Task Force 2013 Final Recommendation**

For the purposes of this DNP project, the USPSTF 2013 recommendation for HIV screening was referenced (Table 1), and included patients ages 15 to 65 years old based on this Grade A recommendation; who presented to the clinic for a routine physical, an annual visit or presented for STD or STI screening. Currently, there are not clear recommendations as to how often to screen for HIV, except for patients who are considered high-risk or are pregnant and do not know their HIV status. Those patients “should be screened more often” (USPSTF, 2013). This also includes patients fewer than 15 years old or over 65 years old who are categorized as high-risk (USPSTF, 2013). The USPSTF recommendations indicate that patients considered to be at high-risk, including men having sex with men (MSM), people who have an STD or STI, and a person using intravenous drugs, should be screened more frequently or at least annually for HIV to prevent disease transmission or early detection of HIV (USPSTF, 2013). Other patients

who may be at risk for HIV infection include those who have unprotected sex with multiple partners, or do not know their partner(s) HIV status.

There is not a specific HIV test that has been recommended by the USPSTF; but for the purposes of this DNP project, the project site used the Food and Drug Administration (FDA) approved fourth generation HIV-1 and HIV-2 antigen/antibody combination test via venipuncture by a qualified phlebotomist employed by Quest Diagnostics. Since the passing of the Affordable Care Act, Medicaid, Medicare and most private insurances are required to cover “A” and “B” grades from the USPSTF (The AIDS Institute, 2016). The practice site does not currently do any rapid HIV testing because of time constraints, cost and lack of reimbursement from third party payers.

### **Information Sessions**

There were several information sessions throughout the intervention period, with the first session used as a launch of this DNP project. The first information sessions was in August 2018, given as a lunch and learn for the health care providers, the lead registered nurse of the practice and the practice manager. There were seven providers present, including two nurse practitioners and five physicians. During this time, the participants at the information session completed a pre-intervention survey (Appendix 4) and were given handouts on various community resources for HIV, information on routine HIV screening recommendations from the USPSTF and basic HIV statistics. They were also given HIV screening posters and brochures from the CDC to display around the office. Providers were able to give feedback and participated in discussion about their HIV screening practices. Also discussed during this time was the EMR reminder for HIV screening already embedded into Epic, along with diagnosis codes and lab CPT billing code to use for HIV screening (Appendix 2). During this meeting, it was also mentioned what the

literature stated about using CMAs and nurses to help initiate the discussion for screening before the provider came into the exam room.

In September 2018, a second information session was held at a staff meeting for clinical staff. There were 10 participants that were a mix of certified medical assistants and registered nurses. The participants completed the pre-intervention survey and were provided information on the 2013 USPSTF routine HIV screening recommendations as well as basic statistics on HIV. There was discussion about the HIV screening reminder in the EMR that is accessible to nurses and the certified medical assistants. Also discussed was what the literature had mentioned about improving screening rates for HIV by having the CMA or nurse offer the screening prior to the provider coming into the room. This process was not being done at the clinic prior to project starting. During this month, one of the providers, who returned from maternity leave, was given the survey to complete and given the HIV screening education materials that were given at the provider information session in August 2018 (Appendix 2 & 4).

In October 2018, a third information session was held for the front-desk staff. Seven participants completed a pre-intervention survey and were educated on basic HIV statistics, the routine HIV screening recommendations, and the EMR reminder already available in the medical record. During this month, a new nurse practitioner to the practice was educated on routine HIV screening and completed a survey. This new nurse practitioner was also given the same education materials that were given to providers at the beginning of the project in August.

In January 2019, the providers and clinic staff were given the post-intervention survey and educated on the draft USPSTF recommendations for screening and the updated statistics for N.C. and Guilford County (Appendix 9). There was time for discussion and questions.

## **Focus Groups and Semi-Structured Interviews**

Throughout the intervention period, the DNP project lead visited the clinic several times each month of the intervention to talk with different staff members about HIV screening in the practice and discuss if there were any barriers to screening that have been discovered since starting the project. Updates on the project as well as new HIV statistics were discussed during these meetings. Also discussed were suggestions on the way the clinic can improve routine HIV screening.

## **Electronic Medical Record**

The EMR used at the project site is Epic. The health system that is affiliated with the practice site already has embedded HIV screening in the health maintenance section of the medical record to remind providers to offer screening to patients. The HIV screening recommendations from the USPSTF published in 2013 are used for this health system for routine HIV screening, however; since the recommendations for how often to screen are ambiguous at this time, the reminder only asks for screening to be done once between the ages of 15 to 65 years old. All patients who are between the ages of 15 to 65 years old either have a documented HIV test result or have an “overdue” message under the health maintenance section if HIV screening has not been done or documented. Providers were encouraged to modify the patient’s health maintenance record to remind them to offer screening every year if the patient declined screening that year or to remind them to offer again if they are a high-risk patient. If a patient is overdue for a health maintenance item, the patient banner on the EMR is highlighted in red to grab the attention of the provider or staff member reviewing the health maintenance items.

Once the HIV screening has been completed, a hyperlink to the date of the test completed is available, and when clicked on, shows the result of the HIV test completed. At this time, providers cannot order an HIV test through health maintenance, but once a test is ordered and



completed, the hyperlink is available to view the result. The health maintenance items are updated nightly automatically after the clinic is closed. The providers, CMAs and RNs were instructed to check for HIV screening completion under health maintenance for patients presenting for physicals, annual exams, and STD or STI screening visits to verify that these patients were screened for HIV.

## **Measures**

### **Survey**

The provider survey (Appendix 4) used in the project to survey health care providers and staff was developed by the CDC using a review of literature as well as thorough discussions and presentations from various health care providers regarding HIV screening and is included in their evaluation toolkit for routine HIV screening (CDC, 2012). The CDC has tested the validity of the survey with nine providers at a public clinic; and it has been reviewed by a variety of health care providers in various clinical settings (CDC, 2012). The CDC has made the survey available to the general public and can be easily reproducible without requiring additional permission to use or modify. The survey was easily modified to fit the practice setting where the project took place and can be modified to fit most health care settings where routine HIV screening is to be implemented.

The survey has a total of 26 questions divided between four sections that take approximately 10 to 15 minutes to complete (Appendix 4). Section A asks two questions regarding the participant's professional role and their role in HIV screening. Section B has 11 questions that pertain to participants' personal perspectives related to routine HIV screening in their current practice setting. Section B's questions are rated on a five-point Likert scale, 1 = *strongly disagree*, 2 = *disagree*, 3 = *neither agree or disagree*, 4 = *agree*, 5 = *strongly agree*; and additional responses include; *don't know* and *not applicable*. Section C questions pertain to

participant perspectives on routine HIV screening in their practices, asking seven questions using a different five-point Likert scale than section A. The section C Likert scale is rated as follows, 1 = *never*, 2 = *rarely*, 3 = *about half the time*, 4 = *most of the time*, 5 = *almost always or always*. Additional responses in section C include *don't know* and *not applicable*. Section D (Appendix 5) includes three open-ended short answer questions for participants to describe the benefits and positive outcomes, the problems and negative outcomes, and additional comments about routine HIV screening in their setting. Sections A – C were used for the pre- and post-intervention survey, and section D was used in the post-intervention survey only.

### **Pre-Intervention Survey**

The health care provider and staff questionnaire developed from the CDC was distributed at the beginning of the project to the providers as well as on a rolling basis to staff members and new providers that came to the clinic during the project. Section A through C was utilized in the pre-intervention survey only. Surveys were distributed during lunch and learn meetings and staff meetings. The majority of the providers were given the survey in August 2018, the clinical staff in September 2018, and the front-desk staff in October 2018. There was one provider that was on maternity leave during the lunch and learn for providers and was given the survey in September upon their return from leave. A second provider that was new to the practice was given a survey in October once he or she started at the clinic.

The purpose of the pre-intervention survey was to determine the views of HIV screening among staff and providers (participants) at the project site (Appendix 4). The participants of the survey were given dummy identifiers, which were used to compare pre- and post-intervention survey results and to maintain confidentiality. The dummy identifier was a random number that was assigned to each survey and used during the pre- and post-survey distribution.

Once the surveys were completed, the answers were entered into Qualtrics software to prepare for data analysis. The dummy identifiers given to the providers were used in the Qualtrics software to keep the answers confidential.

### **Post-Intervention Survey**

The post-intervention survey (Appendix 4 - 5) was distributed to providers and staff in January 2019 during their monthly staff meetings. The survey that was distributed included the same sections as the pre-intervention survey (sections A through C) and included the three open-ended, short answer questions from section D (Appendix 5). The survey participants were given the same dummy identifier from the pre-intervention survey with the post-intervention survey to be used to compare the pre- and post-survey results and maintain confidentiality. Once the surveys were collected, the answers from the survey were entered in Qualtrics to be used for data analysis.

## **Analysis**

### **Survey Responses**

The survey responses were synthesized quantitatively into seven topics suggested by the CDC from the evaluation toolkit from which this survey is derived from. Each of the seven topics correlated with specific questions from the survey. The pre- and post-intervention surveys are the same questions; however, the post-intervention survey responses differ slightly from the pre-intervention survey with the inclusion of the synthesis of the responses to the three open-ended questions in section D of the survey (Appendix 4). The dummy identifiers assigned to the survey participants were utilized to compare pre- and post-intervention data to look for changes in knowledge and attitudes. The two surveys were compared using *t*-tests in Qualtrics and SPSS. Completed pre- and post-intervention surveys completed were matched using their dummy identifiers and analyzed using a dependent *t*-test. Along with using *t*-tests, the survey results

were used to look for themes among the clinic staff about their knowledge, attitudes and personal perspectives on routine HIV screening.

### **Focus Group Responses**

The focus groups and semi-structured interviews were analyzed quantitatively for common themes to draw conclusions about routine HIV screening and were compared with the themes discovered using the pre-and post- intervention surveys.

### **Electronic Medical Record Utilization**

The outcome of the project was for an increase in the percentage of HIV screenings offered among patients ages 15 to 65 years old who presented to the clinic for a routine visit, an annual physical examination, or STD or STI screening visit. During the pre-intervention information session, the providers and staff were educated on the proper diagnosis codes to use as well as the CPT code used by the lab for billing purposes. Retrospective data were obtained at the end of intervention period using all patient encounters and the Epic code for the HIV test itself – LAB3107 (Table 6).

**Table 5.** *The List of ICD-10 Codes Used When Ordering a Screening HIV Test at Office Visits.*

<b>List of ICD-10 Codes</b>	
<b>Z11.3</b>	Encounter for screening for infections with a predominantly sexual mode of transmission
<b>Z11.4</b>	Encounter for screening for human immunodeficiency virus
<b>Z00.00</b>	Encounter for general adult medical exam without abnormal findings
<b>Z00.01</b>	Encounter for general adult medical examination with abnormal findings
<b>Z01.411</b>	Encounter for gynecological exam (general) (routine) with abnormal findings
<b>Z01.419</b>	Encounter for gynecological exam (general) (routine) without abnormal findings
<b>Z20.2</b>	Contact with and (suspected) exposure to infections with a predominantly sexual mode of transmission
<b>Z20.6</b>	Contact with and (suspected) exposure to human immunodeficiency virus [HIV]

**Table 6.** *The Epic Systems Software Code Used to Identify the Ordered HIV Test.*

<b>Epic Systems Software Codes for the HIV test</b>	
<b>PROC_CODE</b> <b>LAB3107</b>	HIV Antibody [HIV-1 /HIV-2 antigen/antibody (Fourth Generation) Test] (Epic)

**Table 7.** *The Patient Encounters Used for Data Collection.*

<b>Patient Encounters</b>	
<b>2017</b>	<b>2018</b>
Ancillary Orders	Ancillary Orders
Clinical Support	Clinical Support
Office Visit	Office Visit
Orders Only	Orders Only
Patient Email	Patient Email
Refill	Refill
Telephone	Telephone

The data were used to determine the number of HIV screenings completed each month to the correlating patient encounters listed in Table 5. Additional analysis occurred by comparing the patient encounters to the Epic code for ordering the HIV test (Table 6 and Table 7). Basic patient demographics were obtained and included; sex, age, race, and ethnicity, along with the Epic codes to further stratify the data collected based on these characteristics to compare 2017 and 2018 data.

Retrospective data were collected to obtain baseline data from the previous year during the same time period as the current intervention, from September to November. This information was analyzed to compare the proportion of patients previously screened for HIV prior to education on screening recommendations and using the electronic medical reminder to the proportion of patients currently screened for HIV using the electronic medical reminder and using the screening recommendations. Bar graphs were utilized to observe the trends in the baseline and intervention data, to give providers and staff an easy way to see changes that have occurred since the start of the intervention.

## **Data Collection**

The data collection for this DNP project was completed through the Information Technology (IT) department's online portal via the Intranet of the health system associated with the practice. The practice champions assisted with requesting the data and facilitating the information to the primary investigator that did not include any patient identifiers to maintain strict patient confidentiality.

## **Ethical Considerations**

The online training courses completed by the author of the project through the Collaborative Institutional Training Initiative (CITI) are titled 'Good Clinical Practice-Social and Behavioral Research Best Practices for Clinical Research,' 'Group 2 Social and Behavioral Research-Basic Course,' and 'Social and Behavioral Responsible Conduct of Research.' On July 12, 2018 this DNP project was reviewed by the Office of Human Research ethics and determined this project "does not constitute human subjects research as defined under federal regulations and does not require IRB approval (Appendix 6). On August 21, 2018 this DNP project was also reviewed and approved by the NRC at Cone Health and the project was reviewed as exempt from the Cone Health IRB (Appendix 7). The staff and providers were made aware that the DNP project is affiliated with the School of Nursing at the University of North Carolina at Chapel Hill and that the surveys completed and results disclosed during the intervention do not include any identifiers remained confidential.

During the period of data analysis and extraction, no patient identifiers were used when data were extracted from patient medical records. A third-party IT group affiliated with organization the project site belongs to was utilized to obtain the de-identified patient data needed for analysis. The practice champions were utilized for data extraction so that there were

no patient identifiers made available to the DNP project lead. The de-identified patient data that were extracted for the purposes of analysis included: age, sex, race, ethnicity, patient encounters, and the Epic procedure for the HIV test itself (Table 6).

## **CHAPTER 6: RESULTS**

### **The HIV Test Data Collection**

During this process improvement project, providers and staff were educated on the recommendations for routine HIV screening. Baseline data for the project, collected during the months of September, October and November 2017, were compared to the interventional data received from September, October, and November 2018. The interventions in 2018 were expected to increase provider and staff knowledge of the recommendations and the use of the electronic medical record reminder in the EMR to prompt appropriate screening for HIV.

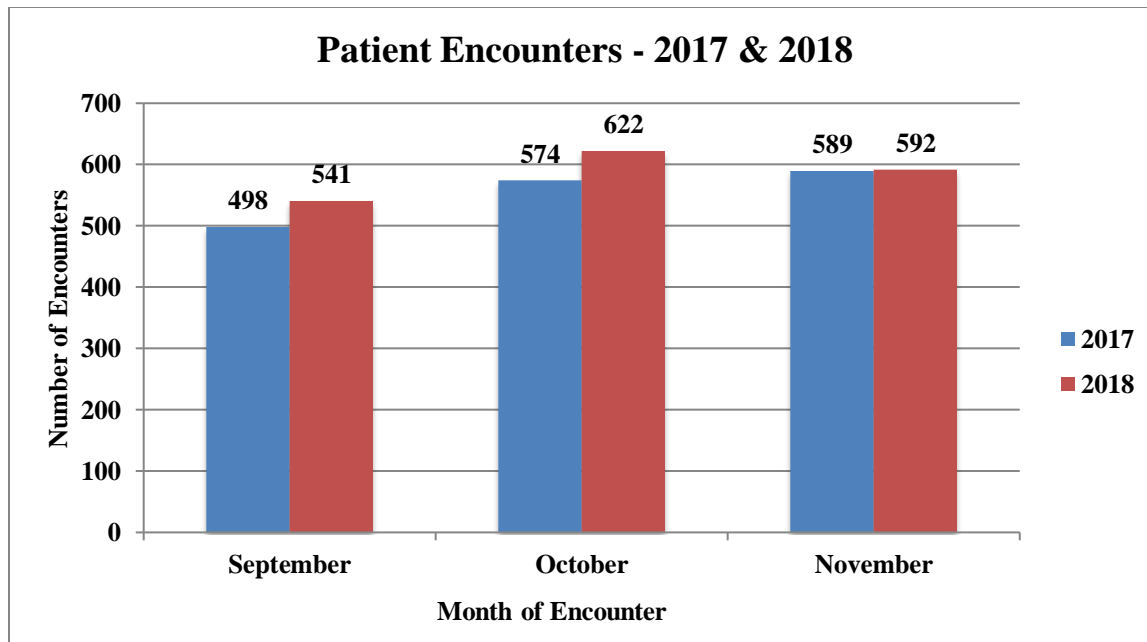
The baseline data from 2017 and the post intervention data from 2018 were received in December 2018 from the IT department from the health system the project site is affiliated with, and were provided as a Microsoft Excel spreadsheet. There were two workbooks; one for 2017 and one for 2018. The data that were provided included a column for the encounter type, the date the encounter took place, patient sex, patient age, patient race and ethnicity, and the word 'null' or 'LAB3107' to denote whether or not an HIV test was ordered in Epic.

### **Clinical Encounters**

Between September 1<sup>st</sup> and November 30<sup>th</sup>, 2017, there were a total of 1661 encounters in Epic; and in 2018, between September 1<sup>st</sup> and November 30<sup>th</sup>, there were 1755 encounters (Figure 1). This was a 5.66% increase in encounters from 2017 to 2018 during the three months used to evaluate the data for this DNP project. Of the 1661 encounters in 2017, there were 427 HIV tests ordered. For the total number of encounters in September, October, and November 2017; 25.7% of these encounters had an HIV test ordered. In 2018, out of the 1755 encounters



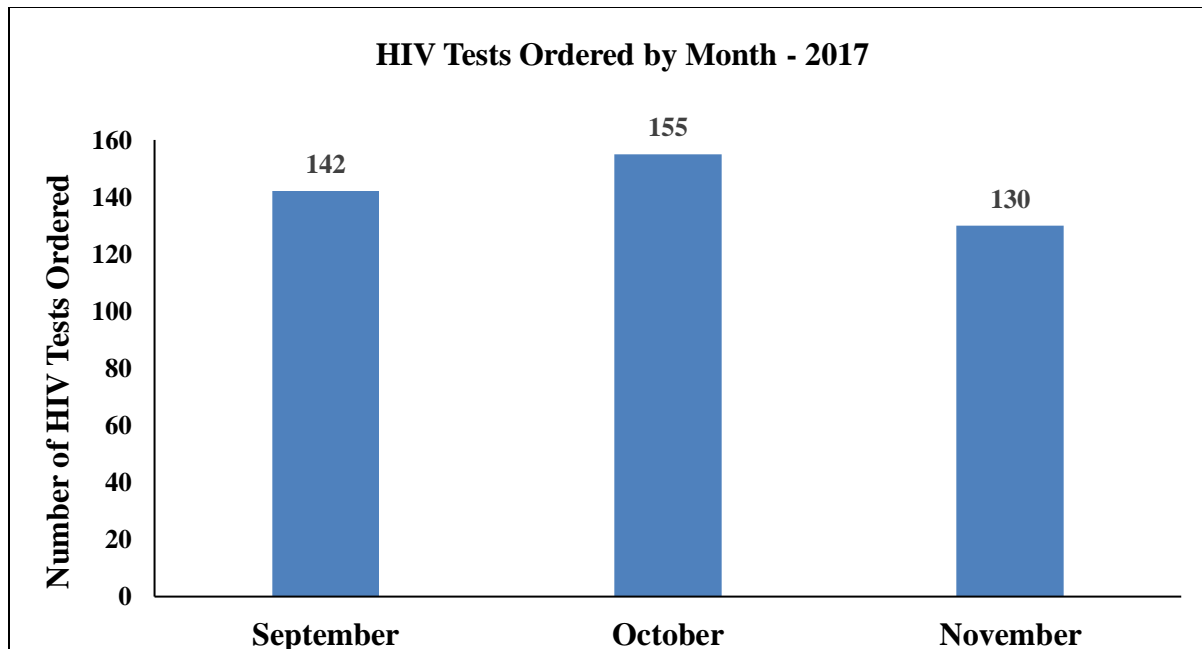
there were 443 HIV tests ordered. In 2018, 25.2% of all encounters from September, October and November had an HIV test ordered.



*Figure 1.* Side by side view of the total number of encounters by month for 2017 and 2018.

### **The HIV Tests by Month in 2017**

The data collected for the year 2017 include the months September 1<sup>st</sup> through November 30<sup>th</sup>. For the month of September, 28.5% of encounters had an HIV test ordered (Figure 4). There were a total of 142 tests ordered during September (Figure 2). In October, 155 HIV tests ordered, therefore, 27.0% of encounters had an HIV test ordered (Figure 2 & 4). During the month of November there were 130 HIV tests ordered which translates to approximately 22% of encounters had an HIV ordered. (Figure 2 & 4).



*Figure 2.* Comparison between each month during the year 2017 for the number of HIV tests actually ordered in Epic.

### **The HIV Tests by Month in 2018**

The data collected from September 1<sup>st</sup> to November 30<sup>th</sup>, 2018 had a total of 443 HIV tests ordered. The number of HIV tests ordered during September, October and November, respectively, were 173, 174, and 96 (Figure 3). More tests were ordered in September and October in 2018, with a 45% decrease in HIV tests ordered in November when compared to October.

In September, 32% of patient encounters had an HIV test ordered (Figure 4). For the month of October, 28% of patient encounters had an HIV test ordered (Figure 4). The month of November had the lowest percentage of HIV tests ordered out of the 592 encounters for the month at 16.2% (Figure 4).

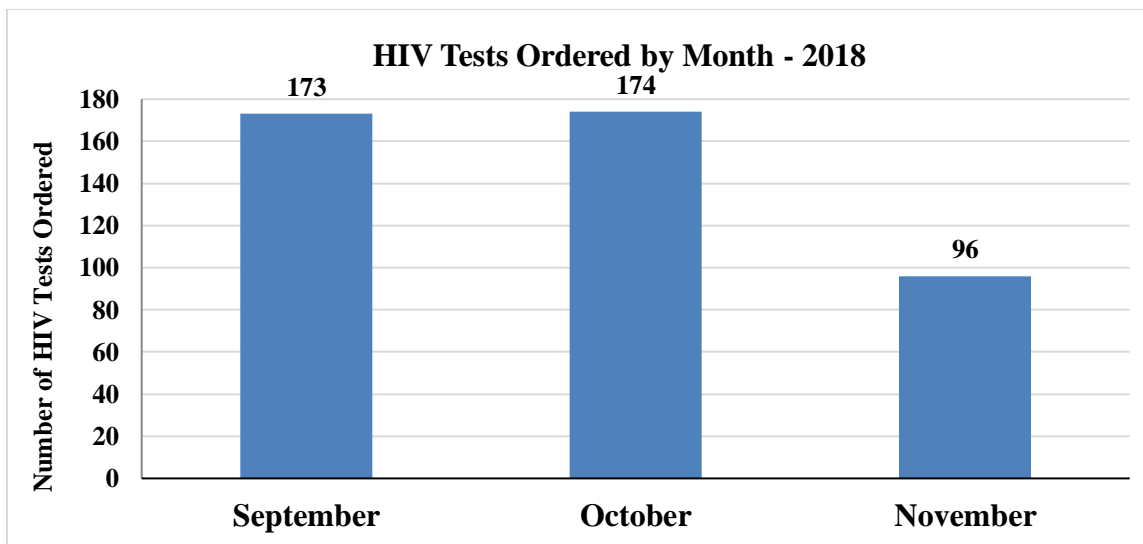


Figure 3. Comparison between each month during the intervention period in 2018 for the number of HIV tests actually ordered in Epic.

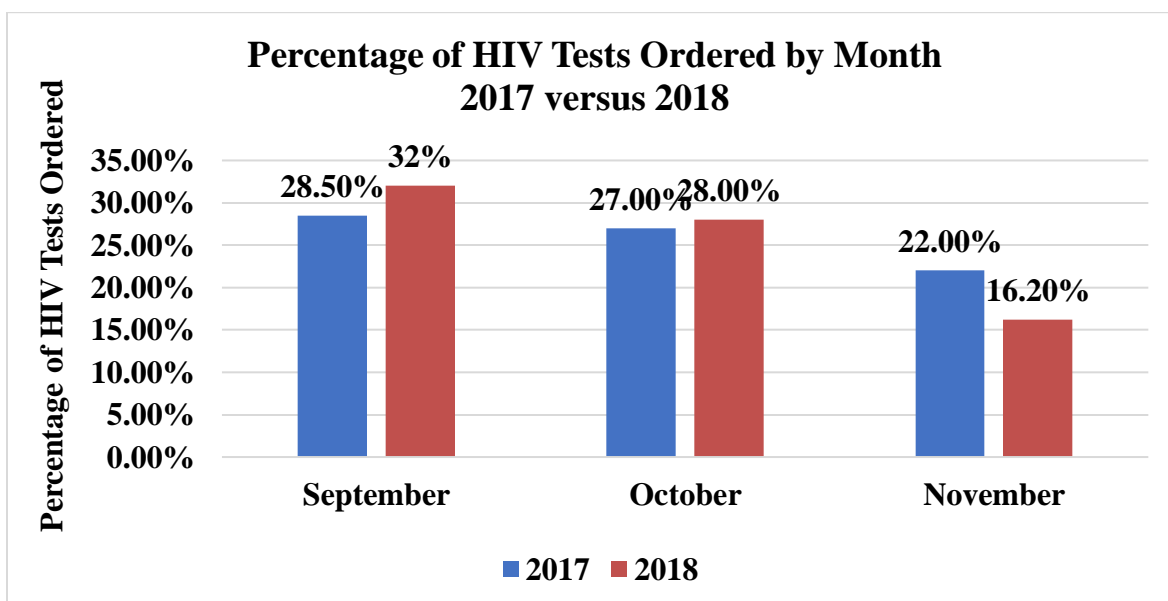


Figure 4. Comparison of the percentage of HIV tests ordered each month during 2017 and 2018.

