

**Pre-Exposure Prophylaxis (PrEP) for College Students**

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**Notes from the Author**

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### **Abstract**

Sexual Transmitted Infections (STIs) are a growing risk for large universities and college students. Most the STIs are curable; however, the Human Immunodeficiency Virus (HIV) is not. It should be a priority for universities and colleges to integrate screening of HIV cases into their available health services. The purpose of the quality improvement project is to implement a standardized screening tool to identify university students who engage in high-risk sexual activities and are eligible for PrEP. The results show that the proposed improvement tool led to the identification of 21 most at-risk students from a sample of 285. A survey of providers revealed a preference for the PrEP screening tool. Clinic nurses also demonstrated an enhanced understanding of the PrEP screening concepts and suggested strategies for improving the rendering of the related services. In conclusion, the proposed quality improvement project can be replicated at student health services of any university or college to identify students at risk for contracting HIV and reducing the risk of that infection via prescribing of PrEP.

*Keywords:* student health services, risk screening, pre-exposure prophylaxis, HIV, sexually transmitted infections

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## **Section I. Introduction**

### **Background**

Sexually transmitted infections (STI) continue to be a growing concern for students seeking care from college and university student health services. It is estimated that half of all sexually transmitted infections that occur in the United States are from adolescents ages 15-24 years (Shannon & Klausner, 2018). Many adolescents in this age bracket look forward to attending college for an opportunity for higher education, maturity, making new connections or friends, and life experiences. Contrarily, many college students engage in high-risk behavior such as unprotected sex, multiple sex partners, and alcohol use. High-risk behavior can lead to an STI, which raises the risk of contracting the human immunodeficiency virus (HIV) on college campuses. Instituting standardized screening is one way to prevent the spread of HIV among college students who engage in risky behavior, and these students should be offered Pre-exposure Prophylaxis (PrEP). By utilizing PrEP, university students can reduce the chance of contracting HIV (Hammack et al., 2019).

HIV is a chronic viral infection that renders the affected population immunocompromised and susceptible to diseases. College students are at high risk because many engage in unprotected sex and substance use or abuse (Huey et al., 2018). College students are at the peak of physical and hormonal transformations, which increases sexual activities. College campus life may encourage college students to abuse alcohol which may result in unprotected sex, increasing the potential to contract HIV. As such, attending college may be viewed by some as exposing students to opportunistic STIs.

East Carolina University (ECU) is a public institution of higher learning located in North Carolina. The university serves students from across the globe in a wide variety of degree

programs of study. Student Health Services is a clinic dedicated to providing accessible, high-quality, and cost-effective primary health care to their students (personal communication, February 10, 2021). The Student Health Services' mission statement is “to provide an accessible quality program of primary health care services relevant to the needs of eligible members of the University Community” (East Carolina University [ECU], 2021a).

### **Organizational Needs Statement**

HIV is a non-curable infection that can lead to long-term medication use and high financial costs for individuals. Based on the American College Health Association (2019) guidelines for HIV PrEP, Student Health Services are equipped to offer PrEP, which is medication for high-risk individuals to reduce HIV infection risk. An area of improvement was identified as a gap in screening opportunities for high-risk behaviors in students (personal communication, February 10, 2021). Currently, there is no standardized screening tool for students who engage in high-risk behaviors in the electronic health records (EHR) (personal communication, February 10, 2021). The highest risk population of contracting HIV are men who have sex with men (MSM) and students with frequent multiple sex partners without protection (Hammack et al., 2019). The organization recognizes the need for screening those who seek treatment for STIs. Student Health Services needs an established system of identifying college students eligible for PrEP to lower the spread of HIV. The prevention of HIV leads to better outcomes and healthier lives.

Healthy People 2030 main focus in STIs is to “reduce sexually transmitted infections and their complications and improve access to quality STI care,” including HIV (Office of Disease Prevention and Health Promotion [ODPHP], 2021, Goal section). According to Healthy People 2030, there is evidence that risky behaviors may be increasing among uninfected people,

predominantly gay and bisexual men (ODPHP, 2021). PrEP has proven to be 99% effective when taken properly (ODPHP, 2021).

Student Health Services uses the Triple Aim as its foundation for providing primary care to university students. The Triple Aim consists of improving the patient experience, improving populations' health, and reducing healthcare costs (Institute for Healthcare Improvement, 2021). The project focused on identifying high-risk students by screening for improved population healthcare.

North Carolina is ranked 6th in the country for sexually-transmitted infection rates. Similarly, the state cores poorly on favorable health outcomes (North Carolina of Department of Health & Human Services [NCDHHS], 2021). The university partner is located in Pitt County, which is ranked 12th in the state for sexually-transmitted infection rates and 9<sup>th</sup> for HIV (NCDHHS, 2021).

### **Problem Statement**

Students who engage in high-risk sexual behaviors are at an increased risk for contracting HIV infection. Despite the education and resources devoted to university students to prevent high-risk behaviors, sexually-transmitted infections, including HIV, remain a problem in many universities in the United States. Through aggressive screening, student health services can identify individuals who engage in high-risk sexual behaviors.

### **Purpose Statement**

The purpose of the project was to implement a standardized screening tool to identify university students who engage in high-risk sexual activities and are eligible for PrEP. The goal was to increase the use of PrEP by using standardized screening for students at the university



community. This will increase the opportunity for this population to receive PrEP and help reduce HIV infections by diminishing the spread of the virus.

## Section II. Evidence

### Literature Review

In order to determine the best practices related to PrEP, a literature search was conducted. The search strategy for the DNP project was to review the current literature related to PrEP. The databases used were PubMed, New PubMed, CINAHL, and East Carolina University One Search database. The Medical Subject Headings (MeSH) terms used in the search were *pre-exposure prophylaxis*, *university students*, *health screening*, and *PrEP clinical trials*. The literature review primarily focused on publications within the last five years. The preliminary searches resulted in 166 publications for review.

Further inclusion criteria narrowed the search to publications written in English, publication date within five years, peer-reviewed publications, and publications with full-text availability. Exclusion criteria were articles with redundant headings or titles. The total number of publications kept was 10 with levels of evidence of IV or greater.

### Current State of Knowledge

There is a consensus in the literature regarding the cost-effectiveness of disease prevention measures compared to therapeutic interventions (LeBlanc et al., 2020). Researchers continue to investigate the observed increase in HIV transmission among students, teenagers, and young adults despite the rigorous public sensitization efforts. Huey et al. (2018) estimated that 1.2 million people in the United States (US) are infected with HIV; an estimated 161,800 of them are unaware of their HIV status. Approximately 40% of new HIV infections are transmitted by people who do not know their status (Huey et al., 2018). Such findings necessitate the need to reduce the high percentage of people with undiagnosed HIV. Screening for the virus is crucial to ensuring that people live healthy lives by reducing transmission rates in at-risk populations.

