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# Improving Chlamydia Risk Screening by Identifying High-Risk Service Members Using the CDC's 5 Ps Approach to Sexual Health History at a Large Military Base in North Carolina

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## ABSTRACT

**Project Title:** Improving chlamydia risk screening by identifying high-risk Service Members (SMs) using the CDC's 5 Ps approach to sexual health history at a large military base in North Carolina (NC)

**Background:** Chlamydia Trachomatis is infecting SMs at a rate of two to three times that of the US population, with over 200,000 cases since 2010 and continuing to rise. Currently, the military only screens female SMs under the age of 25, leaving many at-risk males to go undetected. These undetected SMs can continue to transmit the disease without their knowledge. Chlamydia, when undetected, can cause severe complications and place a significant resource burden on the military health system.

**Clinical Question:** Does using the CDC's 5 Ps assessment approach to sexual health history improve identifying high-risk behaviors and asymptomatic carriers of chlamydia when administered to all male and female SMs 30 years and younger at a large military base in NC?

**Project Design:** Using the Iowa Model Revised EBP framework, this project incorporated a retrospective review of all G/C urine NAAT tests three months before the project's implementation phase. The 5 Ps questionnaire was implemented into daily practice through clinician engagement and education. The pre and post-implementation data were compared after the completion of the project.

**Analysis of Results:** 449 SMs were assessed using the CDC's 5 Ps approach. The questionnaire identified 91 (20%) SMs at higher risk for STIs. Forty-five (49%) of the high-risk SMs submitted urine for G/C urine NAAT testing purposes. Consistent with the literature review, our targeted screening for high-risk SMs resulted in a 13.3% positivity rate. Five out of six (83%) positive cases were male, exposing the shortfalls in current screening practices and guidelines. Current screening practices at the site only had a 5% local positivity rate in the retrospective data review.

**Implications for Practice**: This project was designed to improve the identification of high-risk sexual behaviors amongst male and female SMs 30 years and younger. This project demonstrated that using the 5 Ps approach to sexual health improves the identification of at-risk SMs using a simple and time-efficient method for the patient and provider. Expanding chlamydia screening practices also reflect current evidence and accurately represents the military population.

**Abbreviated Version**

**Project:** Improving chlamydia risk screening by identifying high-risk SMs using the CDC's 5 Ps approach to sexual health history at a large military base in North Carolina

**Impact:** Over 13% of those who gave a sample tested positive for an STI. This is consistent with current evidence that estimates the positivity rate of high-risk individuals to be 13-14%. With the military's current standard of practice only having a 5% positivity rate, this project demonstrated the value of using the CDC's 5 Ps tool for targeted screening.

# Improving Chlamydia Risk Screening by Identifying High-Risk Service Members Using the CDC's 5 Ps Approach to Sexual Health History at a Large Military Base in North Carolina

Chlamydia trachomatis is infecting service members (SMs) at a rate of two to three times that of the US population, with over 200,000 cases since 2010 and continuing to rise (Nadeau et al., 2018). Complications of undiagnosed chlamydia pose severe consequences to SMs, such as acute or chronic pain and pelvic inflammatory disease (PID), potentially rendering them unfit for duty (Nadeau et al., 2018). In a community that is inadequately addressed by the current professional guidelines, identifying at-risk service members is a priority in reducing chlamydia (Hull et al., 2017).

Addressing this national problem, the Center for Disease Control (CDC) has created the 5 Ps approach to sexual health histories. The 5 Ps assess a person's sexual *Partners*, their *Practices*, their use of *Protection* from sexually transmitted infections (STIs), how they are *Preventing* pregnancy, and if they have any *Past* history of STIs. Identifying high-risk SMs can be accomplished by implementing this simple approach to obtaining a sexual health history (CDC, 2020). Primary care providers should ask these questions to assess the risk level of every SM 30 years and under as supported by research. Current evidence supports the use of enhanced targeted assessment with tools such as the 5 Ps approach in the primary care setting to determine individual risk levels (Falasinnu et al., 2016). With regular assessment of SMs 30 and under in primary care, high-risk SMs will be identified and appropriately screened, leading to a decrease in transmission. The long-term goal is to reduce the incidence of chlamydia at Fort Bragg.

## Significance of the Problem

Sexually transmitted infections have increased at an alarming rate in the United States over the past decade. Chlamydia has seen an increase of 19% since 2014 and is the most reported bacterial STI in the United States (Nadeau et al., 2018). The rates of chlamydia in the military among female SMs are two to three times higher than in civilian counterparts (Nadeau et al., 2018). Chlamydia is known as a 'silent' infection because most infected people are asymptomatic and lack abnormal physical examination findings. Studies show that approximately 10% of men and 5-30% of women with a confirmed chlamydia infection develop symptoms (CDC, 2016). When individuals do not have symptoms of chlamydia, they do not seek care and continue to transmit it to others. If chlamydia goes undiagnosed and untreated, it can cause severe complications such as pelvic inflammatory disease, infertility, pain, and severe arthritis (Ahmad et al., 2018). However, if diagnosed early, it can be treated promptly and effectively with antibiotics. The medical sequelae of chlamydia impacts women more than men (Nadeau et al., 2018). Chlamydia also places a significant resource burden on the military health care system by taking Soldiers away from their job and taking precious healthcare resources from other important causes (Nadeau et al., 2018).

## Relevance to Military Nursing

The US military represents a diverse population and one that is not averse to stressful work environments. In a study by Ceccato et al. (2016), the authors found that chronic stress increases a person's risk-taking behaviors. With demanding military duties and susceptibility to risk-taking behaviors, SMs are at an increased risk of contracting chlamydia. The incidence rate for chlamydia in SMs has more than doubled from 2013 to 2018 due to inadequate preventative measures for high-risk SMs (Kime, 2020). In a survey of the military population performed by Stahlman & Oetting (2019), chlamydia cases totaled 212,405 from 2010 to 2018. Current

interventions are not adequately identifying and preventing the spread of chlamydia. Performing a sexual history risk-based assessment on a regular basis in this population is essential to providing quality, cost-effective, and safe care (Barrow et al., 2020).

Fayetteville, North Carolina, home to Fort Bragg, is listed as the 12th city in the entire nation regarding the STI incidence rate (Kime, 2020). With an active-duty Army population of over 45,000 SMs, Fort Bragg is the largest Army installation by population in the United States (US Department of Defense, 2018). With such a large population and rapidly deploying units, including the 82nd Airborne Division and Special Forces, undetected chlamydia poses a threat to military readiness. In a retrospective study of 67,425 Soldiers assigned to Fort Bragg from 2005 to 2010, the crude incidence rate of CT was 21.7 per 1000 Soldiers per year (Hakre et al., 2014). Among those followed in the study, 2,198 Soldiers (3.3%) had at least one chlamydia infection while stationed at Fort Bragg (Hakre et al., 2014). The demographics of those who are at high-risk for chlamydia are younger age, education at the high school level, residence in high-prevalence areas, and non-whites (Deiss et al., 2019). Greater than 50% of officers and over 70% of enlisted Soldiers are under 35, constituting a significant segment of a vulnerable population (Council on Foreign Relations, 2020).

In addition to military readiness, STIs also place a significant strain on the military healthcare system. Sexually transmitted infections cost the US Navy alone $5.4 million in health care costs in 2012 (MHCSO, 2019), and that number is likely much more significant with the recent increase in cases. Following the United States Preventive Services Task Force (USPSTF) recommendations, the military performs an annual chlamydia test on all sexually active females younger than 25 years of age (Jordan et al., 2011). The CDC recommends screening sexually-active young men in high prevalence populations. Both the CDC and USPSTF recommend

screening females older than 25 if they are at increased risk by having more than one sex partner, recent new sex partners, a sex partner who has a concurrent sex partner, and a sex partner with STIs (CDC, 2021). However, with the disproportionate ratio of male-to-female SMs, 86% to 14%, respectively, the military could potentially reduce the overall burden of chlamydia by improving the recognition and screening of all high-risk individuals (Gaydos et al., 2008).

## System or Clinical Question

Does the use of the CDC's 5 Ps assessment approach to sexual health history improve identification of high-risk behaviors and asymptomatic carriers of chlamydia when administered to all male and female SMs 30 years and younger at a large military base in North Carolina?

## Literature Review of Solutions

To guide the literature search, the authors' PICOT question was: For active-duty SMs at a large military base (P), how does regularly assessing sexual health history using the CDC's 5 Ps approach during primary care encounters (I) compared to usual care of non-standardized sexual health history (C) influence the screening and detection rates of chlamydia in active-duty SMs (O) during a three-month period (T)?

The PubMed and CINAHL databases were used with the filters of the English language and dates of 2010 to the present. The key search terms were risk assessment, risk scoring, screening guidelines, sexual health history, sexual history taking, sexual health questionnaire, sexual health assessment, chlamydia trachomatis, sexually transmitted disease, and STI. The search yielded 616 results in the PubMed database and 416 results in the CINAHL database. There was a total of 345 duplicates. After removing duplicates, 687 articles were selected for the title and abstract screening. Title and abstract screening were completed with the inclusion criteria to include articles that evaluated the sexual history taking or some form of a risk score to

identify high-risk individuals for screening and identifying the infected individual. Exclusion criteria included articles that compared the reduction in other STIs such as HIV, studies that did not assess the intervention, and studies with a sample size of less than 100. After title and abstract screening, 568 articles were removed, leaving 119 articles for full-text review. Another 109 articles were excluded during the full-text review due to the wrong study design, setting, comparator, intervention, review, population, and outcome. Ten articles were subsequently selected for the final literature review. This process can also be found in a PRISMA diagram in Appendix A.

## Solution Synthesis

Current strategies to prevent sexually transmitted infections (STIs) include male condoms, behavioral counseling, preexposure vaccination, and presumptive treatment after exposure (Barrow et al., 2020). However, the population must be considered when implementing new strategies. Of the 20 million new cases of STIs that occur in the US each year, about one-half occur in ages 15-24 (CDC, 2015). Over 40% of the military population falls into this age group. Currently, the CDC recommends testing sexually active women under the age of 25. This recommendation inadequately captures a population consisting of 80% males. The USPSTF found insufficient evidence to assess the balance of benefits and harms of screening for chlamydia in men. However, the military continues to have higher numbers of STIs-greater than three times the national average -with no current proven way of curbing the trend. Therefore, widening the screening parameters to include young SMs coming to the primary care clinic will reduce the gap in identifying and treating chlamydia. The CDC's current guidelines on STI treatment focus on risk assessment, prevention counseling, prevention methods, and partner services (Workowski et al., 2015). Evidence suggests that if screening rates can be increased to

90%, the complications and costs related to chlamydia can be significantly reduced (Hull et al., 2017). The project's literature review found that screening individuals at every primary care visit to identify potential high-risk behaviors is the best approach to reducing the incidence of chlamydia in populations similar to that of Fort Bragg. A complete literature review table can be found in Appendix B.

Despite knowing that appropriate screening is the key to reducing chlamydia, less than optimal screening rates remain prevalent (Hull et al., 2017). Suboptimal screening rates are due to inadequate patient understanding, time constraints, provider discomfort with the topic, patient concern about confidentiality, and social stigma (Hull et al., 2017). A careful and detailed sexual health history is essential for proper identification, testing, and treatment of chlamydia. Less than 40% of providers conduct sexual histories with patients, and many do not receive formal sexual history training in school (Lanier et al., 2014). In the absence of accurate sexual health histories, providers consistently fail to identify high-risk individuals. In another study done by Falasinnu et al. (2016), the results revealed that the current guidelines for population health are inadequate to evaluate sexual health at an individual level.

This project's authors determined that the CDC's 5 Ps approach to sexual history taking is a simple yet effective way to identify the high-risk population during their literature search. The CDC's 5 Ps questionnaire can be found in Appendix F. It helps providers gather accurate sexual history nonjudgmentally and respectfully. It also helps them identify high-risk individuals by providing an accurate assessment of sexual activity, protection methods, sexual partners, pregnancy prevention, and history of STIs (CDC, 2020). These five topics under this approach establish the beginnings of the fight against chlamydia. The CDC created "A Guide to Taking a Sexual History," explaining the 5 Ps approach for providers to implement in their practice.

Na'Allah et al. (2020) conducted a research study to determine the effectiveness of implementing the CDC's standardized sexual health screening 5 Ps for reducing STIs among patients aged 11 to 24. They found a 3-fold jump in STI screening after implementing the 5 Ps approach. The result showed that the CDC's 5 Ps application has proven helpful in screening patients and identifying high-risk individuals (Na'Allah et al., 2020). We also came across other tools and surveys for assessing high-risk individuals during their literature search. However, some had not moved beyond the pilot study, while others were lengthy and not tested in the United States. The project's authors' analysis found that the CDC's 5 Ps approach is the best option for reducing the high incidence rate of STIs at Fort Bragg.

Although all sexually active individuals are at some risk of STIs, universal testing is not practical. New practices should focus on testing those identified as high risk from the screening questionnaire. Currently, MTFs are using the Healthcare Effectiveness Data Information Sets (HEDIS) as a measurement tool to reduce the rates of chlamydia. However, evidence shows this practice is not enough. Providers need to screen and be able to identify asymptomatic high-risk individuals. While conversations during a sexual health history may be uncomfortable, it still needs to be accomplished. A comprehensive sexual history should be a part of routine, preventative health care (AAFP, 2019).

## Focus Areas

This project focused on educating the medical staff of a large troop clinic to perform a sexual health questionnaire for all SMs 30 years and younger who present to the primary care clinic regardless of their chief complaint. After reviewing the literature, there was a dominant theme regarding expanding high-risk population assessment and screening practices. The evidence supported the sexual health risk assessment administration for all young SMs. Evidence

suggested that consistent STI screening during primary care intakes will increase the detection rate of asymptomatic chlamydia leading to prompt treatment and further preventing the spread of the infection.

This project had five focus areas. First, the literature review was conducted to determine best practices for controlling the spread of STIs. Attention was given to interventions that assess and screen populations outside the USPSTF recommended population. Next, data was collected from the months of June 2021 to August 2021 to include patient demographics, number of screening tests ordered and positive results. Third, emphasis was placed on educating the clinical staff on the administration of the 5 Ps questionnaire, high-risk criteria, and current CDC treatment guidelines for STIs. The fourth focus area began when 90% of the clinical staff had been trained on the material and process, and the 5 Ps was implemented into daily practice. Lastly, post-implementation data was collected during the two months of implementation and were compared and analyzed against the data from the pre-implementation phase.

## Business Case Analysis

Please see Appendix D for the project's Business Case Analysis.

## Organizing Framework

The Iowa Model Revised was used to guide the implementation process. The Iowa Model's recent design revision supports interprofessional teams' evidence-based healthcare delivery through a basic, simplifying approach to the scientific problem-solving process while being highly application-oriented (Melnyk & Overholt, 2019). It provided a practical approach that was easy to follow while implementing the project.