### The HIV Tests Ordered by Encounter Type

Seven different types of encounters were documented in Epic where providers placed an order for an HIV test (Table 7). It is not known, at this time, whether or not these were diagnostic or screening tests. The most common type of encounter where an HIV test is ordered

is during an office visit. Figure 5 shows that the number of HIV tests ordered during office visits for each year were similar when comparing 2017 to 2018 data, 405 (2017) and 403 (2018). The second most common encounter to order an HIV test was the clinical support encounter in 2018. This encounter is created when a clinic staff member, a nurse or CMA, actually entered the order in the EMR, which then needed to be co-signed by the provider. Figure 5 also shows that when comparing 2017 to 2018, telephone encounters had a similar number of HIV tests ordered for that specific encounter.

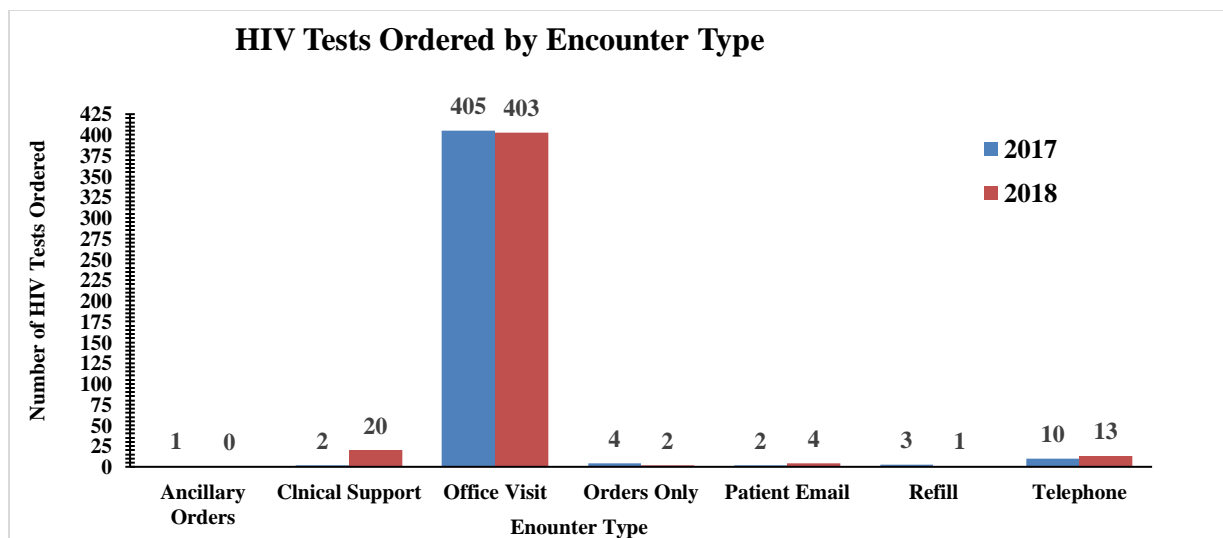


Figure 5. Comparison between 2017 and 2018 data for HIV tests ordered under the seven different patient encounters in Epic.

### The HIV Tests Ordered by Age Group

The 2013 USPSTF recommendations for routine HIV screening include all patients ages 15 to 65. The clinic where this DNP project took place typically sees patients who are 18 years old and older, with the average age between 55 and 60 years old. However, they do occasionally see patients under 18 years old. The most common age groups for HIV tests ordered include those patients ages 50 to 59 years old, 60 to 65 years old and 40 to 49 years old, respectively

(Figure 6). There was only one HIV test ordered for a patient in the age group 15 to 19 years old, which occurred in 2017.

Several HIV tests were ordered among patients that were over the age of 66 years old in both 2017 and 2018. It is recommended to screen patients over the age of 65 if they are considered at a high-risk of becoming infected with HIV. In 2017, there were 34 patients over the age of 65 who had an HIV test; and in 2018, there were 52 patients over the age of 65 were tested for HIV (Figure 6). It is not known whether or not these patients were considered a high-risk for HIV infection.

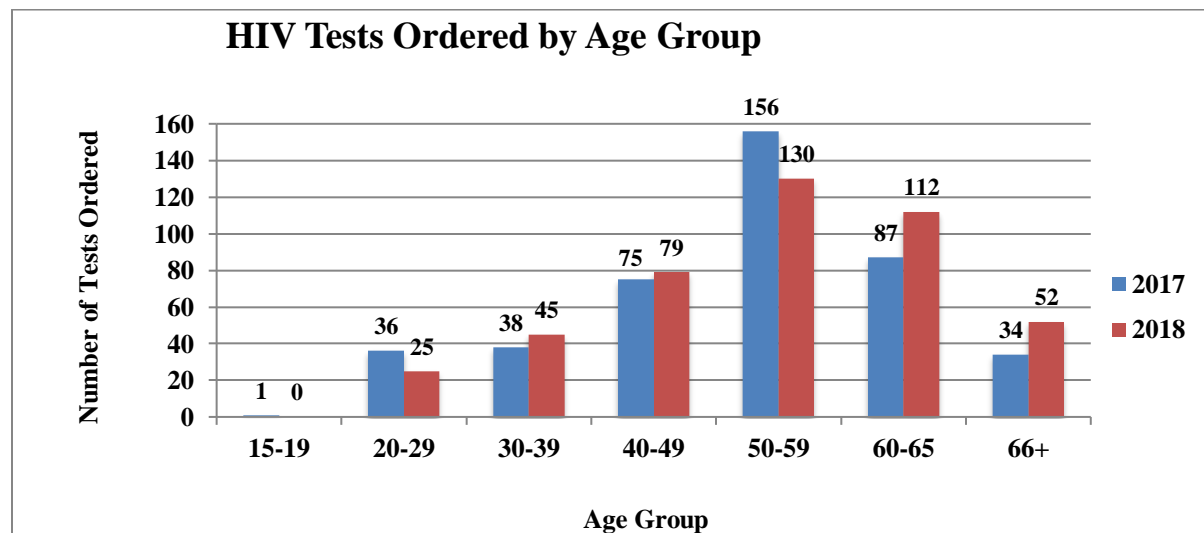
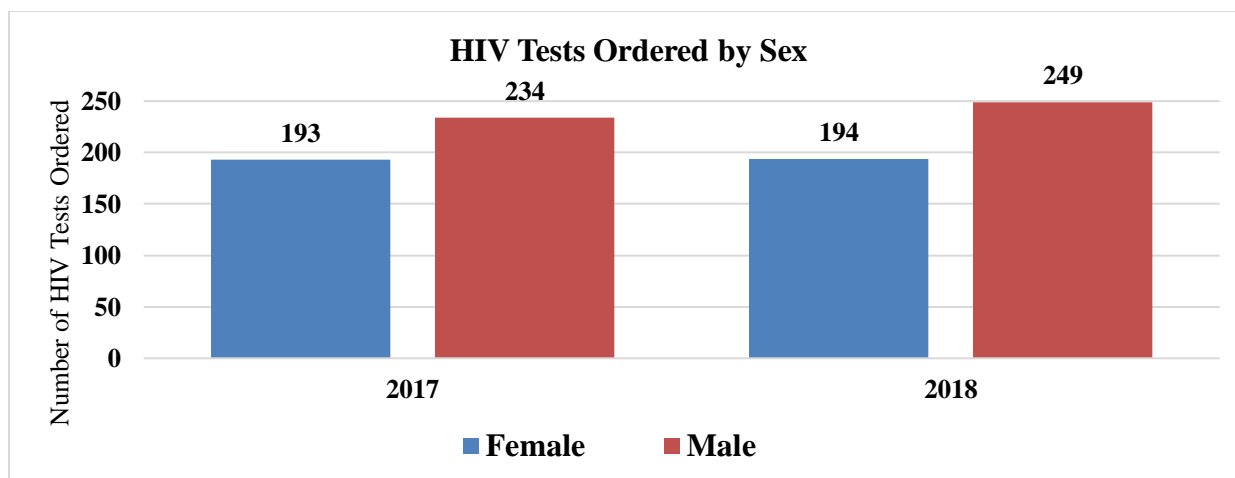


Figure 6. Comparison of HIV tests ordered by age group in 2017 and 2018 during the months of September, October and November.

### The HIV Tests Ordered by Sex

The distribution of HIV tests ordered for patients who are male or female was similar when comparing between 2017 and 2018 (Figure 7). Men had a higher number of HIV tests ordered in both 2017 and 2018. In 2018, women had one more HIV test ordered when compared to the number of tests ordered in 2017. Females make up approximately 55% of the clinic's patient population, whereas the males are about 45% of the clinic's patient population.



*Figure 7.* Comparison between females and males who had an HIV test ordered in 2017 and 2018.

### **The HIV Tests Ordered by Race and Ethnicity**

The human immunodeficiency virus can negatively affect certain races and ethnicities (CDC, 2018e). The results somewhat mirror the population that this clinic serves. The race of the patient population at this clinic is comprised of approximately 60% White or Caucasian, 30% Black or African American, 3.0% other or two or more races, 3.0% declined to answer, 2.0% Asian, and 1.0% American Indian or Alaska Native. Patients who were White or Caucasian, or Black or African American had an HIV test ordered most often in 2017 and in 2018 during the months of September, October and November (Figure 8). White or Caucasian patients had the most HIV tests ordered when compared to Black or African American patients. Patients who self-identify as Latino had the least number of HIV tests ordered. When compared to 2017, patients who were not Hispanic or Latino had similar number of HIV tests ordered in 2018 (Figure 9). Those patients who declined to denote their race or ethnicity were marked declined on the graph and those whose race or ethnicity were unavailable did not have a race or ethnicity entered into Epic.

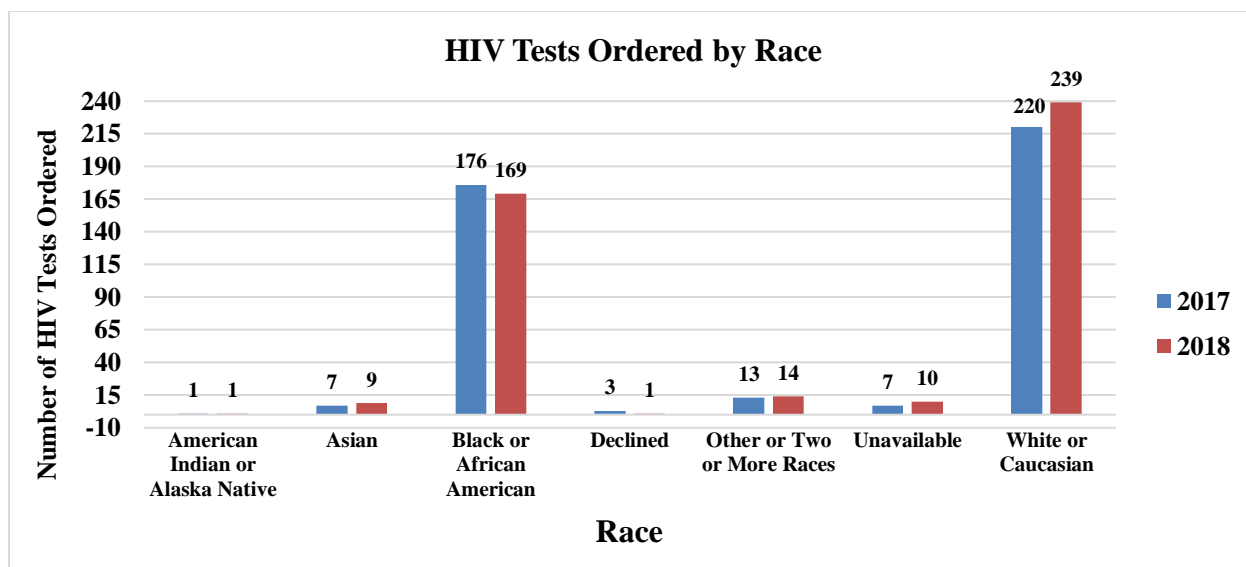


Figure 8. Comparison of the number of HIV tests ordered by race in 2017 and 2018 during the months of September, October, and November.

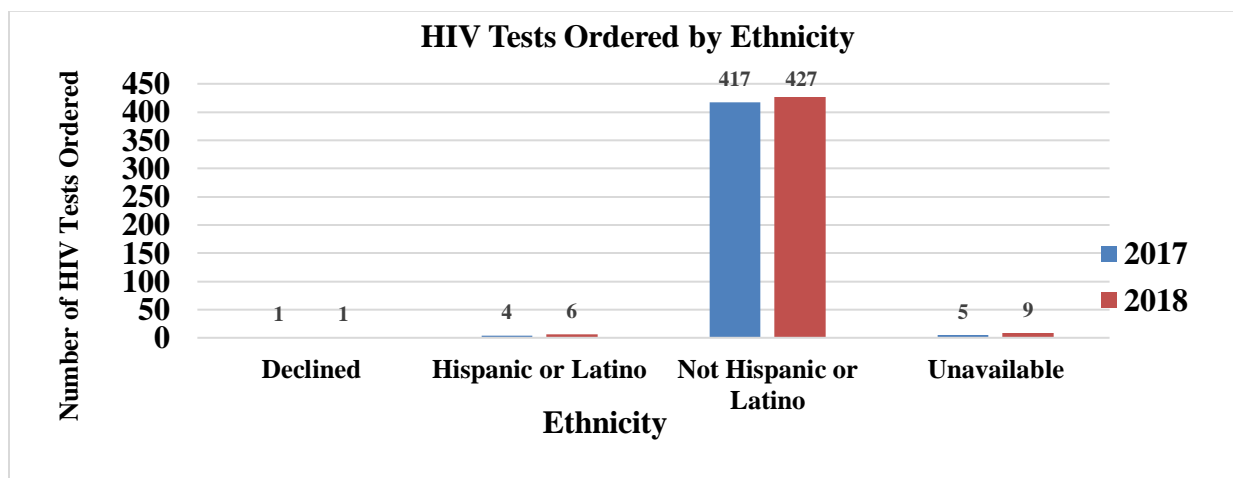


Figure 9. Comparison of the number of HIV tests ordered by ethnicity in 2017 and 2018 during the months of September, October, and November.

## Survey Responses

### Pre-Intervention Survey

The pre-intervention survey was distributed to nurse practitioners, physicians, and clinic staff on a rolling basis starting in August 2018 (Appendix 4). Twenty-eight participants completed the pre-intervention survey (Figure 10).

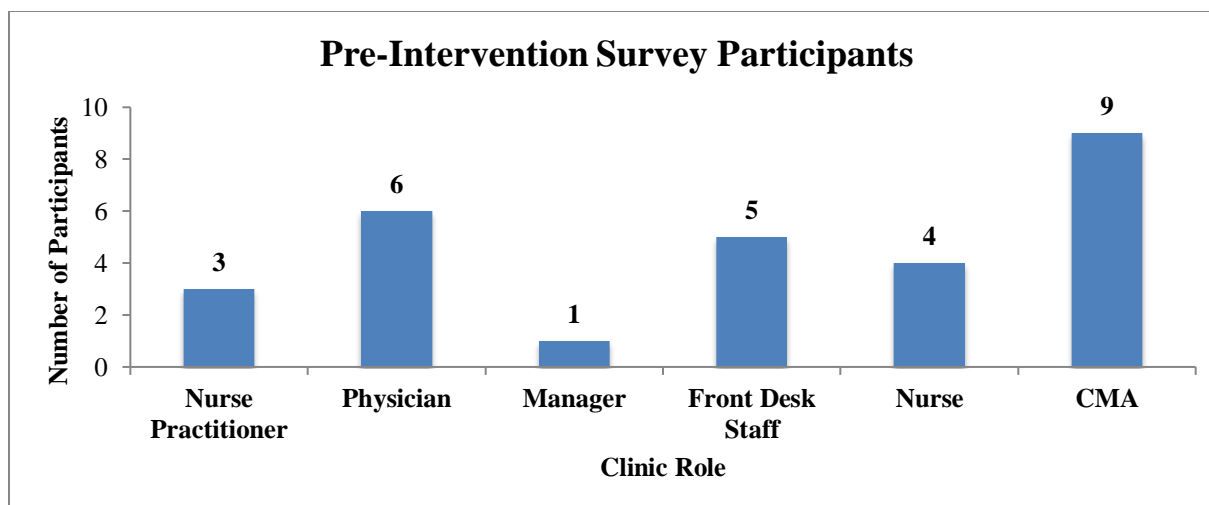


Figure 10. Breakdown of the participants of the pre-intervention survey.

Of the varying roles in the clinic, one question of the survey asked the participants what their role in routine HIV screening was in the clinic (Table 8). Common themes from this question showed the majority nurses, CMAs and front desk staff do not play a role in routine HIV screening practices at the clinic. However, one CMA did answer that they ‘provide health care services for patients who have received routine HIV testing or screening’ and one nurse answered they are involved with order entry or education of patients and staff. The nurse practitioners and physicians both answered similarly what their roles are in routine HIV screening; however, the physicians indicated they are also involved in management or administrative duties related to routine HIV testing and play a role in teaching other health care providers or students about routine HIV testing.



**Table 8.** *Pre-Intervention Survey Participant Responses to Role(s) in HIV Testing at the Clinic.*

<b>Nurse Practitioner</b> – <i>Conduct HIV testing; Provide health care services for patients who have received routine HIV testing/screening; Teach other health care providers or students about routine HIV testing</i>
<b>Physicians</b> – <i>Management or administrative role in routine HIV testing; Supervise staff conducting HIV testing; Conduct HIV testing; Provide health care services for patients who have received routine HIV testing/screening</i>
<b>Manager</b> – <i>Supervise staff conducting HIV testing</i>
<b>Nurses</b> – <i>No role; Other-order entry or education (patient and staff)</i>
<b>Front Desk Staff</b> – <i>No role in routine HIV testing</i>
<b>CMAs</b> – <i>No role; Provide health care services for patients who have received routine HIV testing/screening</i>

This table shows the pre-intervention survey responses of the participants who answered the question, “What is your role in routine HIV testing? (Check all that apply)”.

### **Post-Intervention Survey**

The post-intervention survey was distributed to providers and clinic staff in January and February 2019 (Appendix 4 & 5). Twenty-five participants completed the post-intervention survey (Figure 11). Three providers who took the pre-intervention survey that had left the practice before the end of the intervention period. One new provider that did not take the pre-intervention survey took the post-intervention survey. The number of participants changed in all roles from the pre-intervention to post-intervention period, with the exception of the manager, which remained the same during the intervention period (Figure 11). This survey included the same questions as the pre-intervention survey with the exception of three short answer questions at the end of the survey (Appendix 5).

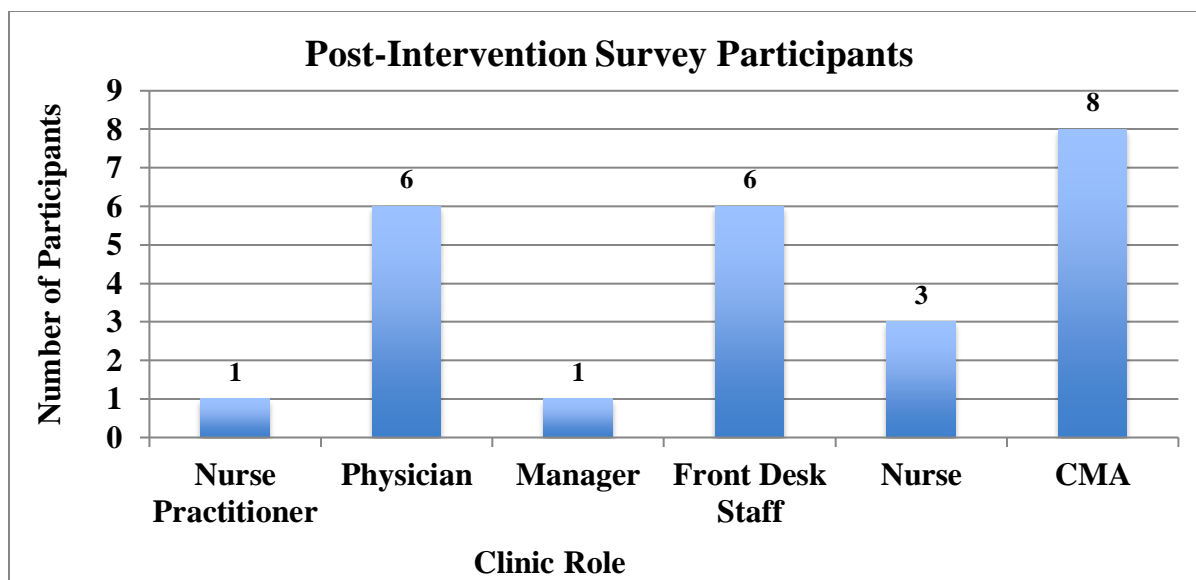


Figure 11. Breakdown of the participants in the post-intervention survey.

The participants were again asked what role they play in routine HIV screening at the clinic (Table 9). The front desk staff and the CMAs both responded that they play no role in routine HIV testing. The nurses were more responsive and had a change in their responses to their role in routine HIV screening from the pre-intervention survey (Table 9). The nurses answered they have a management or administrative role in routine HIV testing, they supervise staff conducting HIV testing, teach other health care providers or students about routine HIV testing, and educate patients. One nurse did respond they did not play a role in HIV testing at the time the survey was distributed. The nurse practitioners and physicians had similar answers in the post-intervention survey. One provider who responded that they do not play a role in routine HIV testing at the time the survey was distributed. Different providers took the pre-survey and post-survey, which is why there were a variety of responses to role the question (Table 9).

**Table 9.** *Post-Intervention Survey Participant Responses to Role(s) in HIV Testing at the Clinic.*

<b>Nurse Practitioner</b> – <i>Conduct HIV testing; Provide health care services for patients who have received routine HIV testing/screening</i>
<b>Physicians</b> – <i>Management or administrative role in routine HIV testing; Supervise staff conducting HIV testing; Conduct HIV testing; Provide health care services for patients who have received routine HIV testing/screening; Teach other health care providers or students about routine HIV testing; No role in routine HIV testing</i>
<b>Manager</b> – <i>Supervise staff conducting HIV testing</i>
<b>Nurses</b> – <i>Management or administrative role in routine HIV testing; Supervise staff conducting HIV testing; Teach other health care providers or students about routine HIV testing; No role in routine HIV testing; Other-educate patients</i>
<b>CMAs and Front Desk Staff</b> – <i>No role in routine HIV testing</i>

These are the responses the participants of the post-intervention survey chose when asked the question; “What is your role in routine HIV testing? (Check all that apply).”

### **Pre- and Post-Intervention Survey Results**

The survey data from the pre- and post-intervention surveys were evaluated using seven topics recommended from the evaluation toolkit from the CDC (2012) (Table 10). These seven topics include: the role of routine HIV testing in health care, routine HIV testing and the process of care, voluntary testing and consent, adequacy of patient information for testing, confidentiality, HIV-related stigma, and barriers/facilitators of routine HIV testing. Each topic has a specific question or questions associated with that topic which is outlined in Table 10. The topics with multiple questions associated with it have some positive and some negative questions. These questions have been identified in Table 10. The number of participants for each topic may vary depending on the number of participants who completed the survey as well as provided an answer to that specific question. Twenty-eight participants completed the pre-intervention survey and 25 participants completed the post-intervention survey. Those that are

included in the pre-survey group ( $N=28$ ) may or may not have completed the post-survey ( $N=25$ ) and vice versa.

### **Group Statistics of All Survey Participants**

The group statistics for the project includes all participants who completed both the pre- and post-intervention survey. Not all participants answered every question of the survey, which is one reason why the number of participants ( $N$ ) varies from topic to topic. Additionally, not all survey participants in section B provided a response of; *strongly disagree=1, disagree=2, neither agree or disagree=3, agree=4, or strongly agree=5*; and in section C not all participants provided a response of; *never=1, rarely=2, about half the time=3, most of the time=4, or almost always or always=5*. Other possible responses include; *don't know* and *not applicable* for both section B and section C. For statistical purposes, those participants who responded to questions with the answer of *don't know or not applicable*, were not included in the statistical analysis of the seven topics therefore, the number of participants ( $N$ ) may be different with each topic. Also, for the statistical analysis, the negative questions were reversely coded and displayed separately from the positive questions in each of the seven topics. The reverse coded responses were recoded as follows: for section B; *strongly disagree=5, disagree=4, neither agree or disagree=3, agree=2, or strongly agree=1* and for section C; *never=5, rarely=4, about half the time=3, most of the time=2, or almost always or always=1*. The data were analyzed through SPSS software.