Screening for HIV infection plays a central role in determining providers' clinical decisions regarding health promotion and disease prevention. The CDC has identified some at-risk populations and offered guidelines that have significantly helped control the spread of HIV. The CDC recommends effective HIV control involves routine HIV screening of adults, adolescents, and pregnant women (Owens et al., 2019). HIV screening has improved the uptake of HIV testing because it has helped reduce associated barriers such as stigma (LeBlanc et al., 2020). The CDC recommends an annual HIV test as part of routine care for persons between 13 and 64 years (Owens et al., 2019). Therefore, standardized screening and assessing the health of a target population play a significant role in realizing the intended outcomes. Positive findings have been derived from clinical trials regarding the effectiveness of diagnosing HIV by beginning early treatment (Patel et al., 2018).

### **Current Approaches to Solving Population Problem(s)**

The approaches to controlling the spread of HIV among the at-risk population continue to build on information that is generated from research. As such, research works aim to establish the best approaches to ensuring that a larger percentage of this population reduces the risks of contracting and transmitting HIV. Current research efforts are directed toward finding a cure for HIV and emphasizing prevention measures. As a result, several tools have been developed to prevent HIV transmission in high-risk populations. Some operational frameworks include sexual abstinence, using barrier protection during sexual activity, and avoid sharing needles. As a result, HIV education campaigns have been held in institutions of higher education to sensitize the population to effective HIV prevention strategies (Huey et al., 2018).

A wide array of evidence-based prevention measures is available to this at-risk population. Education programs on HIV prevention began by sensitizing students on the need for

abstinence for those who are sexually active. More findings from subsequent research established ways of practicing safe sex by using preventive measures like condoms (Huey et al., 2018). Such findings also guided the trajectory of education campaigns and programs, with students being encouraged to use protection every time they engage in sexual intercourse (Huey et al., 2018). HIV education programs have been considered vital to sharing knowledge with at-risk populations. They are helpful platforms for the dissemination of the most current research findings regarding HIV transmission, prevention, and treatment. These programs have been provided in diverse settings, including schools, family planning clinics, STD clinics, homeless shelters, youth service agencies, and detention centers (Chen et al., 2020).

Currently, there is support for sexuality and HIV education programs in schools. According to Kantor and Levitz (2017), students feel better informed to make decisions on sexuality following sex education campaigns. Healthier outcomes are also realized by reducing unplanned pregnancies and increasing protection from STIs, including HIV. However, sex education still faces controversies that need to be resolved to attain optimum intended outcomes (Chen et al., 2020). For instance, there are still arguments as to whether sex education should focus on abstinence or sharing information on the use of condoms and contraceptives for unmarried young people (Chen et al., 2020).

Even so, the rates of HIV transmission have not been completely alleviated even with evidence-based protective measures. This conclusion was drawn from the observation that young people, particularly college students, were less likely to have one lifetime sexual partner as they are still settling down. Chen et al. (2020) noted a reduced probability that students use protective measures every time they engage in sex. These findings amplify the realization that young people are still at risk of high HIV transmission rates regardless of the rigorous efforts that have

been made in sensitization campaigns. To this effect, further research prompted the discovery of the vital role of PrEP in preventing HIV transmission. PrEP is not only effective in preventing the transmission of HIV but has also been reported to be a convenient mode of self-care (Koechlin et al., 2017). There has been a continued acceptance of the use of PrEP as established in the literature. Koechlin et al. (2017) found that knowledge levels about PrEP significantly influenced the preference of young people to use PrEP.

There has been a rise in the use of PrEP among college students following educational programs and reading associated information from other sources such as the internet (Huey et al., 2018). PrEP has been found to reduce the risk of HIV by approximately 99% (Huey et al., 2018). Even so, PrEP offers protection from HIV transmission alone; hence, at-risk populations need to use other protective measures like condoms to protect against other STIs (Koechlin et al., 2017).

The prophylaxis management of HIV transmission is a promising research area to develop more drugs that have more efficiency and potency. Currently, the FDA has approved only two oral medications for PrEP. These medications combine two anti-HIV drugs in one pill. Truvada is the combination of emtricitabine and tenofovir disoproxil fumarate, and it is recommended for administration in adults and adolescents with the risk of HIV infection through sex (Mayer et al., 2018). The other drug is Descovy, which is a combination of emtricitabine and tenofovir alafenamide (Mayer et al., 2018). Descovy is the newest drug between the two. The research information on Descovy is limited, unlike the research information on Truvada. Both drugs effectively prevent HIV in people at risk of contracting the virus. Furthermore, Descovy is safer for kidneys and bone health, yet there is little information on its potency against risk from receptive vaginal sex or injection drug use (Mayer et al., 2018).

### **Evidence to Support the Intervention**

Prophylaxis management of HIV transmission is an effective method of preventing the transmission of the virus by contraction of the virus (Mayer et al., 2018). It is, therefore, a very significant health promotion intervention as it aims at reducing the disease burden of HIV.

Initiating PrEP for those who engage in high-risk behaviors will reduce the possibility of infection. The positive outcomes that will be achieved include attenuation of disease progression, reduction of associated morbidity, and decreased infection (Storholm et al., 2021).

The efficacy of PrEP strategies has also been researched with the use of nucleoside reverse transcriptase inhibitor (NRTI) tenofovir disoproxil fumarate, either alone or in combination with emtricitabine (Gantenberg et al., 2018). PrEP interventions aim to attain protective concentrations of a biologically-active agent within target cells when an individual has been exposed to the virus. The intervention will inhibit the establishment of founder populations of the cells that have been infected, thus preventing the further spread of the virus (Gantenberg et al., 2018). PrEP is efficacious for men who have sex with men (Gantenberg et al., 2018).

Standardized screening is the first tool in the arsenal. The literature supported evidence that standardized screening is an effective tool that can be embedded into electronic health records (LeBlanc et al., 2020). A readily available validated screening tool effectively identifies persons at risk for HIV infection, thus decreasing HIV infections and transmission among university students. Additionally, Clinical Resource Guides are effective tools to assist health care teams in providing evidence-based care (LeBlanc et al., 2020). Providers and nursing staff at Student Health Services will encounter individuals at high-risk for contracting HIV who might be eligible for PrEP.

### **Evidence-Based Practice Framework**

The model used for the quality improvement project was Deming's Plan-Do-Study-Act model (PDSA). The model is evidence-based and appropriate for a quality improvement project in healthcare (Deming, 1993). The DNP project team identified the need for standardized screening at Student Health Services, including indications for initiating PrEP. Applying the PDSA model allowed the DNP project team to *plan* by creating the implementation process. Then, *do* which was the initiation of the implementation plan, followed by the *study* of the results. Lastly, *act* on what occurred during a short implementation interval (Langley et al., 2009). Once the results of each interval were studied using the model, the DNP project team modified or continued the project. The PDSA model was used to operationalize, evaluate, and revise the project process.

### **Ethical Consideration & Protection of Human Subjects**

Ethical considerations apply to quality improvement projects, including the principles of respect for persons, beneficence, and justice. Standardized screening was the intervention utilized for this DNP project. All participants were treated equally as human subjects. Privacy and confidentiality were maintained throughout the DNP project. There was no potential for harm to participants during project implementation.

