The Burden of Disease

Chlamydia infections are preventable and when detected early are easily treated. Screening and treatment of patients and their sexual partners are the primary means of controlling the spread of disease. Failure to screen for chlamydia and to report positive cases can impact the health of both the patient and the community.

The Patient’s Burden

For the patient, there are serious potential health consequences to untreated chlamydia infection. Research indicates that up to 40% of women with untreated chlamydia or gonorrhea infections will develop pelvic inflammatory disease (PID).1 PID can lead to ectopic pregnancy, spontaneous abortion, chronic pelvic pain and infertility. Infection with chlamydia during pregnancy can cause preterm labor and low birth weight infants, and can also be transmitted to the infant during delivery. Serious health consequences from untreated chlamydia infection in males are rare, but may include epididymitis with subsequent pain, fever and infertility. Untreated infections, in both females and males, often result in long-term consequences to sexual and reproductive health and subsequently contribute to rising health care costs.

It is estimated that untreated chlamydia infections and the associated sequelae of infection costs the United States more than $2 billion per year.2

The Community’s Burden

Chlamydia is not only the most frequently reported STD, but is the most frequently reported communicable disease in Washington State and Spokane County. The number of reported cases of chlamydia in Spokane County has increased steadily, from 688 cases in 2000 to 1,071 cases in 2005.4 Incidence rates in Spokane County, while less than the rates reported in Washington State overall, have increased over time from 166 cases per 100,000 in 2000 to 245.5 cases per 100,000 in 2005; this represents a 47.9% increase over the 5-year period. The recent increase may be attributed to a number of factors, including more screening of at-risk populations, less invasive testing (urine based), greater sensitivity of testing, increases in risky sexual behavior, and a growing prevalence.

Screening Recommendations

Up to 90% of chlamydia infections are asymptomatic.5 The U.S. Preventive Services Task Force and other professional societies generally recommend screening all pregnant women, all sexually active women age 25 years and younger, and all women age 26 years and older at increased risk of chlamydia due to high-risk factors (i.e. unprotected sex, new or multiple sex partners, having a history of STDs), regardless of symptoms.6 Screening recommendations for males are not as explicit; historically, males have been screened when symptoms of infection are evident or when they have been identified as a sexual partner of a confirmed case. Subsequently, little evidence exists with regard to the efficacy of screening males. However, it is estimated that more than 70% of chlamydia infections in males are also asymptomatic.7
Additionally, the risk of reinfection for patients whose sexual partners have not been treated may be as high as 25% within one year. The Centers for Disease Control and Prevention recommends that health care providers consider evaluating young men for asymptomatic infection when given the opportunity to do so, because young men do not consistently seek health care.

Large-scale screening programs have been shown to reduce the prevalence of chlamydia within a population by up to 59% over a 12-year period.

Despite recommendations and evidence of the effectiveness of screening, research indicates significant gaps in screening for chlamydia in both female and male populations. Gaps in screening may contribute to the spread of chlamydia in the community and rising incidence rates.

Understanding Clinical Practice Locally

Health care providers in Washington State have a statutory obligation to report Chlamydia trachomatis to public health departments (Washington Area Code 246-101). Public health officials have an obligation to analyze and disseminate reported case data to inform clinical practice regarding the incidence and prevalence of disease, and to assess the community for gaps in clinical services. Most cases of chlamydia are diagnosed by private clinicians. In Spokane County in 2004, only 8% of all cases were reported by STD clinics. Since most cases are diagnosed in the private health sector, a thorough understanding of local providers' perceptions of barriers to screening is essential to effective intervention efforts.

Spokane Regional Health District (SRHD) surveyed health care providers in Spokane County in December 2005 to: (1) evaluate the extent to which they are screening patients for chlamydia, and (2) identify the strategies most frequently used to manage the sexual partners of confirmed cases. The purposes of the survey were to identify potential barriers to screening, as well as opportunities for public health intervention to increase screening rates in the community and utilization of patient-delivered partner treatment for the management of sexual partners of confirmed cases. This report (Controlling Chlamydia in Spokane County: Part I) summarizes survey findings with regard to screening for chlamydia. The partner management strategies utilized by providers in Spokane will be summarized in a separate report (Controlling Chlamydia in Spokane County: Part II).

Survey Methodology

The survey was mailed to all Spokane County physicians, physician assistants (PAs), and nurse practitioners (ARNPs) who practice in emergency medicine, internal medicine, family/general practice, obstetrics/gynecology, and pediatrics.

These five specialties diagnose the majority of STDs. The survey instrument was developed by using standard questions from the literature to assess the providers and their behaviors and attitudes with regard to STD-related care. The survey was tested by four local health care providers, was revised and then mailed to 663 providers. Of the 663 providers surveyed, 30 indicated that they were ineligible to participate, 85 had moved, retired, or could not be located, and 38 indicated a written refusal to participate. A total of 260 surveys were returned for a final response rate of 47.4%.