**Table 10.** *List of Topics Used to Evaluate the Survey Data.*

Topics and Items for Survey Evaluation		
Topic	Question	Survey Question
<b><i>Role of routine HIV testing in health care</i></b>	Section B. 1	"I think routine HIV testing is an important part of regular health care" (Positive)
<b><i>Routine HIV testing and the process of care</i></b>	Section B. 3	"I am concerned that patients will be offended by being offered routine HIV testing" (Negative)
	Section B. 13	"We have the resources needed to implement routine HIV testing" (Positive)
	Section C. 1	"Routine HIV testing interferes with providing other health care services" (Negative)
	Section C. 3	"Results of routine HIV testing are documented and available to health care providers taking care of the patient" (Positive)
	Section C. 4	"Patients are concerned or upset by routine HIV testing" (Negative)
	Section C. 7	"Patients who test positive receive appropriate referrals for follow-up" (Positive)
<b><i>Voluntary testing and consent</i></b>	Section B. 6	"Patients often feel like they have to accept routine HIV testing" (Negative)
	Section B. 10	"Routine HIV testing is voluntary; patients are able to decline screening" (Positive)
<b><i>Adequacy of patient information for testing</i></b>	Section B. 7	"Patients receive adequate pre-test information for routine HIV testing" (Positive)
	Section B. 8	"Patients receive adequate post-test information for routine HIV testing" (Positive)
	Section C. 6	"Patients understand the information they receive about routine HIV testing" (Positive)
<b><i>Confidentiality</i></b>	Section B. 9	"Patients are concerned about the confidentiality of routine HIV testing" (Negative)
	Section B. 14	"It is difficult to provide the privacy needed for routine HIV testing" (Negative)
	Section C. 2	"Patients are given HIV test results in a confidential, appropriate manner" (Positive)
<b><i>HIV-related stigma</i></b>	Section B. 3	"I am concerned that patients will be offended by being offered routine HIV testing" (Negative)
	Section C. 4	"Patients are concerned or upset by routine HIV testing" (Negative)
<b><i>Barriers/Facilitators of routine HIV testing</i></b>	Section B. 2	"I am concerned about cost and reimbursement for HIV testing" (Negative)
	Section B. 4	"I am comfortable discussing routine HIV testing with patients" (Positive)
	Section B. 5	"Language barriers prevent some patients from receiving routine HIV testing" (Negative)
	Section B. 11	"Patients do not expect to be offered routine HIV testing" (Negative)
	Section B. 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" (Negative)

The first topic evaluated was related to the role of routine HIV testing in health care. This topic includes one positively worded question. The mean response to participants understanding that “routine HIV testing is an important part of regular health care” increased slightly from 4.25 to 4.52, demonstrating a slight trend from agree to strongly agree (Table 11).

**Table 11.** *Topic: Role of Routine HIV Testing in Health Care. Group Statistic Results for Pre- and Post-Intervention Survey. Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5.*

<b>Role of Routine HIV Testing in Health Care</b>				
<b>Question:</b>				
Section B. 1	“I think routine HIV testing is an important part of regular health care”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	28	4.25	1.143	0.216
Post-survey	25	4.52	0.586	0.117

The second topic evaluated is routine HIV testing and the process of care. Table 12 shows the three negatively worded questions relating to the topic of routine HIV testing and the process of care. These questions were reverse coded for data analysis. The mean response to participants being concerned “that patients will be offended by being offered routine HIV testing,” concerned that “routine HIV testing interferes with providing other health services,” and “patients concerned or upset by routine HIV testing” increased slightly from 3.49 to 3.61, demonstrating a slight trend from an answer of neither agree or disagree or about half the time to disagree or rarely (Table 12). Table 13 shows the three positively worded questions relating to the topic of routine HIV testing and the process of care. The mean response to participants having “the resources needed to implement routine HIV testing,” the “results of routine HIV testing are documented and available to health care providers taking care of the patient,” and knowing “patients who test positive receive appropriate referrals for follow-up” increased from

4.31 to 4.59, demonstrating a slight trend from agree or most of the time, to strongly agree or almost always or always.

**Table 12.** Topic: Routine HIV Testing and the Process of Care. Group Statistic Results for Pre- and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1 and Section C - Never=5, Rarely=4, About Half the Time=3, Most of the Time=2, or Almost Always or Always=1.

Routine HIV Testing and the Process of Care				
Questions:				
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”			
Section C. 1	“Routine HIV testing interferes with providing other health care services”			
Section C. 4	“Patients are concerned or upset by routine HIV testing”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	28	3.49	0.667	0.126
Post-survey	25	3.61	0.625	0.125

**Table 13.** Topic: Routine HIV Testing and the Process of Care. Group Statistic Results for Pre- and Post-Intervention Survey. Positive Survey Questions: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5 and Section C - Never=1, Rarely=2, About Half the Time=3, Most of the Time=4, or Almost Always or Always=5.

Routine HIV Testing and the Process of Care				
Questions:				
Section B. 13	“We have the resources needed to implement routine HIV testing”			
Section C. 3	“Results of routine HIV testing are documented and available to health care providers taking care of the patient”			
Section C. 7	“Patients who test positive receive appropriate referrals for follow-up”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	28	4.31	0.669	0.129
Post-survey	25	4.59	0.417	0.085

The third topic evaluated is the topic about voluntary testing and consent. This topic has one negatively worded question that was reversely coded for analysis. Table 14 shows the negative question related to voluntary testing and consent. The mean response to participants being concerned that “patients often feel like they have to accept routine HIV testing” decreased

from 3.54 to 3.35 (Table 14). This slight decrease in mean demonstrates a trend from a neutral answer of neither agree or disagree to answer of agree.

Table 15 shows the positive question that relates to the topic of voluntary testing and consent. The mean response to participants feeling that “routine HIV testing is voluntary; patients are able to decline screening” increased from 4.35 to 4.5, demonstrating a slight trend from agree toward strongly agree (Table 15).

**Table 14.** *Topic: Voluntary Testing and Consent. Group Statistic Results for Pre-and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.*

<b>Voluntary Testing and Consent</b>				
<b>Question:</b>				
Section B. 6	“Patients often feel like they have to accept routine HIV testing”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	24	3.54	0.833	0.170
Post-survey	23	3.35	0.885	0.184

**Table 15.** *Topic: Voluntary Testing and Consent. Group Statistic Results for Pre-and Post-Intervention Survey. Positive Survey Questions: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5.*

<b>Voluntary Testing and Consent</b>				
<b>Question:</b>				
Section B. 10	“Routine HIV testing is voluntary; patients are able to decline screening”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	28	4.35	0.621	0.117
Post-survey	22	4.5	0.676	0.143

The next topic evaluated is the adequacy of patient information for testing. Table 16 shows the three questions associated with this topic that are all positively worded. The mean response to participants understanding the “patients received adequate pre-and post-test information for routine HIV testing” and the “patients understand the information they receive about routine HIV testing” increased from 3.14 to 3.53, demonstrating a trend from a neutral response to a response of agree or most of the time (Table 16).



**Table 16.** *Topic: Adequacy of Patient Information for Testing. Group Statistic Results for the Pre-and Post-Intervention Survey. Positive Questions: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5 and Section C - Never=1, Rarely=2, About Half the Time=3, Most of the Time=4, or Almost Always or Always=5.*

<b>Adequacy of Patient Information for Testing</b>				
<b>Questions:</b>				
Section B. 7	“Patients receive adequate pre-test information for routine HIV testing”			
Section B. 8	“Patients receive adequate post-test information for routine HIV testing”			
Section C. 6	“Patients understand the information they receive about routine HIV testing”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	26	3.14	0.688	0.135
Post-survey	24	3.53	0.611	0.125

The next topic evaluated is confidentiality. Table 17 shows the two negatively worded questions relating to confidentiality and routine HIV testing. The mean response to participants’ perspectives that the “patients are concerned about the confidentiality of routine HIV testing” and the difficulty “to provide the privacy needed for routine HIV testing” increased from 3.30 to 3.58, demonstrating a slight trend from a neutral response toward a response of disagree (Table 17). Table 18 shows the positive question related to the topic of confidentiality and routine HIV testing. The mean response to participants’ perspective that “patients are given HIV test results in a confidential, appropriate manner” increased slightly from 4.47 to 4.85, demonstrating a slight trend from a response of agree to a response of strongly agree (Table 18).

**Table 17.** *Topic: Confidentiality. Group Statistic Results for Pre-and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.*

<b>Confidentiality</b>				
<b>Questions:</b>				
Section B. 9	“Patients are concerned about the confidentiality of routine HIV testing”			
Section B. 14	“It is difficult to provide the privacy needed for routine HIV testing”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	28	3.30	1.003	0.190
Post-survey	24	3.58	0.702	0.143

**Table 18.** *Topic: Confidentiality. Group Statistic Results for the Pre-and Post-Intervention Survey. Positive Question: Section C - Never=1, Rarely=2, About Half the Time=3, Most of the Time=4, or Almost Always or Always=5.*

<b>Confidentiality</b>				
<b>Question:</b>				
Section C. 2	“Patients are given HIV test results in a confidential, appropriate manner”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	23	4.74	0.449	0.094
Post-survey	20	4.85	0.366	0.082

The sixth topic evaluated is HIV-related stigma. Table 19 shows the two negatively worded questions relating to the stigma associated with routine HIV screening. The mean response to participants being concerned “that patients will be offended by being offered routine HIV testing” and “are concerned or upset by routine HIV testing” increased slightly from 3.14 to 3.38, demonstrating a slight trend from a neutral response of neither agree or disagree or about half the time, to a response of disagree or rarely (Table 19).

**Table 19.** *Topic: HIV-Related Stigma. Group Statistic Results for the Pre-and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1 and Section C - Never=5, Rarely=4, About Half the Time=3, Most of the Time=2, or Almost Always or Always=1.*

<b>HIV-Related Stigma</b>				
<b>Questions:</b>				
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”			
Section C. 4	“Patients are concerned or upset by routine HIV testing”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	28	3.14	0.744	0.140
Post-survey	25	3.38	0.666	0.133

The last topic evaluated discusses the barriers and facilitators of routine HIV testing. This topic contains four negatively worded questions and one positively worded question. Table 20 shows the group statistics for all survey participants for the negatively worded questions. The mean response to participants being “concerned about cost and reimbursement for HIV testing,” the perspective of “language barriers prevent some patients from receiving routine HIV testing,” and being “concerned that routine HIV testing will have a negative effect on patients’ opinions about our health care facility” increased slightly from 3.01 to 3.12, demonstrating a slight trend from a neutral response of neither agree or disagree towards a response of disagree (Table 20). Table 21 shows the group statistics of all survey participants for the positively worded question for the topic of barriers and facilitators of routine HIV testing. The mean response to participants being “comfortable discussing routine HIV testing with patients” increased slightly from 3.80 to 3.96, demonstrating a trend from a response of neither agree or disagree to a response of agree (Table 21).

**Table 20.** Topic: Barriers/Facilitators of Routine HIV Testing. Group Statistic Results for the Pre-and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.

Barriers/Facilitators of Routine HIV Testing				
Questions:				
Section B. 2	“I am concerned about cost and reimbursement for HIV testing”			
Section B. 5	“Language barriers prevent some patients from receiving routine HIV testing”			
Section B. 11	“Patients do not expect to be offered routine HIV testing”			
Section B. 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”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	28	3.01	0.731	0.138
Post-survey	25	3.12	0.559	0.112

**Table 21.** Topic: Barriers/Facilitators of Routine HIV Testing. Group Statistic Results for the Pre-and Post-Intervention Survey. Positive Question: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5.

Barriers/Facilitators of Routine HIV Testing				
Questions:				
Section B. 4	“I am comfortable discussing routine HIV testing with patients”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	25	3.80	0.866	0.173
Post-survey	24	3.96	0.859	0.175

**Pre-and post-intervention survey participant analysis.** The participants who completed both the pre-and the post-intervention survey were evaluated using paired sample statistics and two-tailed *t*-tests in SPSS software. The participants included in this analysis are the physicians, nurse practitioners, nurses, CMAs, manager, and front desk staff. The surveys were paired utilizing the confidential dummy identifier, a unique number that was assigned to the participants when they took the pre-intervention survey. The number was used to match their pre-intervention survey with the post-intervention survey. The sample size (*N*) is the number of participants who completed both the pre-and post-intervention survey (*N*=22). The seven topics from Table 10 were used and broken down individually by topic and separated by negatively and positively worded questions. If a participant did not answer the question with a response of

*strongly disagree, disagree, neither agree or disagree, agree, strongly agree*, in section B; or *never, rarely, about half the time, most of the time, almost always or always* in section C; then their answer was not included in the analysis of that question, therefore, the number of participants (*N*) may vary with each topic. The positively worded questions were scored as *strongly disagree=1, disagree=2, neither agree or disagree= 3, agree=4, strongly agree=5* for section B and *never=1, rarely=2, about half the time=3, most of the time=4, almost always or always=5* for section C. The negatively worded questions were reversely coded as follows; *strongly disagree=5, disagree=4, neither agree or disagree= 3, agree=2, strongly agree=1* for section B and *never=5, rarely=4, about half the time=3, most of the time=2, almost always or always=1*.

The first topic on the role of routine HIV testing in health care evaluates the participants' perspective on the importance of HIV screening in regular health care. Table 22 shows the one question associated with the topic of routine HIV testing in health care and it is positively worded. The mean response to participants thinking that “routine HIV testing is an important part of regular health care” increased slightly from 4.41 to 4.55 ( $p=0.544$ ), demonstrating a slight trend from agree to strongly agree. Table 23 shows the paired differences in the pre- and post-intervention surveys on the topic related to routine HIV testing in health care. The surveys were paired with confidential identifier assigned to the participant at the start of the intervention. The mean difference from the pre-survey to the post-survey was -0.136 (Table 23). There was a slight improvement in the mean Likert scores from the pre-survey to the post-survey that were trending towards a response of strongly agree.

**Table 22.** *Topic: Role of Routine HIV Testing in Health Care. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Positive Question: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5.*

<b>Role of Routine HIV Testing in Health Care</b>				
<b>Question:</b>				
Section B. 1	“I think routine HIV testing is an important part of regular health care”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	22	4.41	1.008	0.215
Post-survey	22	4.55	0.596	0.127

**Table 23.** *Topic: Role of Routine HIV Testing in Health Care. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test.*

<b>Role of Routine HIV Testing in Health Care</b>						
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
-0.136	1.037	0.221	-0.596-0.323	-0.617	21	0.544

Note. CI = Confidence Interval

The next topic evaluated is routine HIV testing and the process of care. Table 24 shows the three negatively worded questions relating to routine HIV testing and the process of care. The mean response to participants being “concerned that patients will be offended by being offered routine HIV testing,” or “patients are concerned or upset by routine HIV testing,” and that “routine HIV testing interferes with providing other health care services” increased slightly from 3.41 to 3.51 ( $p=0.120$ ), demonstrating a slight trend from a response of neither agree or disagree or about half the time, towards a response of disagree (Table 24). Table 25 shows the paired differences in the pre- and post-intervention surveys on the topic of routine HIV testing and the process of care. The mean difference from the pre-to post- survey was -0.197, which demonstrates a slight improvement in mean Likert scores from the pre-to the post-survey.

Table 26 shows the three positively worded questions for the topic of routine HIV testing and the process of care. The mean response to participants' perspectives of having "the resources needed to implement routine HIV testing," that the "results of routine HIV testing are documented and available to health care providers taking care of the patient," and "patients who test positive receive appropriate referrals for follow up" increased from 4.34 to 4.58 ( $p=0.074$ ), demonstrating a slight trend from agree or most of the time towards a response of strongly agree, or almost always or always. Table 27 shows the paired differences from the pre- and post-intervention surveys for the topic of routine HIV testing and the process of care. The mean difference from the pre- to the post-survey was -0.238 (Table 27). This shows there was a slight difference in mean Likert score from the pre-survey to the post-survey trending towards the response of strongly agree, or almost always or always.

**Table 24.** *Topic: Routine HIV Testing and the Process of Care. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1 and Section C - Never=5, Rarely=4, About Half the Time=3, Most of the Time=2, or Almost Always or Always=1.*

<b>Routine HIV Testing and the Process of Care</b>				
<b>Questions:</b>				
Section B. 3	"I am concerned that patients will be offended by being offered routine HIV testing"			
Section C. 1	"Routine HIV testing interferes with providing other health care services"			
Section C. 4	"Patients are concerned or upset by routine HIV testing"			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	22	3.41	0.656	0.140
Post-survey	22	3.61	0.610	0.130

**Table 25.** *Topic: Routine HIV Testing and the Process of Care. Paired Differences in the Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Negative Questions).*

<b>Routine HIV Testing and the Process of Care</b>						
<b>Questions:</b>						
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”					
Section C. 1	“Routine HIV testing interferes with providing other health care services”					
Section C. 4	“Patients are concerned or upset by routine HIV testing”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
-0.197	0.570	0.121	-0.450-0.556	-1.622	21	0.120

Note. CI = Confidence Interval

**Table 26.** *Topic: Routine HIV Testing and the Process of Care. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Positive Survey Questions: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5 and Section C - Never=1, Rarely=2, About Half the Time=3, Most of the Time=4, or Almost Always or Always=5.*

<b>Routine HIV Testing and the Process of Care</b>				
<b>Questions:</b>				
Section B. 13	“We have the resources needed to implement routine HIV testing”			
Section C. 3	“Results of routine HIV testing are documented and available to health care providers taking care of the patient”			
Section C. 7	“Patients who test positive receive appropriate referrals for follow-up”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	21	4.34	0.678	0.148
Post-survey	21	4.58	0.433	0.095



**Table 27.** *Topic: Routine HIV Testing and the Process of Care. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Positive Questions).*

<b>Routine HIV Testing and the Process of Care</b>						
<b>Questions:</b>						
Section B. 13	“We have the resources needed to implement routine HIV testing”					
Section C. 3	“Results of routine HIV testing are documented and available to health care providers taking care of the patient”					
Section C. 7	“Patients who test positive receive appropriate referrals for follow-up”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b><i>t</i></b>	<b><i>df</i></b>	<b><i>p</i></b>
-0.238	0.579	0.126	-0.501-0.253	-1.885	20	0.074

*Note.* CI = Confidence Interval

The third topic evaluated is voluntary testing and consent. This topic has one negatively worded question and one positively worded question. Table 28 shows the negatively worded question. The mean response to participants’ perspective about “patients often feel like they have to accept routine HIV testing” decreased from 3.50 to 3.35 ( $p=0.592$ ), demonstrating a trend downwards from a neutral answer of neither agree or disagree to a response of agree (Table 28). Table 29 shows the paired differences from the pre-and post-intervention surveys that have a mean difference of 0.167. There mean Likert scores did not improve for this question in the post-survey as the responses were trending towards the response of agree.

Table 30 shows the one positively worded question related to the topic of voluntary testing and consent. The mean response to participants’ perspectives that “routine HIV testing is voluntary; patients are able to decline screening” increased from 4.45 to 4.60 ( $p=0.419$ ), demonstrating a slight trend from a response of agree to a response of strongly agree. The mean difference from the pre-survey to post-survey was -0.150 (Table 31). The mean Likert scores slightly improved towards a response of strongly agree from agree.

**Table 28.** Topic: Voluntary Testing and Consent. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Negative Question Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.

Voluntary Testing and Consent				
Question:				
Section B. 6	“Patients often feel like they have to accept routine HIV testing”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	18	3.50	0.786	0.185
Post-survey	18	3.35	0.907	0.214

**Table 29.** Topic: Voluntary Testing and Consent. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Negative Question).

Voluntary Testing and Consent						
Question:						
Section B. 6	“Patients often feel like they have to accept routine HIV testing”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
0.167	1.29	0.305	-0.477-0.811	0.546	17	0.592

Note. CI = Confidence Interval

**Table 30.** Topic: Voluntary Testing and Consent. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Positive Survey Question: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5.

Voluntary Testing and Consent				
Question:				
Section B. 10	“Routine HIV testing is voluntary; patients are able to decline screening”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	20	4.45	0.605	0.135
Post-survey	20	4.60	0.598	0.134

**Table 31.** *Topic: Voluntary Testing and Consent. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Positive Question).*

<b>Voluntary Testing and Consent</b>						
<b>Question:</b>						
Section B. 10	“Routine HIV testing is voluntary; patients are able to decline screening”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
-0.150	0.813	0.182	-0.530-0.230	-0.825	19	0.419

Note. CI = Confidence Interval

The next topic evaluated is the adequacy of patient information for testing. This topic consists of three questions that are all positively worded (Table 32). The mean response to participants’ perspective that “patients receive adequate pre- and post-test information for routine HIV testing” and “patients understand the information they receive about routine HIV testing” increased from 3.17 to 3.55 ( $p=0.015$ ), demonstrating a trend from a neutral response to a response of agree or most of the time (Table 32). Table 33 shows the paired differences in the pre- and post-survey responses, which had a mean difference of -0.383. The p value of 0.015 is less than the cut-off of the alpha score of 0.05; however, because of the small sample size, this cannot be considered statistically significant.

**Table 32.** *Topic: Adequacy of Patient Information for Testing. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Positive Survey Questions: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5 and Section C - Never=1, Rarely=2, About Half the Time=3, Most of the Time=4, or Almost Always or Always=5.*

<b>Adequacy of Patient Information for Testing</b>				
<b>Questions:</b>				
Section B. 7	“Patients receive adequate pre-test information for routine HIV testing”			
Section B. 8	“Patients receive adequate post-test information for routine HIV testing”			
Section C. 6	“Patients understand the information they receive about routine HIV testing”			
Group	N	Mean	SD	Standard Error Mean
Pre-	20	3.17	0.626	0.140
Post-	20	3.55	0.633	0.142

**Table 33.** *Topic: Adequacy of Patient Information for Testing. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test.*

<b>Adequacy of Patient Information for Testing</b>						
<b>Questions:</b>						
Section B. 7	“Patients receive adequate pre-test information for routine HIV testing”					
Section C. 8	“Patients receive adequate post-test information for routine HIV testing”					
Section C. 6	“Patients understand the information they receive about routine HIV testing”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>df</b>	<b>p</b>
-0.383	0.642	0.144	-0.684 -0.083	-2.669	19	0.015

*Note.* CI = Confidence Interval

The fifth topic evaluated is confidentiality. This topic consists of two negatively worded questions and one positively worded question. Table 34 shows the two negatively worded questions associated with the topic of confidentiality. The mean response to participants’ perspectives that “patients are concerned about the confidentiality of routine HIV testing” and that “it is difficult to provide the privacy needed for routine HIV testing” increased from 3.40 to 3.64 ( $p=0.219$ ), demonstrating a slight trend from neither agree or disagree towards a response of disagree (Table 34). Table 35 shows the paired differences from the pre- and post-intervention survey. The mean difference between the pre- and post-intervention survey was -0.238 (Table 35). There was a slight improvement in the mean Likert scores from the pre-survey to the post-survey towards a response of disagree.

Table 36 shows the positively worded question related to the topic of confidentiality. The mean response to participants’ perspectives that “patients are given HIV test results in a confidential, appropriate manner” increased from 4.77 to 4.83 ( $p=0.668$ ), demonstrating a slight trend from agree to strongly agree (Table 36). Table 37 shows the paired differences in the pre- and post-intervention surveys. The mean difference from the pre-survey to the post-survey was

-0.056 (Table 37). There was a slight improvement in the mean Likert scores trending towards a response of strongly agree.

**Table 34.** Topic: Confidentiality. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.

Confidentiality				
Questions:				
Section B. 9	“Patients are concerned about the confidentiality of routine HIV testing”			
Section B. 14	“It is difficult to provide the privacy needed for routine HIV testing”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	21	3.40	0.831	0.181
Post-survey	21	3.64	0.727	0.159

**Table 35.** Topic: Confidentiality. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Negative Questions).

Confidentiality						
Questions:						
Section B. 9	“Patients are concerned about the confidentiality of routine HIV testing”					
Section B. 14	“It is difficult to provide the privacy needed for routine HIV testing”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
-0.238	0.860	0.188	-0.630-0.154	-1.268	20	0.219

Note. CI = Confidence Interval

**Table 36.** Topic: Confidentiality. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Positive Survey Question: Section C - Never=1, Rarely=2, About Half the Time=3, Most of the Time=4, or Almost Always or Always=5.

Confidentiality				
Question:				
Section C. 2	“Patients are given HIV test results in a confidential, appropriate manner”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	18	4.77	0.428	0.101
Post-survey	18	4.83	0.383	0.090

**Table 37.** *Topic: Confidentiality. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Positive Questions).*

<b>Confidentiality</b>						
<b>Questions:</b>						
Section C. 2	“Patients are given HIV test results in a confidential, appropriate manner”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
-0.056	0.539	0.127	-0.324-0.213	-0.437	17	0.668

*Note.* CI = Confidence Interval

The sixth topic evaluated is HIV-related stigma. Table 38 shows the two negatively worded questions relating to the stigma associated with routine HIV screening. The mean response to participants being “concerned that patients will be offended by being offered routine HIV testing and “patients being concerned or upset by routine HIV testing” increased from 3.07 to 3.27 ( $p=0.186$ ), demonstrating a slight trend from a response close to agree to a more neutral response (Table 38). The mean difference of the pre- and post-survey responses was -0.205 (Table 39). There was a slight improvement in the mean Likert scores from a response close to agree to a more neutral response.