The University and Medical Center Institutional Review Board (UMCIRB) ensures that the rights and welfare of all human participants in research and quality improvement initiatives is protected (East Carolina University [ECU], 2021e). The Collaborative Institutional Training Initiative (CITI) training modules were completed in preparation for the formal approval process. The modules provided an introduction to ethical principles as a means to ensure that human subjects were treated fairly and equally. The Social and Behavioral modules provided needed

information to complete the UMCIRB process for approval. The IRB QI/Program Evaluation Self-Certification Tool Guidance deemed the project as quality improvement, not human subjects research. The project site did not require additional Institutional Review Board (IRB) approval.



### **Section III. Project Design**

#### **Project Site and Population**

The DNP project took place at Student Health Services at a large university. Student Health Services offers primary care services for the student population (East Carolina University [ECU], 2021b). The DNP student proposed a quality improvement project to offer standardized screening for the students at-risk for HIV that may meet eligibility requirements for PrEP. The barriers identified for the project site included the lack of a standardized screening process, a template for the screening, no Clinical Resource Guide, and limited provider knowledge related to HIV/PrEP screening.

#### ***Description of the Setting***

Student Health Services comprises two locations from which university students can seek primary care services (East Carolina University [ECU], 2021b). The main campus clinic is centrally located, with the second location in the Health Sciences Student Center (East Carolina University [ECU], 2021b). Student Health Services provides care to an average of 150-250 patients per day (East Carolina University [ECU], 2021d). In 2019, there were over 30,000 student clinic visits, and the COVID-19 epidemic ignited in 2020. In-person learning resumed at the university in Fall Semester 2021 (personal communication, May 10, 2021). Both clinics provide care Monday through Friday during regular business hours. The main campus location is open on Saturday and Sunday mornings for services. Furthermore, SHS offers a 24-hour nurse line to discuss issues and operates a self-care email site to submit questions (East Carolina University [ECU], 2021d).

Student Health Services offers primary care services at both locations, including general medical problems, reproductive health services, laboratory tests, and health referrals (East

Carolina University [ECU], 2021b). The main campus also offers other services such as nutrition, allergy clinic, x-rays, personal safety and sexual assault, pharmacy, and triage care (East Carolina University [ECU], 2021b). Students enrolled on-campus or taking distance education courses may utilize student health services. Student Health Services is an in-network provider for most insurance companies such as Aetna, Blue Cross Blue Shield, First Health Network, and MedCost insurance plans and files claims for university students (East Carolina University [ECU], 2021d).

### ***Description of the Population***

Students 17 to 63 years old seek services from Student Health that include women's health, mental health, education, and acute illnesses such as STIs for both women and men (personal communication, April 10, 2021). In Fall Semester 2020, the total enrollment for the university was 28,798 (East Carolina University [ECU], 2021c). There is a diverse student population located on campus: Caucasian 18,708, African American 4,710, Hispanic 2,144, Asian 801, and other groups 2,435 (ECU, 2021). Of the students, 55% identified as female, 44.63% as males, 0.34% as genderqueer, and 0.03% as transgender or another gender (personal communication, April 10, 2021).

### **Project Team**

The project team consisted of the DNP student, DNP project faculty member, and project site champion. As the team leader, the DNP student collaborated with the site champion and faculty member to complete the DNP project. The project site champion assisted in identifying an organizational need for the student-centered clinic. The site champion organized a meeting with clinic providers and other Student Health Services team members. The DNP project faculty member provided mentorship, guidance, and intermittent feedback.

### **Project Goals and Outcome Measures**

The DNP project goal was to improve the screening of students seeking care at Student Health Services to document their risk of contracting HIV and identifying students eligible for PrEP. The intervention focused on implementing a standardized screening process and utilizing a common Clinical Resource Guide for providers and staff. If the screening positively identified a student at risk for contracting HIV, PrEP was offered. The outcome measures include the number of standardized screenings completed and the appropriate application of the Clinical Resource Guide used by the providers and staff.

The project was deemed a quality improvement initiative and required no formal IRB review.

### ***Description of the Methods and Measurement***

The DNP project framework was the Plan-Do-Study-Act (PDSA) cycle. The DNP student evaluated PDSA cycles then collaborated with project team members before making any changes to the implementation process. Currently, Student Health Services has no HIV screening tool process in place to identify students at who may be eligible for PrEP. The project team created a HIV screening tool process based on recommendations and guidance from the CDC, ACHA, and USPSTF (CDC, 2021; Huey et al., 2018; Owens et al., 2019). The HIV screening tool process will be embedded in electronic health records to identify at-risk students eligible for PrEP. (See Appendix A). Additionally, the HIV screening tool process can help identify students who might benefit from other education material other than PrEP services at the clinic. The SHS staff alerted the provider of students who might be appropriate for PrEP. Consultation appointments were provided at the students' request. Lastly, students' decisions on starting PrEP

were documented. Data were pulled from the individual tools and aggregated to form the data set for the project.

### ***Discussion of the Data Collection Process***

The DNP student collected data from both clinic locations weekly for 12 weeks. Student Health Services staff documented the screening results in the electronic health record, and the data were reviewed by the DNP student and the project site champion. The data were transferred to the data collection tool in an Excel workbook by the DNP student for ease of data analysis. Data collected included clinic visit type, risk screening for HIV results, student's status (symptomatic versus asymptomatic), eligibility for PrEP, and other relevant information. The Clinical Resource Guide was utilized when the patient is eligible for PrEP (See Appendix B).

### **Implementation Plan**

Before the DNP project began, a formal introduction meeting was held via the Teams platform on January 19, 2022. The DNP student provided clinic providers and staff with an overview of the DNP project. The educational session utilized a PowerPoint slide presentation to provide background for the quality improvement project, including the identified gap in screening, the project purpose and goal, the screening tool, and the Clinical Resource Guide utilization. The Teams meeting was recorded along for staff members unable to attend. A survey was given to the providers and nursing staff to complete at the beginning of the project.

The DNP project implementation began on January 19, 2022. The DNP student visited each clinic intermittently during the week to answer any questions. The DNP student spent approximately 65 hours directly engaged with the project site during the 12-week time frame for the project.

The DNP student met with the site champion during the project implementation to review and revise the PDSA cycles. The PDSA cycle will be evaluated by the DNP student and site champion as needed, with changes made accordingly. The DNP student and site partner collaboratively set a goal of screening 80% of students during visits when sexual health was discussed, such as during asymptomatic STI screening, evaluation for STI symptoms, or treatment for STI. The DNP student regularly updated the providers and staff with changes and answered any new questions or concerns.

**Timeline**

The implementation of the DNP project started in January 2022 and concluded on April 13, 2022.

#### **Section IV. Results and Findings**

The implementation of the quality improvement initiative led to the determination of the specific findings valuable in improving the screening of the students at risk for contracting HIV and initiation of PrEP to reduce the risk of contracting HIV within the high-risk population. At the project site, 285 students were identified who met the criteria for screening. The criteria documented students' engagement in high-risk sexual behaviors associated with the increased chances of being infected with HIV. Out of the student population identified by the criteria in the study, 21 students were MSM and qualified for PrEP, another 15 students received counseling for PrEP, and four students were interested in PrEP and referred to provider. One of the students who was referred started PrEP to reduce the risk of infection.