Survey Results

There were two dependent variables in this study: (1) the frequency that providers screen females age 15 to 25 for chlamydia during a routine new or annual patient visit, and (2) the frequency that providers screen males age 15 to 25 for chlamydia during a routine new or annual patient visit. Approximately 62% of respondents indicated that they screened females for chlamydia all or most of the time. In contrast, only 22% of respondents who provided care to males indicated that they always or usually screened males for chlamydia.

Factors Associated with Routinely Screening Females for Chlamydia

Statistical tests of association indicated that a number of provider characteristics, attitudes, and beliefs were each significantly associated with regularly screening females age 15 to 25 all or most of the time during a routine new or annual patient visit. Providers were significantly more likely (p < .05) to screen for chlamydia if they reported the following characteristics or behaviors:

- Were ARNPs as compared to PAs or physicians;
- Had completed their formal training within the last 10 years;
- Were female;
- Practiced in obstetrics and gynecology, pediatrics, or family/general practice;
- Served a patient population with greater than 5% from Hispanic origin;
- Reported usually taking a sexual history from patients; and
- Reported using patient-administered tools to elicit a sexual history.

Providers were significantly more likely (p < .05) to screen for chlamydia if they held the following attitudes and beliefs:

- Felt comfortable discussing sex-related issues with patients;
- Felt responsible for ensuring that patients in their practice received appropriate STD preventive services;
- Believed that screening all sexually active women age 15 to 25 years for chlamydia would prevent unnecessary health care costs; and
- Believed that screening for chlamydia was a priority compared to other clinical preventive services.
Factors Associated with Routinely Screening Males for Chlamydia

Three variables were associated with usually screening males for chlamydia. Providers were significantly less likely (p < .05) to screen males age 15 to 25 for chlamydia if they:

- Thought that most of their patients did not want STD prevention services;
- Thought that most of their patients were not sexually active;
- Believed that laboratory tests were too costly to screen all sexually active patients age 15 to 25 years for chlamydia; and
- Believed that chlamydia was too uncommon in their patient population to justify the costs of screening all patients.

Providers were significantly more likely to screen males age 15 to 25 for chlamydia if they:

- Reported usually taking a sexual history during new or annual patient visits;
- If they felt responsible for ensuring that young patients received STD preventive services; and
- Reported using a urine specimen as opposed to a urethral swab.

Sexual risk assessment should be a routine part of a clinical interview. Providers in this study who reported that they usually take a sexual history from patients during new or annual patient visits were significantly more likely to screen both male and female patients for chlamydia.

Table 1. Summary of provider's responses to statements assessing attitudes and beliefs.

<table>
<thead>
<tr>
<th>Attitude and Belief Statements</th>
<th>n (%)</th>
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<tbody>
<tr>
<td>I am comfortable discussing sex-related issues with my patients.</td>
<td>Agree 250 96.9  Disagree 8 3.1</td>
</tr>
<tr>
<td>I am well trained to address sexual risks with young patients.</td>
<td>Agree 236 92.2  Disagree 20 7.8</td>
</tr>
<tr>
<td>Payer contract monitoring limits my ability to provide STD prevention services.</td>
<td>Agree 119 46.5  Disagree 137 53.5</td>
</tr>
<tr>
<td>Most of my patients do not want STD prevention services.</td>
<td>Agree 122 47.3  Disagree 136 52.7</td>
</tr>
<tr>
<td>It is more important to screen adults (ages 18-25 years) for chlamydia than it is to screen adolescents (ages less than 18 years) for chlamydia.</td>
<td>Agree 80 31.3  Disagree 176 68.8</td>
</tr>
<tr>
<td>Most of my patients less than 18 years of age are not sexually active.</td>
<td>Agree 68 27.2  Disagree 182 72.8</td>
</tr>
<tr>
<td>I am responsible for ensuring that young patients in my practice receive appropriate STD preventive services.</td>
<td>Agree 190 74.5  Disagree 65 25.5</td>
</tr>
<tr>
<td>Time pressures limit my ability to provide effective STD preventive services and counseling.</td>
<td>Agree 163 63.9  Disagree 92 36.1</td>
</tr>
<tr>
<td>Financial reimbursement difficulties limit my ability to provide effective STD preventive services and counseling.</td>
<td>Agree 128 49.6  Disagree 130 50.4</td>
</tr>
<tr>
<td>Laboratory tests are too costly to screen all sexually active patients (18-25 years) for chlamydia.</td>
<td>Agree 131 51.2  Disagree 125 48.8</td>
</tr>
<tr>
<td>I am concerned that lab tests are not as accurate as they need to be to screen all patients who might be at risk of infection.</td>
<td>Agree 112 43.6  Disagree 145 56.4</td>
</tr>
<tr>
<td>It is not as important to screen asymptomatic sexually active males as it is to screen asymptomatic sexually active females.</td>
<td>Agree 89 35.6  Disagree 161 64.4</td>
</tr>
<tr>
<td>Screening all sexually active women (ages 15-25 years) for chlamydia will prevent unnecessary health care costs.</td>
<td>Agree 154 59.9  Disagree 103 40.1</td>
</tr>
<tr>
<td>Compared to other clinical preventive measures, screening for chlamydia is a priority in my practice.</td>
<td>Agree 105 40.9  Disagree 152 59.1</td>
</tr>
<tr>
<td>Chlamydia is too uncommon in my patient population to justify the costs of screening all asymptomatic, sexually active patients (ages 15-25 years) for it.</td>
<td>Agree 90 34.9  Disagree 168 65.1</td>
</tr>
<tr>
<td>Most chlamydia infections are asymptomatic.</td>
<td>Agree 198 77  Disagree 59 23</td>
</tr>
</tbody>
</table>