**Table 38.** *Topic: HIV-related Stigma. Paired Sample Statistics for Participants Who Completed Both the Pre- and Post-Intervention Survey. Negative Survey Questions: Section B - Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1 and Section C - Never=5, Rarely=4, About Half the Time=3, Most of the Time=2, or Almost Always or Always=1.*

<b>HIV-related stigma</b>				
<b>Questions:</b>				
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”			
Section C. 4	“Patients are concerned or upset by routine HIV testing”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Std. Error Mean</b>
Pre-survey	22	3.07	0.660	0.141
Post-survey	22	3.27	0.631	0.135

**Table 39.** *Topic: HIV-Related Stigma. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test.*

<b>HIV-Related Stigma</b>						
<b>Questions:</b>						
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”					
Section C. 4	“Patients are concerned or upset by routine HIV testing”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b><i>t</i></b>	<b><i>dF</i></b>	<b><i>p</i></b>
-0.205	0.701	0.149	-0.515-0.106	-1.368	21	0.186

*Note.* CI = Confidence Interval

The seventh topic evaluated in the pre-and post-survey is barriers and facilitators of routine HIV testing. Table 40 shows the three negatively worded questions related to the topic of barriers and facilitators of routine HIV testing. The mean response to participants being “concerned about cost and reimbursement for HIV testing,” concerned that “language barriers prevent some patients from receiving routine HIV testing,” and being concerned “that routine HIV testing will have a negative effect on patients’ opinions about our health care facility” increased from 2.96 to 3.12 ( $p=0.237$ ), demonstrating a slight trend from a response of agree to a neutral response of neither agree or disagree (Table 40). Table 41 shows the paired differences in the pre- and post-survey responses for the topic on the barriers and facilitators of routine HIV testing. The mean difference of the pre- and post-survey was -0.167 (Table 41). There was a slight improvement in the mean Likert scores, from an answer of agree ending towards an answer of neither agree or disagree.

Table 42 shows one positively worded question related to the topic of barriers and facilitators of routine HIV testing. The mean response to participants’ perspective that they are “comfortable discussing routine HIV testing with patients” increased from 3.85 to 4.0 ( $p=0.267$ ), demonstrating a trend from a neutral response of neither agree or disagree to a response of agree.

Table 43 shows the paired differences in the pre- and post-intervention surveys for the topic on the barriers and facilitators of routine HIV testing. The mean difference from the pre-survey to the post-survey was -0.150 (Table 43). There was an improvement in the mean Likert scores from a neutral response to a response of agree.

**Table 40.** Topic: Barriers/Facilitators of Routine HIV Testing. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.

Barriers/Facilitators of routine HIV testing				
<b>Questions:</b>				
Section B. 2	“I am concerned about cost and reimbursement for HIV testing”			
Section B. 5	“Language barriers prevent some patients from receiving routine HIV testing”			
Section B. 11	“Patients do not expect to be offered routine HIV testing”			
Section B. 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”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	22	2.96	0.730	0.156
Post-survey	22	3.12	0.591	0.126

**Table 41.** Topic: Barriers/Facilitators of Routine HIV Testing. Paired Differences in the Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Negative Questions).

Barriers/Facilitators of Routine HIV Testing						
<b>Questions:</b>						
Section B. 2	“I am concerned about cost and reimbursement for HIV testing”					
Section B. 5	“Language barriers prevent some patients from receiving routine HIV testing”					
Section B. 11	“Patients do not expect to be offered routine HIV testing”					
Section B. 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”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
-0.167	0.642	0.137	-0.451-0.118	-1.218	21	0.237

Note. CI = Confidence Interval



**Table 42.** Topic: Barriers/Facilitators of Routine HIV Testing. Paired Sample Statistics for Participants Who Completed Both the Pre-and Post-Intervention Survey. Positive Survey Questions: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5.

Barriers/Facilitators of routine HIV testing				
Questions:				
Section B. 4	“I am comfortable discussing routine HIV testing with patients”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	20	3.85	0.813	0.182
Post-survey	20	4.00	0.918	0.205

**Table 43.** Topic: Barriers/Facilitators of Routine HIV Testing. Paired Differences in Pre- and Post-Intervention Survey Data in All Survey Participants Who Completed Both a Pre- and Post-Intervention Survey, Using a Two-Tailed t-Test. (Positive Questions).

Barriers/Facilitators of Routine HIV Testing						
Questions:						
Section B. 4	“I am comfortable discussing routine HIV testing with patients”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
-0.150	0.587	0.131	-0.425-0.125	-1.143	19	0.267

Note. CI = Confidence Interval

### The Provider Survey Results

The providers of the clinic were the main focus of this project as they currently play the biggest role in routine HIV screening. The providers who completed both a pre- and post-intervention survey were analyzed using paired general statistics and paired *t*-tests using SPSS software. The participants’ surveys were paired using the confidential identifier assigned to them when they completed the pre-intervention survey. The provider group includes both physicians and nurse practitioners. The sample size (*N*) was six for the number of providers who completed both surveys. The results were separated into the seven topics in Table 10. The negatively and positively worded questions were separated by topic and analyzed independently. The negatively worded questions were reversely scored as follows; section B: *strongly disagree*=5, *disagree*=4, *neither agree or disagree*=3, *agree*=2, *strongly agree* =1 and section

C: *never*=5, *rarely*=4, *about half the time*=3, *most of the time*=2, *almost always or always*=1.

The positively worded questions were scored as follows; section B: *strongly disagree*=1, *disagree*=2, *neither agree or disagree*=3, *agree*=4, *strongly agree* =5 and section C: *never*=1, *rarely*=2, *about half the time*=3, *most of the time*=4, *almost always or always*=5. The results of the paired *t*-test for the seven topics are shown in tables 44 – 64.

The first topic on the role of routine HIV testing in health care evaluates the providers' perspective on the importance of HIV screening in regular health care. Table 44 shows the one question associated with the topic of routine HIV testing in health care and it is positively worded. The mean response to participants thinking that “routine HIV testing is an important part of regular health care” increased slightly from 4.33 to 4.55, demonstrating a slight trend from agree toward strongly agree. A *t*-test could not be performed for this topic because there was not enough variation in responses, therefore, the measure was not sensitive enough for either the low number of participants or because of the extremely low variance.

**Table 44.** *Topic: Role of Routine HIV Testing in Health Care. Paired Sample General Statistics of Providers (Nurse Practitioners and Physicians) Who Completed the Pre- and Post-Intervention Survey (N=6). Positive Question: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5.*

<b>Role of Routine HIV Testing in Health Care</b>				
<b>Question:</b>				
Section B. 1	“I think routine HIV testing is an important part of regular health care”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	6	4.33	0.817	0.333
Post-survey	6	4.55	0.817	0.333

The next topic evaluated is routine HIV testing and the process of care. Table 45 shows the three negatively worded questions relating to routine HIV testing and the process of care. The mean response to participants being “concerned that patients will be offended by being offered routine HIV testing,” or “patients are concerned or upset by routine HIV testing,” and that “routine HIV testing interferes with providing other health care services” increased slightly from 3.50 to 3.67 ( $p=0.203$ ), demonstrating a slight trend from a response of neither agree or disagree or about half the time, towards a response of disagree (Table 45). Table 46 shows the paired differences in the pre- and post-intervention surveys on the topic of routine HIV testing and the process of care for the negatively worded questions. The mean difference from the pre- to post- survey was -0.167, which demonstrates a slight improvement in mean Likert scores from the pre-to the post-survey.

Table 47 shows the three positively worded questions for the topic of routine HIV testing and the process of care. The mean response to participants’ perspectives of having “the resources needed to implement routine HIV testing,” that the “results of routine HIV testing are documented and available to health care providers taking care of the patient,” and “patients who test positive receive appropriate referrals for follow up” increased from 4.47 to 4.83 ( $p=0.234$ ), demonstrating a slight trend from agree or most of the time towards a response of strongly agree, or almost always or always. Table 48 shows the paired differences from the pre- and post-intervention surveys for the topic of routine HIV testing and the process of care. The mean difference from the pre- to the post-survey was -0.361 (Table 48). This shows there was a slight difference in mean Likert score from the pre-survey to the post-survey trending towards the response of strongly agree, or almost always or always.

**Table 45.** Topic: Routine HIV Testing and the Process of Care Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.

Routine HIV Testing and the Process of Care				
Questions:				
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”			
Section C. 1	“Routine HIV testing interferes with providing other health care services”			
Section C. 4	“Patients are concerned or upset by routine HIV testing”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	6	3.50	0.691	0.282
Post-survey	6	3.67	0.869	0.355

**Table 46.** Topic: Routine HIV Testing and the Process of Care (Negative Questions). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).

Routine HIV Testing and the Process of Care						
Questions:						
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”					
Section C. 1	“Routine HIV testing interferes with providing other health care services”					
Section C. 4	“Patients are concerned or upset by routine HIV testing”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
-0.167	0.279	0.114	-0.459-0.126	-1.464	5	0.203

**Table 47.** Topic: Routine HIV Testing and the Process of Care. Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Strongly Disagree=1, Disagree=2, Neither Agree or Disagree=3, Agree=4, Strongly Agree =5 (Positive Question).

Routine HIV Testing and the Process of Care				
Questions:				
Section B. 13	“We have the resources needed to implement routine HIV testing”			
Section C. 3	“Results of routine HIV testing are documented and available to health care providers taking care of the patient”			
Section C. 7	“Patients who test positive receive appropriate referrals for follow-up”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	6	4.47	0.702	0.287
Post-survey	6	4.83	0.279	0.114

**Table 48.** *Topic: Routine HIV Testing and the Process of Care (Positive Questions). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).*

<b>Routine HIV Testing and the Process of Care</b>						
<b>Questions:</b>						
Section B. 13	“We have the resources needed to implement routine HIV testing”					
Section C. 3	“Results of routine HIV testing are documented and available to health care providers taking care of the patient”					
Section C. 7	“Patients who test positive receive appropriate referrals for follow-up”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
-0.361	0.653	0.267	-1.047-0.324	-1.354	5	0.234

The third topic evaluated is voluntary testing and consent. This topic has one negatively worded question and one positively worded question. Table 49 shows the negatively worded question. The mean response to providers’ perspective about “patients often feel like they have to accept routine HIV testing” decreased from 3.67 to 3.5 ( $p=0.793$ ), demonstrating a trend downwards from a neutral answer of neither agree or disagree to a response of agree (Table 49). Table 50 shows the paired differences from the pre-and post-intervention surveys that have a mean difference of 0.167. The mean Likert scores did not improve for this question in the post-survey as the responses were trending towards the response of agree.

Table 51 shows the one positively worded question related to the topic of voluntary testing and consent. The mean response to participants’ perspectives that “routine HIV testing is voluntary; patients are able to decline screening” increased from 4.67 to 5.0 ( $p=0.363$ ), demonstrating a trend from a response of agree to a response of strongly agree. The mean difference from the pre-survey to post-survey was -0.333 (Table 52). The mean Likert scores improved to a response of strongly agree from agree.

**Table 49.** Topic: Voluntary Testing and Consent Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Strongly Disagree=5, Disagree=4, Neither Agree or Disagree=3, Agree=2, Strongly agree =1 (Negative Question).

Voluntary Testing and Consent				
<b>Question:</b>				
Section B. 6	“Patients often feel like they have to accept routine HIV testing”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	6	3.67	1.032	0.422
Post-survey	6	3.5	0.837	0.342

**Table 50.** Topic: Voluntary Testing and Consent (Negative Questions). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).

Voluntary Testing and Consent						
<b>Question:</b>						
Section B. 6	“Patients often feel like they have to accept routine HIV testing”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
0.167	1.472	0.601	-1.378-1.711	0.277	5	0.793

**Table 51.** Topic: Voluntary Testing and Consent Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Strongly Disagree=1, Disagree=2, Neither Agree or Disagree=3, Agree=4, Strongly Agree =5 (Positive Question).

Voluntary Testing and Consent				
<b>Question:</b>				
Section B. 10	“Routine HIV testing is voluntary; patients are able to decline screening”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	6	4.67	0.816	0.333
Post-survey	6	5.0	0.000	0.000

**Table 52.** Topic: Voluntary Testing and Consent (Positive Questions). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).

Voluntary Testing and Consent						
<b>Question:</b>						
Section B. 10	“Routine HIV testing is voluntary; patients are able to decline screening”					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
-0.333	0.816	0.333	-1.190-0.523	-1.00	5	0.363

The next topic evaluated is the adequacy of patient information for testing. This topic consists of three questions that are all positively worded (Table 53). The mean response to

providers' perspectives that "patients receive adequate pre- and post-test information for routine HIV testing" and "patients understand the information they receive about routine HIV testing" increased from 3.06 to 3.5 ( $p=0.221$ , demonstrating a trend from a neutral response towards a response of agree or most of the time (Table 53). Table 54 shows the paired differences in the pre- and post-survey responses, which had a mean difference of -0.444. The mean Likert score did show a slight improvement from a neutral response towards a response of agree.

**Table 53.** *Topic: Adequacy of Patient Information for Testing. Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Positive Survey Questions: Section B - Strongly disagree=1, Disagree=2, Neither Agree or Disagree= 3, Agree=4, Strongly Agree=5 and Section C - Never=1, Rarely=2, About Half the Time=3, Most of the Time=4, or Almost Always or Always=5.*

<b>Adequacy of Patient Information for Testing</b>				
<b>Questions:</b>				
Section B. 7	"Patients receive adequate pre-test information for routine HIV testing"			
Section B. 8	"Patients receive adequate post-test information for routine HIV testing"			
Section C. 6	"Patients understand the information they receive about routine HIV testing"			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	6	3.06	0.534	0.218
Post-survey	6	3.5	0.548	0.224

**Table 54.** *Topic: Adequacy of Patient Information for Testing. Pre- and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).*

<b>Adequacy of Patient Information for Testing</b>						
<b>Questions:</b>						
Section B. 7	"Patients receive adequate pre-test information for routine HIV testing"					
Section C. 8	"Patients receive adequate post-test information for routine HIV testing"					
Section C. 6	"Patients understand the information they receive about routine HIV testing"					
<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>	<b>95% CI</b>	<b>t</b>	<b>dF</b>	<b>p</b>
-0.444	0.779	0.318	-1.262-0.373	-1.397	5	0.221

The fifth topic evaluated is confidentiality. This topic consists of two negatively worded questions and on positively worded question. Table 55 shows the two negatively worded questions associated with the topic of confidentiality. The mean response to participants'

perspectives that “patients are concerned about the confidentiality of routine HIV testing” and that “it is difficult to provide the privacy needed for routine HIV testing” increased from 3.75 to 4.0 ( $p=0.542$ ), demonstrating a trend from neither agree or disagree to a response of disagree (Table 55). Table 56 shows the paired differences from the pre- and post-intervention survey. The mean difference between the pre- and post-intervention survey was -0.250 (Table 56). There was an improvement in the mean Likert scores from the pre-survey to the post-survey from a neutral a response of disagree.

Table 57 shows the positively worded question related to the topic of confidentiality. The mean response to participants’ perspectives that “patients are given HIV test results in a confidential, appropriate manner” increased from 4.8 to 5.0 ( $p=0.374$ ), demonstrating a trend from agree to strongly agree (Table 57). Table 58 shows the paired differences in the pre- and post-intervention surveys. The mean difference from the pre-survey to the post-survey was -0.200 (Table 58). There was an improvement in the mean Likert scores trending to a response of strongly agree.

**Table 55.** *Topic: Confidentiality. Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Negative Questions Reverse Coded: Section B- Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1.*

<b>Confidentiality</b>				
<b>Questions:</b>				
Section B. 9	“Patients are concerned about the confidentiality of routine HIV testing”			
Section B. 14	“It is difficult to provide the privacy needed for routine HIV testing”			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	6	3.75	0.935	0.381
Post-survey	6	4.00	0.707	0.289



**Table 56.** Topic: Confidentiality (Negative Questions). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples *t*-Test (N=6).

Confidentiality						
Questions:						
Section B. 9	“Patients are concerned about the confidentiality of routine HIV testing”					
Section B. 14	“It is difficult to provide the privacy needed for routine HIV testing”					
Mean	SD	Standard Error Mean	95% CI	<i>t</i>	<i>df</i>	<i>p</i>
-0.250	0.935	0.382	-1.232-0.732	-0.655	5	0.542

**Table 57.** Topic: Confidentiality Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=5). Strongly Disagree=1, Disagree=2, Neither Agree or Disagree=3, Agree=4, Strongly Agree =5. (Positive Question).

Confidentiality				
Question:				
Section C. 2	“Patients are given HIV test results in a confidential, appropriate manner”			
Group	N	Mean	SD	Standard Error Mean
Pre-	5	4.8	0.447	0.200
Post-	5	5.00	0.00	0.000

**Table 58.** Topic: Confidentiality (Positive Question). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples *t*-Test (N=5).

Confidentiality						
Questions:						
Section C. 2	“Patients are given HIV test results in a confidential, appropriate manner”					
Mean	SD	Standard Error Mean	95% CI	<i>t</i>	<i>df</i>	<i>p</i>
-0.200	0.447	0.200	-0.755-0.355	-1.00	4	0.374

The sixth topic evaluated is HIV-related stigma. Table 59 shows the two negatively worded questions relating to the stigma associated with routine HIV screening. The mean response to participants being “concerned that patients will be offended by being offered routine HIV testing and “patients being concerned or upset by routine HIV testing” increased from 3.25 to 3.33 ( $p=0.849$ ), demonstrating a slight trend from a neutral response towards a response of disagree (Table 59). The mean difference of the pre- and post-survey responses was -0.083

(Table 60). There was a slight improvement in the mean Likert scores from a neutral response to a response of disagree.

**Table 59.** Topic: HIV-Related Stigma. Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Negative Survey Questions: Section B - Strongly disagree=5, Disagree=4, Neither Agree or Disagree= 3, Agree=2, Strongly Agree=1 and Section C - Never=5, Rarely=4, About Half the Time=3, Most of the Time=2, or Almost Always or Always=1.

HIV-Related Stigma				
Questions:				
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”			
Section C. 4	“Patients are concerned or upset by routine HIV testing”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	6	3.25	0.689	0.281
Post-survey	6	3.33	0.816	0.333

**Table 60.** Topic: HIV-Related Stigma. Pre- and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).

HIV-Related Stigma						
Questions:						
Section B. 3	“I am concerned that patients will be offended by being offered routine HIV testing”					
Section C. 4	“Patients are concerned or upset by routine HIV testing”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
-0.083	1.021	0.417	-1.154-0.988	-0.200	5	0.849

The seventh topic evaluated in the pre-and post-survey is barriers and facilitators of routine HIV testing. Table 61 shows the three negatively worded questions related to the topic of barriers and facilitators of routine HIV testing. The mean response to participants being “concerned about cost and reimbursement for HIV testing,” concerned that “language barriers prevent some patients from receiving routine HIV testing,” and being concerned “that routine HIV testing will have a negative effect on patients’ opinions about our health care facility” increased from 3.08 to 3.00 (p=0.868), demonstrating a very slight trend down from a neutral

response towards a response closer to agree (Table 61). Table 62 shows the paired differences in the pre- and post-survey responses for the topic on the barriers and facilitators of routine HIV testing. The mean difference of the pre- and post-survey was 0.083 (Table 62). There was not an improvement in the mean Likert scores as the responses were consistent in pre- and post-survey responses.

Table 63 shows one positively worded question related to the topic of barriers and facilitators of routine HIV testing. The mean response to participants' perspective that they are "comfortable discussing routine HIV testing with patients" decreased slightly from 4.33 to 4.25 ( $p=0.809$ ), demonstrating a slight downward trend but consistent with an overall response of agree. Table 64 shows the paired differences in the pre- and post-intervention surveys for the topic on the barriers and facilitators of routine HIV testing. The mean difference from the pre-survey to the post-survey was 0.083 (Table 64). There was not an improvement in Likert scores as the responses in both the pre- and post-survey were consistent with the response of agree.

**Table 61.** *Topic: Barriers/Facilitators of Routine HIV Testing. Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Strongly Disagree=5, Disagree=4, Neither Agree or Disagree=3, Agree=2, Strongly agree =1 (Negative Questions).*

<b>Barriers/Facilitators of Routine HIV Testing</b>				
<b>Questions:</b>				
Section B. 2	"I am concerned about cost and reimbursement for HIV testing"			
Section B. 5	"Language barriers prevent some patients from receiving routine HIV testing"			
Section B. 11	"Patients do not expect to be offered routine HIV testing"			
Section B. 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"			
<b>Group</b>	<b>N</b>	<b>Mean</b>	<b>SD</b>	<b>Standard Error Mean</b>
Pre-survey	6	3.08	0.701	0.286
Post-survey	6	3.00	0.822	0.335

**Table 62.** Topic: Barriers/Facilitators of Routine HIV Testing (Negative Questions). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).

<b>Barriers/Facilitators of Routine HIV Testing</b>						
<b>Questions:</b>						
Section B. 2	“I am concerned about cost and reimbursement for HIV testing”					
Section B. 5	“Language barriers prevent some patients from receiving routine HIV testing”					
Section B. 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”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
0.083	1.169	0.477	-1.143-1.310	0.175	5	0.868

**Table 63.** Topic: Barriers/Facilitators of Routine HIV Testing (Positive Question). Paired Sample General Statistics of Providers Who Completed the Pre- and Post-Intervention Survey (N=6). Strongly Disagree=1, Disagree=2, Neither Agree or Disagree=3, Agree=4, Strongly agree=5 (Positive Question).

<b>Barriers/Facilitators of routine HIV testing</b>				
<b>Questions:</b>				
Section B. 4	“I am comfortable discussing routine HIV testing with patients”			
Group	N	Mean	SD	Standard Error Mean
Pre-survey	6	4.33	0.516	0.211
Post-survey	6	4.25	0.612	0.250

**Table 64.** Topic: Barriers/Facilitators of Routine HIV Testing (Positive Question). Pre-and Post-Intervention Analysis Using Two-Tailed, Paired Samples t-Test (N=6).

<b>Barriers/Facilitators of Routine HIV Testing</b>						
<b>Questions:</b>						
Section B. 4	“I am comfortable discussing routine HIV testing with patients”					
Mean	SD	Standard Error Mean	95% CI	t	dF	p
0.083	0.801	0.327	-0.757-0.924	0.255	5	0.809

The paired survey analysis of the providers showed little variation in the means for each topic for the pre- and post-survey responses, indicating the providers answered the questions related to each topic similarly on pre- and post-intervention survey. The sample size was low, and; therefore, there is not enough data to determine the statistical significance of the findings. While there were some slight improvements in the means in many topics from the providers,

there was not a substantial increase in the survey response pre- and post-intervention. It is likely that the providers' responses to the surveys remained unchanged from the pre-intervention survey to the post-intervention survey.

### **Post-Intervention Survey Short Answer Questions**

The post-intervention survey was the same as the pre-intervention survey, but also included three short-answer questions (Appendix 4 & 5). Themes were derived from the responses. Many responses were left blank even after participants were notified there was an extra page for short answers.

The first question of the short answer portion of the survey asks; "List any benefits or positive outcomes that have resulted from the implementation of routine HIV testing in your workplace." Themes from this response included patients being aware of their status and can given patients a piece of mind, there is greater awareness, and more patients are tested (Table 65).

**Table 65.** *Post-Intervention Question 1: "List any benefits or positive outcomes that have resulted from the implementation of routine HIV testing in your workplace."*

"Normalizing the test-by offering to everyone"
"Increased awareness"
"Not sure we have always done since I have worked here"
"It addresses our quality indicators"
"Early diagnosis"
"None since I have no positives for > 1 year in my population"
"Can help people know their status"
"Greater awareness"
"Gives patients a peace of mind of knowing their status"
"More patients are tested"

The second question of the post-intervention survey asks; "List any problems or negative outcomes that have resulted from the implementation of routine HIV testing in your work

setting.” Themes developed from this response were related to the time constraints with offering the test, patients being offended and no problems (Table 66).

**Table 66.** *Post-Intervention Question 2: “List any problems or negative outcomes that have resulted from the implementation of routine HIV testing in your work setting.”*

“I have not encountered any problems in implementing routine HIV testing”
“Some patients do get offended”
“ID clinic backed up so at times delay in initiation of therapy of positives”
“Multiple administrative and paperwork tasks squeezed in a 15-minute visit”
“Cost, time, and effort expended to get to “yes” on HIV testing, I do not order tests without telling the patient”

The final question of the post-intervention survey asks; “Share any other comments about this questionnaire or about the implementation of routine HIV testing in your work setting.”

Many responses were left blank, but those that did respond asked about continued testing for their patients if they do not get positive results, one reported feeling pressured to offer screening because it is set as an EMR reminder and they consider their patient low risk (Table 67).

**Table 67.** *Post-Intervention Question 3: “Share any other comments about this questionnaire or about the implementation of routine HIV testing in your work setting.”*

“I do a lot of testing and do not get any positive test results. Should I continue testing my patient population?”
“I feel pressured to provide HIV testing for low risk patients due to the HIV testing being listed on my checklist for each patient on the EMR”
“It’s a way/resource for patient teaching”

## **CHAPTER 7: DISCUSSION**

### **Summary**

#### **Key Findings**

Primary care providers should be following ‘A’ and ‘B’ recommendation statements from the USPSTF and this is one attempt in process improvement project to implement routine HIV screening. The purpose of this process improvement project was to increase routine HIV screening in a primary care setting. While there have been some improvements in screening practices when comparing the data from 2017 to 2018, there is still room for improvement.

The Chronic Care Model was the framework used to guide this process improvement project as a way to use evidence-based and team-based approaches to improve routine HIV screening and improve health outcomes. Table 3 discusses how the Chronic Care Model was utilized in this DNP project. The Chronic Care Model guided this project by engaging the stakeholders, educating providers and staff on the HIV screening recommendations, supporting a team-based approach to routine HIV screening, utilizing the EMR to remind providers to offering screening, discussing with providers about educating patients on HIV screening recommendations; and allow for shared-decision making to accept or decline screening, and introduced local community resources to providers and staff for HIV management and treatment services.