An opportunity was first identified to change how healthcare is delivered at a large clinic in Fort Bragg, North Carolina. Many military healthcare leaders recognized that the number of

STIs continued to increase and cause a burden on the military population and readiness. This was the triggering issue, and the subsequent clinical question was developed based on this issue. The evidence suggested this EBP change would improve the detection rate of chlamydia in asymptomatic SMs, leading to prompt treatment and decreased spread of the infection. The next step led to the establishment of the EBP team and the identification of the stakeholders in this project. The hospital and clinical leadership teams, clinic providers and support staff, Army Public Health department, Preventative Medicine, and laboratory staff supported the project. According to public health nurses and clinical leaders at Fort Bragg's primary care clinics, the current screening process for chlamydia was based on the HEDIS measure, screening 16 to 24-year-old sexually active females annually. Unfortunately, this process excluded the male population, which made up roughly 85% of the servicemembers at Fort Bragg. After reviewing the literature on chlamydia screening practices, the next step was to collect, analyze and critique the evidence to address a population inadequately screened by the HEDIS measure alone. The current national measure did not conform to the military population. Thus, the evidence encompassing both male and female sexual risk was reviewed.

Using PubMed and CINAHL, evidence was gathered for the literature review provided in Appendix B. The authors found sufficient evidence to improve completing a sexual health assessment using the CDC's 5 Ps method to make a risk-based determination in the need for testing. After analyzing the literature, a viable design was established to move forward with the project.

Utilizing the Iowa Model Revised, the design of the practice change required numerous steps before piloting the new process. Consideration of the needed resources, development of the rollout plan, preparation of the staff, and creation of an evaluation plan were all a part of the

implementation of the pilot practice change. The Iowa Model Revised included feedback loops that allowed teams to perform analysis, evaluate, and modify the project based on outcome indicators. These feedback loops were critical in the operation as they provided continuous monitoring of clinical outcomes to retrain the staff and adapt to the changes in practice.

The final steps of the project were fostered through feedback and continuous process refinement as needed for successful long-term sustainment. Consistent communication with the key stakeholders to keep them aware of the results was critical as the continuous refinement of the product was being done. The goals were to implement a practice change to increase the detection rate of chlamydia, to show that this practice change can be made to decrease the number of infections and to inspire other medical treatment facilities to adopt the new practice into their system.

## Project Design

### General Approach

This EBP project aimed to increase the detection rate of chlamydia in asymptomatic active-duty SMs through a sexual health history risk questionnaire. The project recommended that all SMs 30 and younger complete a 5 Ps sexual health history questionnaire during each appointment. The provider then determined if a urine screening test was indicated for the patient based on high-risk sexual behavior identified in the 5 Ps questionnaire. The high-risk SMs were then recommended to submit a urine sample for testing purposes. This work required a multifaceted team approach beginning with garnering support from the key stakeholders and healthcare leadership at Fort Bragg. After receiving EBP council approval and IRB exemption, a retrospective review of the past three months of chlamydia cases from June 2021 to August 2021 was conducted. This provided data to compare with the intervention. Training and education

provided the staff with the skills and knowledge for the project's goals. When the training was completed, the 5 Ps questionnaire was implemented into daily practice. Feedback and results from the initial few weeks of implementation were evaluated for inconsistencies and shortfalls. After one week of initial implementation, a slight change was made to the questionnaire document by adding an area for the staff to document the date and time of the patient encounter. This change allowed patient data and Personally Identifiable Information (PII) in the Electronic Health Record (EHR) to be deidentified when performing a retrospective review of lab results.

**Setting and Population**

The project implementation took place at Robinson Health clinic, the largest stand-alone troop clinic in the DoD by population, which is located within Fort Bragg. Within Robinson Health Clinic, this project was implemented in the sections which only saw active-duty SMs. As mentioned previously in this paper, the target population was all SMs 30 years and younger. The clinic is staffed by Physicians, Physician Assistants (PAs), Nurse Practitioners (NPs), nursing personnel, and medical assistance staff (medics).

**Procedural Steps**

Steps one, two, and three of this scholarly project were completed before the authors' arrival to Fort Bragg, NC for their final year of clinical rotations. These steps included identification of a trigger, formation of a team, and appraisal of the body of evidence. Portions of step four, which included designing the project, were also accomplished prior to the arrival at Fort Bragg. In June of 2021, a face-to-face discussion with key stakeholders took place to gather support for this project. A three-month retrospective chart review was conducted using lab result information after it was evident that providers were not performing sexual health assessments

during routine patient encounters. The sexual health history assessment, patient demographics, chlamydia screening tests, and the positive test results were the primary data points.

To optimize the opportunistic screening of chlamydia, the CDC's 5 Ps approach to sexual history taking was utilized for all SMs 30 and younger. This age group was chosen based on the retrospective data analysis which showed over 95% of the positive SMs were 30 and under. After communicating with key providers at Fort Bragg regarding the current process, the focus shifted to improving the rate of completing a sexual health assessment for individuals 30 and younger. Therefore, this process allowed us to tailor the screening for chlamydia to individuals at risk.

The importance of decreasing the number of chlamydia cases to improve readiness cannot be overstated as the incidence of chlamydia continues to rise along with subsequent antimicrobial resistance. In 2021, the CDC updated its guidelines for the treatment of chlamydia to prevent antimicrobial resistance. Instead of a single dose of one gram of Azithromycin, the new recommendation is Doxycycline 100 mg twice a day for seven days (CDC, 2021). Training and education were presented through multiple approaches such as an in-service staff session, "one-on-one," and "just-in-time" training. Provider instructions were also provided through an informational electronic guide and a hard copy of PowerPoint slides. Please see appendices F and G for the tools used in this project.

The implementation of the 5 Ps questionnaire proceeded when 90% of staff members had been trained in the practice change. A Medical Support Assistant (MSA) or medic instructed the patient to complete the paper questionnaire. A medic or provider then verified the answers to the questionnaire, and the provider determined if a screening test was necessary per risk criteria. Providers and nurses were instructed to counsel about the risk and prevention of STIs if they were deemed high-risk. The timeline for implementing the new practice lasted approximately

eight weeks. The process was continuously evaluated during the implementation phase while asking for staff feedback on days one, three, and then weekly and as needed until completion. The continuous evaluation and staff feedback assisted in the finetuning of the project regularly.

**Data Analysis Plan**

The data analysis plan can be found in Appendix C. The independent variable was the administration of the 5 Ps sexual health history patient assessment. It is a process measure and a nominal level of measurement. The dependent variable was the number of patients who were determined to be high-risk during their encounters. This is a process measure with a nominal level of measurement. An additional variable analyzed was the number of tests ordered due to the sexual health history assessment. A pre-and post-implementation comparison was made for the number of patients assessed, screened, and those who tested positive. Those who were not evaluated during the encounter were not counted against the numbers, and those assessed received a score of one. Then the comparison was made against the number of positive tests and the number of people screened. The Clopper-Pearson and Fisher's exact tests were utilized to analyze the data once completed.

**Barriers**

As with all new practice changes, numerous barriers that could possibly ensue throughout the execution of the project were anticipated. The first and most challenging barrier was the staff's willingness to apply the change to their practice. However, the staff’s resistance was much less than what was anticipated. To make the transition more agreeable to the staff, SMs were given the form during their check-in process to avoid lengthening the screening or encounter time. Support for this project was garnered through outstanding communication efforts by presenting the facts and relating the issue of chlamydia's effect on readiness and stressing how

silent infections remain in the population and could continue to spread until providers begin asking sexual history questions.

Another barrier was the time allocated to each patient encounter. It was understood that adding an extra step would further increase the time demand with patients. The authors observed that if the questionnaire was given to SMs at the time of their check-in, it would not delay or extend the patient encounter. However, if the patient was determined to be high-risk, time for addressing additional concerns such as sexual risk-taking behaviors is challenging, particularly in a busy troop clinic. Time constraints may have led to miscommunication between staff members, orders not being entered properly, and instructions not being given to SMs resulting in lower rates of urine samples being collected.

The next barrier stemmed from the nature of the provider-patient relationship and the sensitivity of sexual health. Many patients and their providers lack the relationship that fosters discussions on sexual issues. This form was anonymous and voluntary to alleviate the anxiety and concern of the patients.

**Sustainment and Dissemination**

The 5 Ps questionnaire was easily integrated into everyday practice. This project assured providers performed the sexual health assessments recommended by the CDC and USPSTF's guidance during patient encounters. The authors wanted to ensure providers maintain a continuous and consistent effort to achieve the performance of a routine sexual health assessment. An official clinic policy and procedure guideline will be drafted as a Standard Operating Procedure (SOP) and given to leadership if they choose to support the new practice.

This project significantly improved the detection of asymptomatic chlamydia cases. As for disseminating results, a poster and presentation were made for the clinic staff, hospital

leadership, and other stakeholders to address compliance with efforts and results. This project was approved for presentation at the American Academy of Nurse Practitioners (AANP) National Conference to be held in June 2022. Publication of the project is being considered for broader dissemination.

## HIPAA Concerns/Ethical Considerations

The primary outcomes of the intervention were completion rates of sexual health history and the number of positive chlamydia results found through focused screening. The data included the number of assessments performed by providers and the ratio of positive screening tests. The information and data from the study were kept in a database on a common-access-card (CAC) enabled computer. Protected health information (PHI) or PII was not collected. All current HIPAA-compliant practices of reporting the STI to the public health department remained in effect during this project. The military EHR AHLTA was accessed for the retrospective and prospective chart reviews.

## Project Results

Four hundred forty-nine SMs completed the questionnaire during primary care encounters over eight weeks. Based on their answers and the provider's determination of whether the SM was at-risk, the provider or medic recommended that a urine sample be obtained for STI screening. Of the 449 questionnaires, 91, or approximately 20%, were considered positive for high-risk sexual health behaviors. Table one shows the demographics and risk factors of the 91 high-risk SMs and the 45 SMs who submitted a urine sample for testing purposes.

Out of the 91 deemed high-risk, 45 SMs (49%) provided a urine sample for testing purposes. The urine tests showed six (13.3%) positive cases, five chlamydia, and one gonorrhea amongst those who provided the urine sample. Five out of the six positive cases were male, and

all six SMs would not have been tested for an STI had they not filled out the questionnaire. Of the remaining forty-six who did not have testing results, 29 (63%) did not have a laboratory order placed, and 17 (37%) had a lab order placed but failed to provide a urine sample.

**Table 1.**

**High-risk Servicemember Demographics**

| Category | No. screened deemed high-risk N= 91 (*percent*) | No. SMs who provided Sample N= 45 | No. of Positive Cases (*Positivity rate*) |
|---|---|---|---|
| Gender | | | |
| Male | 67 (*73.6*) | 31 (*68.9*) | 5 (*16.1*) |
| Female | 24 (*26.4*) | 14 (*31.1*) | 1 (*7.1*) |
| Age Group | | | |
| 19-24 | 66 (*72.5*) | 33 (*73.3*) | 5 |
| 25-30 | 25 (*28.5*) | 12 (*27.7*) | 1 |
| Risk Factors | | | |
| > one partner in past six months | 69 (*75.8*) | 32 (*71.1*) | |
| > one partner in past 12 months | 91 (*100*) | 33* (*84.6*) | |
| Protection always (condoms) | No: 56 (*61.5*) Yes: 35 (*38.5*) | No: 24 (*53.3*) Yes: 21 (*46.7*) | No: 5 Yes: 1 |
| History of STI | No: 75 (*82.4*) Yes: 16 (*17.6*) | No: 39 (*86.7*) Yes: 6 (*13.3*) | No: 6 Yes: 0 |

** 6 SMs did not answer the question resulting in an 84.6 valid percent*

## Analysis of the Results

Implementation of the CDC's 5 Ps questionnaire identified a percentage of SMs (20%) who were engaged in behaviors that placed them at higher risk for acquiring an STI. The positive

rate of STIs for high-risk SMs that were tested was 13.33% (95% CI - Clopper-Pearson (Exact), 5.05% to 26.79%). For male SMs, the positive rate of STIs for high-risk SMs that were tested was 16.13% (95% CI - Clopper-Pearson (Exact), 5.45% to 33.73%). For female SMs, the positive rate of STIs for high-risk SMs that were tested was 7.14% (95% CI - Clopper-Pearson (Exact), 0.18% to 33.87%). The Fisher's Exact Test did not show any significant difference in the positive rate between male SMs and female SMs ($p= 0.6485$). Although consistent with population demographics at Fort Bragg, it cannot be concluded that there were no significant differences across gender in STI positive rates. This is because a power analysis could not be conducted for the study due to the small number of positive cases.

Targeted screening using the 5 Ps approach to sexual health behaviors resulted in a 13.3% positivity rate among those tested. This finding is consistent with Goyal et al. (2017), whose study found that people considered high-risk had a positivity rate of 13.7%. Due to the high proportions of asymptomatic chlamydia infections, screening programs have proved beneficial to the civilian and military populations; however, approaches such as universal screening amongst SMs typically only yield a 5% positivity rate. This is seen in evidence from a universal screening program conducted between 2007 and 2010 for all new US Army personnel arriving in Korea in that time frame. Jordan et al. (2013) showed a 3.8% positivity rate among 12,588 SMs arriving in Korea. This project’s approach to targeted screening demonstrated improved accuracy in finding asymptomatic chlamydia with the benefits of cost-saving by preventing the mass amount of testing, as evident by the past program in Korea. By quickly assessing the SMs' sexual behaviors at each appointment, providers can increase cost savings and reduce resource burden compared to universal screening programs.

## Organizational Impact / Implications to Practice & Policy

Assessing both male and female SMs for sexual risk-taking behaviors ensures that both genders are adequately screened for risk factors. Implementing a risk-based screening strategy such as the 5 Ps approach to all male and female SMs 30 years and younger can help identify high-risk sexual behaviors leading to increased findings of asymptomatic chlamydia carriers. In a predominantly young population (considered to be in the "high-risk" age) and male, STI screening practices should address all members at risk for transmitting an STI.

Early detection and prompt treatment after identification of a positive case of chlamydia decreases the risk of developing more severe medical sequelae. Identification of the silent carriers prevents further spread of the infection, reduces unnecessary healthcare expenditure, and keeps the individual SM in the fight, ensuring a fit and ready force.

## Future Directions for Research and Practice

This project's findings demonstrate that primary care clinics should consider adopting a policy to assess sexual risk-taking behaviors in males and females 30 and younger at each medical appointment. Future studies should focus on obtaining a reliable picture of the burden of undiagnosed chlamydia in the military. Although the authors used the 5 Ps approach to identify risk, other electronic tools exist and are available to providers. Future studies should compare various screening tools available to a large population sample to determine the best tool or algorithm for STI screening. The authors did not determine the actual monetary cost of risk-based screening as half of the high-risk SMs identified did not give a urine sample. Observational studies providing real-world, cost-effective evaluations are needed in the future. Routine visits to the primary care clinic can be an opportunity to identify asymptomatic carriers of STIs, particularly when dealing with a young population seen in the military. Hence,

healthcare providers, nurses, and medics should be aware of the screening tools and feel comfortable asking personal questions to determine the individual's level of risk. Although the paper questionnaire was easy and quick to complete, the authors recommend using and documenting the sexual health questions using the EHR for records and ease of access for providers to review.