Note. Numbers may not add up to study total because of missing data.

The providers who reported using urine-based screening were significantly more likely to screen male patients for chlamydia. However, fewer than half of all providers (46%) reported consistently using urine specimens. Urine-based screening is highly sensitive and specific and is better tolerated by male patients than urethral swabbing.

A Community Priority

Our study revealed a large gap in the provision of STD services for males. More than 78% of survey respondents are not routinely screening male patients during routine new or annual patient visits. Given the absence of clear clinical guidelines with regard to males, this is not unexpected; similar results have been reported in other studies. However, the fact that males are inconsistently screened may be one factor contributing to the spread of chlamydia. Screening high-risk males may be necessary to interrupt disease transmission in the community and to avert costly cases of PID in female sexual partners.
Our study also revealed that nearly one-third of Spokane County providers who responded to the survey are not routinely screening females in accordance with recommended clinical practice guidelines. Consistent screening of all sexually active females age 15 to 25 years for chlamydia during routine new or annual patient visits prevents costly sequelae and provides value to the health care system.

Various clinical services recommended by the U.S. Preventive Services Task Force were recently assessed by examining two criteria: (1) “clinically preventable burden,” defined as the proportion of disease or injury prevented within a population if the service were delivered to 100% of the target population, and (2) “cost-effectiveness,” defined as net cost divided by quality-adjusted life years saved. Clinical services were ranked according to the sum of the scores for the criteria. Screening for chlamydia received a total score of seven and was ranked 11 out of 30 for the clinical preventive services most recommended. Subsequently, screening for chlamydia became one of eight preventive services recommended by the U.S. Preventive Services Task Force for future priority-setting efforts.

**Strategic Next Steps**

A strategic priority of SRHD is to increase screening rates for chlamydia in Spokane County. The results of our study indicate that screening is significantly associated with provider attitudes and beliefs about chlamydia and STDs in general, and that provider misperceptions may contribute to deficiencies in screening. Specifically, 47% of providers believe that their patients do not want STD prevention services, 27% do not believe their adolescent patients are sexually active, and 23% of respondents disagreed that most chlamydia infections are asymptomatic.

Additionally, approximately 35% of providers who responded to the survey believe that chlamydia is too uncommon in their practice to justify the costs of screening. Several cost-effectiveness studies suggest that screening sexually active females age 15 to 25 for chlamydia is cost-effective when prevalence is greater than 1%. In 2004, 7.1% of all females screened for chlamydia in Spokane County were positive. A number of survey respondents indicated interest in serving on an STD “Expert Panel.” By working with the panel, SRHD hopes to develop and implement interventions to combat our community’s growing STD problem. Strategies under consideration include feedback to inform providers with regard to the prevalence of STDs in their own practice, education and training for providers, patient awareness campaigns, alternative screening venues, and tools to be utilized by both providers and their patients to facilitate sexual history taking and self-risk assessment.

**Professional Development**

Health care providers in Washington State have access to training and resources through the Seattle STD/HIV Prevention Training Center. The center is funded by the CDC and is affiliated with the University of Washington. Health care providers are able to access comprehensive training on prevention, diagnosis, management, and treatment of STDs. For additional information, training opportunities, and clinician resources go to [http://depts.washington.edu/seaprtc/](http://depts.washington.edu/seaprtc/).

Prevention and effective control of STDs are responsibilities shared by patients, health care providers, and public health officials. We encourage you to share your questions, concerns, or ideas by contacting Stacy Wenzl (Reisenauer), Epidemiologist at 509.324.1698 or reisenauer@spokanecounty.org.

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