One goal of the project was to increase the percentage of HIV screenings following the USPSTF 2013 HIV screening recommendations. The overall percentage of screenings completed for the three months in 2018 combined was 25%, which was the same percentage as

the same three months in 2017. The project did show an increase in the percentage of screenings completed per month in September (32%) and October 2018 (28%) when compared to September (28.5%) and October 2017 (27%) (Figure 4). There was a decrease in the percentage of tests ordered in November 2018 (16.2%) when compared to November 2017 (22%) (Figure 4). The decreased percentage in November 2018 can be contributed to provider turnover in the practice, which included losing a provider champion.

The second goal of the project was to engage stakeholders and identify practice champions to support this project. The practice administrator was the most engaged practice champion and helped to coordinate the information sessions and identify provider practice champions as well. The first provider champion was a nurse practitioner with an interest in infectious disease, including HIV. Unfortunately, this provider champion left the practice in mid-October during the intervention period. A second provider champion identified was a physician who also had an interest in infectious disease, including HIV and was very vocal during the intervention about how he screens his patients routinely for HIV.

The third goal of this DNP project was to understand the provider and clinic staff personal perspectives about routine HIV screening using a pre- and post-intervention survey. The survey questions were not always straightforward and included both positively worded questions and negatively worded questions, which generated difficulty with the survey analysis. The sample size of participants was small ( $N=22$ ) who completed both the pre- and the post-intervention questionnaires. The participants who completed the pre- and post-intervention questionnaires were those that were part of the intervention from the beginning and received the education on routine HIV screening. The provider participants who completed a pre- and post-survey was ( $N=6$ ) which is included in the total number of participants ( $N=22$ ) who completed a



pre- and post-intervention questionnaire. The paired *t*-tests of all participants who completed both surveys (*N*=22) and the paired *t*-tests of the providers only, showed that there were positive trends in most of the seven topics discussed. The seven topics include: the role of routine HIV testing in health care, routine HIV testing and the process of care, voluntary testing and consent, adequacy of patient information for testing, confidentiality, HIV-related stigma, and barriers/facilitators of routine HIV testing. There was a slight negative trend in the topic of among the providers and all survey participants when asked the question “patients often feel like they have to accept routine HIV testing” for the topic of voluntary consent and testing. There was also a slight negative trend among the providers for the topic of barriers/facilitators to routine HIV testing when asked the question, “I am comfortable discussing routine HIV testing with patients.” The mean Likert response was agree for both the pre- and post-survey, however, the slight decrease towards a neutral response can indicate providers are less comfortable discussing routine HIV testing than before the intervention. With the education provided and the monthly check-ins by the principal investigator, this response was expected to have had a positive trend. Because of the sample sizes being small, it was unlikely to expect any statistical significance to be found. It was also expected to see a change in the nurses and CMAs roles on routine HIV screening in the clinic, but because the clinic does not participate in staff-initiated screening, the CMAs continued to respond ‘no role in routine HIV testing’ on both the pre- and post-intervention survey. The nurses, however, did have an improvement on the post-intervention survey. Their responses changed from ‘no role in routine HIV testing’ and ‘order entry or education patient and staff’ in the pre-intervention survey to ‘management or administrative role in routine HIV testing’, ‘supervise staff conducting HIV testing’, ‘teach other

health care providers or students about routine HIV testing’, ‘no role in routine HIV’, and ‘educate patients’ (Table 8 & 9).

The fourth goal was to inform health care providers and clinic staff at the project site on the routine HIV screening recommendations, HIV statistics and the critical need to screen. This goal was accomplished through the numerous information sessions held for the providers, the nurses and CMAs, and the front desk staff. There was a total of 28 participants that attended the pre-intervention information sessions and 25 participants who attended the post-intervention information sessions. The semi-structured interviews that occurred throughout the project also reminded participants of the screening recommendations and the need to be offering routine HIV screening to patients per the USPSTF 2013 recommendations. The semi-structured interviews and information sessions also allowed for time for questions from the participants for the primary investigator.

The fifth goal was to identify barriers and process improvements for routine HIV screening. The semi-structured interviews were used to discuss with the clinic staff and the nurse practitioners and physicians the barriers to HIV screening they encountered and ways to improve HIV screening for continual process improvement. The principal investigator mentioned several times to the providers and the practice manager that the review of literature has shown an improvement in screening when the nurses or CMAs offer routine HIV screening when the patient is waiting in the room for the provider. The providers did not have any comments about having nurses or the CMAs to begin the conversation about routine HIV screening; however, the practice manager made a comment that the CMAs and nurses would need more training to be able to discuss HIV screening with patients and all the providers would have to agree to allow the CMAs and nurses to offer screening. The providers and manager did

not say ‘no’ to having nurses and CMAs offer the screening, but that it would take some time to get that process started. The survey responses for the provider participants that completed both a pre- and post-intervention survey ( $N=6$ ), had one topic that had a negative trend in Likert scores. This topic was about barriers/facilitators to routine HIV testing and question relating to this topic was “I am comfortable discussing routine HIV testing with patients.” One explanation of this negative trend is, before the intervention period, the providers may not have been participating routine HIV screening, but using at-risk HIV screening interventions. Since the discussion of routine HIV screening was started at this clinic, providers may not feel as comfortable discussing HIV screening with all patients, especially if they are patients they have established a rapport with and feel that offering routine HIV screening would not be appropriate for that patient. Another explanation would be providers did not respond consistently in the pre-survey and post-survey, meaning they responded to the question with an answer of strongly agree on the pre-survey and agree on the post-survey or vice versa, to make the post-survey mean Likert score slightly lower than the pre-survey.

The final goal of the project was to implement evidence-based interventions to improve HIV screening. The Chronic Care Model helped to guide the project to meet this goal. The clinic’s EMR already had a HIV screening reminder embedded in the patient’s medical record under health maintenance using the 2013 USPSTF screening recommendations. Through academic detailing, the nurse practitioners and physicians were educated on the specific diagnosis codes used for office visits that should have a HIV test ordered with them, such as, physical examinations, STD or STI visits or annual examinations. The providers were also educated on the process for ordering an HIV test to maintain that the decision for a patient to

accept testing is based on shared-decision making and that the patient has the opportunity to opt-out if they decline to be screened for HIV.

### **Strengths**

The practice manager played a critical role in participant recruitment and identifying practice champions. The clinic had between 25 to 30 staff members, including the physicians and nurse practitioners. The practice manager assisted in arranging meetings when the most participants can attend, otherwise, the sample size could potentially have been much smaller. The nurse practitioners and physicians, as well as the rest of the clinic staff accepted the project and generally were interested in learning about HIV in their community. There were two provider practice champions identified prior to the start of the project that were the two most interested in HIV and most engaged during information sessions. The practice champions participated in the information sessions and talked about their screening practices and the importance of routine screening at their clinic.

Another strength of this project was the EMR reminder for HIV screening already in place. This reminder had a link to the USPSTF recommendations and automatically appears in the chart when a patient turns 15 years old and remains there until it has been completed or until the patient is 66 years old. The nurse practitioners, physicians, nurses and CMAs each have access to the reminder and is highlighted in pink when an item has not been completed or is overdue. The EMR reminder allows providers an opportunity to offer screening when they are reading the patient's medical record and can visualize that an HIV test is due rather than the provider having to rely on memory as to what screenings need to be completed on each patient.

## **Interpretation**

### **The HIV Screening Laboratory Tests**

There was not an overall increase in the percentage of HIV screening tests ordered from 2017 to 2018 during the combined months of September, October and November. Twenty-five percent of clinic encounters had a HIV test ordered in both 2017 and 2018 despite the increase in the number of encounters in 2018. The number of encounters increased by 5.66% from 2017 to 2018 during the same three months. In 2017, there was a steady number of HIV tests ordered in the months of September ( $N=142$ ), October ( $N=155$ ) and November ( $N=130$ ). However, in 2018, there was a significant decline in the number of HIV tests ordered during the month of November ( $N=96$ ). September and October 2018 had 173 and 174 HIV tests respectively, ordered. The decline in HIV tests ordered may be contributed to the provider turnover that started mid-October into mid-November. One key provider that left the practice mid-October was also one of the practice champions for the project who had an interest in HIV and infectious disease and was more likely to screening patients for HIV than other providers in the clinic.

### **Age Data**

There was an equal distribution of tests ordered by age group in 2018 when compared with the 2017 baseline data (Figure 4). In 2018, there were more patients over the age of 65 who were ordered an HIV test from 34 in 2017 to 52 in 2018. It is unknown if patients over the age of 65 and over the age of the 2013 USPSTF screening recommendations that if these patients were screened for HIV or if it was because they were considered high-risk and an HIV test was ordered for diagnostic purposes. Patients who were in the 60 to 65 years old age group had increase in HIV tests ordered in 2018 by 28.7% from 2017. There was a slight decrease in the number of HIV tests ordered for the age group of 50 to 59 from 156 in 2017 to 130 in 2018. The remaining age groups 40-49, 30-39, 20-29 remained stable from 2017 to 2018 with slight

fluctuations. The clinic typically does not see patients under 18 years old, however, there was only one test ordered in the age group of 15 to 19 in 2017 and no tests ordered in 2018. The age group of 20-29 years old accounts for 41% of prevalent cases in North Carolina as of 2017; however, the results of this project are not typical for this age group as the clinic's average age of their population is 55 to 60 years old.

### **Other Demographic Data**

Despite the patient population are 55% women and 45% men, in both 2017 and 2018; men were ordered an HIV test more often than women. However, the number of tests ordered for each sex remained largely unchanged from 2017 to 2018. Men who have sex with men (MSM) are at a higher risk for HIV infection. The fact that providers at the clinic are screening more men leaves the chance that patients who are MSM are being screening whether or not they have identified their sexuality to their provider.

The HIV tests ordered did not have much of a variance by race (Figure 6). There were more White or Caucasian patients ordered an HIV test in both 2017 and 2018 out of all races in both years. Black or African American patients were the second most patient population who were ordered an HIV test in both years and the number of patients largely remained unchanged when compared with 2017 and 2018 data. The clinic's patient population consists of approximately 60% White or Caucasian patients and 30% Black or African American. The clinic is screening patients between both Black and African American and White or Caucasian races evenly during the intervention period that correlates with their patient population. The other races also remained stable from 2017 to 2018 for the number of HIV tests ordered. The clinic is screening patients for HIV based on the demographics of their clinic, which is majority White or Caucasian with Black or African American coming in second; however, the demographics of the clinic are not consistent with the at-risk population in the south.

The population included in this project are not typical of the Guilford County population in terms of those patients who are uninsured or are on Medicaid as a primary insurance carrier. This clinic is also not a Federally Qualified Health Center (FQHC), therefore, results of this project in terms of the percentage of screenings ordered is most likely much less than if this project was completed at an FQHC. Black or African Americans have been identified as the population with higher rates of HIV infections nationwide; however, this project shows that the clinic sees a significant increase in White or Caucasian patients than Black or African American patients, which if the clinic saw an inverse number of Black or African American patients, it is possible the number of screenings would be increased.

### **Pre-Intervention Survey**

The pre-intervention survey was distributed to all participants during the months of August, September and October of 2018 (Appendix 4). There were 28 participants in the pre-intervention survey. Participants were asked to identify their professional role in the clinic and their role in routine HIV screening at the clinic at the time the survey was distributed. The majority of the non-provider staff members (front desk staff, CMA, nurse, manager) reported they did not have any role in HIV screening or simply left that response blank.

### **Post-Intervention Survey**

The post-intervention survey was distributed to participants in January and February 2019 (Appendix 4 & 5). There were a total of 25 participants in the post-survey. The front-desk staff and CMAs reported they do not play a role in routine HIV screening. However, there was an increase in the nurse's responses from the pre- to post-intervention survey to having more of a role in routine HIV screening through management or administrative roles, supervising others, teaching about routine HIV testing to students and providers, and educating patients (Table 9).

## **Pre- and Post-Intervention Survey Evaluation**

There were 28 participants who completed the pre-intervention survey and 25 participants who completed the post-intervention survey, which included the nurse practitioners, physicians, nurses, CMAs, manager, and front desk staff. Despite the turnover of staff members, a total of six providers out of the nine that started at the pre-intervention survey completed both a pre- and post-intervention survey. Since the sample size was small, statistical significance could not be determined.

Out of the seven topics analyzed for the surveys, in the group statistic analyses. which includes all those participants who completed a pre-intervention survey and the participants that completed a post-intervention survey, six of the topics saw an increase in the mean score of the survey responses. While there was not a substantial increase in the mean Likert scores, there was enough of an increase to understanding that participants' perspectives may have changed since the start of the intervention.

The survey responses could be paired pre- to post-intervention because of the confidential identifier assigned to the participants at the start of the project. The paired responses also included the nurse practitioners and physician surveys. Again, because the sample size was small, statistical significance could not be determined. However, with the paired survey responses, all topics had mean Likert scores that increased slightly, with the exception of the negatively worded questions for the topic of voluntary testing and consent (Table 28). While there was no substantial change in the mean (3.50 pre-survey to 3.35 post-survey), most of the responses to this question were neutral responses.

The survey responses of the providers were also isolated from the rest of the survey participants' analysis because they were the main focus of this project. The providers had slight improvements in the trends of the mean Likert scores in most topics, except for the negative



questions for the topic of voluntary testing and consent and the positive question for barriers/facilitators of routine HIV testing. Although there was not a substantial decrease in the mean scores for these topic, the providers generally responded with a neutral answer to the topic of voluntary testing and consent and responded with “agree” to the topic of barriers/facilitators of routine HIV testing.

This survey did show some changes in the perspectives of the participants related to routine HIV screening in the clinic. There was a small sample size that completed the surveys and even, then some of the participants answered some questions with a response of “don’t know” or “not applicable” leaving those participants out of the analysis for that particular question, driving the sample size down even further. It is possible there may be other surveys available that would be better fit participants attitudes, skills and knowledge of routine HIV screening that is more manageable and easier to analyze.

### **Focus Groups**

There were not any formal times for focus groups at this practice, as the practice was very busy, and providers typically worked through lunch or held staff meetings during lunch. There were several opportunities throughout the intervention when the principal investigator visited the practice on different days throughout each month during the intervention to discuss HIV screening and report any issues or barriers noted related to HIV screening. This was also a time when participants can ask questions about HIV screening.

In August at the provider meeting, one provider openly spoke about how he screens most of his patients for HIV and about his personal interest in infectious diseases, especially HIV. He was knowledgeable about the screening recommendations prior to the start of the project, but was unaware of some of the resources in the community, as well as the providers should be asking patients whether or not they want to be tested for HIV at their clinic visit to allow for

‘opt-out’ screening. This same provider also made the suggestion for the Medicare wellness nurse to be able to order the HIV test when Medicare patients come in to see her for their annual wellness visit. All of the providers agreed that they have not experienced a lot of negativity from patients when HIV screening was offered, but also reported they don’t always have time to ask or think about asking their patients, especially their patients they have known for a long period of time that they don’t feel are at risk for becoming infected with HIV.

In September, at the CMA and nurse meeting, many staff members at this meeting did not have much to say about HIV screening. According to their survey responses, the CMAs reported they have no role in HIV screening at this practice (Table 8). The CMAs and nurses were given the same handouts as the providers, which included local resources in the community for HIV-related services and discussed how the review of literature has shown an increase in acceptance to screening by patients when the CMA or nurse begins the conversation at the beginning of the appointment. During this meeting, the Medicare wellness nurse also stated that she would look into ordering HIV screening when patients come for their wellness visit. However, the USPSTF 2013 recommendations state to screen patients over 65 years of age if they are at an increased risk for HIV and do not recommend routinely screening if over 65 with no risk. Many patients receiving Medicare benefits at this clinic are over the age of 65 years old.

Also, during September there were several conversations with providers and CMAs about the barriers or issues with screening. One provider said that many of his patients do not accept screening because they feel they are not at risk for HIV infection. Another provider stated she has oral swabs that she personally purchased if she suspects a patient has an acute infection or is afraid of needle sticks. The principal investigator also asked providers if they are educating the patients on the screening recommendations, which two providers said they do not educate them.

One provider said she simply does not always have time to address HIV screening with patients because of the number of other complex problems they have to discuss. The principal investigator informed providers that they should be informing patients about the recommendations for routine HIV screening and why they are asking the patients if they would like an HIV test at their visit. The principal investigator also advised providers to display posters that advertise routine HIV screening in their exam rooms to notify patients that the clinic is offering routine HIV screening to patients. When walking around the office during this month, there were no signs or brochures on display in the exam rooms that advertised routine HIV screening. The principal investigator asked the practice manager about hanging up posters and putting brochures on display, but stated that it was up to the provider to display these items. A pocket guide was created and distributed to the nurse practitioners and physicians during the month of September that reminded them of the USPSTF 2013 recommendations for routine HIV screening as well as common diagnosis codes used when screening for HIV (Appendix 3).

In October, the principal investigator met with the front desk staff to discuss routine HIV screening and educate them on the recommendations. This group also reported they have no role in HIV screening and most were not aware of the screening recommendations. One receptionist was unaware about Guilford County having a high incidence and prevalence for HIV. The front desk staff were all given the same handouts as the providers (Appendix 2) and discussed if patients ask about HIV screening, but wish to do it outside of the practice, they can refer them to the local community resources that were provided in their handouts.

During the month of October, three CMAs and one provider met with the principal investigator to follow up on HIV screening at the clinic and had a general conversation about routine HIV screening. All four informed the principal investigator that there were no problems

with offering screening or patients problems related to screening. The provider reported that patients often do not accept screening because they have had done once already or do not feel like they are at risk at this time. The principal investigator also asked the provider if they felt if the CMAs began the conversation of asking the patients when they are roomed if they would like an HIV screening test before seeing the provider. The provider said it would be a good idea, but he added that all the providers would have to be on-board to having the CMAs offering the screening and the CMAs would need more education to feel comfortable with discussing HIV screening with the patients. The principal investigator asked the provider if he explained to patients who declined HIV screening why screening is offered; and he said he did not explain it to patients. The principal investigator advised this provider that a brief description of the routine HIV screening recommendations to patients may help inform the patient to make a better decision about whether to accept or decline the screening.

November was the final month for data to be collected on the project. The principal investigator rounded twice during the month on providers and staff about the routine HIV screening. The principal investigator had been at the clinic more times in September and October, which could have also led to a decrease in the number of HIV tests ordered. Two providers left during this month and the new nurse practitioner continued to see a low volume of patients, about six to seven per day when compared to experienced providers who are seeing about 20 to 22 patients per day. The providers continued to report no issues with the project and had similar responses to previous months when asked about HIV screening. One provider stated that most of his patients accept the HIV screening because he informs them that it is a part of their annual physical and insurance pays for it. This provider also mentioned that his patients have been seeing him for several years and he has established a good rapport with his patient

population. The CMAs the principal investigator met with, continue to state they do not have an active role in offering HIV screening at this time, but states they would be willing to have a role in routine HIV screening if the providers agreed to allow the opportunity to start the process.

Saturday December 1, 2018 was World AIDS Day. The principal investigator visited the clinic on Friday November 30<sup>th</sup> to promote World AIDS Day, give handouts, and discuss the theme of the event, which was “Know Your Status” and how it relates to the project (Appendix 8). Since it was a Friday, many providers were off or worked a half-day in the morning and were gone before the principal investigator arrived at the clinic. There were two providers available to talk with; both were unaware that World AIDS Day was on annually on December 1<sup>st</sup>. One provider also talked about PrEP and how she has started a few patients on PrEP recently. The principal investigator informed the providers that November 30<sup>th</sup> was the last day for data to be collected and that providers should continue offering routine HIV screening despite the fact that data would no longer be collected for this project after November.

In January 2019, the principal investigator met with all the providers of the clinic and the CMAs in two separate meetings. During the provider meeting, one only provider questioned about when they should stop screening patients. The principal investigator informed him that the guidelines currently state to screen patients ages 15 to 65 years old once, but according to the CDC guidelines, if the prevalence of HIV is less than 0.1% in a population then risk-based screening can be initiated (CDC, 2006; USPSTF, 2013). Guilford County prevalence is over 0.1%. The principal investigator asked providers about why they were ordering an HIV test on patients over the age of 65. One provider reported he orders them because the insurance will pay for it and other providers agreed. Providers did not offer any other explanation as to why they order an HIV test on patients over 65 besides for screening or diagnostic purposes. It is not

known if any of the HIV tests ordered in 2017 or 2018 in patients over the age of 65 years old were screening tests or diagnostic tests. No other providers had any negative or positive feedback about the project and did not have any comment on whether or not CMAs or nurses should initiate offering HIV screening to patients when they are waiting in the examination room.

During the CMA and nurse meeting, participants did not engage in conversation about the project or HIV screening in general. The Medicare wellness nurse was present during this meeting and reported that she is unable to order an HIV test during a Medicare wellness visit because the patient still needs to see the provider for labs to be ordered for billing purposes. The Medicare wellness nurse is also a health coach and reported that she does have a conversation with patients about routine HIV screening who are 65 years old or younger, and has tried to make sure she does it with all patients at every visit since the project started. This nurse, however, does not have the ability to order labs at this visit, but initiates the conversation for when the patient sees their provider it can be ordered then. The principal investigator again informed the CMAs and nurses that if they offer HIV screening when the patient is waiting in the room, this may help capture more patients rather than waiting for the provider to ask. The CMAs and nurses again reported that it would be up to the providers to agree to make that change, but are willing to have an opportunity to offer screening if trained properly and the providers are agreeable.

### **Comparison to Other Studies**

As evidenced by the review of literature in this paper, there is a lack of rigorous studies on routine HIV screening practices in primary care settings. One study completed in 2010 at major health system in Cleveland, Ohio, added an electronic medical record reminder to the health maintenance list to their existing EMR in July of 2010 (Avery et al., 2014). The study

(Avery et al., 2014) utilized the CDC's 2006 recommendations for routine HIV screening since the study occurred before the 2013 UPSTF recommendations were released. The investigators targeted several clinics that were located in areas where HIV prevalence and incidence were high and conducted information sessions with stakeholders about screening practices and local HIV statistics (Avery et al., 2014). The project investigators delved into patient medical records looking at screening trends and missed opportunities for screening. The project team looked at data from January 2008 to December 2011, using 2008 as the baseline data (Avery et al., 2014). The study showed there was an increase in patients screened for HIV once the reminder was placed in the EMR that had never been screened for HIV before the reminder (Avery et al., 2014). The study also mentions the integration of the reminder in the EMR helps to achieve the Strategic Plan from the CDC to reduce new infections and increase the number of patients who know their HIV status. This study did not survey the stakeholders on their perceptions of routine HIV screening and used an interrupted time series to analyze the data. This study (Avery et al., 2014) and this DNP project were both process improvement projects aimed to improve the percentage of patients screened for HIV while working towards the CDC's Strategic Plan to increase the number of patients who know their HIV status to at least 90%. The reminder used in the study completed by Avery et al., 2014 is similar to the reminder used at the project site where this DNP project took place; however, the reminder has been updated since 2010 and does not have the same functionality as the study completed in Ohio did. One difference between the study completed in Ohio and this DNP project is, the DNP principal investigator spent time educating the providers, nurses, CMAs, and front desk staff about the screening recommendations, and alternative ways to increase the number of patients screened, such through nurse or CMA initiated screening, and also surveyed their perspectives on routine HIV

screening. The Avery et al., 2014 study did some education prior to the intervention, but did not continue to educate on routine HIV screening, but simply created a passive EMR reminder to screen patients for HIV. The Avery et al., 2014 study did show improvements in HIV screening percentages than before the EMR reminder was created, but there is no measurement to if there was increased knowledge regarding routine HIV screening recommendations.

### **Limitations**

There were several limitations to this process improvement project. The project addressed one primary care practice located in Guilford County North Carolina. While this primary care practice is affiliated with a prominent health care system in the region, the providers at each clinic practice medicine differently. Despite the fact that this health system automatically has HIV screening under the health maintenance list when a patient turns 15 years old, the EMR reminder does not mean all providers are offering screening or addressing this item on the list. There currently is not a quality measure or indicator that is tracked at this clinic to see who is offering HIV screening and who is not or how often HIV screening is being completed.

### **Data Collection**

Because this is the first-time data have been analyzed for HIV screening in this practice, there was difficulty obtaining the data. When the idea of this project was conceived the original plan was to obtain HIV screening data on specific diagnosis codes (Table 5), as these diagnosis codes are most often associated with physical examinations, or STD or STI screening visits. However, because of the nature of how the actual HIV test was ordered by providers, using the type of encounter (Table 7) was the best way to get the number of HIV tests actually ordered per the IT analyst who obtained the data. Unfortunately, obtaining the data by encounter type does not disclose if the lab test was ordered diagnostically or if it was a screening HIV test. The other



item the results do not identify is if the HIV test was actually performed. Most patients that come in to the clinic for a physical examination or annual wellness visit have blood work ordered during the visit or before the visit. The data received from the IT department only conveys if the HIV test was actually ordered in Epic, not that the lab performed the test. Also, it is not known if the patients who did not have an HIV test ordered already had one completed or possibly have a diagnosis of HIV or AIDS. Additionally, it is uncertain if those above 65 years old were “at risk” and/or had a screening or diagnostic test completed.

### **Staff and Provider Changes**

Throughout the intervention period there were several significant provider changes.

At the start of the project in August 2018, the provider meeting was missing one provider. This provider was on a leave of absence until mid-September. However, this provider who was on leave of absence did meet with the principal investigator upon their return to inform them of the project, gave them the handouts from the pre-intervention information session and had the provider complete a pre-intervention survey.