## Conclusion

STIs such as gonorrhea and chlamydia continue to increase in the military despite current screening methods. Although the CDC recommends screening of sexually active young males in high-prevalence areas, the military, and this paper's targeted organization's current screening guidelines are not appropriately identifying asymptomatic SMs with chlamydia. Over 80% of the SMs positive for STIs in this EBP project were male and asymptomatic, highlighting the screening disparity in the military. Without using the CDC's 5 Ps questionnaire, the authors would not have identified those SMs with high-risk behavior and the need for testing. Primary care providers may not even ask sexual health-related questions if the patient is there for another complaint. The CDC's 5 Ps questionnaire holds promise as a risk-based screening tool that can be efficiently utilized to identify SMs at risk for STI during regular primary care appointments.

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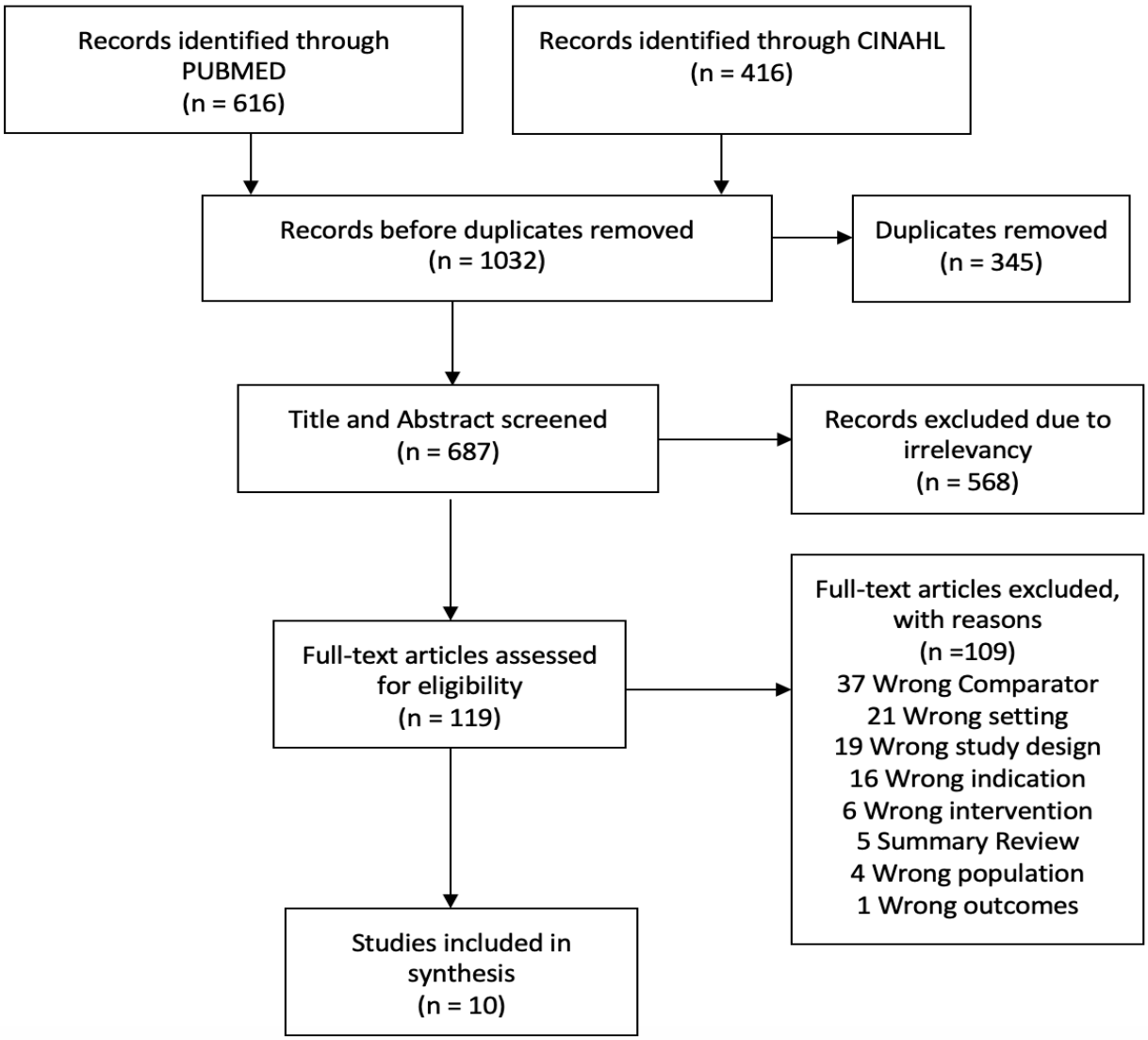
Appendix A

**Figure A.** PRISMA Flow Diagram



# Appendix B

**Figure B**. Literature Table

| 1st Author Name (Publication Yr) | Study Purpose/Aims | Research Questions/Hypotheses (IF different from/specifically described separately from study purpose & aims) | Study Design | Total Sample Size (How many initially, how many at final analysis?) | Sampling Plan | Independent Variables AND LEVEL OF MEASUREMENT | Dependent Variables AND LEVEL OF MEASUREMENT | Statistical Analyses - what tests were used for which research questions? | Results | Strengths (how promoted internal/external validity) | Weaknesses (biases, poorly controlled threats to internal/external validity) | LEVEL OF EVIDENCE - using JH-NEBP tool (Strength and Quality) |
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| Ahmad et al., 2018 | To examine association among demographics, sexual behavior, chief complaint and willingness to be tested. | Same as the study purpose. | Prospective study conducted in the pediatric ED between April and December of 2011. | Total sample size at the end was 789. Approached 1337, of whom 800 enrolled and 11 were excluded due to not answering the questions about sexual history. | Setting: A large pediatric ED in St. Louis, Missouri. Convinience Sampling INCLUSION: patients between the age of 15-21 with non life threatening conditions and willing to provide their demographics data and sexual history via Audio-enhanced Computer-Assisted Self-Interview (ACASI). EXCLUSION: Patient over 21 and under 15. Patient with life threatening condition, victims of abuse, those with psychiatric conditions, and those who are unable to use the computer independently. | Demographic characteristics, sexual history and chief complaint. Demographic Characteristic NOMINAL Sexual History: NOMINAL Chief Compliant: NOMINAL | Willingness to be tested. Measurement: NOMINAL | Only participants who answered yes or no to at least one of the three questions about sexual intercourse were included in this analysis. Univariate association among the categorical demographic variables, sexual behaviors, ED chief complaints and willingness to be tested using Chi square and Fisher's exact test, as appropriate and compared med an age between groups using Mann-Whitney U test. Two tailed p values <0.05 were considered significant. Analyses were performed using IBM SPSS Statistics V.22.0.0.0. | Many participants with ED complaints unrelated to STI disclosed high risk sexual behaviors, and most participants (including those without high risk activities) were willing to receive STI testing during the ED visit. No significant difference in participation were found in races however more women were enrolled in the program. Women are less likley to have multiple sex partners in the preceding 12 months, however they were more likely than men to have received the STI testing in the past. Patients with STI-related complaints were more likely to report any sexual intercourse, inconsistent condom use as well as prior STI testing and positive tests for gonorrhea and chlamydia than those with non STI related content. | Large sample size. Studies in other setting have demonstrated varying levels of comfort and skill of the provider on soliciting sexual histories. Such problems are bypassed using the ACASI. | Convenience sample of patients at a single ED visit was used limiting the generizability of the findings. A third of the patient approached refused to participate, and it is possible that this group would not have been as those who agreed to be in the study. There were no information regarding sexual history or receive STI testing for thsoe that refused to participate. Self protection bias is also a concern in this study. | III B |
| Dougas et. al., 2020 | To evaluate CT and GC testing and prevalence among 12-24 year-old patients in an urban Federally Qualified Health Center | Same as the study purpose. | Retrospective study analyzing electronic health record data from 2017 to 2019 | Total sample size of 44021 was included for the study. Of that 37.6% were tested and 15.0 % were positive for CT and 3.4 % were positive for GC. | The study was completed at the Denver Health in Denver Colorado that included 28 federally qualified health clinic from 01 Jun 2017 to 30 Jun 2019. INCLUSION: Pt between 12-24 years who had at least one visit at a DHFQHC. EXCLUSION: Pts who had encounters in subspecialty clinics, emergency departments, urgent care, STI clinics and inpatients settings were excluded. | Independent variable is CT and GC testing among 12-24 year old patient regardless of age and gender. Level of measurement: NOMINAL | Dependent variable is Incidence of Chlamydia and GC or prevlance of GC and CT in the tested population. Level of measurement: NOMINAL | Chi Square test was used to evaluate differences in prevalence of CT and GC between the groups. The group included heterosexual females, heterosexual males and MSM. | Among females, 48.8% were retested 1 or more times. Among tested 15.6 percent were positive for CT and 3.2 were positive for GC. Among males 20.8 were tested one or more times. Among tested male 12.9% were positive for CT and 4.4 were positive for GC. Non heterosexual males were more likely to be tested than heterosexual males at 55.11 and 22.8% respectively. Person who had more than 1 infection were more likely to be female than those who had 1 infection 82.4% vs 78.4%, p= 0.02. | A large number of patients, the ability to report on male testing and infection rates and reporting patient level rather than population level data. | Inability to determine if patient received testing outside of the system, inability to differentiate screening in asymptomatic patients from testing in symptomatic indiciduals. | III B |

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| Falasinnu et al., 2016 | The study aims to review the epidemiology, utility of clinical guidelines, and clinical prediction rules. The goal was to understand and compare the population based guidelines and clinical practice guidelines for sexual health decision making. | Is STI identification accuracy better achieved using Clinical predicition rules (CPR) and algorithms at an individual level rather than using population based guidelines set forth by the PHAC? | Retrospective empirical examination that juxtaposes population-based guidelines and clinical practice guidelines. | 35,818 individuals met study inclusion criteria- this represented 45.2% of the patient visit seen during this time period. | Electronic medical records from asymptomatic patient visits from 2000 and 2012 at nine publically funded STDs with Public Health Agency of Canada (PHAC) screening guidelines. INCLUSION: Heterosexual men and women. EXCLUSION: Visits among persons who were sexual contacts of STI cases and confirmatory positive visits | Screening with PHAC (Nominal) or screening using Clinical Prediction Rules (CPR) (Nominal) | Case finding accuracy (Nominal) | The basic categories was copied using the chi square test. Continuous variables were used and logistic regression to analyze risk factors and predictors. 10-fold cross validation factors was used to prevent overfitting of data. | In total, 35,818 individuals met the study inclusion criteria. The overall infection rate was 3.0%. Using the PHAC guidelines, the discriminatory performance of using any versus no risk factors and counts of risk factors were: Area under the ROC Curve (AUC) = 0.55, 95% CI: 0.54–0.56 and AUC = 0.64, 95% CI: 0.63–0.66, respectively. The model used to derive the CPR demonstrated good discrimination (AUC = 0.73, 95% CI: 0.71–0.74). | Evaluates whole population regardless of CDC guidelines of age and sex. Identifies and demonstrates that with emperical evidence, population based guidelines may not necessarily be a perfect application at the individual level. | It is difficult to evaluate determinants that measure important concepts such as the force of infection, sexual network, partnership structures of the population, and partnerships of the level of characteristics. Another limitation is the inclusion of race/ethnicity in the CPR might give rise to concerns about stigma and discrimination in the absence of careful attention. Another limitation was the inability to synthesize the evidence separately for special population (eg. men who have sex with men and men who have sex with women). | IIIC |
| Goyal et al., 2014 | To evaluate clinician adherence to guidelines for documentation of sexual history and screening for sexually transmitted infection during routine adolescent well visit. Secondary objectives were to determine patient and clinician factors associated with sexual history documentation and HIV/STI testing. | Are clinicians performing the recommended sexual health assessments on adolescents during routine adolescent well visits? | A retrospective, cross-sectional study of randomly selected routine adolescent well visits. | Out of ~40,000 annual visits, 1000 adolescent charts were selected randomly. | Setting: The cohort were selected from outpatient encounters at all 29 Children's Hospital of Philadelphia (CHOP)-owned primary care centers between January 1, 2011, and December 31, 2011. Convenience Sampling: INCLUSION: Adolescents aged 13-19 who presented to a primary care appointment. EXCLUSION: Adolescents who had visited CHOP adolescent medicine providers and the patients who had a history of developmental delay. | Performing and Documenting a sexual history: NOMINAL | Ordering a GC/CT or HIV test to sexually active adolescents: NOMINAL | Descriptive statistics were used to calculate frequencies of sexual history documentation, GC/CT testing, and HIV testing. To identify factors potentially associated with each of these 3 outcomes, associations between these candidate factors and both documentation and testing using bivariable logistic regression were considered. Variables with P <.10 in any of the bivariable analyses were retained in the final multivariable models. Estimates were derived from the multivariable model and included aORs with 95% CIs. Data were analyzed using Stata 12.0. | Of the 1000 patient visits reviewed, 212 (21.2%; 95% CI, 18.7-23.7) had a documented sexual history; of the 212 adolescents, 45 (21.2%; 95% CI, 15.7-26.8) were documented as being sexually active. Overall, 23 patients (2.3%; 95% CI, 1.4-3.2) had been tested for GC/CT at or within 1 year before the encounter or 1 month after the visit. Only 16 patients (1.6%; 95% CI, 0.8-2.4) had ever undergone HIV screening since their 13th birthday. Of the 23 patients who had undergone GC/CT testing, 11 (47.8%; 95% CI, 25.7-69.9) also had been screened for HIV. Among patients who were documented as being sexually active, 15 (33.3%; 95% CI, 19.0-47.7) underwent GC/CT testing and 10 (22.2%; 95% CI, 9.6-34.9) underwent HIV screening. Of the 45 patients who were documented as sexually active, 8 (17.8%) had both GC/CT and HIV testing. | The sample size is large and it is randomly selected. It was conducted in a manner of retrospective and cross-sectional design. The study is composed of diverse practice characteristics with regard to staffing (teaching vs community), location (urban vs suburban), and patient population. | The authors maintained a strict definition of sexual history documentation, with specific reference to sexual activity. Comments in clinician notes, such as "no concerns" or "dating," or comments under Home, Education, Activities, Drugs, Drinking, Sexuality, such as "no issues," were not categorized as documentation of a sexual history, and clinicians might not always record prior history of STIs. it is possible that clinicians may have had sexual health discussions without documentation in medical record. Generalizability to other geographic areas may be limited as the data was abstracted only from patients cared within one | IIIB |
| Jenkins et al., 2014. | To examine the consistency with which ED patients answer general and specific sexual activity questions, and how responses related to perceived STI risk. | To determine the degree of concordance between general and more specific sexual history questions and their significance regarding estimating individual infection risk and the appropriateness of screening | It was conducted in an Emergency Department via a survey questionnaire. If they were deemed hish risk by the questionnaire, then they were tested for CT with NAAT test. They received a $10 incentive f | Over a 9-month period, 653 individuals were approached and 493 (75.4%) agreed to participate. Participants included 192 males and 301 females; had a mean age of 25.2 years (SD 4.9). | The study was conducted from June 2012 to March 2013 in a ED. INCLUSION: Pts between the age of 15-34, who presented to ED between 10 am and 4pm with a low acquity complaint. Questionaired were self administered and took approximately 5 minutes to complete and were identical for males and females. | Independent variable is performing sexual history performing. NOMINAL level of measurement. Patient race was self-reported and categorized as white, black, Hispanic, and other. These are also NOMINAL level of measurement. | Dependent variable is the STI risk. NOMINAL level of measurement. | Associations were determined using chi-squared for categorical variables with a two-tailed significance level of 0.05. Age was dichotomized into 15–25 years (younger; conforms to current routine female screening age limit in the United States) and 26–34 years (older). Significance for 2 ×2 chi-squared analyses relied upon Fisher's exact test, whereas larger models used Pearson's chi-squared. Statistical analyses were performed with SPSS (v19; Chicago, IL). | Of the 493 people who agreed to participate, 192 were males and 301 were females, and had a mean age of 25.2 years and were 65.7% white and 33.3% black. 38 individuals were infected with CT or GC at any site for a tested population prevalence of 7.7%. The utility of specific sexual history questions may be more readily realized when used within patient populations characterized by specific demographics or presenting complaints. | One of the strength of the study was the short time to answer the questionnaire. Patient-provided sexual history information would help to target screening resources while still identifying a large majority of those infected. | Small sample size for the study. The other weakness is the only two questionnaire involved in the sexual history. Those two questions are 1. Have you been sexually active in the past year? 2. What is the gender of your partner?. Another limitation was the lack of detailed explanation to participants regarding definitions and question intent. One of this study's limitations is its crosssectional design, and the inability to determine if individuals misclassified according to sexual activity or partner gender were infected earlier in the past year, or if such continued activity may lead to future infection. | IIIB |