The classification of the students as high-risk was based on a consideration of multiple aspects included in the screening tool. The key questions included whether the students were symptomatic or asymptomatic for STIs, including HIV, use of condoms during intercourse, the number of partners, and treatment for STIs. Other aspects involved self-injecting drugs or having sex with a partner who injected drugs or is HIV-positive, or both injected drugs and HIV-positive. Engagement in commercial sex work or a history of kidney or liver disease were also considered in the assessment for the eligibility for PrEP use. The questions were important to ensure appropriate information was gathered to aid in determining students at high risk for contracting HIV, thus, eligible for PrEP.

Healthcare providers for the clinic included physicians, physician assistants, and nurse practitioners. Eight out of 12 healthcare providers who attended the live pre-implementation presentation participated in a survey on PrEP education. The survey asked the providers to respond to questions related to the student risk screening and prescribing PrEP. All eight

providers involved in the survey acknowledged that they would prescribe PrEP to students. Out of the eight care providers, only one provider indicated that they had been asked about PrEP by a student in practice. Providers were asked about their comfort levels related to prescribing PrEP; only two providers reported that they are comfortable and able to prescribe PrEP. Understanding the comfort level of care providers is a valuable aspect that aids the expectations related to the appropriate use of PrEP in patient care of at-risk populations.

The survey also included a question that focused on the providers' perspective on whether the PrEP screening tool would be helpful in screening students for risks and who may need the medication. The eight participants responded in the affirmative. The response to the question reflects that a standardized screening tool was relevant details in determining whether a patient needs to be on PrEP based on their risk level.

Nurses completed a survey to record their perceived changes when screening patients using the proposed tool compared to their previous methods. The nurses demonstrated improvement in the levels of understanding of different aspects of PrEP. They also perceived it as an essential aspect in the performance of screening and administration of the medications to students at risk of HIV infection due to behavioral (See Appendix D). The staff involved in the quality improvement project were provided with a Clinical Resource Guide on the screening for PrEP. Education was also sent to the students through emails after screening encounters. Out of the students whom the nurses engaged, 71% of patients were provided with education during their clinic visits.

The implementation of the quality improvement also led to identifying the specific areas that need enhancements. Over the 12-weeks, three PDSAs were conducted. The Plan-Do-Study-Act (PDSA) cycles were used throughout implementation and revised intermittently during the

12-week implementation period to identify barriers and the need for change. One of the critical areas identified was the need to integrate provisions for PrEP screening into the EMR. In the quality improvement project, staff had to perform the screenings and record the findings manually. When a standardized screening is integrated into the EMR, it makes diagnosing the high-risk patients easier. The screening must be targeted to the illness requiring screening to make it more effective. The disadvantage may be the cost of integrating the screening into the EMR. However, the university should prioritize it as it will help identify persons at risk for avoidable HIV infection.

The project helped identify barriers that may affect the implementation of PrEP screening for students in clinical settings. The workflow was considered a significant barrier impacting providers' completion of PrEP screening for students. The work routine at the Student Health Services does not provide time to screen the patients adequately. Another barrier was comfort levels of the providers were identified as an impediment to project implementation due to no clear guidelines for PrEP. Lastly, provider and staff reliance on information technology, specifically the EMR, was a barrier to consistent patient screening. The lack of embedded screening tools in the EMR led to missed screenings.



### **Section V. Interpretation and Implications**

The project findings provided valuable insights that aid in understanding different aspects of PrEP screening as a quality improvement intervention. The project purpose was to reduce college students' contraction of HIV and the subsequent spread of the virus by screening for risky behaviors, identifying students with risk-taking behaviors, and offering PrEP to those with high-risk behaviors. After screening the 285 students, it was discovered that 21 students were MSM were at high risk of contracting HIV and qualified for PrEP, another 15 students MSM received counseling for PrEP, and four students MSM were interested in PrEP and referred to provider. One of the students (MSM) started PrEP to reduce the risk of infection. The screening outcomes prompted providers to engage the high-risk students with education regarding risky behaviors and PrEP. The 21 students that were MSM were HIV negative. The project and data analysis leans on the findings by Chou et al. (2019), who indicated that PrEP is an effective intervention in preventing infection in persons at risk of the condition. Through standardized screening, providers can identify and prescribe PrEP for students that meet the screening criteria.

Students engaging in risky behaviors, such as having unprotected sex, those with multiple sexual partners, those using injectable drugs, etc., may be at the greatest risk for contracting HIV. This includes all populations with risky behaviors, such as commercial sex workers, men having sex with men, etc.. The screening of high-risk populations is consequential for providers making decisions for patient education and counseling to raise awareness and increase patient uptake of PrEP. Bunting et al. (2020) indicated that educating the MSM population is an important step toward increasing the population's use of PrEP to protect themselves against the risk of HIV infection and long-term health outcomes associated with the infection. Based on the results of the

screening to determine those at high-risk, the quality improvement project supported the need to fast-track the application of the PrEP screening for asymptomatic students.

Improving healthcare providers' understanding of screening implications is essential to increasing the integration of screening as a standard assessment component for high-risk populations. The DNP project outcomes indicated a lack of clinician awareness related to risk screening and prescribing PrEP. Only a small portion, 25%, of providers at SHS indicated that they were comfortable and could appropriately screen patients for possible PrEP use. The survey results confirm the need for education to improve the providers' confidence and competency. Perucho et al. (2020) established that educating clinicians on PrEP is consequential for improving knowledge and comfort in the screening process and subsequent prescribing of the medications. Meaningful education requires instructional materials that providers can use and share with other providers, staff, and students.

There is a need for some alterations in workflow and the integration of the screening tool into the EMR. During the implementation of the project, the PrEP screening tool was not integrated into the EMR, resulting in providers being challenged with an inefficient recording of screening information and difficult data management. The results indicate a need to integrate screening tools in the EMR. The improvements of the EMR will increase easy access to patient information, especially for future clinic visits.

Many meetings with stakeholders were held virtually to allow for safety during the COVID-19 restrictions. The shift to the virtual mode ensured that the providers and staff involved in the initiative were not exposed to COVID-19 through project-related interactions with other staff. The training materials were effective as they compensated for face-to-face delivery and provided good health care content. However, a key in the delivery of virtual

instructional materials was the inability to more meaningfully engage the providers while educating them on the advantages of screening and issuing PrEP to high-risk students. Virtual platforms restrict the assessment of the comprehension of the information shared among the care providers compared to in-person meetings.

The implementation of the quality improvement project did not involve many resources. The low cost of implementing the intervention is attributable to the virtual presentation, which was accessible to participants via their mobile devices and personal computers, ensuring they could participate remotely. Most of the costs associated with the project were directed towards printing Clinical Resource Guide, which cost \$45, photocopying education materials. For clinical areas, posters were placed in room for students, which cost \$25 (See Appendix E). There was no cost to utilize the project site. Breakfast was provided for the nursing staff when presenting the Clinical Resource Guide, which cost approximately \$30. Screening and educating the student population on PrEP should be implemented in a cost-effective manner to ensure to avoid unnecessary financial hardship on the project site (See Appendix F).