In October, one provider, a nurse practitioner, who had knowledge of routine HIV screening prior to the start of the project and was considered one of the practice champions for the project, left the practice in the middle of October to specialize in Infectious Disease. Also, during this month, a new graduate nurse practitioner joined the practice after the other nurse practitioner left. The practice champion that left, did assist the principal investigator with informing the new nurse practitioner of the project and had the new provider complete the pre-intervention survey before they started seeing patients at the clinic. The new graduate nurse practitioner started off seeing about four to five patients per day which were not always physicals, thus leading to the possibility that a decreased number of patients were coming into

the clinic after they started since they were seeing approximately 10-12 less patients per day leading to less HIV screenings being completed.

In November, a nurse practitioner and physician left the practice for another primary care clinic that is affiliated with the same health system. Also, throughout the project there were several nurses and CMAs that joined or left the practice.

To address the limitation of provider and staff turnover that occurred during the project, the principal investigator worked with the practice manager to attempt to get participants to complete a post-intervention survey before leaving the practice, especially if they completed a pre-intervention survey.

### **Epic Update**

On Sunday November 4, 2018, the Epic software was upgraded from Epic version 2017 to Epic version 2018. This brought changes in several areas of the EMR. Providers and staff were notified of the upgrade in September of 2018 and given handouts of the changes to the ambulatory care EMR and were also offered training classes from the health system to prepare for the upgrade. The health maintenance list was changed after the upgrade. The HIV screening reminder remained on the health maintenance list; however, it was not as easy to modify as it was in the previous version of Epic. Previously, providers were able to modify HIV screening to be offered yearly instead of just one time, but with the new version, providers could not change the frequency of HIV screening. This could potentially be a problem especially, if a provider is caring for a patient that is considered high-risk for becoming infected with HIV and cannot modify the reminder to prompt them to offer an HIV screening on a more frequent basis. Another change in the health maintenance list was once an HIV test was completed, it was moved to a section below other health maintenance list items and listed as ‘inactive’. Once it was listed as inactive, it could not be re-activated. Even though the HIV screening was listed as

inactive, if repeated tests are to be completed the date will appear next to the word “HIV screening” with a hyperlink attached to the date with the result of the HIV test.

The principal investigator was notified of the Epic upgrade in September 2018 and encouraged the nurse practitioners, physicians and other clinic staff to view the practice environment of the upgraded system to get an idea of what the changes were going to be like. The principal investigator also practiced with using the health maintenance list and could visualize how the Epic upgrade would affect the HIV screening reminder. This information was presented to the providers and clinic staff at the follow-up information session meeting in January and February 2019.

The Epic upgrade also delayed data collection, as the IT department was busy with preparing the entire health system for the upgrade and troubleshooting problems after the upgrade. The data analyst who compiled the data report also wanted to wait until after November 30<sup>th</sup> to get all the results at the same time to keep in one document. The practice manager was responsible for obtaining the data because the principal investigator did not have access to the patient’s medical records. The principal investigator requested the data to start being collected in September of 2018; however, the practice manager was unable to decipher how to obtain the data from the EMR without having to submit a request to the IT department. Unfortunately, the IT analyst that obtains data from the EMR from the practice site, preferred to wait until after the upgrade in November and to compile all the data at one time for 2017 and 2018. This delay in data collection each month prevented the principal investigator from being able to give feedback to providers and staff throughout the implementation process.

### **Principal Investigator Out of Clinic**

The principal investigator worked closely with the nurse practitioner who was identified a practice champion at the start of the project. This was the same provider who left in the middle

of October to pursue a different career path. Once this provider was out of the clinic, a new provider practice champion was identified; however, this provider was not in the clinic often when the principal investigator would be in the clinic. The principal investigator also had other commitments for school and work, which did not allow for as much time to be spent in the clinic especially during the month of November 2018. The lack of the principal investigator present more often could have contributed to a lower percentage of screenings completed during the month of November 2018. The principal investigator was at the clinic on the last day of the intervention on November 30, 2018 to discuss World AIDS Day and provide information related to World AIDS Day and how it relates to the project and provided an update on the upcoming revisions that have been proposed to the recommendations for routine HIV screening from the USPSTF (Appendix 8).

### **Natural Disasters**

In September 2018, Hurricane Florence affected North Carolina. The clinic itself remained opened during this time, but patients did cancel and re-schedule appointments during the time the hurricane hit in anticipation of in-climate weather. One of the providers did take off the entire week around the time when Hurricane Florence was anticipated to hit to prepare his beach house, therefore, those patients had to cancel or be re-scheduled for another time.

In October 2018, another hurricane affected North Carolina, Hurricane Michael. The principal investigator was at the clinic on October 11<sup>th</sup> when the rains and flooding hit Guilford County. Fortunately for the clinic, the power did not go out, however, many patients did cancel or did not show up for their appointments the day Hurricane Michael hit and the day after. Many residents throughout Guilford County including the principal investigator were without power for several days.

These natural disasters while they did not cause as near as much destruction as the coastal areas and areas east of Guilford County, the clinic did have some effect. Patients that did not show up for their visits to clinic may have missed their opportunities to be offered an HIV test which may have impacted the results of this project. However, the number of screenings completed in September and October were about the same despite the natural disasters and the change in providers.

## **Conclusions**

### **Sustainability**

One recommendation to the clinic is to have the CMAs and nurses begin the discussion of routine HIV screening when the patient is coming in for a physical or STD or STI visit while waiting for the provider in the exam room. Additionally, standing orders for screening tests could be in place for RNs or CMAs by the medical director to ease the burden off the providers. There have been several studies published that report improvement in screening rates by utilizing nurses and CMAs to offer screening. One study done through the VA saw a 70% increase in HIV testing when a nurse initiated the testing (Knapp et al., 2011). While the patient is waiting to see the provider, the CMA or nurse is getting the patient's vital signs, updating current medications, and verifying allergies. A conversation that is often occurring between the patient and the CMA or nurse while the patient is waiting in the exam room, is the immunizations that are due at the time of the visit. The immunizations that are due are listed under the health maintenance section of the EMR where the HIV screening reminder is located. The CMA or nurse can inform the patient that they have not had an HIV screening before and that it is recommended by the USPSTF to be screened at least once between the ages 15 to 65 years old. If a patient agrees or declines, the CMA or nurse can mark that the patient declined the screening and postpone the screening to be asked at their next physical or appropriate visit. If the patient

accepts to have an HIV test during the visit, the CMA or nurse can inform the provider to order the test to be collected in the lab. By having the CMA or nurse start the conversation about HIV screening, this gives the provider more time to complete the physical and focus on other health issues and possibly reach more patients if providers are forgetting to offer the screening.

This DNP project will also be presented to the Nursing Research Council (NRC) at Cone Health during one of their monthly meetings. This will be an opportunity to increase the awareness of routine HIV screening and the importance for providers to offer screening to patients who present to primary care clinics for physical examinations, annual visits, and STD or STI screening visits. There currently is not a quality measure for routine HIV screening for this health system, therefore, by encouraging clinics to monitor the number of HIV screenings being done may increase the awareness to offer routine HIV screenings more consistently.

### **Implications for Practice**

There are several clinical implications for practice that can be made from this DNP project. The most important implication is to increase the knowledge of the routine HIV screening recommendations among physicians, advance practice providers (APPs), nurses, CMAs, certified nursing assistants (CNAs), and other health care workers. The impact of increased knowledge of these screening recommendations could potentially help to further reduce HIV transmission to among patients with an unknown serostatus and also meet the CDC's Strategic Plan to increase the percentage of persons living with HIV who know their serostatus to at least 90% (CDC, 2017c).

Doctor of Nursing Practice students are educated on the eight Essentials of Doctoral Education for Advanced Nursing Practice (American Association of Colleges of Nursing [AACN], 2006). The seventh essential; "*Clinical Prevention and Population Health for Improving the Nation's Health*" implies that as doctoral prepared advance practice providers, our

focus is on health promotion and prevention of disease by leading the integration of evidence-based recommendations, such as the USPSTF 2013 HIV screening recommendations into their daily practice and educating others to do the same (AACN, 2016). Advanced practice providers and physicians alike should be practicing to the full extent of their license and should be following the USPSTF ‘A’ and ‘B’ recommendations for preventive services.

### **Suggested Next Steps**

There is a need for further research in ways to improve the number of HIV tests ordered for routine HIV screening. There continues to be a significant amount of stigma related to HIV and AIDS despite the research and development in treatments worldwide. The Southeastern states continue to be burdened by the HIV/AIDS epidemic because of the high incidence and prevalence in certain counties. Lack of access to care and untimely linkage of care for positive diagnoses leads to continued transmission of HIV. All health care settings should be offering routine HIV screening to patients per the 2013 USPSTF recommendations to make certain that all patients are aware of their HIV status. Research should continue to focus on ways to reduce HIV-related stigma, educating providers on HIV screening recommendations, and addressing and preventing barriers to routine HIV screening.

## APPENDIX 1: CONE HEALTH PATIENT CONSENT FORM



CONE HEALTH HOSPITALS, CONE HEALTH MEDICAL GROUP, AND CONE HEALTH OUTPATIENT SERVICES

### PATIENT CONSENT AND ASSIGNMENT OF INSURANCE BENEFITS

#### Consent for Diagnosis and Treatment; Contractor Personnel Not Agents of Cone Health

I have a condition requiring health care and hereby consent to the provision of such care, which may include diagnostic procedures, including HIV testing, and such treatment as the attending physician(s) and other Cone Health medical staff members may consider necessary. I understand that such care may be enhanced through photography, video recording, and visual monitoring. I understand that Cone Health is a teaching institution and I agree that students training to be physicians or other health professionals may observe or assist in providing my care and that my medical records may be used in connection with such training, including with students not directly involved in my care. I understand that some physicians and affiliates (Contractor Personnel) provide their services directly to the patient independently, that these personnel are not employees or agents of Cone Health, and that Cone Health is not liable for their acts or omissions. Contractor Personnel include, without limitation, physicians with the following groups: Greensboro Radiology, PA.; Burlington Radiology Associates, PA; Southeast Anesthesiology Consultants, PLLC.; GPA Laboratories, Inc.; Wake Forest University Health Sciences; Greensboro Radiation Oncologists, PA; American Anesthesiology of North Carolina, PLLC; Eagle Hospital Physicians; and Piedmont Neonatology, P.C.

If I desire to decline HIV testing, I will request and complete a paper copy of this form.

I decline HIV testing: \_\_\_\_\_

#### Patient's Certification, Assignment of Insurance Benefits, and Guaranty of Payment

I certify that the information given by me in applying for payment under Titles XVIII and XIX of the Social Security Act or any other government or insurance benefits is correct. I authorize payment of hospital insurance, government or other third-party benefits, including major medical, directly to Cone Health. I authorize payment of benefits directly to all treating and consulting physicians and vendors.

I understand that I am financially responsible for, guarantee and agree to pay in full, all bills or invoices for services provided to me by Cone Health, independent physicians, or other healthcare professionals involved in my treatment at the rates applicable to me at the time of treatment, as determined or adjusted by insurance, governmental rates, and/or Cone Health financial assistance policy. I understand I am financially responsible if such treatment is not covered by insurance or other payer. If covered, I am responsible for any non-covered items, copays, deductibles and any other out-of-pocket expenses related to my care. I understand that Cone Health Hospitals may have charity and self-pay policies at the time of my service that, if I qualify, may make assistance available to me. I understand that my bill will be sent to the address on file unless I complete a request for my bill to be sent to an alternate address.

By initialing this statement, I am requesting that no Protected Health Information for services received and paid by me be released to my Health Plan. If payment in full is not received within 30 days, Cone Health will pursue reasonable collection efforts to include, but not limited to filing insurance. I am opting out of my Health Insurance Plan to be billed for these services. \_\_\_\_\_

I authorize Cone Health and any independent practitioner(s) that have provided services to me at Cone Health to act on my behalf as attorney-in-fact with regard to: (1) collection of benefits from any responsible third party through whatever means necessary, and (2) endorsement of benefit checks made payable to me and/or Cone Health or such independent practitioner(s). If collection efforts are needed to obtain payment from me for the services and supplies provided, I agree to pay the costs of such collection efforts, including reasonable attorneys' fees.

I authorize payment of any refund that is due of any overpaid insurance benefits to be paid to the appropriate payer in accordance with my insurance policy conditions or any applicable benefit provisions where my coverages are subject to a coordination of benefits clause. With regard to any refund due to me, I authorize immediate application of any such refund to any amount that I am personally legally obligated to pay for care and services provided by Cone Health. I understand that any remaining credit due after payment of these outstanding amounts will be refunded to me.

I authorize Cone Health, its affiliates, independent contractors, associated entities, and all agents and representatives retained by Cone Health, including any collection agency, attorney, debt collector, or other entity (collectively "Cone Health"), to obtain current information about me, including my address, phone number(s), and other information to assist in locating and communicating with me for the purpose of collection of accounts that may be owed by me. I agree that Cone Health may contact me by telephone,



electronic messages, mail, or cell phone as provided by me. These calls include but are not limited to using an automatic telephone dialing system, artificial or prerecorded voice, or calls to a telephone number assigned to a paging service, cellular telephone service, specialized mobile radio service, or other radio common carrier service ("Authorized Communications"). I understand that my agreement to the terms of this Patient Consent and Assignment of Insurance Benefits is not a condition of willingness to provide treatment to me. I consent to any and all of the authorized communication methods even if I will incur a fee or a cost to receive such communications. I agree that the consent and authorizations I have provided herein may be revoked only in writing addressed to the relevant entity's Patient Accounting Director.

#### **Consent for Release of Information for State Financial Assistance Programs**

I authorize the Financial Counseling staff of Cone Health to represent and assist me in the processing of an application for benefits, including but not limited to Medical Assistance (Medicaid), TANF, or Special Assistance, initiated by me or on my behalf within six months of the date of this authorization. The Financial Counselor may have access to and copy any records or information to which I or my representatives would be entitled. I authorize and direct the County Department of Social Services to provide such information to the Financial Counselor orally via telephone or by photocopy or facsimile. I authorize referral to the County Department of Social Services for benefits by use of an appropriate referral form, including but not limited to the DMA-5020. I request that the final disposition of my application for benefits, along with an explanation of any denial, be attached to and returned with the appropriate referral form.

#### **HIPAA and Other Regulations Governing Protected Health Information**

I understand that my medical information could include medical history or information regarding first-time or subsequent diagnosis or treatment of me for a communicable disease (such as sexually-transmitted diseases, HIV/AIDS, etc.), mental illness, alcohol, drug or substance abuse, or developmental disability. Cone Health, physicians, and other health care professionals involved in providing my care at Cone Health are authorized to obtain and release such medical information (except for drug and alcohol treatment and psychotherapy notes) obtained or needed for purposes of treatment, payment, and health care operations as stated in the Cone Health Notice of Privacy Practices. The Notice of Privacy Practices is located on the Cone Health website and a printed version is available at all registration sites, where I may obtain a copy without asking anyone.

I understand that HIPAA and other regulations allow me to place certain restrictions on how my Protected Health Information is used. I will specify those restrictions on a HIPAA restriction form.

#### **Release of Liability for Valuables:**

Cone Health does not assume liability for money or valuables left unattended or taken to a patient's room or treatment area.

I understand and consent to the above agreements, releases, authorizations, and assignments of benefits.

\_\_\_\_\_

Signature (Seal) of Patient or Legal Guardian/POA (if patient unable to sign)

\_\_\_\_\_

Signature (Seal) of Insured/Guardian (if different from patient/legal guardian/POA)

## APPENDIX 2: PRE-INTERVENTION INFORMATION SESSION HANDOUTS

4/ 4/ 4/ 4/

### Increasing HIV Screening in a Primary Care Setting



Ashley E. Ross, BSN, RN  
August 22, 2018  
The University of North Carolina at Chapel Hill  
School of Nursing



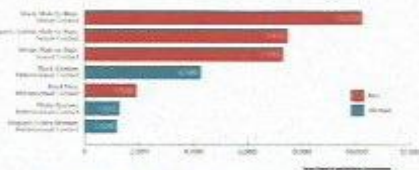
### HIV in the United States

- Over 1 million people are living in the United States with a diagnosis of HIV
  - 1 in 7 people are unaware of their diagnosis
    - responsible for ~40% of ongoing transmissions
- In 2016, 39,782 people received a diagnosis of HIV
  - 26,570 → gay and bisexual men
  - 9,578 → heterosexuals
  - 3,425 → IV drug users

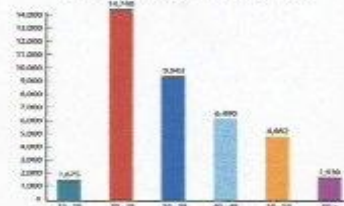


### HIV in the United States

New HIV Diagnoses in the United States for the Most-Affected Subpopulations, 2016



### New HIV Diagnoses in the United States by Age, 2016



### HIV in the South (2016)

- Southern states make up approximately 38% of the US population
  - Account for 44% of all people with HIV
  - More than half of new HIV diagnoses are in The South
- The rate of HIV diagnoses in the South in 2016 was 16.8 per 100,000 population
  - The highest prevalence of all regions in the United States

### HIV in the South (2016)

- 83% of all new HIV diagnoses in the South were among:



MSM = men who have sex with men



### HIV in North Carolina (2016)

- The number of individuals living with HIV at the end of 2016 was 34,187
- 80% of HIV in men were in men who have sex with men (MSM)
- 90% of HIV in women were exposed through heterosexual contact
  - 47% of women with HIV were > 40 years old
- There were 1,399 new HIV diagnoses in 2016
  - Rate of 16.4 per 100,000 population



### HIV in North Carolina (2016)

- African American men and women have the highest rates of new HIV diagnoses
  - Men: 81.0 per 100,000 population
  - Women: 18.5 per 100,000 population
- The age group with the highest rate of new HIV diagnoses was 20 to 29 at 42.8% (2016)



### HIV in Guilford County (2016)

- One of the top 10 counties in the State of North Carolina for individuals living with HIV
  - Approximately 2,500 prevalent cases in 2016
- Guilford County had a total of 138 new HIV incident cases
  - Cumulative incidence of 31.5 per 100,000 population

### HIV Screening Recommendations

- 2013 United States Preventive Services Task Force
  - Screen all patients ages 15 to 65 years old
    - Screen patients older than 65 years old or younger than 15 years old if they are at risk for HIV infection
  - Opt-out screening
    - Patients can verbally accept or decline an HIV test once the provider has offered it.
  - Screen at least once per year and more frequently if at an increased risk for HIV infection
  - Grade A rating
    - recognized by the Affordable Care Act to be covered by insurance including Medicare and Medicaid without a copayment

### HIV Screening Recommendations

- In 2006, the CDC developed recommendations for routine HIV screening in all health-care settings to include all patients ages 13 to 64 years old as a part of routine health care
  - Test at least once
  - Test annually or more frequently if a patient is high-risk for HIV infection
- In 2015, the CDC updated the STD guidelines which included routine HIV screening
  - Patients seeking evaluation for STDs should be screened for HIV every time

**GET REAL.  
GET TESTED.**

### Benefits to Routine HIV Screening

- Early diagnosis and timely linkage to care for antiretroviral therapy
  - Important for slowing the replication of the virus and improving immune function
  - Reduces overall morbidity and mortality
- Patients who know their HIV status have a decreased likelihood of transmitting the virus to another person

### Benefits to Routine HIV Screening

- Primary care providers have the opportunity to increase the proportion of patients who are screened for HIV
  - Can identify new infections, link to care, and reduce transmission to others
- Reduce the stigma around routine HIV screening if more providers are offering screening
- Reduce health disparities by including all patients in routine screening practices

### TABLE 1. Select HIV Goals and Performance Measures

Table 1. Select HIV Goals and Performance Measures	Table 1. Select HIV Goals and Performance Measures
<ul style="list-style-type: none"> <li>• Increase the percentage of people living with HIV who know their serostatus to 90%</li> <li>• Reduce the number of new diagnoses by 15%</li> <li>• Increase the percentage of newly diagnosed patients linked to care within 1 month of diagnosis to 85%</li> <li>• Reduce disparities in the rate of new diagnoses by 10% in the poorest ZIPs, pay and Medicaid populations, Black and Hispanic men, Black women, and patients living in the Southern US</li> </ul>	<ul style="list-style-type: none"> <li>• HIV prevalence – percentage of HIV-positive individuals in the measurement year</li> <li>• Late HIV diagnosis – percentage of patients with a diagnosis of Stage 3b1 (AIDS) within 1 month of diagnosis of HIV</li> <li>• Linkage to HIV medical care – percentage of patients who entered a routine HIV medical care visit within 2 months of HIV diagnosis</li> </ul>

Source: Health Resources and Services Administration. HIV/AIDS Surveillance Report, 2016. National HIV/AIDS Strategy for the United States. 2010. <http://www.hiv.gov/nhas>. Accessed December 1, 2016.

### The Doctor of Nursing Practice Project

- Information sessions
  - Provider and staff education on HIV screening and recommendations
  - Encourage use of health maintenance list – add HIV screening to list
- Survey
  - Pre-intervention and post-intervention
    - Evaluate provider and staff perception of HIV screening at the clinic

### The Doctor of Nursing Practice Project

- Data collection will start September 1, 2018 through November 30, 2018
  - Population data will be extracted – age, sex, race, and ethnicity
  - Specific diagnosis codes and CPT code will be extracted from the charts
  - Data will be compared with HIV screening rates from 2017 between September 1<sup>st</sup> and November 30<sup>th</sup>
- Monthly check-in
  - Address issues, concerns or barriers encountered during the project
  - Discuss patient, provider and clinic staff attitudes and perceptions of being offered HIV screening
- Wrap up meeting
  - Discuss findings of the project with the providers and staff

### Diagnosis Codes and CPT Code

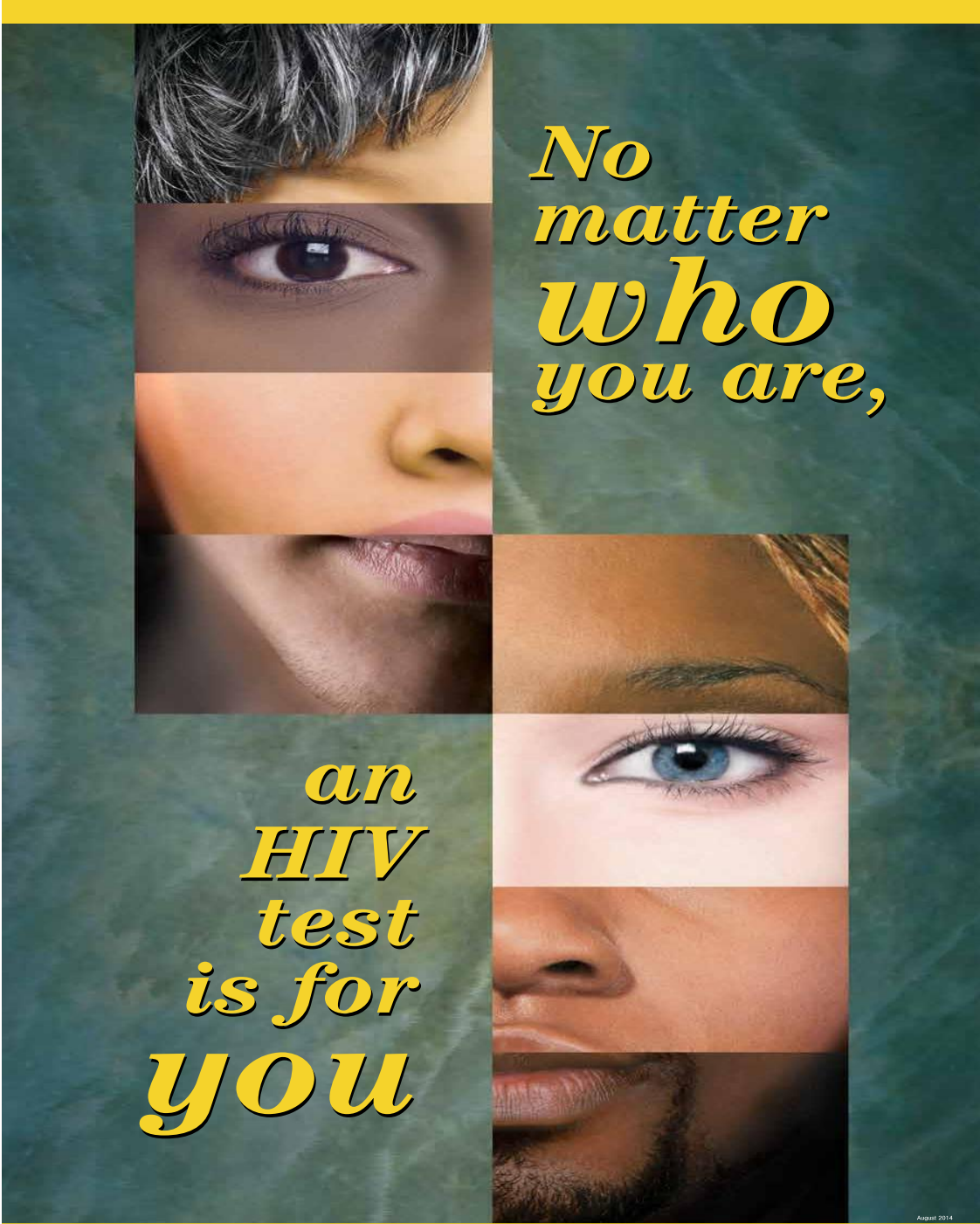
Table 1. Select HIV Goals and Performance Measures	
Z11.1	Encounter for screening for infections with a predominantly sexual mode of transmission
Z11.1	Encounter for screening for human immunodeficiency virus
Z00.00	Encounter for general adult medical exam without abnormal findings
Z00.01	Encounter for general adult medical examination with abnormal findings
Z01.411	Encounter for gynecological exam (general) (routine) with abnormal findings
Z01.412	Encounter for gynecological exam (general) (routine) without abnormal findings
Z20.2	Contact with and (suspected) exposure to infections with a predominantly sexual mode of transmission
Z20.6	Contact with and (suspected) exposure to human immunodeficiency virus [HIV]
87.89	HIV-1/HIV-2 antigen/antibody (Fourth Generation) Test