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| Loebet al, 2011 | Purpose was to assess patient, resident physician, and visit factors associated with documentation of a sexual history at health care maintenance (HCM) visits. | Providers need an accurate sexual history for appropriate screening and counseling, but data on the patient, visit, and physician factors associated with sexual history-taking are limited. | Retrospective cross-sectional chart review. | 360 clinical notes by 26 internal medicine residents from February to August of 2007 at two university-based outpatient clinics. | The chart review was performed on health care maintenance visits to internal medicine residents at two outpatient clinics at the University of Colorado School of Medicine. Documentation of sexual history and patient, resident, and visit factors were abstracted using structured tools. Employment of generalized estimated equations method to control for correlation between patients within residents. INCLUSION: 29 postgraduates year 2 and 3 internal medicine residents with continuity clinic at one of the two clinic sites. EXCLUSION: Residents that were not in the clinic during the intervention or for 2 months during the pre or post-intervention period | Nominal level of measurement IV: sexual history | Ordinal level of measurement: Patient age was ordinal in 10-year categories, gender was dichotomous, and marital status was in six categories | Generalized estimating equation (GEE)21 method with binomial distribution to control for correlation between patients within the same resident. This method was used to detect differences in documentation of sexual history by demographic variables, or by patients' specific symptoms, conditions, and treatments. A multivariate analysis was performed to account for the effects of all significant predictor variables from the univariate analysis. Factors with a p-value ≤0.05 were included in the multivariate model. Odds ratios (OR) and their 95% confidence intervals (CI) were generated. All statistical analyses were performed using SAS® release 9.2. | Among 360 charts reviewed, 25% documented at least one component of a sexual history with a mean percent by resident of 28% (SD=18%). Our findings highlight the need for an emphasis on documentation of a sexual history by internal medicine residents during routine HCM visits, especially in older and asymptomatic patients, to ensure adequate screening and counseling. | The study highlights low frequencies of documentation of sexual history in older, asymptomatic patients by internal medicine residents during established primary care visit. | This study was limited by generalizability and resident sample size. Although the clinics serve a diverse population, the study involved charts from residents at one academic institution. Larger studies in diverse clinical settings could confirm the findings of this study. | IIIB |
| Peliodimos et al, 2020 | To evaluate the frequency and depth of sexual history taking in primary care including to what extent provider collected STIs. | To provide a baseline report on the landscape of sexual histtiry taking at a patient care center in a largely at risk population. | Cross sectional cohort study. Primary care visit charts were reviewed for the completion of sexual heath history. | A total of 1047 charts were reviewed. The final data set contained 1047 encounters. | The cross sectional observational study was conducted at the outpatient adult primary care clinic at Bronx, NY. The charts were assessed if the complete sexual history were completed or not. Complete SH would include STIs as mentioned by the CDC guideline, anything less than STIs would be partial sexual history and without any STIs were considered no sexual history. EXCLUSION: Duplicates, subspecialty visits, and discharge or emergency room follow-up visits were excluded. | The independent variable is demographics of the patients such as age gender, and ethnicity: NOMINAL. Provider's gender was another independent variable: NOMINAL | Degree of sexual health history taken were the dependent variable: NOMINAL measurement. | A random sample of patients were selected through Research Randomizer (V4.0) for a confidence level of 95% and margin of error 2%. For all calculations maximum likelihood estimation techniques were used with heteroscedastic adjusted standard errors. Odds ratios (OR) and their 95% CIs were generated. The alpha value of statistical significance was set at 0.05. Statistical analysis was performed using the Stata 14 statistical package. | All components of SH were explored in 1.08% of visit, partial SH was obtained in 33.92% of visits and no SH was obtained in 65% of the visit. Sexual history was more likely to be taken from female patients than male patients regardless of the sex of the provider. SH was less likely to be obtained from the older patients compared to the younger individuals. At least partial SH was obtained in 65.1% of 18-24 year old patients but only in 15.74 % of patients older than 50 years. There was no significant difference in SH taking rates between male and female providers. Female providers were found to have a lower probability of taking SH from older patients and higher probability of performing SH on female patients. | It is the largest to the date of publication examining sexual history taking in primary care setting. | Limitations include retrospective study design, lack of generalization to other hospitals, and inconsistencies in available data. | IIIB |
| van den Broek et al, 2012] | Assess the effect of risk score selection on participation and positivity in Chlamydia Screening Implementation (CSI) and compare the effectiveness of screening.. | Same as the study purpose. | Prospective study using the survey . The target population consisted of 16-29 year old registered in the municipal register. The screening was implemented in a step wedged design covering the target population in the course of 1 year. An online survey was used to identify the risk score and testing if enough score was made. | Overall 76911 people that met the inclusion criteria were invited to participate in the survey, of that 11179 people participated in the survey. | The target population involved 16-29 year old from 3 different cities, South Limburg, Amsterdam and Rotterdam. Risk score was used to order test kit in South Limburg whereas no risk score questionaire was used in Amsterdam and Rotterdam. All resident 16-29 living in these 2 cities were able to request the test kit. Participants received an invitation letter for chlamydia screening by post they were requested to log in to the website http:// www.chlamydiatest.nl with their personal log in code provided in the letter. Based on the questionnaire anyone who scored ≥6 or higher would proceed to order the testing kit and anyone with lower than 6 were | Independent variables in this study are Age, ethnicity, education, no of sexual partners, condom use, blood in urine, STI symptoms, and new sexual partner in last 6 months. All of these are NOMINAL level of measurements. | Dependet variable for this study is the number of people that will be screened and tested positive for Chlamydia according to the risk score. NOMINAL level of measurement. | The relation between individual selection score items and participation and positivity was investigated by scoring profiles and logistic regression. Comparision between NNI (number invited/number positive) and NNS (number participated/number positive) between the three regions in CSI and in subgroups (gender, age groups and community risk level) with multinomial regression analysis. To estimate an optimal cut-off score for Limburg, NNI and NNS were calculated and percentage of Ct-positives missed when a higher risk score would have been applied to select participants was also calculated. PASW Statistics (SPSS) V.18.0 (IBM Corporation) was used for the analysis. | The initial response rate for South Limburg was 22% in first round, 15 percent in second round and 11% in third round. The number of point scored varied form 0-14. Most person scored between 6-8. The number of invitations needed to detect one case of chlamydia (NNI) was 182 in the first round in South Limburg and increased to 244 in round 2 and 427 in round 3. The NNS for one Ct-positive was 20, 19 and 24 in rounds 1, 2 and 3, respectively. The number of invitations for one positive Ct-case was consistently higher for men than for women (OR 2.4, 95% CI 2.2 to 2.6) and varied by age group: the age group 20e24 years had a lower NNI than 16-19 years (OR 0.87, 95% CI 0.81 to 0.94), while the 25-29 years group had a higher NNI (OR 1.41, 95% CI 1.3 to 1.5). The NNI was higher in low-risk clusters. The NNS was higher in medium- and low-risk areas in Amsterdam and Rotterdam, but this trend was not seen in South Limburg, due to filtering out low-risk participants. Selection by risk score can improve cost-effectiveness of a screening programme, provided the costs of testing are a considerable part of the total costs. | One of the strength of this stidy was the large sample size of 11179. The novelty of this scoring system was the use of a point-score per question. | Invitees in South Limburg denied testing due to low score where as invitees in Rotterdam and Amsterdam could request the test kit regardless of the score. The generisability of the scoring system is also not guaranteed as the scoring system was applied in a low scoring rural area. It has potential for error applied in the big suburban area. | IIIB |

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| Victor et al., 2015 | Examine the association between survey responses to health behaviors, personality/psychosocial factors, and self-reported sexually transmitted infections to create a brief survey to identify youth at risk for contracting STIs. | Can a sexual history questionaire help providers accurately identify high-risk persons to test for sexually transmitted infections? | Two sexual behavior variables and one peer norm variable were used to differentiate subgroups of individuals at risk of contracting a STI based on reported history of STIs using probability (decision tree) analyses. These items, as well as sexual orientation and having ever had oral sex, were used to create a brief sexual health screening (BSHS) survey. | 200 adolescent patients 14-18 years of age (97% of all patients approached agreed to participate). EXCLUSION: Any patient deemed incapable of understanding the study and/or any patient without a parent or legal guardian present was not introduced to the study. | Setting: Large academic medical center in a Southeastern metropolitan area. Convenience Sampling; Inclusion: Adolescents aged 14-18 years old; Any patient deemed incapable of understanding the study and/or any patient without a parent or legal guardian present was excluded. | Risky-sexual behaviors, personality characteristics, and physychosocial factors were addressed in five questions on a questionarre: Sexual Orientation: nominal; History of oral sex at least once in lifetime: nominal; History of vagina or anal sex at least once in your lifetime: nominal; History of vaginal sex without using a condom: nominal; Having friends that have history of vaginal sex: nominal. | Adolescents and their self-reported history of contracting a STI: interval/ratio. | was obtained through Research Randomizer (v4.0). | Participant's responses to specific questionnaire items were cast into a stepwise decision tree to determine participant risk for contracting a STI. Since 100% of the participants reporting a STI engaged in oral, vaginal, or anal sex at least once in their lifetime, the first step was based on having ever had vaginal or anal sex. Given that reported condom usage (on every occasion vs all other responses) was significantly associated with STI outcomes, χ2 (1, n = 90) = 5.40, P = .01, and also as it is the only method, outside of sexual abstinence, for preventing STIs when engaging in oral, vaginal, or anal sex, condom usage was included as the second step of the decision tree analysis. Cronbach's α for the 5 items was .70. Each point increase in the total BSHS score was associated with an exponential increase in reported STI outcome, such that no participant indicating a BSHS score of 1 reported a STI, 5% of participants with a score of 2 indicated a STI, 16% with a score of 3, 33% with a score of 4, and 100% of participants indicating a BSHS score of 5 reported a STI. | 1. Both sexually experienced and inexperienced adolescents participated in the study. Previous research has only included sexually active adolescents precluding the ability to evaluate how screening assessments could identify adolescents soon to engage in sexual behaviors—a critical window of time for education and preventive measures. 2. The 5-item BSHS efficiency and accuracy suggests a variety of potential uses, including stand-alone screening prior to a clinical encounter, or as an adjunct to direct screening by a provider. | 1. Multiple discrepancies (41 across various health risk behaviors) were noted between what the participants reported on the verbally administered health behavior survey and directly to their physician. 2. The study did not include longitudinal data collection, which would greatly facilitate our ability to determine whether self-reported rates of STIs and their association between the variables on the BSHS are associated with increased risk for contracting an STI in the future 3. the survey consisted of a self-report questionnaire administered in person by a research assistant, which may have invoked response biases and may have led to over- or underreporting of risk behaviors and the problem of shared method variance. | IIIB |
| Wand, et al., 2011 | To develop and validate a risk scoring tool to identify those who are at increased risk of chlamydia infection. | Does using a sexual health history algorithm of demographics and at-risk behaviors assist providers in a more accurate identification and screening of individuals for STIs? | Retrospective, cross-sectional study: A standard medical record form was used to collect demographic and sexual behavior information from all new attendees and a sexual health screen was undertaken. The authors used descriptive statistics to characterise the groups according to chlamydia status: mean and SD for continuous variables and percentages for categorical variables. Logistic regression was used to create a predictive model based on the development data set. | 45,902 men and women who presented to Sydney Sexual Health Center. | Setting: Sydney Sexual Health Center (SSHC) Convenience Sample INCLUSION: Men and Women who visited SSHC during the period of 1998-2009. the demographic and sexual behaviour information was extracted from the medical records; Logistic regression was used to create a predictive model based on the development data set which included 11,354, 6,800 and 12,700 MSM, heterosexual men and women, respectively. | age: continous, country of birth: ordinal, language spoken at home: ordinal, marital status: nominal, CALD: ordinal, area of residence: interval/ratio, alcohol use: interval/ratio, number of sexual partners in the past 3 months: inteval/ratio, condom use in the past 3 months: interval ratio, sex overseas in the past year: interval/ratio, current sex work: nominal, reason for presentation: nominal, anal/genital symptoms: nominal, past chlamydia diagnoses: nominal. | Predictive values of positive diagnosis of chlamydia: Ordinal. | A split-sample method was used to develop a risk equation and scoring system with internal validation for each study population; We computed standard validation measures for the proportion of those tested positive for chlamydia infection, sensitivity, specificity, positive likelihood and negative likelihood ratio and the area under the receiver-operating characteristic curve (AUC)13 as discrimination statistics. Akaike information criteria were evaluated as model fit statistics. The Hosmere Lemeshow goodness-of-fit test was also performed. | The overall prevalence of chlamydia was 6%, 7% and 5% for MSM, heterosexual men and women, respectively Independent predictors of chlamydia infection in MSM were younger age, inconsistent condom use, increased number of male sexual partners in the past 3 months, anal/genital symptoms and presenting for STI screening or being a contact of an STI case. Independent predictors of chlamydia infection in heterosexual men were being single, CALD background, being unsure about HIV status, inconsistent condom use, increased number of female sexual partners in the past 3 months, anal/genital symptoms and presenting for STI screening or being a contact of an STI case. The Hosmere Lemeshow goodness-of-fit test showed no lack of fit for the three fitted models (p>0.21 in all models). Independent predictors of chlamydia infection in women were being single, CALD background, being unsure about HIV status, inconsistent condom use, anal/genital symptoms, presenting for STI screening or being a contact of an STI case. | This is the first study to utilize statistical methods to derive a locally-specific assessment tool using 12 years of data from more than 45 000 men and women. | The Study population was sexual health clinic attendees who are likely to be at higher risk for Chlamydia infection compared to the general population. | IIIB |