## Section VI. Conclusion

This quality improvement project is helpful in increasing screenings for college students at-risk of contracting HIV through risky behaviors. Using a standardized screening tool for the population is one approach to identifying individuals eligible for PrEP. The screening tool was useful in identifying the MSM population who are disproportionately predisposed to contracting HIV through sexual intercourse. SHS must ensure that a PrEP screening tool is available to clinical staff to facilitate the screening, education, and counseling interventions to improve outcomes for high-risk students. This will be instrumental in ensuring all students eligible for PrEP are screened and that students are given information related to protection from HIV infection following high-risk sexual behavior.

Appropriate training is important in implementing PrEP screening. Through education, providers develop essential skills needed for screening and evaluation of students' needs for PrEP. Particularly, education for the providers might enhance their understanding of PrEP, leading to an increased likelihood that they will offer prescriptions for PrEP to students at risk. Improving knowledge leads to enhanced competency and comfort levels in administering the screening tool.

PrEP screening and subsequent medication prescription are essential interventions to reducing HIV spread and targeted care for this at-risk population. The questions asked during the screening process assist the students in understanding high-risk sexual behaviors that may predispose them to contract HIV. As a result, the students might be more likely to be proactive in reducing the risk of infections through behavior change. The use of the screening tool also aids the development of an understanding of PrEP in preventing HIV infections. According to Bunting et al. (2020), students who are armed with information on PrEP's benefits in HIV

prevention, are more likely to seek the medications in the event they engage in high-risk behavior that exposes them to the virus.

While educating nurses and other clinicians is an important aspect of care, continuous awareness of treatment possibilities and prevention strategies are integral in successfully implementing PrEP screening and subsequent prescribing of medication. The awareness will be valuable for the sustainability of the intervention in the clinical setting. In addition, the nurses can ensure that every student who might be at a high risk of HIV infections is screened to determine eligibility for PrEP.

In implementing the PrEP screening for high-risk students, providing a resource guide remains important. The Clinical Resource Guide is instrumental in guiding the screening process for the patients. Each provider who interacts with the patients during the assessment process needs to be provided with the screening tool to aid the integration of the practice in the clinical setting. The tool should be accessible to each nurse and other staff who may need to use it when assessing patients who are potentially exposed to HIV. As with any screening tool, there is a need to ensure that the nurses are using the tool appropriately when assessing students. It is important to ask open-ended questions in a nonjudgmental way to ensure patients feel comfortable discussing the subject matter. The Clinical Resource Guide must prompt nurses to optimize the screening process as they determine the need for the PrEP.

During the implementation of the quality improvement project, stakeholders identified the need to integrate the PrEP screening into the EMR. The integration of the information into the system will facilitate providers' quick reference of information that might lead to improvements in the assessment process and subsequent PrEP prescriptions for students. In addition, the providers must ensure they update themselves on current best practices in screening

students, prescribing information for PrEP, and ways to facilitate enhanced care for high-risk populations. The screening tool and process needs to be revised as new information becomes available. This process will continue to improve providers' ability to identify and care for students at risk of contracting HIV and prevent other avoidable sexual transmitted infections.

### References

- Bunting, S. R., Garber, S. S., Goldstein, R. H., Ritchie, T. D., Batteson, T. J., & Keyes, T. J. (2020). Student education about pre-exposure prophylaxis (PrEP) varies between regions of the United States. *Journal of General Internal Medicine: JGIM*, 35(10), 2873-2881. <https://doi.org/10.1007/s11606-020-05736-y>
- Centers for Disease Control and Prevention. (2021). *Pre-Exposure Prophylaxis (PrEP)* <https://www.cdc.gov/hiv/risk/prep/index.html>
- Chen, Y., Issema, R. S., Hotton, A., Khanna, A. S., Ardestani, B. M., Schneider, J. A., & Rudolph, A. (2020). Sex partner behavior variation related to network position of and residential proximity to sex partners among young black men who have sex with men. *AIDS and Behavior*, 24(8), 2327-2335. <https://doi.org/10.1007/s10461-020-02792-7>
- Chou, R., Evans, C., Hoverman, A., Sun, C., Dana, T., Bougatsos, C., Grusing, S., & Korthuis, P. T. (2019). Preexposure prophylaxis for the prevention of HIV infection: Evidence report and systematic review for the US preventive services task force. *JAMA: The Journal of the American Medical Association*, 321(22), 2214-2230. <https://doi.org/10.1001/jama.2019.2591>
- Collaborative Institutional Training Initiative (CITI) Program (n.d.) *Social/Behavioral research investigators and key personnel*. <https://citiprogram.org/en/homepage/>
- Deming, W.E. 1993. *The new economics: For industry, government, education (2<sup>nd</sup> ed.)*. MIT Press.
- East Carolina University. (2021a). *Our mission and goals*. ECU. <https://studenthealth.ecu.edu/our-mission-and-goals/>

East Carolina University. (2021b). *Main campus-student health center*. ECU.

<https://studenthealth.ecu.edu/maincampus-student-health-center/>

East Carolina University. (2021c). *Our student body*. ECU.

<https://facts.ecu.edu/>

East Carolina University. (2021d). *Ways to receive care*. ECU.

<https://studenthealth.ecu.edu/ways-to-receive-care/>

East Carolina University. (2021e). *University and Medical Center IRB*. ECU.

<https://rede.ecu.edu/umcirb/>

Gantenberg, J. R., King, M., Montgomery, M. C., Galárraga, O., Prosperi, M., Chan, P.

A., & Marshall, B. D. L. (2018). Improving the impact of HIV pre-exposure prophylaxis implementation in small urban centers among men who have sex with men: An agent-based modeling study. *PloS One*, 13(7), e0199915-e0199915.

<https://doi.org/10.1371/journal.pone.0199915>

Hammack, P. L., Toolis, E. E., Wilson, B. D. M., Clark, R. C., & Frost, D. M. (2019).

Making meaning of the impact of pre-exposure prophylaxis (PrEP) on public health and sexual culture: Narratives of three generations of gay and bisexual men. *Archives of Sexual Behavior*, 48(4), 1041-1058.

<http://dx.doi.org/10.1007/s10508-019-1417-6>

Huey, M., Higham, M., & Watriss, A. (2018). Viewpoint: Why you should provide HIV

pre-exposure prophylaxis (PrEP) at your college health center. *Journal of American College Health*, 68(2), 119-123.

<https://doi.org/10.1080/07448481.2018.1529673>

Institute for Healthcare Improvement. (2021). *Triple aim for populations*.



<http://www.ihl.org/Topics/TripleAim/Pages/Overview.aspx>

Kantor, L., & Levitz, N. (2017). Parents' views on sex education in schools: How much do Democrats and Republicans agree?. *PloS one*, *12*(7), e0180250.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0180250>

Koehlin, F. M., Fonner, V. A., Dalglish, S. L., O'Reilly, K. R., Baggaley, R., Grant, R. M., Rodolph, M., Hodges-Mameletzis, I., & Kennedy, C. E. (2017). Values and preferences on the use of oral pre-exposure prophylaxis (PrEP) for HIV prevention among multiple populations: A systematic review of the literature. *AIDS and Behavior*, *21*(5), 1325-1335. <https://doi.org/10.1007/s10461-016-1627-z>

Langley, G. J., Moen, R. D., Nolan, K. M., Nolan, T. W., Norman, C. L., & Provost, L. P. (2009). *The improvement guide: A practical approach to enhancing organizational performance* (2nd ed.). Jossey-Bass Publishers.