### Local and Regional Resources

- Triad Health Project
- NIA Community Action Center
- Guilford County Health Department
- The Regional Center for Infectious Disease – Cone Health
- The University of North Carolina at Chapel Hill
- Duke University
- Wake Forest Baptist Medical Center
  - The Ryan White HIV Primary Care and Infectious Diseases Specialty Clinic







*No  
matter  
who  
you are,*

*an  
HIV  
test  
is for  
you*

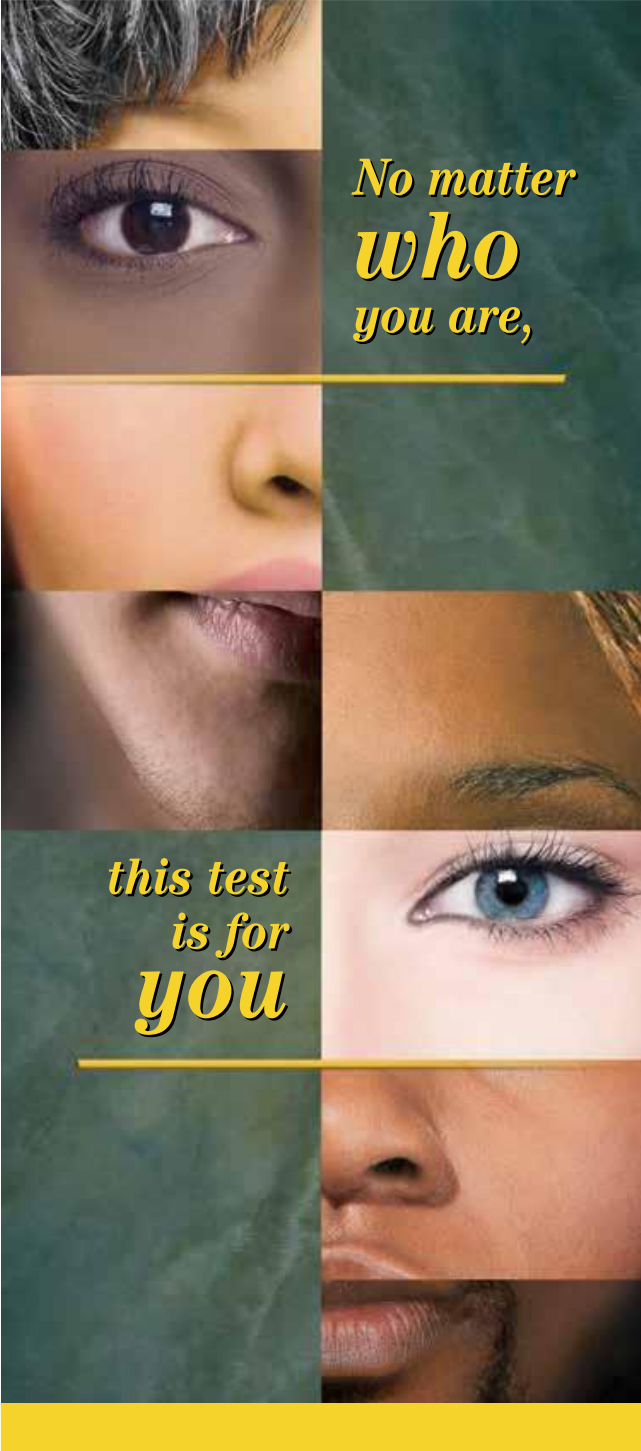


**ACT**  
against  
**AIDS**

*Ask your doctor for an HIV test today...*

**Know for sure. Get tested.**

800-CDC-INFO (800-232-4636)





### *Did you know...?*

Today, more than 1.2 million people in this country have HIV. Men, women, and people of all sexual orientations, all colors, and all ages are getting infected.

How? About one in eight people with HIV don't know they have it.

So they're not getting the treatment they need. And they may be passing HIV to others without knowing it.

***Know for sure. Get tested.***



## ***Testing is an important step toward staying healthy***

***You can protect your health with 3 important steps:***

1. Get regular checkups.
2. Get tested to make sure you don't have any diseases that you don't know about, like HIV.
3. Follow your doctor's advice.

***Simple, routine tests can save lives.***

Why? Although some diseases don't make you feel sick right away, they can seriously hurt your health if you wait too long for treatment. High blood pressure is a good example. You can't feel it, but high blood pressure could damage your heart or cause a stroke. That's why your doctor or nurse checks your pressure at every visit.

***Now an HIV test is routine too.***

Like high blood pressure, HIV might not make you feel sick at first. So you might not know you have it. But if you wait too long for treatment, things could get much worse. HIV causes AIDS, which could make you more likely to get serious infections and some cancers.

***Most people test "negative" for HIV.***

You probably will too. This will mean that you don't have HIV. But if your test results are "positive," early HIV treatment could help you live a longer, healthier life.

## ***Anyone could get infected with HIV***

***A person with HIV can look and feel healthy and still infect others.*** Anyone who ever had sex without a condom might have been exposed to HIV. The same is true of anyone who ever injected drugs. Often, a person with HIV doesn't appear to be sick.

***HIV affects men and women of all ages in all types of neighborhoods—even married people or those in long-term relationships.***

We can't know everything about our partners. Some people don't know they have HIV. Others think they were tested when they really weren't. And partners don't always tell everything. They may have had sex with other people, or injected drugs. For these reasons, it's best for everyone to have an HIV test. Ask your partner to get tested, too.

***People just like you get tested for HIV every day.***

## ***Everyone benefits from HIV testing***

***No matter what, you're better off knowing if you have HIV or not.***

If you find out you don't have HIV, you won't have to wonder if you ever got infected in the past. And you can make sure you don't get HIV in the future.

***If your HIV test result is positive, doctors can help you.*** Even if you don't feel sick, you can get regular checkups and medicine to help you live a longer, healthier life without developing AIDS. And you can take care not to pass HIV to your partner, spouse, or baby.

***Knowing if you have HIV is very important if you're planning a family.*** A woman with HIV can pass it to her baby during pregnancy, labor, or breastfeeding. Treatment could keep this from happening. Both women and men should be tested for their own sake, and for the sake of their future children.

## ***What you should know about the HIV test***

***The test is simple.***

***It doesn't take much time.***

You have the right to say "no" to the test, but then you won't know for sure.

***Only an HIV test shows if you are infected with HIV.*** Other routine blood tests you get during a physical exam don't show if you have HIV. Neither do tests for other sexually transmitted diseases (such as herpes, chlamydia, or gonorrhea).

***It may take up to 3 months for HIV antibodies (made by your body to fight the virus) to show up in a test.*** If you get tested within 3 months after possible exposure, you could have HIV, but it may not show. During this time period, which varies from person to person, you can still pass HIV to others. If you think you may have been infected with HIV, talk to your doctor or nurse about getting an HIV test, the possible need for follow-up testing, and how to prevent transmitting HIV to others.

***There are different types of HIV tests.***

Ask your doctor which type you should have. These test options are

- *test using blood from your vein or finger, or*
- *rapid test using blood from your finger or a swab of your mouth.*  
*(You could get results the same day.)*

***You might not have to pay for an HIV test.***

Some clinics offer testing for free. In other places, there could be a charge. Ask your doctor or nurse if you have any questions about the cost of the test.



## ***Ask about routine health tests today ...and have an HIV test***

Remember, doctors and nurses who care for you want to help you stay healthy. Everyone should be tested for HIV at least once. People who are at high risk for HIV should be tested at least once a year. Anyone who is initiating a new sexual relationship or who receives a recommendation from their doctor should be tested again for HIV.

So don't be afraid to ask questions, and please be honest with your doctor or nurse.

***Knowing your HIV status early  
can make all the difference.***

### ***Glossary***

- ***HIV***—human immunodeficiency virus. HIV weakens the immune system and may cause AIDS. You can have HIV without getting AIDS if you get early treatment.
- ***AIDS***—acquired immunodeficiency syndrome. AIDS is caused by HIV. Having AIDS means your immune system is very damaged. With AIDS, a person is more likely to get serious infections and certain types of cancer.
- ***Immune System***—protects the body from illness and infection. The blood cells are part of the immune system and are most affected by HIV.

***Learn more about HIV  
and find out where to  
get tested in your area***

*Talk with your doctor or nurse,  
or go online*

***<http://hivtest.cdc.gov>***

*for a list of testing sites.*

Contact CDC-INFO at

***[www.cdc.gov/info](http://www.cdc.gov/info)***

or by phone at

***800-CDC-INFO (232-4636)***

in English, en Español, Monday to Friday

8:00 a.m. to 8:00 p.m.,

Eastern time, closed Federal holidays.

The number for callers with

TTY equipment is 888-232-6348.

Your call is free and private.

***Know for sure. Get tested.***

***Do it for yourself and for  
the people you care about.***



# HIV & STD Testing

**FREE & CONFIDENTIAL**

These locations offer FREE confidential testing for HIV and STDs.

Non-Traditional Testing Sites	Address	Telephone Number	Day of the Week	Hours
Trizd Health Project	801 Summit Avenue, Greensboro	(336) 275- 1654	Mondays	5pm-7pm
NIA Community Action Center	Self Help Building 122 N. Elm St, Suite 1000 Greensboro	(336) 617- 7722	Wednesdays	2pm-8pm
Piedmont Health Services and Sickle Cell Agency	1152 E. Market Street, Greensboro	(336) 274- 1307	Thursdays	9am-12noon 1pm-4pm
Piedmont Health Services and Sickle Cell Agency	401 Taylor Street, High Point Call For Same Day Appt.	(336) 886- 2437	Monday thru Friday	9am - 4pm

Guilford County Department of Health and Human Services offers free, confidential testing and treatment for HIV and other STDs.

Traditional Testing Sites	Address	Telephone Number	Day of the Week	Hours
Guilford County Health Department - Greensboro	STD Clinic 1100 Wendover Ave, Greensboro	(336) 641-3245	Monday thru Friday	Call for an appointment
Guilford County Health Department - High Point	STD Clinic 501 East Green Dr., High Point	(336) 641-3245	Monday thru Friday	Call for an appointment

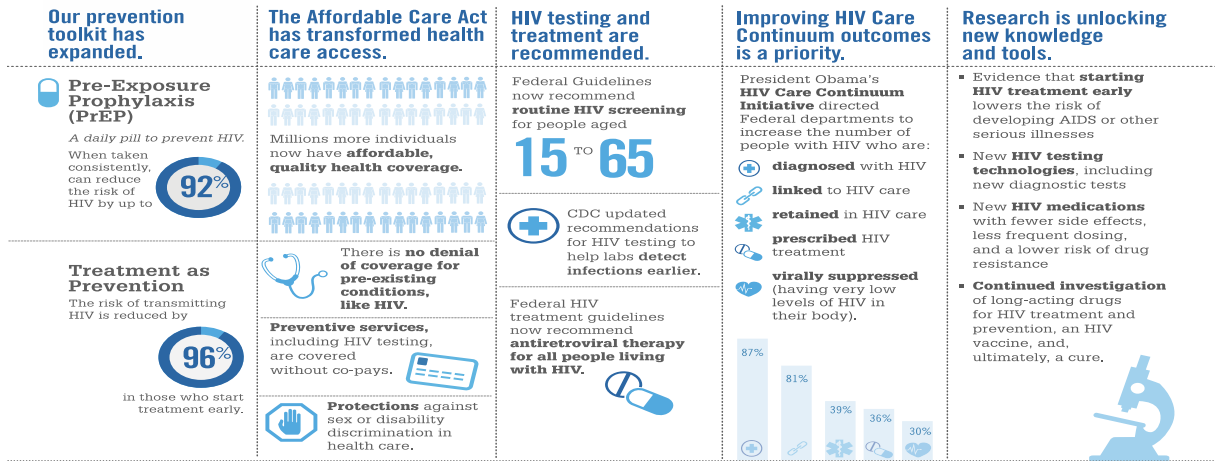


**Questions?**  
**Please call 336-641-7777**

## NATIONAL HIV/AIDS STRATEGY: UPDATED TO 2020

# 5 MAJOR CHANGES SINCE 2010

Since the first National HIV/AIDS Strategy was released in 2010, major advances have transformed how we respond to HIV, provided new tools to prevent new infections, and improved access to care. With a vision for the next five years, our National HIV/AIDS Strategy has been updated to leverage these achievements and look ahead to 2020.



UPDATED 8.5.15

Learn more about the National HIV/AIDS Strategy: Updated to 2020 at [AIDS.gov/2020](https://aids.gov/2020) #HIV2020

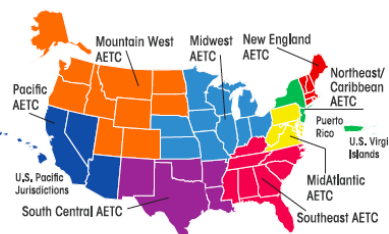


# SUPPORTING THE NATIONAL HIV PRIORITIES

by building clinician capacity and expertise along the HIV care continuum.

## REGIONAL

- MidAtlantic AETC
- Midwest AETC
- Mountain West AETC
- New England AETC
- Northeast/Caribbean AETC
- Pacific AETC
- South Central AETC
- Southeast AETC



## NATIONAL

- National Coordinating Resource Center
- National Clinician Consultation Center
- Special Programs of National Significance (SPNS) Models of Care

# CLINICIAN-TO-CLINICIAN ADVICE

National rapid response for HIV management and bloodborne pathogen exposures

## HIV MANAGEMENT

- 1-800-933-3414 and online
- Expert advice on preventing and treating HIV
- Monday–Friday; 9am–8pm ET

## PERINATAL HIV

- 1-888-448-8765
- Guidance on HIV testing and care during pregnancy, labor and delivery, and postpartum
- 7 days/week; 24 hrs/day

## PEPLINE

- 1-888-448-4911
- Advice on managing occupational and non-occupational exposures to HIV, viral hepatitis, and other bloodborne pathogens
- 7 days/week; 9am–9pm ET

## PrEPLINE

- 1-888-448-7737
- 1-885-HIV-PrEP
- For questions about pre-exposure prophylaxis (PrEP) as an HIV-prevention tool
- Monday–Friday; 9am–8pm ET

## SUBSTANCE USE MANAGEMENT

- 1-855-300-3595
- Advice on substance use management for healthcare providers
- Monday–Friday; 9am–8pm ET

## HEPATITIS C MANAGEMENT

- 844-437-4636 or 844-(HEP-INFO)
- Advice on hepatitis C mono-infection management from testing to initiating treatment to managing advanced disease
- Monday–Friday; 9am–8pm ET

## Cone Health Regional Center for Infectious Disease

### **Contact Information:**

301 East Wendover Avenue Suite 111  
Greensboro, NC 27401-1209  
Phone: 336-832-7840  
Fax: 336-832-3285

### **Hours:**

Monday-Thursday 8:30am – 5pm  
Friday 9am-5pm  
Closed daily for lunch 12:30pm-1:30pm

### **Information for HIV Patients**

- Referral required by PCP
- Received funding from Ryan White Program parts B, C, and D
- Financial Counselor and Social Worker available
- First appointment is with the New Patient Nurse with a follow up appointment a few weeks later with the provider
- Lab work will be collected on first appointment with the nurse prior to seeing provider
- Opportunities to enroll in research programs

Duke University Infectious Disease Clinic – Duke Clinic 1K

**Address:**

40 Duke Medicine Circle  
Clinic 1K  
Durham, NC 27710

**Office Phone:** 919-668-3197

**Appointments:**

919-681-6261  
919-373-3515

**Clinic Hours:**

Monday through Thursday 8:00 am – 5:30pm  
Friday 8:00 am – 12:00 pm  
Closed Saturday and Sunday

**Services:**

- HIV patients do not require a referral
- Can be seen within 48 hours of phone call
- First appointment is with a social worker to assess needs and provide resources for access to medical care and necessary medications
- Team-based approach: includes providers, nurses, social workers, counselors for mental health and substance abuse, pharmacists, and finance resource managers
- Pharmacist is on-site for medication management
- Can provide primary care services or coordinate care with patient's established primary care provider
- Clinical trials
- Pre-exposure prophylaxis clinic

NIA Community Action Center

<http://www.niacacinc.org>

**Address:**

Self-Help Building  
122 North Elm Street  
Suite 1000  
Greensboro, NC 27401

**Phone:** 336-617-7722

**Clinic Hours:**

Wednesday 12:00 pm – 6:00 pm or by appointment

**Services:**

- Counseling services
- Confidential results in 10-14 days
- Also test for gonorrhea and chlamydia via urine sample

## **Triad Health Project**

[www.triadhealthproject.com](http://www.triadhealthproject.com)

### **Greensboro Office:**

801 Summit Avenue  
Greensboro, NC 27405

**Phone:** 336-275-1654

**Fax:** 336-275-2209

### **High Point Office:**

620 English Road  
High Point, NC 27261

**Phone:** 336-884-4116

**Fax:** 336-884-5750

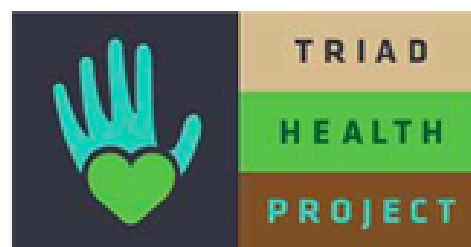
**Free confidential testing at Greensboro offices:** Every Monday (except holidays) 5p to 7pm and walk-in Wednesday 1p-3pm (takes about 2 weeks for results).

### **Patients can receive results:**

- Mondays from 8:30am to 7pm
- Tuesday through Thursday from 8:30am to 5pm
- Fridays from 8:30pm to 3pm

### **Other Services:**

- Referrals to local and regional medical services
- Referral to medication assistance programs
- Food pantry
- Nutritional education
- Social service referrals
- Housing information and referral
- Mental Health referrals
- Substance abuse and alcohol abuse treatment referrals
- Temporary and emergency financial assistance
- Transportation assistance to medical appointments
- Legal service referrals
- Information for local Advocacy groups and Support Groups
- Education, Art and Exercise Program referrals



**Ron Johnson Red Ribbon Run and AIDS Walk Saturday November 17, 2018 3:30pm**

## The University of North Carolina at Chapel Hill

### UNC Infectious Disease Clinic

**Address:**

First Floor Memorial Hospital  
101 Manning Drive  
Chapel Hill, NC 27514

**Appointments:**

984-974-7198  
1-866-241-7586

**Fax:** 984-974-4587

**Clinic Hours:**

Outpatient:

Monday through Friday 8:30 am- 5:00 pm

Walk-In (for established patients with HIV only)

Monday, Tuesday, Thursday Friday 8:30 am – 12:00 pm

**Services:**

- Ryan White funding available
- Access to clinical trials through the Global HIV Prevention and Treatment Clinical Trials Unit
- Primary care services available for patients without a PCP or coordinate services with existing PCP
- Medication management services

## Wake Forest Baptist Medical Center

### The Ryan White HIV Primary Care and Infectious Diseases Specialty Clinic

**Address:**

Richard Janeway Clinical Sciences Tower  
Bowman Gray Campus  
7<sup>th</sup> Floor Clinic  
300 Medical Center Boulevard  
Winston-Salem, NC 27157

**Clinic appointments:** 336-716-2700

**Health on-call:** 336-716-2255

**Services:**

- Ryan White funding available
- HIV/AIDS specialty medicine, nursing and pharmacy care
- Social work services
- Prescription assistance
- Oral health care
- Assist with referrals to regional HIV/AIDS service organizations
- Access to Wake Forest Baptist Medical Center medical specialties
- All patients who are HIV positive receive financial counseling
- Comprehensive primary care services to patients who are HIV positive
- Patients can be insured or uninsured
  - ◆ Use sliding scale fees available

### APPENDIX 3: POCKET GUIDE FOR PROVIDERS

<b>2013 United States Preventive Services Task Force Recommendation for Routine HIV Screening</b>		
<b>Populati on</b>	<b>Recommendation</b>	<b>Grade</b>
<b>Adolesce nts and Adults 15-65 Years Old</b>	<b>The USPSTF recommends that clinicians screen for HIV infection in adolescents and adults aged 15 to 65 years. Younger adolescents and older adults who are at increased risk should also be screened.</b>	<b>A</b>

**Routine HIV screening.  
Every patient.**





<b>List of ICD-10 Codes and the CPT Code for Routine HIV Screening</b>	
<b>Z11.3</b>	<b>Encounter for screening for infections with a predominantly sexual mode of transmission</b>
<b>Z11.4</b>	<b>Encounter for screening for human immunodeficiency virus</b>
<b>Z00.00</b>	<b>Encounter for general adult medical exam without abnormal findings</b>
<b>Z00.01</b>	<b>Encounter for general adult medical examination with abnormal findings</b>
<b>Z01.411</b>	<b>Encounter for gynecological exam (general) (routine) with abnormal findings</b>
<b>Z01.419</b>	<b>Encounter for gynecological exam (general) (routine) without abnormal findings</b>
<b>Z20.2</b>	<b>Contact with and (suspected) exposure to infections with a predominantly sexual mode of transmission</b>
<b>Z20.6</b>	<b>Contact with and (suspected) exposure to human immunodeficiency virus [HIV]</b>
<b>87389</b>	<b>HIV-1 /HIV-2 antigen/antibody (Fourth Generation) Test</b>

## APPENDIX 4: SURVEY FOR PROVIDERS AND STAFF

### Pre- and Post- Intervention Survey

Questionnaire ID Number \_\_\_\_\_

Questionnaire for Health Care Providers and Staff

### Instructions:

This survey is being done to obtain the perspectives of health care providers and staff about routine HIV testing. I would like to know what you think about the implementation of routine HIV testing in your health care setting to help me know whether the clinic is meeting the patients' needs and to help to improve these services. This survey is completely anonymous. Your name will not be used, and your participation is voluntary. You can skip any questions that you do not want to answer. The questionnaire will take about 10 minutes to complete. Thank you for your time.

### Section A.

**Please complete the following questions.**

**1. What is your primary profession or role? (Check one response)**

- |   |  |
|---|--|
| <input type="checkbox"/> Case Manager                     | <input type="checkbox"/> HIV Counselor       |
| <input type="checkbox"/> Nurse Practitioner               | <input type="checkbox"/> Lab Technician      |
| <input type="checkbox"/> Nursing Assistant                | <input type="checkbox"/> Nurse               |
| <input type="checkbox"/> Phlebotomist                     | <input type="checkbox"/> Physician Assistant |
| <input type="checkbox"/> Physician                        | <input type="checkbox"/> Psychologist        |
| <input type="checkbox"/> Resident Physician               | <input type="checkbox"/> Social Worker       |
| <input type="checkbox"/> Manager or Administrator         | <input type="checkbox"/> Other _____         |
| <input type="checkbox"/> Front Desk Clerk or Receptionist |  |

**2. What is your role in routine HIV testing? (Check all that apply)**

- ☐ Management or administrative role in routine HIV testing
- ☐ Supervise staff conducting HIV testing
- ☐ Conduct HIV testing
- ☐ Provide health care services for patients who have received routine HIV testing or screening
- ☐ Teach other health care providers or students about routine HIV testing
- ☐ No role in routine HIV testing
- ☐ Other (Specify) \_\_\_\_\_

## Section B.

**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 clinic.	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

## Section C.

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

Centers for Disease Control and Prevention. (2012) Evaluation toolkit: patient and provider perspectives about routine HIV screening in health care settings. Retrieved from [https://www.cdc.gov/hiv/pdf/testing\\_resources\\_cdc\\_evaluation\\_toolkit\\_routine\\_hiv\\_screening.pdf](https://www.cdc.gov/hiv/pdf/testing_resources_cdc_evaluation_toolkit_routine_hiv_screening.pdf)

## APPENDIX 5: POST-INTERVENTION SURVEY SECTION D.

For Post-Intervention Survey Only

### Section B.

**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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Centers for Disease Control and Prevention. (2012) Evaluation toolkit: patient and provider perspectives about routine HIV screening in health care settings. Retrieved from [https://www.cdc.gov/hiv/pdf/testing\\_resources\\_cdc\\_evaluation\\_toolkit\\_routine\\_hiv\\_screening.pdf](https://www.cdc.gov/hiv/pdf/testing_resources_cdc_evaluation_toolkit_routine_hiv_screening.pdf)

## APPENDIX 6: UNC IRB DETERMINATION LETTER



THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL

OFFICE OF HUMAN RESEARCH ETHICS  
720 Martin Luther King, Jr. Blvd.  
Bldg. 385, 2nd Floor  
CB #7097  
Chapel Hill, NC 27599-7097  
(919) 966-3113  
Web site: ohre.unc.edu  
Federalwide Assurance (FWA) #4801

**To:** Ashley Ross  
School of Nursing

**From:** Office of Human Research Ethics

**Date:** 7/12/2018

**RE:** Determination that Research or Research-Like Activity does not require IRB Approval

**Study #:** 18-1159

**Study Title:** Increasing Routine Human Immunodeficiency Virus Screening in a Primary Care Setting

This submission was reviewed by the Office of Human Research Ethics, which has determined that this submission does not constitute human subjects research as defined under federal regulations [45 CFR 46.102 (d or f) and 21 CFR 56.102(c)(e)(1)] and does not require IRB approval.