# Appendix C

**Figure C.** Data Analysis Table

| | | Variable Name | Variable Description and type of measure | Data Source | Possible Range of Values | Level of Measure-ment | Time Frame for Collection | Statistical Test | Decision Rule |
|---|---|---|---|---|---|---|---|---|---|
| **Event** | **IV** (in book referred to as descriptive variable) | 5Ps Sexual Health History Assessment | Variable Description: Clinicians perform a brief sexual health history assessment to identify persons at high-risk for Chlamydia<br>Measure type: Process Measure | Individual's answers to questions documented in EHR | 0-1 with<br>0= assessment completed<br>1= not completed | Nominal | Assessment Questions delivered to patient during appointment over a 2-week period | None | None |
| | **DV** (in book referred to as outcome variable) | Active Duty Soldiers | Variable Description:<br>Based off responses to questions, Active Duty will be labeled at-risk or no-risk<br>Measure type: Outcome measure | Individual's answers to questions documented in EHR | 0-1 with<br>0= not at risk/no test<br>1= at risk, order screening test | Nominal | Assessment Questions delivered to patient during appointment over a 2-week period | Fisher's Exact<br>Clopper-Pearson | We will reject the null hypothesis if data shows a significant difference ($P<0.05$) in the identification of at-risk Soldiers. |

Appendix D

**Figure D**. Business Case Analysis

| **Problem** | **Solution** |
|---|---|
| • Chlamydia is the most common reportable sexually transmitted infection in the U. S.<br>• It is infecting SMs at the rate of 2-3 times that of the U.S population<br>• Fayetteville, North Carolina has nearly 3 times the incidence rate than the national average making it the top 12th city in the nation | • Introducing 5Ps approach to sexual history taking in primary care visit<br>• Increasing the detection rate by identifying high-risk SMs |
| **Approach** | **Overall Impact of the Solution (Business Impact)** |
| • Perform sexual history at every appointment using CDC's 5 Ps approach regardless of gender and age to identify high risk SMs<br>• High risk SMs will then be screened and treated. This will break the chain of transmission and also prevent the complications in asymptomatic SMs | • Reduction in Chlamydia incidence rate at Fort Bragg<br>• Improvement in readiness by early detection and prompt treatment of SMs<br>• Decrease the number of work and training hours lost due to the infection<br>• Projected savings of $170,725 per 5,000 SMs that is served at Robinson Health Clinic |

# Appendix E

**Figure E.** Timeline of Events

| Project Year 1 (2021) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Activity/Month** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC** |
| USUHS VPR Submission and Approval | | | | | | | | | | | | |
| Site IRB Submission and Approval | | | | | | | | | | | | |
| Project Planning | | | | | | | | | | | | |
| -Task 1: Stakeholder engagement meetings | X | X | X | | | X | X | X | X | | | |
| -Task 2: Collect Baseline Data | | | | | | | X | X | | | | |
| -Task 3: Develop staff training materials | | | | | | | | X | X | X | | |
| -Task 3: Develop implementation plan | | | | | | | | | X | X | | |
| Project Implementation/Data Collection | | | | | | | | | | | | |
| -Task 1: Training of clinic staff | | | | | | | | | X | X | | |
| -Task 2: Rollout of pilot project | | | | | | | | | | X | X | X |
| -Task 3: Refine processes through feedback | | | | | | | | | | | X | X |
| -Task 4: Collect outcome data from pilot project | | | | | | | | | | | X | X |
| Data Analysis | | | | | | | | | | | | |
| -Task 1: Collect data from new process | | | | | | | X | X | | X | X | X |
| Dissemination | | | | | | | | | | | | |
| -Task 1: Update stakeholders of pilot outcomes | | | | | | | | | | | X | X |

| Project Year 1 (2022) | | | | | |
|---|---|---|---|---|---|
| **Activity/Month** | **JAN** | **FEB** | **MAR** | **APR** | **MAY** |
| Data Analysis | | | | | |
| -Task 1: | | | | | |
| Sustainment | | | | | |
| -Task 1: | | | | | |
| -Task 2: | | | | | |
| Dissemination/Presentation | | | | | |
| -Task 1: Coordinate with Public Health Depts. | | X | | | |
| -Task 2: Poster Development/Research Week | | | X | X | X |

Appendix F

**Figure F**. 5 Ps Questionnaire for Patients

The Five P's Interview Tool: Partners/Practices/Protection/Past History STIs/Pregnancy

***Age:*** ***M___ F___***

Are you currently, or have you ever been sexually active in the past 6 months? Yes____ No____
(If yes, please complete the entirety of this form)

1. **PARTNERS**

Have you had more than one sexual partner in the past 6 months? Yes___ No___

Do you have sex with women___, men___ or both___?

2. **PRACTICES**

Do you perform vaginal_____ anal_____ oral_____ sex practices?

3. **PREVENTION OF PREGNANCY** (Females only)

What are you doing to prevent pregnancy? _____

4. **PROTECTION**:

Do you always use protection during sexual intercourse? Yes____ No____

5. **PAST HISTORY**:

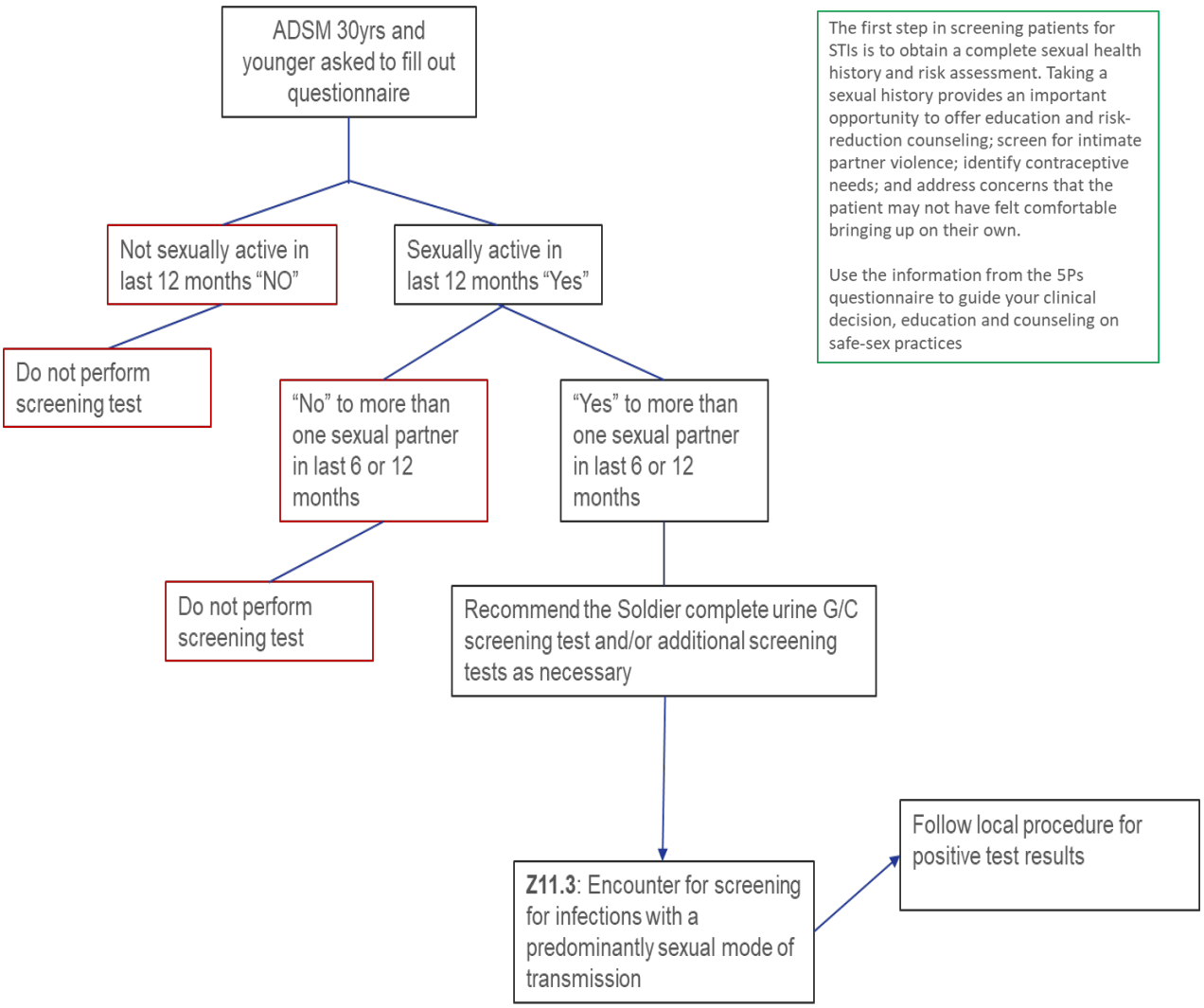
Have you ever had an STI? Yes ___No ___,

Staff use only

Provider_____ Appt Date and Time_____

Appendix G

**Figure G**. Screening Flowsheet for Providers, Nurses and Medics



Appendix H

**Figure H**. Team Mentor and Committee Form

**DOCTOR OF NURSING PRACTICE PROJECT**
**DNP Project Clinical Question and Team Mentor (Committee Membership) Agreement Form**

**Graduation Year**: 2022 **Phase 2 Site(s) Name:** Fort Bragg

**Name(s) of DNP Project Student Team**:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Ramesh Gautam | AGCNS ☐ | FNP ■ | PMHNP ☐ | RNA ☐ | WHNP ☐ |
| 2. | Jacob Orrino | AGCNS ☐ | FNP ■ | PMHNP ☐ | RNA ☐ | WHNP ☐ |
| 3. | | AGCNS ☐ | FNP ☐ | PMHNP ☐ | RNA ☐ | WHNP ☐ |
| 4. | | AGCNS ☐ | FNP ☐ | PMHNP ☐ | RNA ☐ | WHNP ☐ |
| 5. | | AGCNS ☐ | FNP ☐ | PMHNP ☐ | RNA ☐ | WHNP ☐ |
| 6. | | AGCNS ☐ | FNP ☐ | PMHNP ☐ | RNA ☐ | WHNP ☐ |

**The tentative title of the DNP Project Proposal for this student group is**:

Improving Chlamydia Risk Screening by Identifying High-Risk Service Members Using the CDC's 5 Ps Approach to Sexual Health History at a Large Military Base in North Carolina

**Committee Approved DNP Project Clinical Question:**

Does the use of the CDC's 5 Ps assessment approach to sexual health history improve identification of high-risk behaviors and asymptomatic carriers of chlamydia when administered to all male and female Service Members 30 years and younger?

**Names of DNP Project Team Mentors** *(type the name and obtain digital signatures)*:

I agree to serve as a member of the DNP Project Team (Team Mentors) for the above DNP Student Project Team. As a Project Team Mentor, I agree to the duties and responsibilities outlined within the DNP Project Manual which include but are not limited to the provision of consultation and guidance supporting the entire DNP project journey and to ensure the DNP project is of sufficient rigor and demonstrates doctoral level scholarship to meet the requirements for USUHS GSN graduation.

*NOTE: You may have 3-4 DNP Team Mentors [committee members including your DNP Senior Mentor (Chair)]. The Phase II Site Director may also be a member of the group, as well as other USUHS faculty or others who may serve as content experts. All non-USUHS faculty selected as a Team Mentor must be approved by the DNP Project Director.*

| | | | | |
|---|---|---|---|---|
| Senior Mentor (Chair): | Natasha Best | Signature: BEST.NATASHA.IDETA.1017708100 Digitally signed by BEST.NATASHA.IDETA.1017708100 Date: 2022.04.12 11:38:25 -04'00' | Date: | 4/12/22 |
| Team Mentor (Member): | Ramesh Gautam | Signature: GAUTAM.RAMESH.NMN.1393176411 Digitally signed by GAUTAM.RAMESH.NMN.1393176411 Date: 2022.04.12 13:48:56 -04'00' | Date: | 4/12/22 |
| Team Mentor (Member): | Jacob Orrino | Signature: ORRINO.JACOB.A.1370113404 Digitally signed by ORRINO.JACOB.A.1370113404 Date: 2022.04.12 13:33:57 | Date: | 4/12/22 |

# Appendix I

**Figure I1.** CITI Certificate 1, Gautam, Ramesh

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

### COMPLETION REPORT - PART 1 OF 2
### COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Ramesh Gautam (ID: 9024935)
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Institution Email:** ramesh.gautam@usuhs.edu
- **Phone:** 8328756506

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomed Research Coordinators, Clinical Coordinators, Study Coordinators & Research Administrators
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 36044475
- **Completion Date:** 25-Mar-2020
- **Expiration Date:** 25-Mar-2023
- **Minimum Passing:** 80
- **Reported Score*:** 100

| REQUIRED AND ELECTIVE MODULES ONLY | DATE COMPLETED | SCORE |
|---|---|---|
| Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769) | 24-Mar-2020 | No Quiz |
| Belmont Report and Its Principles (ID: 1127) | 24-Mar-2020 | 3/3 (100%) |
| History and Ethics of Human Subjects Research (ID: 498) | 24-Mar-2020 | 5/5 (100%) |
| Informed Consent (ID: 3) | 24-Mar-2020 | 5/5 (100%) |
| Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4) | 24-Mar-2020 | 4/4 (100%) |
| Records-Based Research (ID: 5) | 24-Mar-2020 | 3/3 (100%) |
| Genetic Research in Human Populations (ID: 6) | 24-Mar-2020 | 5/5 (100%) |
| Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680) | 24-Mar-2020 | 5/5 (100%) |
| Research Involving Prisoners (ID: 8) | 24-Mar-2020 | 4/4 (100%) |
| Research Involving Children (ID: 9) | 24-Mar-2020 | 3/3 (100%) |
| Research Involving Pregnant Women, Fetuses, and Neonates (ID: 10) | 24-Mar-2020 | 3/3 (100%) |
| FDA-Regulated Research (ID: 12) | 24-Mar-2020 | 5/5 (100%) |
| Research and HIPAA Privacy Protections (ID: 14) | 24-Mar-2020 | 5/5 (100%) |
| Conflicts of Interest in Human Subjects Research (ID: 17464) | 25-Mar-2020 | 5/5 (100%) |
| Defining Research with Human Subjects - SBE (ID: 491) | 25-Mar-2020 | 5/5 (100%) |
| The Federal Regulations - SBE (ID: 502) | 25-Mar-2020 | 5/5 (100%) |
| Assessing Risk - SBE (ID: 503) | 25-Mar-2020 | 5/5 (100%) |
| Privacy and Confidentiality - SBE (ID: 505) | 25-Mar-2020 | 5/5 (100%) |
| Research in Public Elementary and Secondary Schools - SBE (ID: 508) | 25-Mar-2020 | 5/5 (100%) |
| Internet-Based Research - SBE (ID: 510) | 25-Mar-2020 | 5/5 (100%) |
| International Studies (ID: 971) | 25-Mar-2020 | 3/3 (100%) |
| The IRB Member Module - 'What Every New IRB Member Needs to Know' (ID: 816) | 25-Mar-2020 | 5/5 (100%) |
| Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912) | 25-Mar-2020 | No Quiz |

