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Chlamydia Screening for High Risk Populations

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Background & Evidence for Problem

Chlamydia trachomatis, also known as chlamydia, is the most common bacterial sexually transmitted infection (STI) worldwide. Rates of chlamydia have been on the rise since it became a reportable disease to the Center of Disease Control (CDC) in 1984. In 2017, 1,708,569 cases were reported to the CDC, which is the highest amount of cases ever reported (Center for Disease Control, 2017). Chlamydia trachomatis is a bacterium that is highly curable with antibiotics if treated early. Untreated, this bacterium can cause pelvic inflammatory disease and uterine scarring for women, leading to infertility or ectopic pregnancies. It can also be a precursor for cervical cancer and endometriosis in women, and potentially transferred to offspring during childbirth (Malhotra, Sood, Mukherjee, Muralidhar, & Bala, 2013). Both men and women can contract chlamydia and are often asymptomatic. Potential signs and symptoms are pain with intercourse, dysuria, and abnormal vaginal or penial discharge. Early detection and screening of chlamydia is important to prevent transmission and secondary complications. Women who are between the ages of 15 to 24 years old and sexually active are considered to be the highest risk population due to multiple partners (Navarro, Jolly, Nair, & Chen, 2002). Other risk factors of chlamydia include unprotected intercourse, inconsistent use of barriers, minorities, low socioeconomic status, new or multiple sexual partners, cervical ectopy, military men under the age of 30, men in the prison system, and all genders in the juvenile detention system (Keegan, Diedrich, & Peipert, 2014).

The United States Preventative Services Task Force (USPSTF) and CDC both recommend routine screening for chlamydia for sexually active females under the age of 25 years old and 25 years old or older if at increased risk (USPSTF, 2016). The CDC showed that the highest risk group for chlamydia were females ages 20-24 due to the fact that their reported

chlamydia rates have been consistently higher than other age groups. In 2016, 3,779 per 100,000 females were diagnosed with Chlamydia among this age group. The second highest risk group includes females ages 15-19 at 3,070.9 per 100,000 total chlamydia cases (CDC, 2017). Overall there were 10,516.2 per 100,000 cases total for females of all age groups.

When given the opportunity in acute or urgent care, chlamydia should be considered when females present with urinary signs and symptoms. Many patients, especially in the high-risk groups, do not have a primary care provider or see a primary care provider on a routine basis. These patients do not have access or confidence in primary care and choose to visit urgent cares and emergency departments for basic healthcare needs (Coster, Turner, Bradbury, & Cantrell, 2017). A meta-analysis by Tomas et al. (2015), demonstrated a high rate of STIs in emergency departments when presenting with urinary problems. Of 264 women studied presenting with urinary symptoms to emergency departments, 60 had one or more positive exams for STIs (Tomas, Getman, Donskey, & Hecker, 2015). Unless testing for common STIs, many of these patients with urinary symptoms would be treated as urinary tract infections. Of the 60 diagnosed with a STI, 22 females were inappropriately given antibiotics for a urinary tract infection and 13 of these patients were positive for chlamydia (Tomas et al., 2015). Another meta-analysis by Goya et al. (2016) in multiple urgent care settings, screened asymptomatic adolescents ages 14-21 years old for STIs and 4.9% came back positive with at least one STI (Goyal, Teach, Badolato, Trent, & Chamberlain, 2016).

Being tested for STIs can be embarrassing and can conflict with a culture of sexual privacy even though prevention should be accepted as a critical part of a healthy lifestyle. Practitioners and medical staff can strongly influence a patient's willingness to get tested by providing safe, open dialogue and an emphasis on education. A randomized control trial by

McNulty (2014), studied about 160 general practitioner practices to demonstrate chlamydia screening behavior changes pre and post practice-based education for patients and staff. Screening rates for women 15-24 years old increased by 2.33% after implementation of the educational intervention (McNulty et al,. 2014).

There are several diagnostic laboratory studies to test for chlamydia that range in collection technique, cost, processing time, sensitivity, and specificity. The most accurate test and the one recommended by the CDC is nucleic acid amplification testing. Nucleic acid amplification testing can be completed on a first void urine specimen or by vaginal swab. Collection of the vaginal swabs can be performed by the provider or the patient, but sensitivity and specificity of the test is higher with patient collected swabs (Meyer, 2016). Nucleic acid amplification testing has a sensitivity of 86% and specificity of 97%. Clean catch urine specimens have the ability to screen for a UTI and chlamydia at the same time but have a sensitivity of 72% when screening for chlamydia (United States Preventive Services Task Force, 2014). Clean catch urine specimens have a lower sensitivity rate when compared to other methods (Meyer, 2016).

In a 10-month retrospective chart review, only 8 patients presented to the clinic project site with urinary symptoms and none of them were screened for chlamydia. This sample number was low because the practice site had recently opened and was still gaining clientele. In addition, the computer charting system changed during this period of time and patients may not have been transferred over to the newest software for review. The practice site did not routinely screen for chlamydia when females presented with dysuria, urinary frequency, or urinary tract infection symptoms. Women presenting with dysuria and signs and symptoms of a urinary tract infection

were only being treated for a urinary tract infection (UTI). The laboratory screening method for a UTI included a clean catch urine.