LeBlanc, N., Liu, Y., Zhang, C., Mitchell, W., & Xue, Y. (2020). Understanding the role of nurse practitioners, physician assistants and other nursing staff in HIV pre-exposure prophylaxis care in the United States: A systematic review and meta-analysis. *BMC Nursing*, *19*(1), 1-117. <https://doi.org/10.1186/s12912-020-00503-0>

Mayer, K. H., Chan, P. A., R. Patel, R., Flash, C. A., & Krakower, D. S. (2018). Evolving models and ongoing challenges for HIV preexposure prophylaxis implementation in the United States. *Journal of Acquired Immune Deficiency Syndromes* (1999), *77*(2), 119-127. <https://doi.org/10.1097/QAI.0000000000001579>

North Carolina Department of Health and Human Services. (2021). *HIV*.

<https://epi.dph.ncdhhs.gov/cd/stds/annualrpts.html>

Office of Disease Prevention and Health Promotion. (2021). *HIV Workgroup*.

<https://health.gov/healthypeople/about/workgroups/hiv-workgroup>

- Owens, D. K., Davidson, K. W., Krist, A. H., Barry, M. J., Cabana, M., Caughey, A. B., Curry, S. J., Doubeni, C. A., Epling, J. W., Kubik, M., Landefeld, C. S., Mangione, C. M., Pbert, L., Silverstein, M., Simon, M. A., Tseng, C., Wong, J. B., & US Preventive Services Task Force. (2019). Screening for HIV infection: US preventive services task force recommendation statement. *JAMA: The Journal of the American Medical Association*, *321*(23), 2326- 2336. <https://doi.org/10.1001/jama.2019.6587>
- Patel, V. V., Ginsburg, Z., Golub, S. A., Horvath, K. J., Rios, N., Mayer, K. H., Kim, R. S., & Arnsten, J. H. (2018). Empowering with PrEP (E-PrEP), a peer-led social media-based intervention to facilitate HIV preexposure prophylaxis adoption among young black and Latinx gay and bisexual men: Protocol for a cluster randomized controlled trial. *JMIR Research Protocols*, *7*(8), e11375-e11375. <https://doi.org/10.2196/11375>
- Perucho, J., Alzate-Duque, L., Bhuiyan, A., Sánchez, J. P., & Sánchez, N. F. (2020). PrEP (pre-exposure prophylaxis) education for clinicians: Caring for an MSM patient. *Mededportal*, *16*, 10908-10908. [https://doi.org/10.15766/mep\\_2374-8265.10908](https://doi.org/10.15766/mep_2374-8265.10908)
- Shannon, C.L., & Klausner, J.D. (2018). The growing epidemic of sexually transmitted infections in adolescents: A neglected population. *Current Opinion in Pediatrics*, *30*(1), 137-143. <https://doi.org/10.1097/MOP.0000000000000578>
- Storholm, E. D., Siconolfi, D., Huang, W., Towner, W., Grant, D. L., Martos, A., Chang, J. M., & Hechter, R. (2021). Project SLIP: Implementation of a PrEP screening

and linkage intervention in primary care. *AIDS and Behavior*,

<https://doi.org/10.1007/s10461-021-03197-w>

The American College Health Association (ACHA). (2019, January). *ACHA Guidelines*

*HIV Pre-Exposure Prophylaxis*.

[https://www.acha.org/documents/resources/guidelines/ACHA\\_HIV\\_PrEP\\_Guidelines\\_Jan2019.pdf](https://www.acha.org/documents/resources/guidelines/ACHA_HIV_PrEP_Guidelines_Jan2019.pdf)

**Appendix A**

**HIV Screening Tool Implemented into EHR**

**Potential PrEP Candidates in last 6 months**

<b>Question:</b>	<b>Yes</b>	<b>No</b>
Symptomatic vs Asymptomatic		
Any condom-less sex		
Number of partners “non monogamous relationship”		
Treatment for any STI		
Sharing injection equipment “needles, body fillers,” recreational drug use, anabolic steroids		
Having sex with known HIV + partner (s)		
Having sex with known HIV + injecting partner (s)		
Having sex with injecting partner (s)		
Engaging in commercial sex work		
No history of liver or kidney disease		
Familiar with PrEP		
Eligibility for PrEP		

## Appendix B

### Clinical Resource Guide

#### Policy:

Pre-exposure Prophylaxis (PrEP) using antiviral medication is an evidence-based way to prevent new infections among HIV-uninfected persons at risk of acquiring HIV. College Health clinics are in a unique position to impact the health of young adults in the US by offering PrEP as a standard healthcare service.

#### Purpose:

To follow the Centers for Disease Control (CDC) Guidelines for PrEP. By offering this service at ECU Student Health Service, we can increase the benefit of easy access and decrease the cost for students. ECU Student Health Service is in a unique position to help at risk students overcome barriers by providing easy access to care and decrease the cost for students for this primary prevention service.

#### PrEP Protocol:

##### Initial Consultation to Assess Need:

- Identify at risk students and discuss the option of PrEP. The student may be informed about the option of PrEP during any visit, particularly when sexual health is discussed, such as during asymptomatic STI (sexually transmitted infection) screening, during evaluation for STI symptoms, or during treatment for STI
- Potential candidates for PrEP include, but are not limited to people who, in the last 6 months, report:
  - o Any condom-less sex
  - o Treatment for any STI
  - o Not being in a monogamous relationship with a partner confirmed to be HIV negative
  - o Sharing injection equipment (needles & "works" for illicit/recreational drug use, anabolic steroids, body fillers, etc.)
  - o Having sex with known HIV+ partner(s)
  - o Having sex with known HIV+ injecting partner(s)
  - o Having sex with injecting partner(s)
  - o Engaging in commercial sex work
  - o No history of liver or kidney disease

##### Determine Clinical Eligibility:

- Within **3-6 months BEFORE** starting PrEP STI screening has been/is performed:
  - o Serum RPR for syphilis
  - o NAATs for chlamydia and gonorrhea from any exposed anatomical site: *pharyngeal, urine, endocervical, and rectal*
  - o Wet prep for trichomonas vaginalis, as appropriate
  - o Hepatitis C antibody
- Within **90 days BEFORE** starting PrEP, check Hepatitis B status and renal function
  - o **Required labs:**
    - Hepatitis B surface antigen
    - Serum creatinine w/eGFR
  - o Estimated creatinine clearance (using **Cockcroft-Gault formula**)
    - $CrCl \text{ (male)} = ((140 - \text{age}) \times \text{weight in kg}) / (\text{serum creatinine} \times 72)$
    - $CrCl \text{ (female)} = CrCl \text{ (male)} \times 0.85$
  - o **Recommended labs:**
    - Hepatitis B surface antibody
    - Urinalysis (to establish baseline)
- Within **3 weeks BEFORE** starting PrEP, deny having any symptoms of acute HIV infection: *fever, joint or muscle aches, fatigue, headache, sore throat, vomiting, diarrhea, rash, night sweats, or enlarged lymph nodes in the neck or groin.*
- Within **7 days BEFORE** starting PrEP, test for HIV infection
  - o **Required labs:**
    - 4<sup>th</sup> generation HIV antigen/antibody combination assay
      - If had high-risk unprotected sex <2 weeks prior to first HIV test, then repeat HIV test at 2 weeks to confirm negative HIV status
    - HIV RNA (viral load), quantitative if having any symptoms of acute HIV infection **\*\*\*\* DO NOT PRESCRIBE medication until proven HIV negative status\*\*\*\***
    - Pregnancy test (\*person born with uterus)