**For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.**

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**Figure I2.** Citi Certificate 2 for Gautam, Ramesh

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

### COMPLETION REPORT - PART 2 OF 2
### COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Ramesh Gautam (ID: 9024935)
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Institution Email:** ramesh.gautam@usuhs.edu
- **Phone:** 8328756506

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomed Research Coordinators, Clinical Coordinators, Study Coordinators & Research Administrators
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 36044475
- **Report Date:** 24-Feb-2022
- **Current Score**:** 100

| REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES | MOST RECENT | SCORE |
|---|---|---|
| Informed Consent (ID: 3) | 24-Mar-2020 | 5/5 (100%) |
| Defining Research with Human Subjects - SBE (ID: 491) | 25-Mar-2020 | 5/5 (100%) |
| The Federal Regulations - SBE (ID: 502) | 25-Mar-2020 | 5/5 (100%) |
| Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4) | 24-Mar-2020 | 4/4 (100%) |
| Belmont Report and Its Principles (ID: 1127) | 24-Mar-2020 | 3/3 (100%) |
| Records-Based Research (ID: 5) | 24-Mar-2020 | 3/3 (100%) |
| Assessing Risk - SBE (ID: 503) | 25-Mar-2020 | 5/5 (100%) |
| Genetic Research in Human Populations (ID: 6) | 24-Mar-2020 | 5/5 (100%) |
| Research Involving Prisoners (ID: 8) | 24-Mar-2020 | 4/4 (100%) |
| Privacy and Confidentiality - SBE (ID: 505) | 25-Mar-2020 | 5/5 (100%) |
| Research Involving Children (ID: 9) | 24-Mar-2020 | 3/3 (100%) |
| Research Involving Pregnant Women, Fetuses, and Neonates (ID: 10) | 24-Mar-2020 | 3/3 (100%) |
| FDA-Regulated Research (ID: 12) | 24-Mar-2020 | 5/5 (100%) |
| Research in Public Elementary and Secondary Schools - SBE (ID: 508) | 25-Mar-2020 | 5/5 (100%) |
| Research and HIPAA Privacy Protections (ID: 14) | 24-Mar-2020 | 5/5 (100%) |
| Internet-Based Research - SBE (ID: 510) | 25-Mar-2020 | 5/5 (100%) |
| History and Ethics of Human Subjects Research (ID: 498) | 24-Mar-2020 | 5/5 (100%) |
| Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912) | 25-Mar-2020 | No Quiz |
| Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680) | 24-Mar-2020 | 5/5 (100%) |
| International Studies (ID: 971) | 25-Mar-2020 | 3/3 (100%) |
| Conflicts of Interest in Human Subjects Research (ID: 17464) | 25-Mar-2020 | 5/5 (100%) |
| The IRB Member Module - 'What Every New IRB Member Needs to Know' (ID: 816) | 25-Mar-2020 | 5/5 (100%) |
| Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769) | 24-Mar-2020 | No Quiz |

**For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.**

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**Figure I3.** Citi Certificate 1 for Orrino, Jacob

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

### COMPLETION REPORT - PART 1 OF 2
### COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Jacob Orrino (ID: 9027211)
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Institution Email:** jacob.orrino@usuhs.edu
- **Phone:** 4066030754

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomed Research Coordinators, Clinical Coordinators, Study Coordinators & Research Administrators
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 36079166
- **Completion Date:** 27-Mar-2020
- **Expiration Date:** 27-Mar-2023
- **Minimum Passing:** 80
- **Reported Score*:** 90

| REQUIRED AND ELECTIVE MODULES ONLY | DATE COMPLETED | SCORE |
|---|---|---|
| Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769) | 25-Mar-2020 | No Quiz |
| Belmont Report and Its Principles (ID: 1127) | 25-Mar-2020 | 3/3 (100%) |
| History and Ethics of Human Subjects Research (ID: 498) | 25-Mar-2020 | 5/5 (100%) |
| Informed Consent (ID: 3) | 27-Mar-2020 | 5/5 (100%) |
| Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4) | 27-Mar-2020 | 4/4 (100%) |
| Records-Based Research (ID: 5) | 27-Mar-2020 | 3/3 (100%) |
| Genetic Research in Human Populations (ID: 6) | 27-Mar-2020 | 5/5 (100%) |
| Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680) | 27-Mar-2020 | 4/5 (80%) |
| Research Involving Prisoners (ID: 8) | 27-Mar-2020 | 4/4 (100%) |
| Research Involving Children (ID: 9) | 27-Mar-2020 | 3/3 (100%) |
| Research Involving Pregnant Women, Fetuses, and Neonates (ID: 10) | 27-Mar-2020 | 3/3 (100%) |
| FDA-Regulated Research (ID: 12) | 27-Mar-2020 | 4/5 (80%) |
| Research and HIPAA Privacy Protections (ID: 14) | 27-Mar-2020 | 5/5 (100%) |
| Conflicts of Interest in Human Subjects Research (ID: 17464) | 27-Mar-2020 | 5/5 (100%) |
| Defining Research with Human Subjects - SBE (ID: 491) | 27-Mar-2020 | 4/5 (80%) |
| The Federal Regulations - SBE (ID: 502) | 27-Mar-2020 | 4/5 (80%) |
| Assessing Risk - SBE (ID: 503) | 27-Mar-2020 | 4/5 (80%) |
| Privacy and Confidentiality - SBE (ID: 505) | 27-Mar-2020 | 3/5 (60%) |
| Research in Public Elementary and Secondary Schools - SBE (ID: 508) | 27-Mar-2020 | 4/5 (80%) |
| Internet-Based Research - SBE (ID: 510) | 27-Mar-2020 | 4/5 (80%) |
| International Studies (ID: 971) | 27-Mar-2020 | 3/3 (100%) |
| The IRB Member Module - 'What Every New IRB Member Needs to Know' (ID: 816) | 27-Mar-2020 | 5/5 (100%) |
| Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912) | 27-Mar-2020 | No Quiz |

**For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.**

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**Figure I4.** Citi Certificate 2 for Orrino, Jacob

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

### COMPLETION REPORT - PART 2 OF 2
### COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Jacob Orrino (ID: 9027211)
- **Institution Affiliation:** Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 603)
- **Institution Email:** jacob.orrino@usuhs.edu
- **Phone:** 4066030754

- **Curriculum Group:** OUSD P&R Human Research
- **Course Learner Group:** Biomed Research Coordinators, Clinical Coordinators, Study Coordinators & Research Administrators
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 36079166
- **Report Date:** 24-Feb-2022
- **Current Score**:** 91

| REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES | MOST RECENT | SCORE |
|---|---|---|
| Informed Consent (ID: 3) | 27-Mar-2020 | 5/5 (100%) |
| Defining Research with Human Subjects - SBE (ID: 491) | 27-Mar-2020 | 4/5 (80%) |
| The Federal Regulations - SBE (ID: 502) | 27-Mar-2020 | 4/5 (80%) |
| Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4) | 27-Mar-2020 | 4/4 (100%) |
| Belmont Report and Its Principles (ID: 1127) | 25-Mar-2020 | 3/3 (100%) |
| Records-Based Research (ID: 5) | 27-Mar-2020 | 3/3 (100%) |
| Assessing Risk - SBE (ID: 503) | 27-Mar-2020 | 4/5 (80%) |
| Genetic Research in Human Populations (ID: 6) | 27-Mar-2020 | 5/5 (100%) |
| Research Involving Prisoners (ID: 8) | 27-Mar-2020 | 4/4 (100%) |
| Privacy and Confidentiality - SBE (ID: 505) | 30-Mar-2020 | 4/5 (80%) |
| Research Involving Children (ID: 9) | 27-Mar-2020 | 3/3 (100%) |
| Research Involving Pregnant Women, Fetuses, and Neonates (ID: 10) | 27-Mar-2020 | 3/3 (100%) |
| FDA-Regulated Research (ID: 12) | 27-Mar-2020 | 4/5 (80%) |
| Research in Public Elementary and Secondary Schools - SBE (ID: 508) | 27-Mar-2020 | 4/5 (80%) |
| Research and HIPAA Privacy Protections (ID: 14) | 27-Mar-2020 | 5/5 (100%) |
| Internet-Based Research - SBE (ID: 510) | 27-Mar-2020 | 4/5 (80%) |
| History and Ethics of Human Subjects Research (ID: 498) | 25-Mar-2020 | 5/5 (100%) |
| Office of the Under Secretary of Defense (Personnel and Readiness) (ID: 912) | 27-Mar-2020 | No Quiz |
| Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680) | 27-Mar-2020 | 4/5 (80%) |
| International Studies (ID: 971) | 27-Mar-2020 | 3/3 (100%) |
| Conflicts of Interest in Human Subjects Research (ID: 17464) | 27-Mar-2020 | 5/5 (100%) |
| The IRB Member Module - 'What Every New IRB Member Needs to Know' (ID: 816) | 27-Mar-2020 | 5/5 (100%) |
| Module for Non-DoD Personnel Conducting Research Involving Human Subjects Supported by the DoD (ID: 16769) | 24-Feb-2022 | No Quiz |

**For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.**

**Verify at**: www.citiprogram.org/verify/?kfa0d7054-fad4-4502-aeb1-68e7bced4fe4-36079166

**Collaborative Institutional Training Initiative (CITI Program)**
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

Appendix J

**Figure J.** USU VPR Form

USU
Uniformed Services University

OFFICE OF RESEARCH
4301 JONES BRIDGE ROAD
BETHESDA, MAYLAND 20814
PHONE: (301) 295-3303; FAX: (301) 295-6771

**NOTICE OF PROJECT APPROVAL**

Change Number: Original

| | |
|---|---|
| **VPR Site Number:** | GSN-61-11975 |
| **Principal Investigator:** | Jacob, Orrino |
| **Department:** | Graduate School of Nursing |
| **Project Type:** | Student |
| **Project Title:** | Improving chlamydia risk screening by identifying high risk SMs using the CDC's 5 P approach to sexual health history at a large military base in North Carolina |
| **Project Period:** | 6/30/2021 to 6/30/2022 |

**Assurance and Progress Report Information:**

| Name | Sup | Approval Type | Status | Approved On | Forms Received |
|---|---|---|---|---|---|
| Progress Report | 0 | | | To be Submitted | N/A |

Remarks:
This Notice Of Project Approval has been reviewed and approved. Please remember that you must submit a final Progress Report (Form 3210) upon completion of this project.

Questions regarding this approval should be directed to the following person in the Office of Research:
Sharon McIver, (301) 295-9814.

RANDOLPH.TOYA.V.1242107698 Digitally signed by RANDOLPH.TOYA.V.1242107698 Date: 2021.07.12 10:40:59 -04'00'

Mark G. Kortepeter, MD, MPH Date
FACP, FIDSA, FASTMH
COL (R) MC US Army
Vice President for Research
Uniformed Services University of the Health Sciences

cc: File
Dr. Kennth Radford
Laura Taylor

Appendix K

**Figure K.** MTF IRB Letter of Determination

**DEPARTMENT OF THE ARMY**
**WOMACK ARMY MEDICAL CENTER**
**2817 REILLY ROAD**
**FORT BRAGG, NORTH CAROLINA 28310-7324**

MCXC-QSD October 20, 2021

MEMORANDUM FOR Lauren Nicole NASH, DNP, Womack Army Medical Center (WAMC), 2817 Reilly Rd., Fort Bragg, NC 28310

SUBJECT: Determination for Project "Improving Chlamydia Screening at Robinson Health Clinic, Fort Bragg Using the Center for Disease Control's 5P Approach," 21-13957

1. The subject project was reviewed by the Womack Army Medical Center (WAMC) Human Research Protections Program (HRPP) Office for applicability of human subjects protections regulations.

2. The primary objective of the study is *training military treatment facility clinic staff in identifying service members who are at-risk for chlamydia infection usng the Center for Disease Control's 5 Ps approach to sexual health histories. The 5 Ps inquire about a person's sexual* ***Partners****, their* ***Practices****, their use of* ***Protection*** *from STIs, how they are* ***Preventing*** *pregnancy, and if they have any* ***Past*** *history of STIs. The identification of high-risk service members (SMs) is accomplished by implementing this simple approach to obtaining a sexual health history (CDC, 2020). Primary care providers should ask these questions to assess the level of risk in every SM. By regularly performing these brief sexual histories to all SMs presenting to a primary care appointment, high risk Soldiers will be identified and appropriately screened leading to a decrease in transmission. The long-term goal is to reduce the incidence of chlamydia at Fort Bragg.*

3. This project does not constitute research as defined at 32 CFR 219.102(d) and DODI 3216.02 because it is an Evidence Based Practice project designed to implement training in the 5P screening tool and use this tool consistently with all service members at the clinic. This project has been reviewed by Womack Army Medical Center's Evidence Based Practice Council and has been determined to be Evidence Based Practice.

4. This project may be subject to approval from other departments at WAMC or outside agencies, but there is no further requirement for review by the WAMC HRPP Office.

5. In the event there is a change to the above-described project that may affect its determination, please submit a modification form in EIRB (https://dmrncac.dhhq.health.mil). The WAMC HRPP Office will re-evaluate the project if necessary.

6. All publications, presentations or abstracts arising from this work must be cleared through appropriate publication clearance procedures, and should not refer to this project as research.