Purpose

The purpose of this evidenced-based practice project was to increase chlamydia prescreening and screening for females, ages 15-24, presenting to urgent care with urinary symptoms.

Evidence Based Project Model

The ACE Star Model was used as the framework to guide this project. This model focuses heavily on having a consistent body of knowledge that supports change (Stevens, 2012). It uses translational science to implement practice guidelines based on current research. The ACE Star Model is depicted as a star with five points illustrating the main stages of transforming an evidence-based project including knowledge discovery, evidence synthesis, translation into practice recommendations, integration into practice, and evaluation (Stevens, 2004).

All five of the ACE Star Model stages were used in this evidence-based practice project. Knowledge discovery comprised of evaluating clinic site needs with stakeholders and a chart review to determine the study site's practice in screening for chlamydia. Evidence synthesis included extensive literature review to review the strength of evidence supporting the project and to determine appropriate chlamydia screening techniques. Translation into practice took place when the site stakeholders understood the scope of the problem and were supportive of integrating evidenced-based chlamydia screening in this setting. Integration into practice included incorporating the prescreening questions into the electronic health record. Lastly,

evaluation was conducted with all stakeholders to increase awareness of prescreening and screening and the feasibility of using higher yield collection methods.

Project Plan Process

A chart review over 10 months was completed to gain a better understanding of the need for chlamydia screening in this Southern California urgent care setting. Data obtained revealed that high risk females presenting with symptoms of UTI were not screened for chlamydia. The evidenced based intervention included incorporating a chlamydia screening template into the electronic health record (EHR) to prescreen high risk women according to the CDC and USPSTF. Women ages 15 to 24 years old with a chief complaint of dysuria or urinary frequency were asked four questions by a medical assistant prior to being seen by the provider. These question options were “yes”, “no”, or “decline to answer” and were determined to be “prescreening” questions because the answer determined if screening for chlamydia was appropriate for the individual. The specific questions include:

- Are you sexually active?
- Have you ever been screened for STIs?
- Have you been screened within the past year for STIs?
- Any new partners since last screened for STIs?

These questions were all added to the EHR as part of the dysuria and urinary frequency templates. By adding these questions to the template for females 15 to 24 years old with dysuria and urinary frequency, it served as an alert for a healthcare staff to enter the answers to the pre-screening questions into the mandated fields. Screening criteria with a urine test included females younger than 25 who were sexually active and had not been tested for STIs in the past

year or who had a new sexual partner since last being tested. If the patient was screened within the last year with no new partners or not sexually active, chlamydia screening was not recommended.

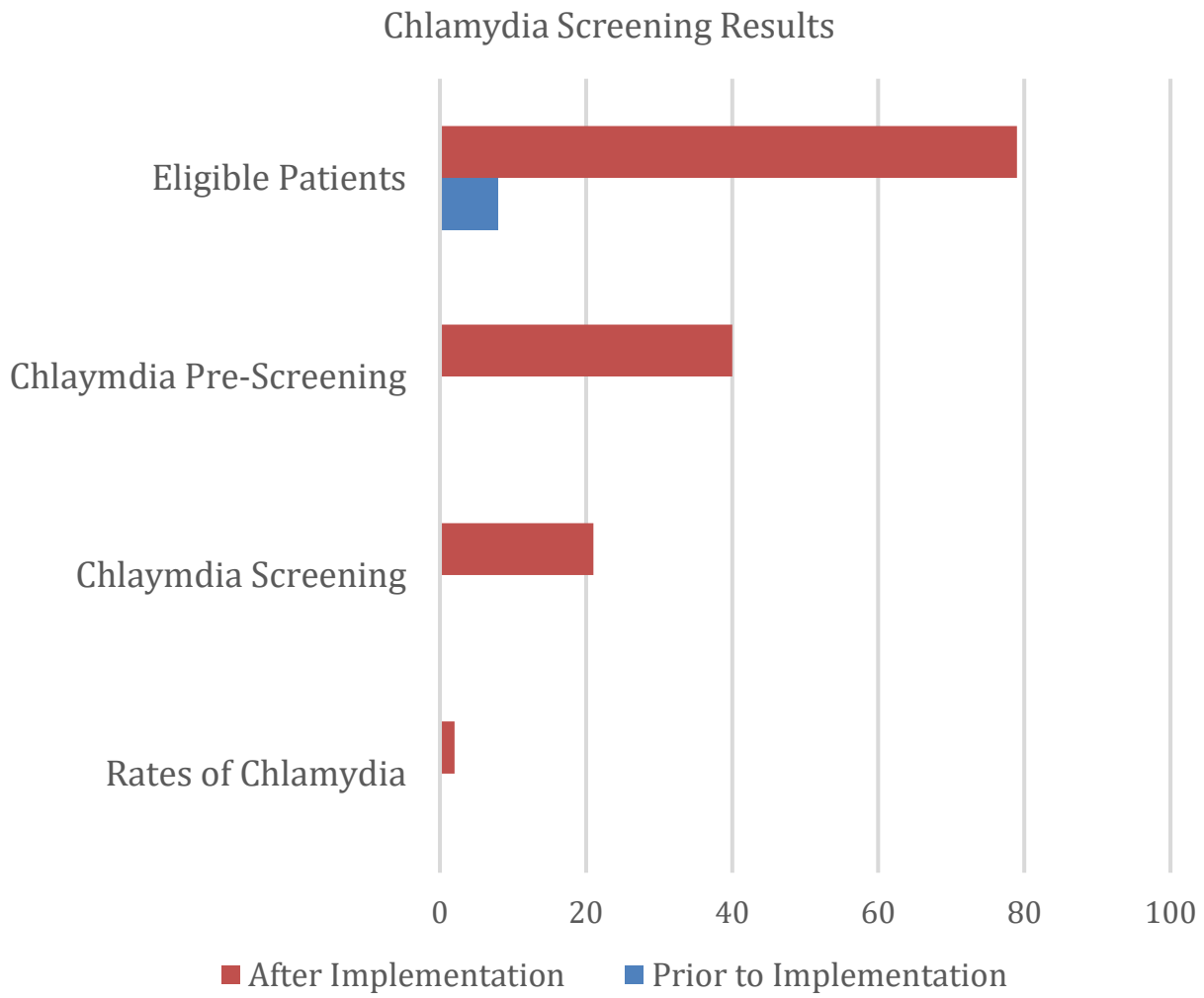
Screening consisted of a clean catch urine laboratory test used to screen for UTI, chlamydia and gonorrhea. Education to providers and staff was performed prior to project implementation that outline how to use the mandatory prescreening questions to encourage chlamydia screening efforts, patient comfort, and an appropriate treatment plan. Institutional review board approval was obtained from the academic review board prior to the initiation of the project. All data collected were cleansed of patient identifiers.