#### Education/Counseling:

- o Discuss risk for acquiring HIV infection and other STIs related to sexual behavior
- o PrEP should not be prescribed for people who are HIV positive, have kidney disease, or liver disease such as Hepatitis B or Hepatitis C
- o To receive ongoing prescription refills for PrEP patient **must follow-up every 3 months for HIV testing** to confirm ongoing negative HIV status and kidney function testing every 6 months to monitor kidney function; STI screening tests should be done periodically
- o PrEP is most effective when taken once a day every day without fail; missing doses greatly reduces the effectiveness of the medicine which greatly increases risk of getting HIV infection
- o PrEP dose can safely be taken 3-4 hours before or 3-4 hours after regularly scheduled dosing time
- o PrEP does not have interactions with alcohol or recreational drugs, but strongly discourage having sex under the influence of alcohol or drugs
- o PrEP does not have interactions with hormones such as estrogen or testosterone
- o Advise that therapeutic drug levels may take up to 3 weeks to be achieved in all body compartments when taking PrEP every day without fail: *rectal - 7-10 days; vaginal - 21 days; plasma (blood) - 21 days*
- o Discuss potential barriers to taking PrEP daily and discuss ways to help patient remember
- o Discuss potential "startup syndrome" that may occur the first 1-2 months but usually goes away with consistent daily use: *mild headaches, nausea, diarrhea, fatigue, abdominal pain, or flatulence (gas)*
- o Discuss potential serious kidney and liver side effects: *weakness, feeling more tired than usual, unusual muscle pain, shortness of breath, fast breathing, abdominal pain with nausea and vomiting, cold or blue hands and feet, dizziness, lightheadedness, or fast or abnormal heartbeat; skin or white part of your eyes turns yellow, dark "tea colored" urine, light-colored stools, loss of appetite for several days or longer*
- o Advise to report any unusual side effects or rashes to a healthcare provider while taking PrEP medicine
- o Report any signs/symptoms of acute HIV infection immediately to healthcare provider and get tested for HIV: *fever, joint or muscle aches, fatigue, headache, sore throat, vomiting, diarrhea, rash, night sweats, or enlarged lymph nodes in the neck or groin*
- o **MUST RETEST for HIV before restarting PrEP, if significant gap in doses** (i.e., self-discontinuation, insurance lapse, lost Rx bottle, etc.)
- o Discuss financial assistance options to help with cost of PrEP medicine
- **Safer Sex Practices for prevention of HIV infection and other STIs:**

- use latex or polyurethane condoms, dental dams, etc., with every sexual encounter
- know the HIV status of partner(s)
- do not share needles or “works” to inject drugs
- take PrEP medication daily without fail
- **Other important considerations:**
  - Discuss Hepatitis B vaccine series to protect against this infection
  - Discuss HPV vaccine series to prevent types of cancer associated with the human papilloma virus
- **Educational Materials:**
  - CDC website: [www.cdc.gov/hiv/basics/prep.html](http://www.cdc.gov/hiv/basics/prep.html)
  - San Francisco AIDS Foundation: [www.prepfacts.org](http://www.prepfacts.org)

**Prescribe, Monitor, and Support:**

- **Follow-up within 1 week** of HIV negative test:
  - Provider to forward tracking note to nurse to remind patient to schedule follow-up appointment within 1 week of initial consultation and lab tests
  - First Prescription:
    - **7-day sample:** Descovy 1 tablet PO QD, dispense #7, no refills
      - send Rx in RCopia to ECU SHS pharmacy
      - when samples are available, a 7-day sample can be dispensed by ECU SHS Pharmacy to the patient to get started on medication until first month prescription can be mailed to patient from an outside pharmacy
    - **30-day Rx:** Descovy 1 tablet PO QD, dispense #30, no refills
      - Send Rx to Walgreens Specialty Pharmacy, Durham, NC

\*\*\*\* DO NOT PRESCRIBE PrEP medication until proven HIV negative status\*\*\*\*

\*\*\*\*People born with a uterus: use Truvada\*\*\*\*

- **Follow-up 3-4 weeks** after initial prescription of PrEP (may be done via telehealth):
  - Assess adherence to taking PrEP daily
  - Assess for side effects of PrEP, give reassurance if having “startup syndrome”
  - Assess for barriers to compliance with taking PrEP or safer sex practices
  - Discuss risk-reduction behaviors
  - **Subsequent Prescriptions:** Descovy 1 tablet PO QD, dispense #30, 2 refills OR dispense #90, no refills
  - Provider to forward tracking note to nurse to remind patient to schedule follow-up appointment
- **Follow-up every 3 months:**
  - Provider to forward tracking note to nurse to remind patient to schedule follow-up appointment at the appropriate interval
  - Labs:
    - 4<sup>th</sup> generation HIV antigen/antibody combination assay, **required every 3 months**
    - HIV RNA (viral load) if having any signs/symptoms of acute HIV infection
    - STI screening, **recommended every 3-6 months**
    - Pregnancy test, if applicable
    - Creatinine and estimated Creatinine clearance – **required every 6 months**
  - Assess ongoing need for PrEP
  - Assess adherence to taking PrEP daily
  - Assess for barriers to compliance with taking PrEP or safer sex practices
  - Assess for side effects of PrEP
  - Discuss risk-reduction behaviors
  - **Subsequent Prescriptions:** Descovy 1 tablet PO QD, dispense #30, 2 refills OR dispense #90, no refills

**Refer to Infectious Disease:**

- For any positive HIV test or seroconversion while taking PrEP
- For any signs/symptoms or positive tests for liver disease

**Consultation Resources:**

Pitt County Health Department <ul style="list-style-type: none"> <li>○ Georgia Childs, PrEP Coordinator</li> <li>○ Phone: 252-902-2273</li> <li>○ Email: <a href="mailto:Georgia.shirley@pittcountync.gov">Georgia.shirley@pittcountync.gov</a></li> </ul>	Walgreens Specialty Pharmacy, Durham, NC <ul style="list-style-type: none"> <li>○ Sharmeen Ali, Pharmacist</li> <li>○ Phone: 919-326-3395</li> </ul>
ECU Infectious Disease <ul style="list-style-type: none"> <li>○ Grace Wilkins, FNP</li> <li>○ Phone: 252-744-4500</li> <li>○ Email: <a href="mailto:wilkinsg@ecu.edu">wilkinsg@ecu.edu</a></li> </ul>	Gilead Advancing Access <ul style="list-style-type: none"> <li>○ Elizabeth Rouse, HIV Prevention Specialist</li> <li>○ Phone: 252-327-6128</li> <li>○ Email: <a href="mailto:Elizabeth.rouse@gilead.com">Elizabeth.rouse@gilead.com</a></li> <li>○ <a href="http://www.gileadadvancingaccess.com">www.gileadadvancingaccess.com</a></li> </ul>
CDC PrEP Hotline <ul style="list-style-type: none"> <li>○ Phone: 855-448-7737</li> </ul>	National Clinician Consultation Center: <ul style="list-style-type: none"> <li>○ <a href="http://nccc.ucsf.edu">http://nccc.ucsf.edu</a></li> </ul>