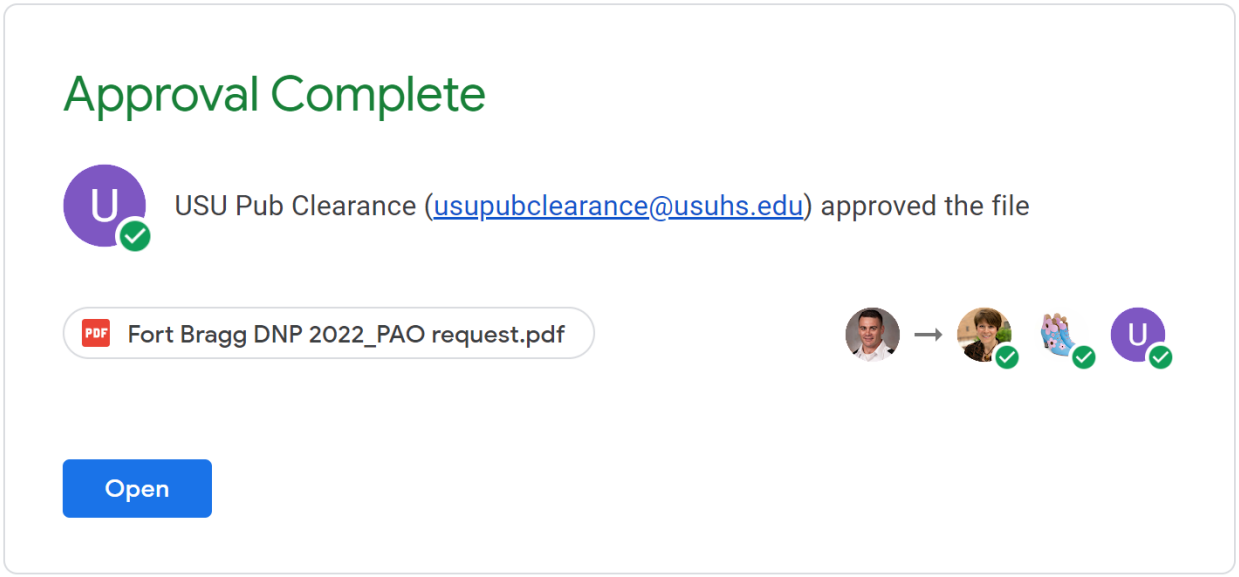
7. The point of contact for this review the undersigned at (910) 907-7323 or jennifer.s.kuntz.civ@mail.mil

KUNTZ.JENNIFER.S.USAN.1263219585 Digitally signed by KUNTZ.JENNIFER.SUSAN.1263219585 Date: 2021.10.20 11:31:31 -04'00'

EDO, Human Research Protection Program

Appendix L

**Figure L.** PAO Clearance



Appendix M

**Figure M**. DNP Project Verification Form

**DOCTOR OF NURSING PRACTICE PROJECT**
**Completion Verification Form**

The DNP Project titled: Improving chlamydia risk screening by identifying high-risk service members (SMs) using the CDC's 5 Ps approach to sexual health history at a large military base in North Carolina (NC)

was completed at Fort Bragg, NC by the following student(s):

| *(Student Name)* | *(Digital Signature)* |
|---|---|
| Jacob Orrino, BSN, RN, CPT, AN, USA | ORRINO.JACOB.A.1370113404 Digitally signed by ORRINO.JACOB.A.1370113404 Date: 2022.04.25 20:00:34 -04'00' |
| Ramesh Gautam, BSN, RN, CPT, AN, USA | GAUTAM.RAMESH.NMN.1393176411 Digitally signed by GAUTAM.RAMESH.NMN.1393176411 Date: 2022.04.25 17:00:16 -04'00' |
| | |
| | |
| | |

The DNP Practice Project Team verifies that the following components of the DNP project, accomplished by the above students, is of sufficient rigor and demonstrates doctoral level scholarship to meet the requirements for USUHS GSN graduation:

- Presentation of DNP project to the leadership/stakeholders at the Phase II Site,
- Abstract/Impact Statement (*Appendix F*), and
- DNP Project written report (*Appendix E)*.

Verified by:

| *(type name)* | *(Digital Signature)* | |
|---|---|---|
| Natasha Best, DNP, WHNP-BC, Lt Col, NC, USAF | BEST.NATASHA.IDETA.1017708100 Digitally signed by BEST.NATASHA.IDETA.1017708100 Date: 2022.04.26 11:12:28 -04'00' | Senior Mentor |
| | | Team Mentor |
| | | Team Mentor |
| Lauren Nash, DNP, FNP-C, WHNP-BC, MAJ, AN, USA | NASH.LAUREN.NICOLE.1258519490 Digitally signed by NASH.LAUREN.NICOLE.1258519490 Date: 2022.04.26 10:21:20 -04'00' | Team Mentor & Phase II Site Director |

# Improving Chlamydia Risk Screening by Identifying High Risk Service Members Using the CDC's 5 Ps Approach to Sexual Health History at a Large Military Base in North Carolina

*Ramesh Gautam, BSN, RN, CPT, AN & Jacob A. Orrino, BSN, RN, CPT, AN*

*Daniel K. Inouye Graduate School of Nursing, Uniformed Services University of the Health Sciences, Bethesda, MD*

## Objectives

- Become familiar with the CDC's 5 Ps approach to obtain a sexual health history from patients
- Recognize that targeted screening for sexual health history improves identification rates of chlamydia

## Significance of the Problem

- Chlamydia is one of the **most common STIs** in the United States and has increased **19%** since 2014
- Chlamydia rates in Soldiers are **2-3 times higher** than the general U.S. population
- Fast-paced, dangerous, and high-risk duties put Soldiers in a different mindset when evaluating risk
- Undiagnosed/untreated chlamydia can cause infertility, pelvic inflammatory disease and severe arthritis
- Long term systemic effects of chlamydia affect medical readiness and place a significant resource burden on the Military Healthcare System
- Chlamydia costs the U.S. over **$700 million annually**

## Clinical Question

**Does the use of the CDC's 5 Ps assessment approach to sexual health history improve identification of high-risk behaviors and asymptomatic carriers of chlamydia when administered to all male and female Service Members 30 years and younger at a large military base in North Carolina?**

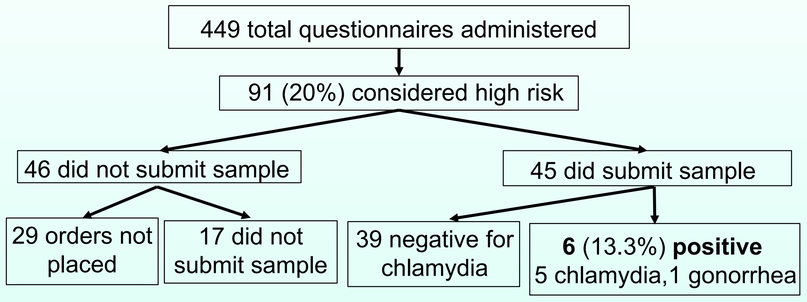
## Project Design

- Setting
  - A large stand-alone Troop Clinic located in North Carolina: Home to Specialized Combat Forces and several Brigade Combat Teams
- General Approach
  - Project Framework: Iowa Model Revised
  - Retrospective data review from May - August 2021 was conducted to determine the local positivity rate for chlamydia
  - The medical staff (physicians, NPs, PAs, nursing staff, and medics) of four Brigades were trained to screen all SMs 30 years and younger using the 5 Ps questionnaire
  - **Partners, Practices, Protection, Prevention of Pregnancy, and Past History of STIs**
  - SMs identified as high-risk were asked to submit a urine NAAT test.
  - SMs with positive test results were treated per standards of care and local guidelines
  - Clinic and hospital leadership were briefed on findings and offered tools for sustainment

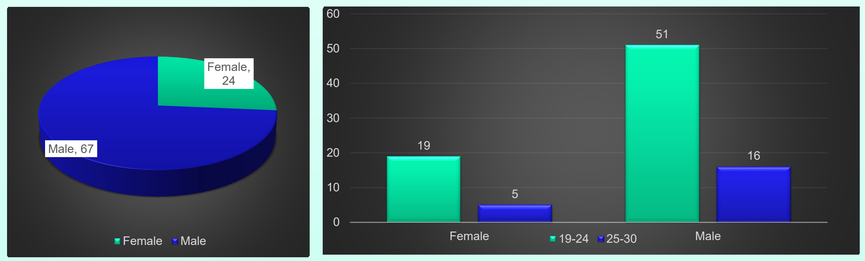
## Impact

**Expand risk-based STI screening practices to accurately reflect the active duty military population and increase identification of asymptomatic carriers of chlamydia**

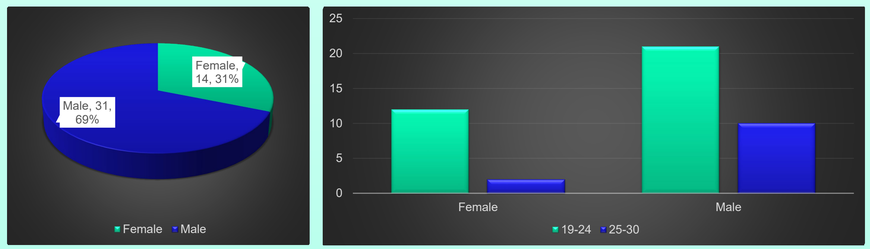
## Project Results




### High-Risk Service Member Demographics




### Tested Service Members




- **13.3%** (95% CI, 5.9% to 26.6%) positive rate of STIs for high-risk SMs
- 84% of the positive cases were male, corresponding with the higher ratio of males in the military population
- Positive rate in high-risk males was **16.1%** (95% CI - Clopper-Pearson (Exact), 5.45% to 33.73%) and for females **7.1%** (95% CI - Clopper-Pearson (Exact), 0.18% to 33.87%)

## Analysis of the Results

- Implementation of CDC's 5 Ps questionnaire:
  - Identified high-risk SMs for STIs (**20%** of those screened)
  - All 6 positive cases would not have been diagnosed without the implementation of the 5 Ps questionnaire
  - 5 out 6 positive cases were male, exposing the shortfalls in current practices and guidelines of only screening females
- **13% positivity rate is consistent with findings in the literature** regarding targeted screening to identify high-risk SMs. The current screening practices at this site only had a **5% local positivity rate** in the retrospective data review.

## Recommendations for Improvement

- Implement a policy to assess sexual risk-taking behavior using CDC's 5 Ps approach at each medical visit for SMs 30 years and younger
- Educate medical screeners (Nurses and Medics) to identify positive risk factors in the 5 Ps assessment
- Improve logistics for efficiency and to decrease the number who do not submit a specimen to the lab
- Coordinate with multidisciplinary team including lab, pharmacy and epidemiology clinic regarding the 5 Ps approach

## Organizational Impact

The use of CDC's 5 Ps approach to sexual health history will:

- Identify SMs at risk of being infected and ultimately decrease the rate of STI among the most vulnerable population
- Contribute to a fit and ready force
- Decrease future healthcare related costs for a preventable condition

## Future Directions for Research and Practice

- Consistent screening of sexual risk-taking behaviors using CDC's 5 Ps approach in SMs 30 or younger can help identify those at risk for STI
- MTFs should consider adopting a policy to assess sexual risk-taking behavior at each appointment or implement the questionnaire in the annual Periodic Health Assessment (PHA)
- Future study is needed to obtain a reliable picture of the burden of undiagnosed chlamydia in the military

## Acknowledgements

The authors would like to acknowledge Lt Col Natasha Best, MAJ Lauren Nash, Professors Laura Taylor and Jennifer Trautmann, Faculty of Daniel K. Inouye Graduate School of Nursing and the staff at Robinson Health Clinic.

References Available Upon Request

# Improving Chlamydia Risk Screening Using the CDC's 5 Ps Approach

CPT Ramesh Gautam, RN, BSN and CPT Jacob Orrino, RN, BSN

Senior Mentor: Lt Col Natasha Best, USAF, NC, DNP, WHNP-BC

Phase II Site Director: MAJ Lauren Nash, USA, AN, DNP, FNP-C, WHNP-BC

Robinson Health Clinic, Fort Bragg, North Carolina

The Daniel K. Inouye Graduate School of Nursing

Doctor of Nursing Practice Project

# Disclaimer

- The views expressed in this presentation are those of the authors and do not necessarily reflect the official policy or position of the Uniformed Services University, the Department of Defense, or the United States Government
- There are no financial relationships that exist between the speakers and a commercial entity

# Introduction

- Chlamydia is infecting service members (SMs) at a rate of **2-3 times** that of the U.S. population
- Complications of undiagnosed chlamydia **affects readiness** and may render SMs non-deployable
- People aged 15-24 account for **50%** of new cases of chlamydia
- The CDC's 5 Ps sexual history questionnaire can be used to **identify high-risk SMs or those who are infected but are asymptomatic, preventing future transmission** and **complications of chlamydia**

(Nadeu et al., 2018; Jordan et al., 2011; & CDC, 2016)

# Significance

- SMs under age 25 make up approximately 50% of the military and account for the majority of chlamydia infections
- Demanding military duties increase risk-taking behaviors, placing our service members at higher risk for chlamydia
- Current guidelines recommend annual screening of only **females** under 25; however, **86% of the Active Duty population at Fort Bragg is male**
- By assessing **both genders** with the CDC's 5P sexual health questionnaire, we can identify and screen those at high-risk

(MHSCO, 2019; ODPHP, 2020)

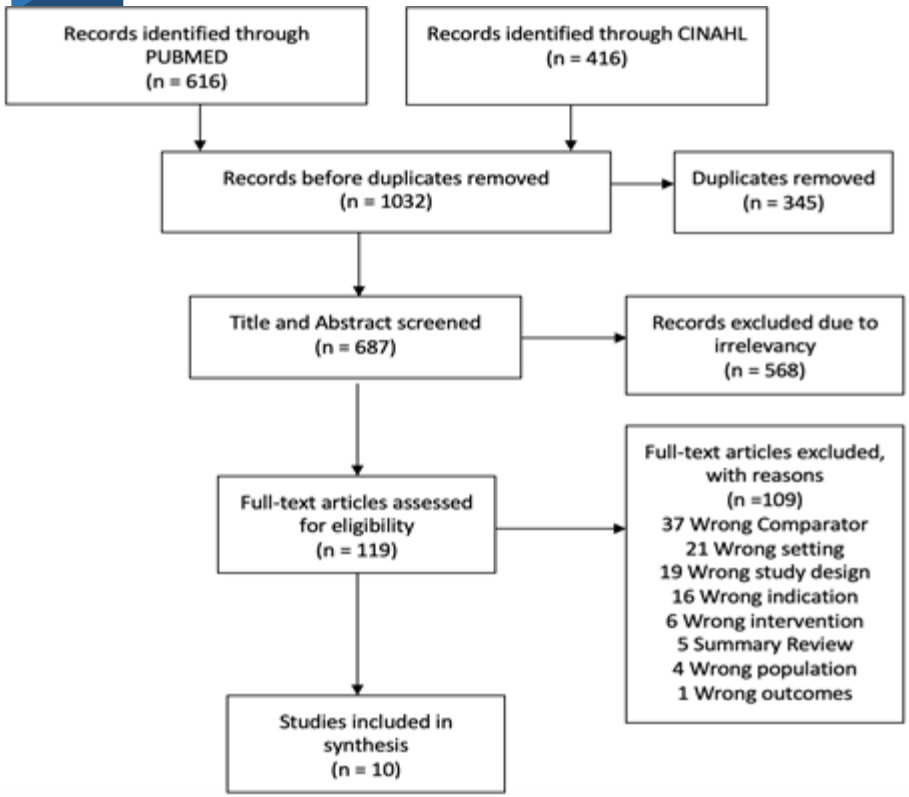
# System or Clinical Question

- Does the use of the CDC's 5 Ps assessment approach to sexual health history improve identification of high-risk behaviors and asymptomatic carriers of chlamydia when administered to all male and female service members 30 years and younger at a large military base in North Carolina?