### Study Description:

**Purpose:** The purpose of this Doctor of Nursing Practice performance improvement project is to increase routine HIV screening in a primary care practice located in Guilford County, North Carolina using evidence-based interventions and the 2013 USPSTF HIV screening recommendations.

The USPSTF recommends that clinicians screen for HIV infection in adolescents and adults aged 15 to 65 years. Younger adolescents and older adults who are at an increased risk should also be screened.

<https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/human-immunodeficiency-virus-hiv-infection-screening>

**Participants:** Volunteer health care providers and staff members that offer routine HIV screening to their patients following the USPSTF 2013 recommendations during routine visits, annual physical examinations, or STD screening.

**Procedures (methods):** This DNP project will be a performance improvement design using provider and staff education, an electronic medical record reminder, and evidence-based practice guidelines to create a practice change to increase routine HIV screening in a primary care setting.

Project outcomes will be measured by:

- De-identified pre- and post- intervention survey responses from volunteer providers and health care staff using a validated survey to obtain the roles and personal perspectives of the health care providers and staff about routine HIV screening. The anonymous, voluntary survey will be distributed before and after the intervention (Appendices A and B)
- Monthly focus groups and semi-structured interviews with volunteer providers and staff will be used for rapid plan-do-study-act (PDSA) cycles to identify barriers and support process improvements during the intervention.
- Monthly retrospective electronic medical record population reports to collect de-identified population data on HIV screenings completed using CPT code 87389 and ICD-10 codes of office visits for physicals and STD exams. Data from 2017 during the same intervention period of September 1<sup>st</sup> to November 30<sup>th</sup> will be collected using the same population data criteria, CPT code 87389 and ICD-10 codes to compare with the 2018 data. The population data will also include; age, sex, race, and ethnicity to classify and analyze the number of HIV screenings that were done on males versus females, age groups and reported race and ethnicities.

Please be aware that approval may still be required from other relevant authorities or "gatekeepers" (e.g., school principals, facility directors, custodians of records), even though IRB approval is not required.

If your study protocol changes in such a way that this determination will no longer apply, you should contact the above IRB before making the changes.

CC:  
Jean Davison, School of Nursing  
Lisa Miller, School of Nursing Deans Office

## APPENDIX 7: CONE HEALTH IRB DETERMINATION LETTER



1200 North Elm Street  
Greensboro, NC 27401  
336.832.2330

OFFICE OF RESEARCH COMPLIANCE AND DEVELOPMENT  
INSTITUTIONAL REVIEW BOARD (IRB)  
COMMITTEE FOR HUMAN RESEARCH PROTECTIONS

**DATE:** August 21, 2018

**TO:** Ashley Ross; Principal Investigator

**FROM:** Nita Johnston, PharmD, MS; Chair, Cone Health Institutional Review Board  
(FWA00004507)

**PROJECT TITLE:** [1307501-1] Increasing Routine Human Immunodeficiency Virus Screening in  
a Primary Care Setting

**ACTION:** DETERMINATION OF EXEMPT STATUS

**APPROVAL DATE:** August 21, 2018

**REVIEW CATEGORY:** Exemption category #2 [Tests, Surveys, Interviews]

Thank you for your submission of New Project materials for this project. The Moses H. Cone Health System IRB has determined this project is **EXEMPT FROM IRB REVIEW** according to federal regulations.

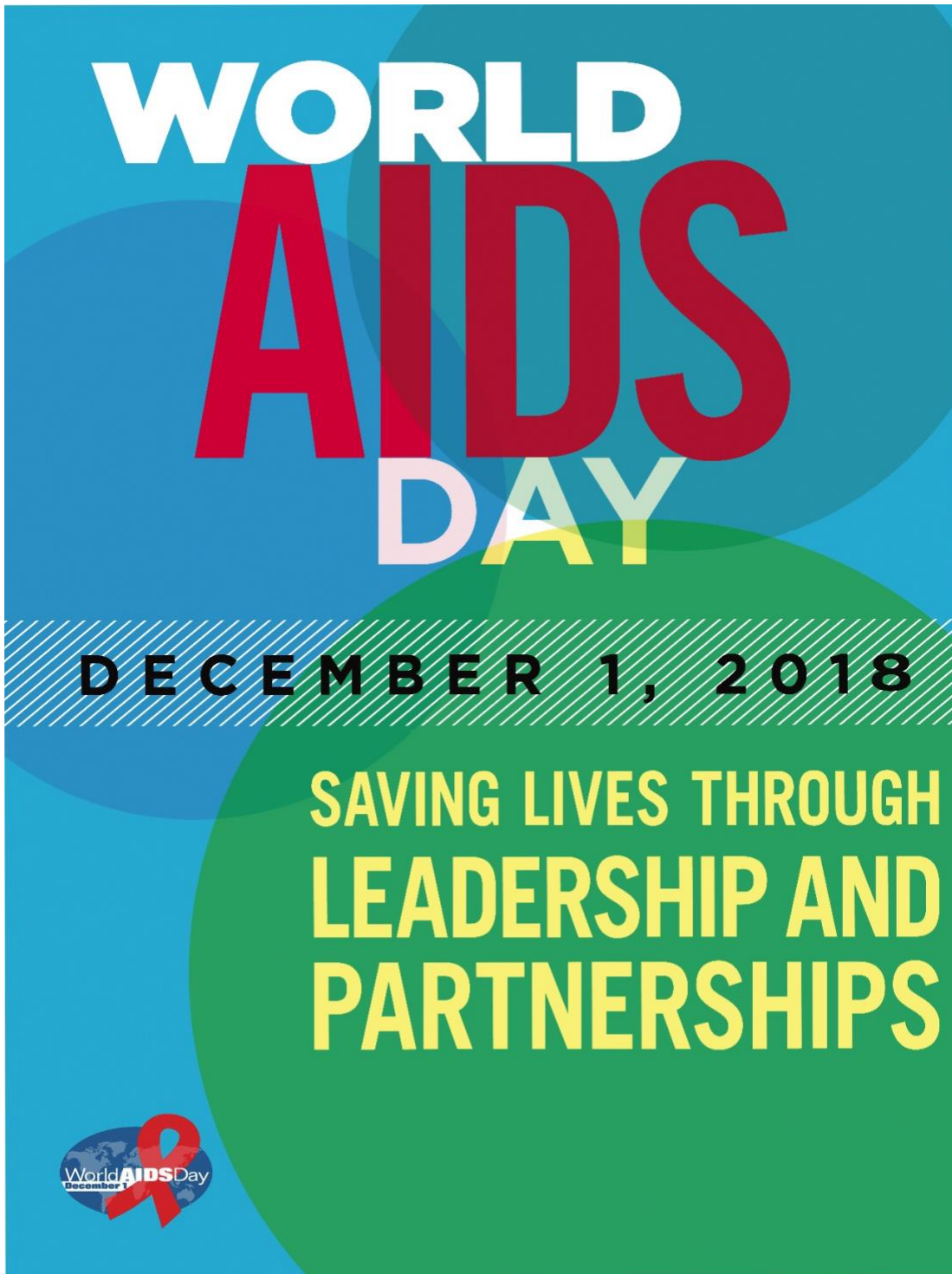
We will retain a copy of this correspondence within our records.

If you have any questions, please contact Krista Kenney at 336-832-2330 or [krista.kenney@conehealth.com](mailto:krista.kenney@conehealth.com). Please include your project title and reference number in all correspondence with this committee.

*Nita Johnston, PharmD, MS*

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Moses H. Cone Health System IRB's records.

APPENDIX 8: WORLD AIDS DAY HANDOUTS





# The benefits of knowing your HIV status

**WORLD AIDS DAY**  
1 DECEMBER 2018  
COMMEMORATING 30 YEARS

## Testing saves lives

People can only start HIV treatment if they know that they are living with the virus—about 9.4 million people do not know that they are living with HIV.

### People living with HIV on treatment



## Knowing earlier, starting earlier

The earlier that someone is diagnosed as living with HIV, the earlier life-saving treatment can start. And the earlier that HIV treatment is started after infection, the better the outcome. People can live long and healthy lives with early detection of HIV and proper treatment and care.



## Staying HIV-free

An HIV test result opens the door to accessing the range of HIV prevention options available depending on a person's HIV status to keep themselves and their loved ones HIV-negative.



## Looking after loved ones

Testing is the gateway to treatment and effective treatment is a great HIV prevention tool—it saves lives and prevents HIV transmission. HIV treatment reduces the viral load—the amount of HIV in a person's body—to undetectable levels. With an undetectable level of HIV, a person can't pass on the virus to someone else.



## Stopping transmission to babies

A pregnant or breastfeeding woman living with HIV can access a range of options that can ensure that she remains healthy and her baby is born HIV-free and stays HIV-free, but only if she knows her HIV status.



## Claiming the right to health

By deciding to know their HIV status, people are empowered to make choices about their right to health.



## Staying alive and well

Taking an HIV test can also provide an opportunity to screen and test for other illnesses, such as tuberculosis, hepatitis, high blood pressure and diabetes. Saving money and saving lives.

# HIV Resources for Health Care Providers

## HIV SCREENING. STANDARD CARE.™

<https://www.cdc.gov/actagainstaids/campaigns/hssc>  
Information and materials to help health care providers screen all their patients for HIV

- Provider materials, such as a comprehensive slide set on CDC's HIV screening recommendations and the scientific rationale for routine HIV testing in the primary care setting
- Patient education materials in English and Spanish
- Links to relevant Web resources

## CDC Resources

### Act Against AIDS

<https://www.cdc.gov/actagainstaids>

An initiative to combat complacency about HIV and AIDS

- Basic facts and statistics about HIV/AIDS, testing, prevention, and treatment
- Searchable database of HIV testing sites
- Links to CDC HIV campaigns
- Spanish-language materials and information

### Prevention IS Care

<https://www.cdc.gov/preventioniscare>

- Tools and information for HIV care providers about treatment, care, and transmission prevention
- Tips to help HIV care providers engage patients in brief conversations on treatment as prevention, PrEP and PEP for partners, and condom use
- Link to free online CME program

### One Test. Two Lives™

<https://www.cdc.gov/actagainstaids/campaigns/otl>

Information for obstetric health care providers focusing on ensuring all pregnant women are screened for HIV

- Materials for health care providers, including due date projection wheel and communication guide
- Downloadable resources for health care providers and patients, such as posters and fact sheets
- Links to relevant Web resources

### GetTested National HIV, STD, and Hepatitis Testing

<https://gettested.cdc.gov>

Resources on HIV testing

- Searchable database of HIV/AIDS, STDs, and hepatitis testing locations
- FAQs

### Transforming Health

<https://www.cdc.gov/transforminghealth>

Information for health care providers, whole-care teams, social service providers and transgender people to help reduce new HIV infections and improve the health of transgender people living with HIV.

- Posters, palm cards and digital banners featuring transgender people for health care practices
- Link to free online CME/CEU programs
- HIV testing and prevention resources for transgender patients

### Prescribe HIV Prevention

<https://www.cdc.gov/prescribeHIVprevention>

Information and materials to inform health care providers about pre-exposure and post-exposure prophylaxis for HIV prevention

- Provider materials, including a summary of CDC's PrEP/PEP clinical guidelines for prescribing, comprehensive slides set
- Link to free online CME/CEU programs
- Patient education materials in English and Spanish

### HIV Resources for Health Care Providers

1-800-CDC-INFO

1-800-232-4636; TTY: 888-232-6348;

in English or Spanish

To find an HIV testing site, text ZIP code to KNOWIT (566948) or call 800-CDC-INFO

Toll-free confidential HIV/AIDS information for the American public — 8 AM to 8 PM, Monday through Friday, Eastern Time (ET)

- Sensitive and compassionate service via multiple channels (eg, phone call, e-mail, mail, and fax materials)
- Customer service representatives offering referrals to clinics, hospitals, local hotlines, counseling, and legal services

### National Prevention Information Network (NPIN)

<https://npin.cdc.gov>

800-CDC-INFO (800-232-4636)

The nation's largest collection of resources and free materials on HIV

- Free HIV screening materials and other CDC HIV resources
- Basic information about HIV
- Searchable database of prevention and social services
- Spanish-language materials and information



HIV SCREENING. STANDARD CARE.™

## HIV Care and Referral

### The American Journal of Medicine - HIV Resource Center

<https://hivscreening.ajmimed.com/>

The CDC HIV Screening, Standard Care,™ Resource Center offers clinicians and nurses free educational opportunities to help incorporate routine screening for HIV into their practices. Additionally, scientific literature is provided to learn about evidence-based approaches to HIV screening. Free materials are also available to help clinicians promote patient acceptance of the HIV test during office visits.

### American Academy of HIV Medicine (AAHIVM)

<https://aahivm.org/>

202-659-0699

Committed to supporting HIV health care providers and promoting accessible, quality care for people living with HIV

- Continuing medical education
- Credentialing information
- Advocacy and policy
- Provider resources
- Most up-to-date database of HIV care providers

### Clinician Consultation Center

<https://ccc.ucsf.edu/>

800-933-3413

Provides rapid, expert consultation and advice on all aspects of HIV treatment, prevention, care, and exposure management

- Phone and online peer-to-peer consultation
- Case of the Month
- Health care provider and patient resources
- News and updates

### Infectious Diseases Society of America's HIV Medicine Association (IHMA)

<https://www.hivma.org/Home.aspx>

703-299-1215

Organizational home for medical professionals engaged in HIV medicine

- Patient assistance programs
- Practice guidelines and patient care information
- CME resources and training programs
- Policy and advocacy
- News and publications

### American Academy of Physician Assistants (AAPA)

<https://www.aapa.org/>

703-636-3372

AAPA advocates and educates on behalf of the profession and the patients PAs serve. AAPA works to ensure the professional growth, personal excellence and recognition of PAs. AAPA also enhances their ability to improve the quality, accessibility and cost-effectiveness of patient-centered health care.

### American College of Physicians (ACP)

<https://www.acponline.org/>

800-523-1546

ACP is a national organization of internists, the largest medical-specialty organization in the world, and second largest physician group in the United States.

### AIDSinfo

<https://aidsinfo.nih.gov/>

800-HIV-0440 (800-448-0440)

Federally approved information on HIV/AIDS for health care providers, people living with HIV/AIDS, their families and friends, scientists, and researchers

- HIV treatment and prevention guidelines
- Information on drugs and clinical trials
- HIV/AIDS fact sheets and Spanish-language materials

### HIV.gov

<https://www.hiv.gov/>

A comprehensive website showcasing how the federal government is fighting HIV/AIDS

- Basic resources about HIV testing, prevention and treatment
- Current news and blog posts about response to HIV/AIDS
- Search tool (by zip code) for testing clinics, health centers, housing, and other health care providers

### National Hispanic Medical Association

<https://www.nhmamd.org/>

202-628-5895

The National Hispanic Medical Association is a non-profit association representing the interests of 50,000 licensed Hispanic physicians in the United States.

### National Medical Association

<https://www.nmanet.org/>

202-347-1895

The National Medical Association is the collective voice of African American physicians and the leading force for parity and justice in medicine and the elimination of disparities in health.

### National Minority AIDS Council (NMAC)

<https://www.nmac.org/>

202-653-0021

Dedicated to normalizing the discussion about race within the HIV movement, bending the curve of new HIV infections, and retaining people of color living with HIV in care

- Public policy education programs
- Technical assistance and training

### Society of General Internal Medicine (SGIM)

<https://www.sgim.org/>

800-623-3060

The Society of General Internal Medicine is a national medical society of 3,000 physicians who are the primary internal medicine faculty of every medical school and major teaching hospital in the United States.

## Additional Resources

### American Academy of Family Physicians (AAFP)

<https://www.aafp.org/home.html>

800-274-2237

The AAFP and its affiliate organizations work closely together to advance the specialty of family medicine.

### American Academy of Nurse Practitioners (AANP)

<https://www.aanp.org/>

513-443-4363

AANP advocates for the active role of NPs as providers of high-quality, cost-effective, comprehensive, patient-centered health care.



HIV SCREENING. STANDARD CARE.™

**HIV Resources for  
Health Care Providers**

## U.S. Preventive Services Task Force Issues Draft Recommendation Statements on HIV Screening and Prevention

*Clinicians should screen for HIV in adolescents, adults, and pregnant women and offer PrEP to people at high risk for HIV*

WASHINGTON, D.C. – November 20, 2018 – The U.S. Preventive Services Task Force (Task Force) today posted draft recommendation statements and evidence reports on screening for and prevention of HIV. Based on its review of the evidence, the Task Force recommends that clinicians screen everyone ages 15 to 65 years and all pregnant women for HIV. Younger adolescents and older adults at increased risk for HIV should also be screened. In a separate draft recommendation, the Task Force recommends that clinicians offer pre-exposure prophylaxis (PrEP)—a daily pill that helps prevent HIV—to people at high risk of HIV. **These are A recommendations.**

### Grade in these recommendations:

**A:** Recommended.

[Learn more here](#)

HIV is a virus that attacks cells that help the body fight infection, making a person more vulnerable to other infections and diseases. HIV is spread by contact with certain bodily fluids of a person infected with HIV, most commonly during sex without a condom or injection drug use.

HIV continues to be a significant public health issue. While HIV infection rates, including mother-to-baby transmission, have been going down, rates among some groups are on the rise, most notably among people ages 25 to 29 years.

### Screening for HIV

Screening for HIV is the only way to know if a person has been infected with HIV because, after initial flu-like symptoms, HIV does not cause any signs or symptoms for several years. Screening tests are safe and effective at detecting HIV. There are two ways a clinician can test a person for HIV: a conventional blood test sent to the laboratory for analysis or a rapid test (finger prick or saliva swab) that provides results in less than 15 minutes.

"About 40,000 people are diagnosed with HIV each year. This is why the Task Force, once again, calls for universal screening for HIV in adolescents and adults ages 15 to 65 years and in all pregnant women," says Task Force member John Epling, M.D., M.S.Ed. "People deserve to know their HIV status so, if needed, they can start treatment early and live long, healthy lives."

People who learn that they have HIV need to start treatment as soon as possible to suppress the virus (keep the amount of HIV in the blood very low) and prevent HIV-related disease. Treatment also helps to reduce the chance that a person with HIV can pass the infection to another person.

People younger than age 15 years or older than age 65 years should also be screened if they are at increased risk for HIV. Behaviors that increase someone's risk include having a new sex partner whose HIV status is unknown.

### PrEP for HIV Prevention

In addition to screening, people need to take steps to prevent getting HIV by wearing condoms during sex and, for those who inject drugs, using clean needles and syringes. Those at high risk for HIV have

[www.uspreventiveservicestaskforce.org](http://www.uspreventiveservicestaskforce.org)

an additional strategy: taking PrEP, a daily pill that helps prevent HIV. The Task Force found that PrEP is highly effective at preventing HIV when taken daily. Like with other medicines, it is less effective when not taken as prescribed. The benefits of PrEP far outweigh the harms, which can include kidney problems and nausea.

PrEP is not for everyone; it is for people who do not have HIV and are at high risk for getting it. Behaviors that can put someone at high risk include having a sex partner who is living with HIV, having sex without a condom with a partner whose HIV status is unknown and who is at high risk for HIV, and sharing injection drug equipment.

"The evidence is clear: when taken as prescribed, PrEP is highly effective at preventing HIV," says Task Force member Seth Landefeld, M.D. "To make a difference in the lives of people at high risk for HIV, clinicians need to identify patients who would benefit and offer them PrEP." Clinicians should provide support to their patients taking PrEP to help them follow the daily regimen for maximum protection.

PrEP helps prevent HIV but not other sexually transmitted infections. People who take PrEP should continue to use condoms and practice other behaviors to reduce the risk of other sexually transmitted infections.

The Task Force's draft recommendation statements and draft evidence reviews have been posted for public comment on the Task Force Web site at [www.uspreventiveservicestaskforce.org](http://www.uspreventiveservicestaskforce.org). Comments can be submitted from November 20, 2018 to December 26, 2018 at [www.uspreventiveservicestaskforce.org/tfcomment.htm](http://www.uspreventiveservicestaskforce.org/tfcomment.htm).

The Task Force is an independent, volunteer panel of national experts in prevention and evidence-based medicine that works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, and preventive medications.

Dr. Epling is a professor of family and community medicine at the Virginia Tech Carilion School of Medicine in Roanoke, VA. He is the medical director of research for family and community medicine, is the medical director of employee health and wellness for the Carilion Clinic, and maintains an active clinical primary care practice.

Dr. Landefeld is the chairman of the department of medicine and the Spencer chair in medical science leadership at the University of Alabama at Birmingham School of Medicine. Dr. Landefeld also serves on the board of directors of the American Board of Internal Medicine.

Contact: USPSTF Media Coordinator at [Newsroom@USPSTF.net](mailto:Newsroom@USPSTF.net) / (202) 572-2044



## APPENDIX 9: POST-INTERVENTION INFORMATION SESSION HANDOUTS

1/18/19

### Increasing HIV Screening in a Primary Care Setting



Ashley E. Hines, MSN, RN  
January 10, 2019  
The University of North Carolina at Chapel Hill  
School of Nursing



### HIV in the United States

- Over 1 million people are living in the United States with a diagnosis of HIV
  - 1 in 7 people are unaware of their diagnosis
  - responsible for ~40% of ongoing transmissions
- In 2017 -- 38,739 people received a diagnosis of HIV
  - 25,748 → gay and bisexual men
  - 9,170 → heterosexuals
  - 2,389 → IV drug users
  - 1,252 → gay and bisexual men who inject drugs



### HIV in the South (2017)

- Southern states accounted for more than one-half of the 38,739 new HIV diagnoses in 2017
  - 23% of new HIV diagnoses in the South are in suburban and rural areas
- The rate of HIV diagnoses in the South in 2017 was 16.1 per 100,000 population
- The highest prevalence of all regions in the United States

### HIV in North Carolina (2017)

- The number of individuals living with HIV at the end of 2017 was 35,045
- There were 1,310 new diagnoses in 2017
  - Rate of 15.2 per 100,000 population
- Nearly 65% of HIV in men in NC were in men who have sex with men



### HIV in North Carolina (2017)

- African American men and women have the highest rates of new HIV diagnoses
  - Men: 71.0 per 100,000 population
  - Women: 17.7 per 100,000 population
- The age group with the highest rate of new HIV infections were in those ages 20 to 29 years old.
  - 41% of prevalent cases in 2017



### HIV in Guilford County (2017)

- One of the top 10 counties in the State of North Carolina for individuals living with HIV
  - Approximately 2,597 prevalent cases in 2017
- Guilford County had a total of 124 new HIV incident cases
  - Cumulative incidence of 28.8 per 100,000 population

Routine HIV screening.  
Every patient.



### New HIV/AIDS Diagnoses in North Carolina, 2018

- Preliminary reports for new HIV diagnoses for 2018 from January 1, 2018 to September 30, 2018:
  - Statewide = 840
  - Guilford County = 85
- Preliminary reports for newly diagnosed AIDS (HIV Infection Stage 3) from January 1, 2018 to September 30, 2018:
  - Statewide = 782
  - Guilford County = 16

**GET REAL  
GET TESTED.**

### HIV Screening Recommendations

- USPSTF is in the process of updating the 2013 routine HIV screening recommendations.
- Continue to screen all patients ages 15 to 65 years old.
  - Screen patients older than 65 years old or younger than 15 years old if they are at risk for HIV infection.
- Opt-out screening:
  - Patients can verbally accept or decline an HIV test once they are offered it.
- Screen at least once per year and more frequently if at an increased risk for HIV.
  - No evidence of time limit for testing intervals according to the USPSTF
- NKW: Offer pre-exposure prophylaxis (PrEP) to people who are at high risk for HIV.

### Benefits to Routine HIV Screening

- Early diagnosis and timely linkage to care for antiretroviral therapy
  - In 2015, 1% of people diagnosed with HIV living with the virus for at least 7 years before receiving a diagnosis.
- Important for slowing the replication of the virus and improving immune function
  - Reduces overall morbidity and mortality
- Patients who know their HIV status have a decreased likelihood of transmitting the virus to another person

### Benefits to Routine HIV Screening

- Primary care providers have the opportunity to increase the proportion of patients who are screened for HIV
  - Can identify new infections, link to care, and reduce transmission to others
- Reduce the stigma around routine HIV screening if more providers are offering screening
- Reduce health disparities by including all patients in routine screening practices

### Preliminary Results from DNP Project

- September 1<sup>st</sup> to November 30<sup>th</sup> 2018:
  - Total of 1755 encounters
  - 443 LAB3107 ordered (HIV test)
- September 1<sup>st</sup> to November 30<sup>th</sup> 2017:
  - Total of 1662 encounters
  - 427 LAB3107 ordered (HIV test)

**Routine HIV screening.  
Every patient.**



### 2019 HIV/AIDS Awareness Days

- 2/7 = National Black HIV/AIDS Awareness Day
- 3/10 = National Women and Girls HIV/AIDS Awareness Day
- 3/20 = National Native HIV/AIDS Awareness Day
- 4/18 = National Transgender HIV Testing Day
- 5/19 = Hepatitis Testing Day
- 6/15 = HIV Long-Term Survivors' Acknowledgment Day
- 6/18 = Caribbean American HIV/AIDS Awareness Day
- 6/27 = National HIV Testing Day
- 7/28 = World Hepatitis Day
- 9/18 = National HIV/AIDS and Aging Awareness Day
- 10/15 = National Latino AIDS Awareness Day
- 12/1 = World AIDS Day

**GET REAL  
GET TESTED.**

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