Post-implantation data were obtained from the EHR for over a 7-month period including gender, age, answers to the chlamydia prescreening questionnaire, results of chlamydia lab tests, insurance name or fee for service, the physician providing care, results of the urinalysis, and diagnosis provided.

Evaluation Results

Pre-implementation data obtained included 8 female patients between the ages of 13 and 24 years old who were seen for dysuria, urinary tract infections, or urinary frequency. Zero of the 8 patients seen were prescreened, screened, or diagnosed with chlamydia. Post-implementation data included 481 female patients that presented for dysuria, urinary tract infection, and urinary frequency over a 7-month time period. Seventy-nine of these patients were between the ages of 13 and 24 years old. Of these 79 patients, 40 were prescreened for chlamydia using the four questions about sexual activity or prior screening for STIs. Two of these 79 patients declined chlamydia prescreening and screening. Of the 40 patients, 21 were screened with a clean catch urine test for chlamydia. Two of these 21 patients tested positive for chlamydia (See table 1).

Table 1



Cost-Benefit Analysis

The 2008 cost for chlamydia in the United States estimated 516.7 million dollars (Owusu-Edusei, 2013). In 2012, the costs for pelvic inflammatory disease were estimated at $2,000 a person or 1.5 billion healthcare dollars in the United States (Gradison, 2012). Infertility costs were even higher averaging at $6,000 per person (Ditkowsky, Shah, Hammerschlag, Kohlhoff, & Smith-Norowitz, 2017). The urgent care charged $95 for the visit, $20 for the urine test, and $15 for the antibiotics treating chlamydia. This urgent care visit totaled $130 for a

chlamydia diagnosis and treatment without insurance. Healthcare costs for untreated chlamydia are difficult to estimate however, adopting simple screening recommendations can make a huge impact in regard to overall women's health.

Conclusion

Screening for chlamydia should be practiced as routine care in the outpatient setting. However, when given the opportunity, urgent care should also utilize dysuria and urinary frequency visits to screen for chlamydia cases that would have otherwise been undetected. The overall goal for this project was to increase chlamydia prescreening and screening for females, ages 15-24, presenting to urgent care with urinary symptoms. Positive chlamydia results could have been missed due to the fact that all urine specimens submitted were clean catch with a 72% sensitivity instead of a dirty catch or vaginal swabs with an 86% sensitivity. Chlamydia rates may have been higher in the study if nucleic acid amplification testing was used and worth considering for future screening.

Implication for Clinical Practice

The project can impact both providers and patients. The mandated prescreening alerts in the EHR will prompt providers to screen for chlamydia when female patient between the ages of 15 and 24 years old present with UTI symptoms. Sustainability for this practice change is encouraged through the four mandatory prescreening questions implemented in the EHR.

Ideally, the additional screening efforts will also decrease the percentage of chlamydia transmission and secondary complications including pelvic inflammatory disease, infertility, newborn transmission, and ectopic pregnancies in the future. Screening for chlamydia in females with suspected UTIs is a great start but improving sensitivity of the laboratory exam by

switching from urine samples to vaginal swabs has the potential of catching and treating more cases.

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