# Focus Areas / Arms

- Implement an evidence based and validated questionnaire to elicit sexual health history and identify high-risk individuals
- Educate clinical staff members on the administration of the 5 Ps questionnaire during patient encounters
- Reduce the spread of chlamydia by identifying asymptomatic SMs
- Improve the disproportionate screening practices currently in place to more accurately represent the military population

# Literature Review




## Inclusion Criteria

- Articles within the past 10 years
- Articles that evaluated the sexual history taking in order to identify high-risk individuals

## Exclusion Criteria

- Irrelevant or incorrect intervention(s) used
- No sexual history assessment tool
- Did not include pre and post implementation data

CELEBRATING 50 YEARS 1972 2022 USU Uniformed Services University

# Translation / Organizing Framework

**The Iowa Model of EBP Revised**

- Implementation of evidence-based changes in practice
  - Identify the triggering issue→ State the question
  - Form a team
  - Assemble and appraise the evidence→ Synthesize the body of evidence
  - Design and Pilot the practice change→ Evaluate outcomes→ Refine as needed
  - Integrate and sustain→ Reinforce as necessary
  - Disseminate the results→ Engage key stakeholders

(Melnyk & Overholt, 2019)

# Project Design

- CDC's 5 Ps questionnaire was used to assess the sexual health history of SMs ≤ 30 at a large Army primary care clinic
- The medical staff of 4 Brigades were trained on proper use of the questionnaire, screening all SMs ≤30, and criteria to appropriately identify SMs as high-risk
- All SMs identified as high-risk were educated, had a urine NAAT test ordered, and were advised to complete it that day
- SMs with positive test results were treated per standards of care and local guidelines

# 5 Ps of Sexual Health Risk Assessment

1. **PARTNERS**

   Have you had more than one sexual partner in the past 6 months? Yes __No__
   Do you have sex with women___, men___ or both___?

2. **PRACTICES**

   Do you perform vaginal___ anal___ oral___ sex practices?

3. **PREVENTION OF PREGNANCY (Females only)**

   What are you doing to prevent pregnancy?

4. **PROTECTION**

   Do you always use protection during sexual intercourse? Yes___ No___

5. **PAST HISTORY**

   Have you ever had an STI? Yes __No __

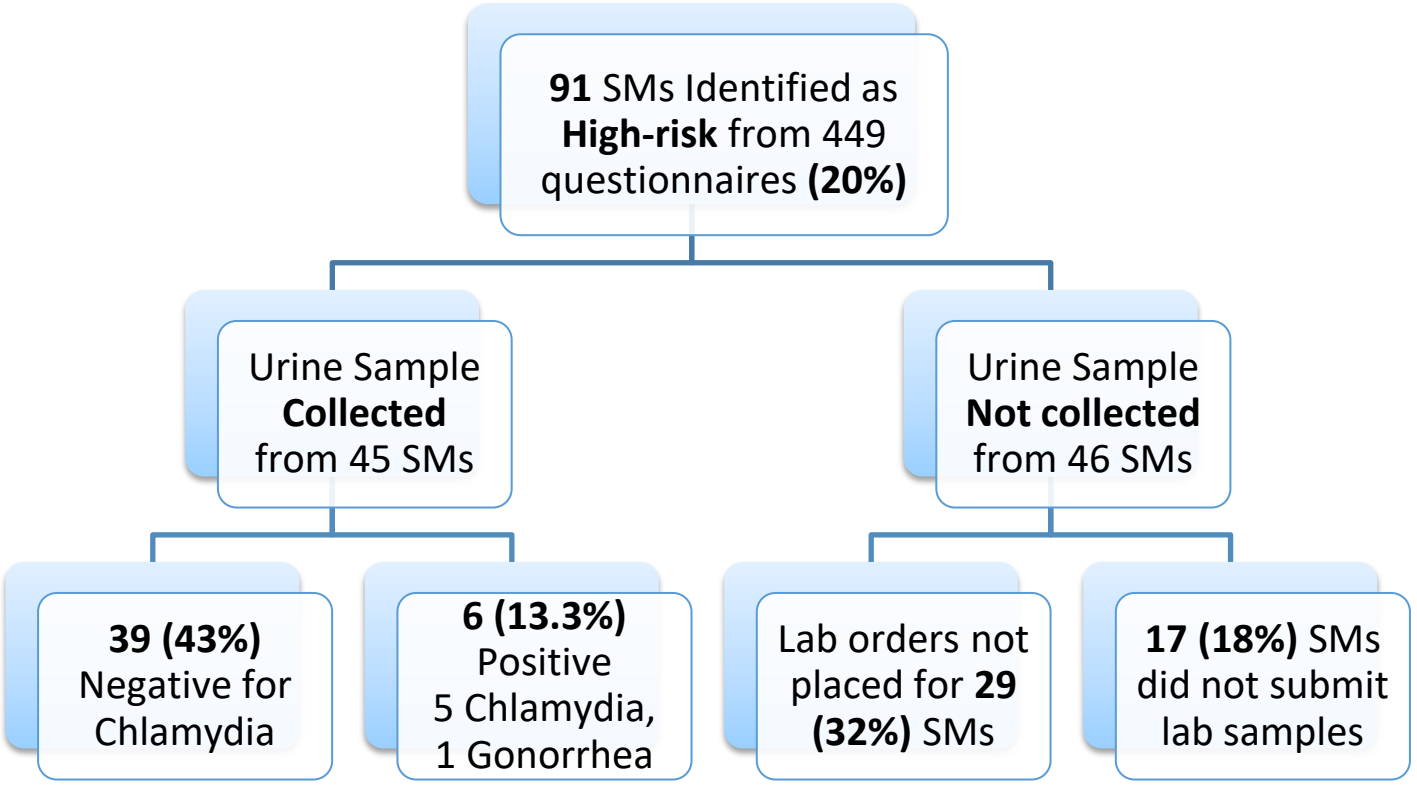
(CDC, 2021)

# Procedural Steps

| Identify the trigger | Form a team | Assemble, appraise and Synthesize body of evidence | Design and pilot the practice change and evaluate outcomes | Integrate and sustain the practice change | Disseminate results |
|---|---|---|---|---|---|
| Identify the trigger where an EBP change is required<br><br>Discussed the problem with the phase 2 site director | The team was assigned by the GSN faculty | Research gathered using PubMed and CINAHL databases with specific search terms<br><br>Upon completion of literature review 10 studies found relevant for our project<br><br>10 studies: Level III evidence | Study design is ready for piloting<br><br>Project interventions believed to be feasible in projected setting<br><br>Pilot study to be implemented at Robinson Health Clinic<br><br>Evaluate the outcomes continually and at the end of the pilot program | Brief command and other involved parties of the outcomes<br><br>Reinforce the change by providing the available data<br><br>Assist in developing SOPs<br><br>Conduct surveys on the clinic for any sustainment and improvement | Present findings at conferences and research week<br><br>Coordinate with the public health department at Fort Bragg for wider dissemination<br><br>Publish it in the journal |

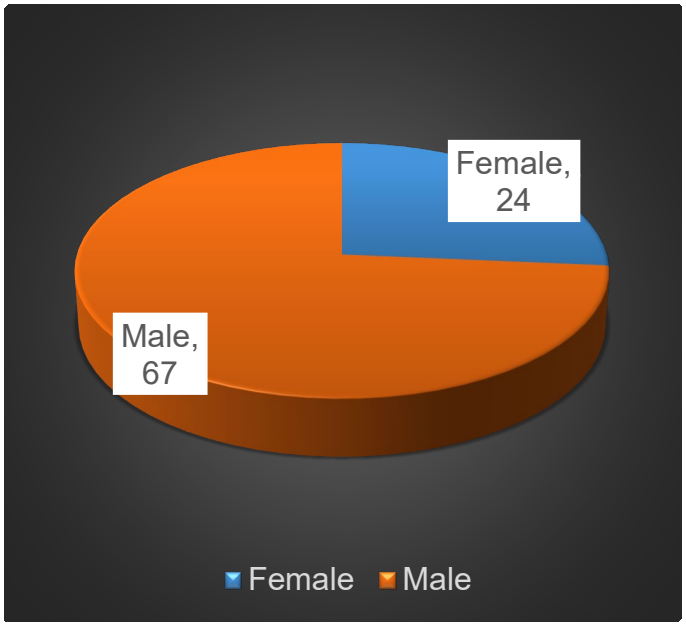
(Melnyk & Overholt, 2019)

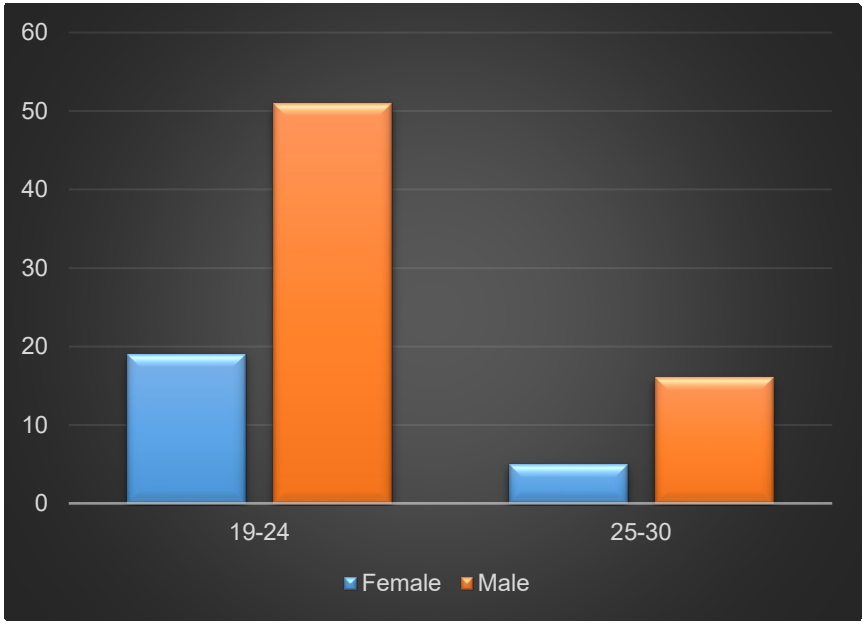
# Results



# Results

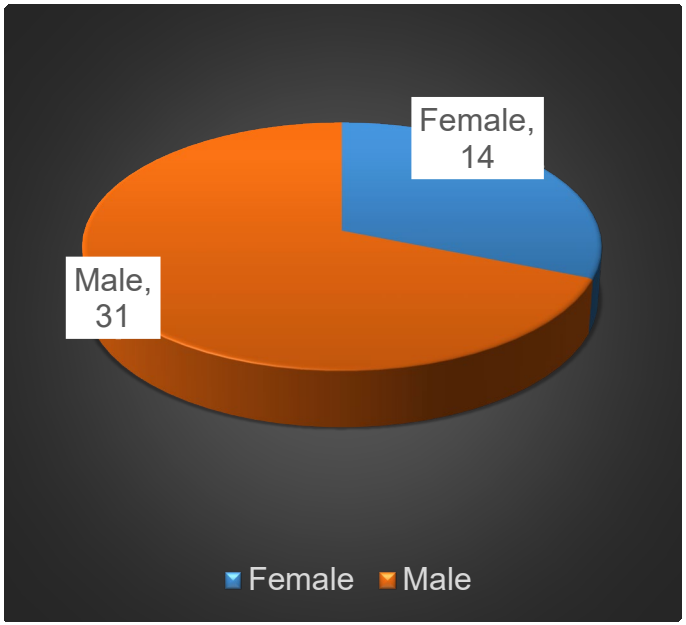
## High Risk Service Member Demographics



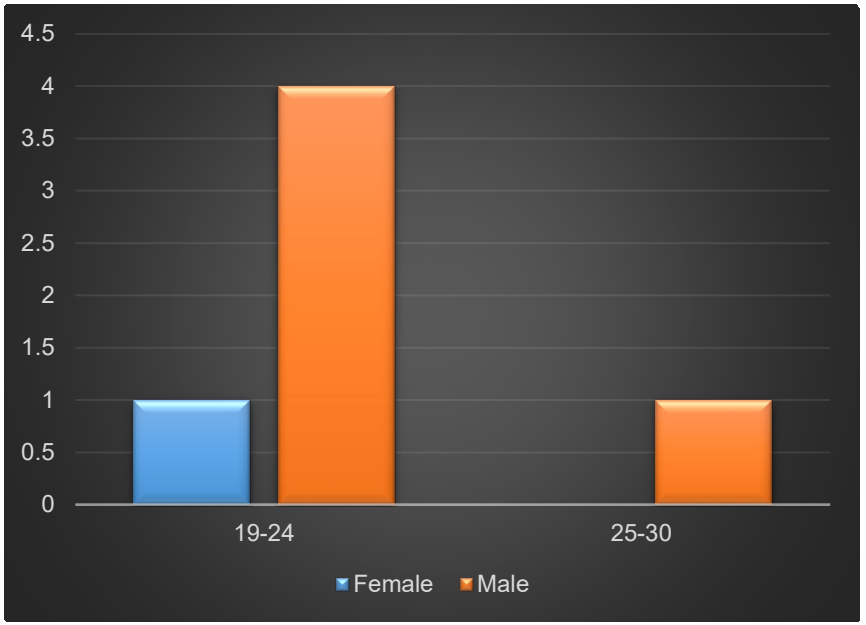



# Results

## Tested SMs




## Positive SMs



# Analysis

Implementation of CDC's 5 Ps questionnaire:

- Identified high-risk SMs for STIs (**20%** of those screened)
- **All 6 positive cases** would not have been diagnosed without the implementation of the 5 Ps questionnaire
- 5 out 6 positive cases were male**,** exposing the shortfalls in current practices and guidelines of only screening females

- 13% positivity rate is consistent with findings in the literature regarding targeted screening to identify high-risk SMs
- Current screening practices at this site only had a 5% local positivity rate in the retrospective data review

(Goyal et al., 2017)

# Impact / Implication

Organizational Impact:

- Identify individuals at risk of being infected and ultimately decrease rate of STIs among the most vulnerable population, active duty SMs ≤30
- Increase military readiness and unit lethality
- Decrease future healthcare costs for largely preventable conditions
- Decrease lost work hours due to necessary medical appointments when treating for chlamydia

# Barriers and Limitations

- Time allocated for each encounter and staff's resistance
- Patient's comfort level with completing the questionnaire honestly and/or agreeing to submit a urine sample
- The evaluation of monetary cost of risk-based screening is beyond the scope of this project
- The study may not be generalized to other areas due to the nature of the population

# Future Directions

- Consistent screening of sexual risk-taking behaviors using the CDC's 5 Ps approach in SMs ≤ 30 can help identify those at risk for STI
- MTFs should consider adopting a policy to assess sexual risk-taking behavior at each appointment or implement the questionnaire in the annual Periodic Health Assessment (PHA)
- Future study is needed to obtain a reliable picture of the burden of undiagnosed chlamydia in the military

# Conclusion

- Of the mandated reportable STIs in the U.S and the military Chlamydia is the number one most prevalent. The military's current standard of practice is to screen women only, annually, and under the age of 25

- This project screened both men and women ≤30 at each primary care visit. Over 13% of those who submitted a urine sample tested positive for a STI. This is consistent with current evidence that estimates the military population's positivity rate to be 13-14%

- With the military's current standard of practice only identifying a 5% positivity rate, this project demonstrated the value of using the CDC's 5 Ps tool for targeted screening. By updating the practice standard we can improve the identification of at-risk SMs, asymptomatic SMs, and prevent further spread of infection

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- Office of Disease Prevention and Health Promotion (2020). Sexually transmitted disease. https://www.healthypeople.gov/2020/topics-objectives/topic/sexually-transmitted-diseases

# Thank you

# Questions