**Reference:**

Centers for Disease Control. 2017. Preexposure Prophylaxis for the Prevention of HIV Infection in the United States – 2017 Update. A Clinical Practice Guideline. <https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf>

**Appendix C****Provider Survey**

1. What type of medical provider are you?

- M.D.
- Nurse Practitioner
- Physician Assistant

2. How many students do you treat in your practice that identify as gay, transgender, or IV drug users?

- None
- 1-5
- 5-10
- 10-15
- 15+

3. Are you aware of Pre-exposure HIV Prophylaxis (PrEP) and the CDC PrEP guidelines?

- Yes
- No

4. Have you ever treated a student with PrEP?

- Yes
- No

5. Would a combined document of PrEP guidelines, management, and resources be beneficial to you?

- Yes

No

6. Before today, had you heard of PrEP?

Yes

No

7. Have you ever been asked about PrEP by a student?

Yes

No

8. Have you ever initiated a conversation about PrEP with a student?

Yes

No

9. Have you ever prescribed PrEP to a student?

Yes

No

10. Would you prescribed PrEP to a student?

Yes

No



**Appendix D****Nurse Survey**

1. How many students do you treat in your practice that identify as gay, transgender, or IV drug users?

None

1-5

5-10

10-15

15+

2. Are you aware of Pre-exposure HIV Prophylaxis (PrEP) and the CDC PrEP guidelines?

Yes

No

3. Would a combined document of PrEP guidelines or resource guide be beneficial to you?

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

4. Before today, had you heard of PrEP?

Yes

No

5. Have you ever been asked about PrEP by a student?

Yes

No

6. Do you feel comfortable talking about PrEP to a student?

Yes

No

7. Would you provide education for PrEP to a student?

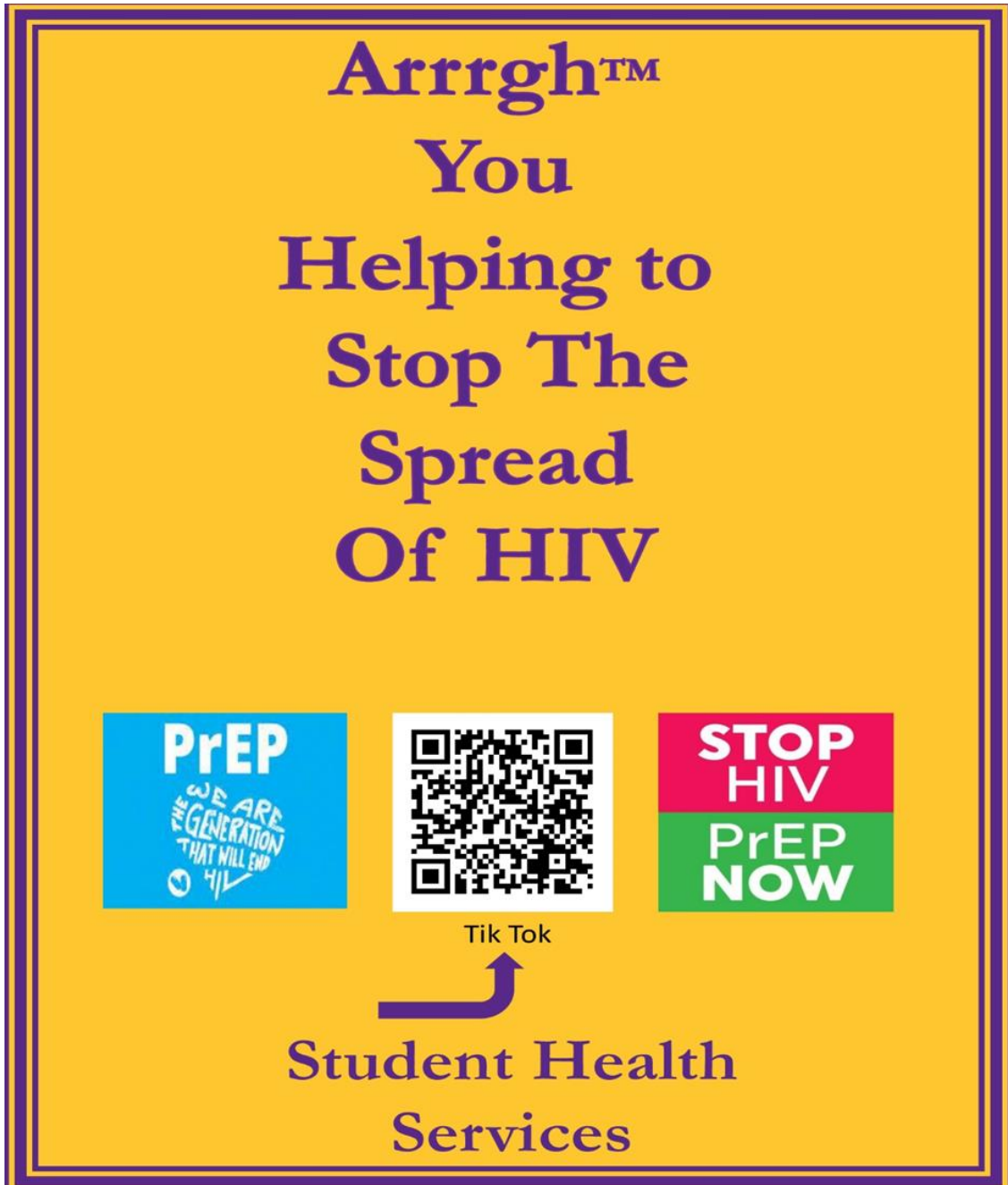
Yes

No


Appendix E

Poster

**Arrrgh™**  
**You**  
**Helping to**  
**Stop The**  
**Spread**  
**Of HIV**



**PrEP**  
WE ARE  
THE GENERATION  
THAT WILL END  
HIV



**STOP  
HIV**  
**PrEP  
NOW**

Tik Tok

**Student Health  
Services**

## Appendix F

### Budget

Item	Quantity	Cost	Total Cost
<b><i>Supplies</i></b>			
Resource Guide	25	\$0.00	\$0.00
Binder	25	\$1.00	\$25.00
Paper	400	\$0.05	\$20.00
Education Flyer	1000	\$0.20	\$20.00
Poster	20		\$5.00
<b><i>Staff Education</i></b>			
Breakfast/Education	10 nurses/1 hour	\$0.00	\$30.00
Teams Presentation	8 providers/1 hour	\$0.00	\$0.00
<b><i>Total</i></b>			<b>\$100.00</b>