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CHLAMYDIAL CONTEMPLATIONS

SINCE 1988, *Chlamydia trachomatis* infections have been Oregon's most commonly reported communicable disease. This sexually transmitted disease accounts for more than 45% of all case reports received from 1990-1997. Unlike gonorrhea and syphilis rates, which have fallen sharply since 1988, the number of new chlamydiosis cases declined only modestly between 1988 and 1991, and has been fairly stable since then.

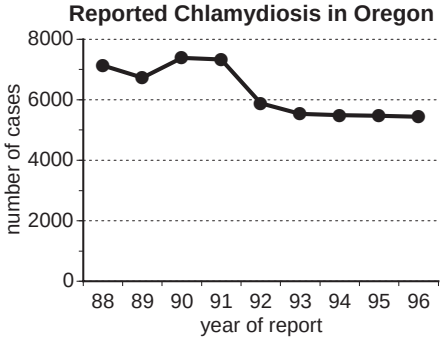
DIAGNOSTIC SCREENING

Since its 1995 licensure by the FDA, the Ligase Chain Reaction (LCR) method for detecting chlamydial DNA in urine has lived up to its billing as a both sensitive (93-98%) and specific (99.9%) diagnostic test.* LCR is up to 30% more sensitive than the "standard" EIA/DFA confirmation method, with equal specificity. LCR tests are more expensive, however, and have more demanding specimen handling and transport requirements. Nonetheless, LCR and other nucleic acid amplification methods represent a great advance in our ability to effectively screen for this often asymptomatic infection.

Screening and treatment programs have been found to be effective in reducing infection rates within communities. Screening sexually active adolescents for chlamydial infection should be routine during annual examinations, even if symptoms are not present. Screening women aged 20-24 years is also suggested, particularly for those who have new or multiple sex partners and who do not consistently use barrier contraceptives. Positive test rates have fallen from 8.9% to 3.0% at Oregon Family Planning clinics between 1988 and1997—a happy trend that, while not totally explainable, may reflect reduced prevalence , a reduction of what we euphemistically label "risk behaviors," increased condom use, and/or better access to treatment.

* If you need a refresher, sensitivity translates to what proportion of infected persons are detected by the test; specificity is what proportion of uninfected persons are correctly so identified.

Some 5000-6000 cases are reported each year (*vide* the fig., *infra*), although many more infections undoubtedly occur. If people are diagnosed, they aren't reported. Thus, official tallies reflect not only the occurrence of disease but the vagaries of who gets screened and how testing is done. Persons reported with chlamydial infections are more commonly female than male. On a per capita basis, they are more likely to be black or Hispanic than white. Unlike gonorrhea and syphilis, which have very localized transmission in Oregon, chlamydial infections occur statewide.



In 1997, 46% of all female patients with chlamydial infections were 15-19 years old. Men are somewhat older when diagnosed: 28% were 15-19 years of age, and another 36% were in the 20-24 bracket. Although females are more commonly diagnosed, screening data from a variety of public sector sites in 1998 indicate that, in general, positivity rates for males are higher than for females, suggesting that males are being screened all too infrequently. Back in the days when urethral swabs were required for testing, this was more understandable, but now that the newer urine antigen detection tests are available, this excuse is pretty limp. The prevalence among incarcerated youths was even higher than that seen at STD clinics. School-based health center sweeps yielded rates comparable to STD clinic populations.

Reported Case Rates/100,000, Oregon, 1997

race/ethnicity	*male*	*female*
black	838	1208
Hispanic (any race)	450	771
Am. Indian	84	296
Asian	66	169
white	48	153

CLINICAL MANAGEMENT

The clinical syndromes associated with chlamydia infection are well known, ranging from non-pathognomonic urethritis/cervicitis to acute pelvic inflammatory disease.

Among males reported with chlamydial infection in Oregon, 48-56% are asymptomatic at the time of diagnosis. This emphasizes the benefit of testing asymptomatic men in at-risk populations. There is increasing evidence that chlamydial PID is often subacute, causing serious genital tract damage, without obvious symptoms. An estimated 75% of women with chlamydial infection have no signs or symptoms.

Treatment should be initiated as soon as possible after diagnosis. Single-dose regimens have the important advantage of improved compliance and of directly observed therapy. If multiple-dose regimens are used, the medication should be provided in the clinic or health-care provider's office.

Recommended Regimens

- Azithromycin 1 g orally (single dose)
- Doxycycline 100 mg orally b.i.d. x 7 days.

Alternative Regimens

- Erythromycin base 500 mg orally q.i.d. for 7 days
- Erythromycin ethylsuccinate 800 mg orally q.i.d. for 7 days
- Ofloxacin 300 mg b.i.d. for 7 days.

If only erythromycin can be used, but the patient cannot tolerate high-dose schedules, try one of the following:

- Erythromycin base 250 mg orally q.i.d. for 14 days
- Erythromycin ethylsuccinate 400 mg orally q.i.d. for 14 days.

Although doxycycline is considerably cheaper than azithromycin, treatment results are equivalent—if compliance is

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first rate.[1] Unfortunately, that isn't always the case. Erythromycin is less efficacious than either azithromycin and doxycycline, and associated gastrointestinal side effects often affect compliance. Ofloxacin has produced outcomes similar to doxycycline and azithromycin, but it is even more expensive that the latter and offers no scheduling advantage. In an HMO study, screening and treatment of cervical infections reduced the likelihood of PID and reduced secondary sequelae, including infertility and neonatal infection.[2] Treating pregnant women with erythromycin or azithromycin is highly effective in preventing transmission of *C. trachomatis* to infants during birth. Of the 2,552 chlamydial infections reported in Oregon from all sources during the first six months of 1998, 54% were treated with azithromycin, up sharply from when updated CDC treatment guidelines[1] were issued.

Co-infection with *C. trachomatis* is common among patients who have gonorrhea; therefore, presumptive treatment of such patients for chlamydiosis is appropriate. Adherence with recommended therapies is improved by dispensing medications on site and assuring that the first dose is directly observed. For persons who are likely to have erratic health-care-seeking behavior, poor compliance with treatment, or uncertain follow-up, azithromycin may be better choice, because it provides single-dose, directly observed therapy. To minimize further transmission of infection, patients treated for chlamydia should be instructed to abstain from sexual intercourse for 7 days after single-dose therapy or until completion of a 7-day regimen.

FOLLOW-UP

Re-testing for documentation of microbiologic cure is not recommended unless symptoms persist, reinfection is suspected, or the patient was treated with erythromycin. Non-culture tests conducted <3 weeks after completion of therapy for patients who were treated successfully could be false-positive due to the detection of antigen from dead organisms. In some populations (e.g., adolescent girls and young women), re-screening several months after treatment might be worth considering to detect further morbidity.

Management of Sex Partners

Adequate treatment of an infected patient prevents transmission to his or her subsequent sex partners. Providers should strongly encourage their patient's sex partners to seek evaluation, testing, and treatment if they had sexual contact with the patient during the 60 days preceding onset of symptoms in the patient or diagnosis of infection.The most recent sex partner should be treated even if the time of the last sexual contact was >60 days before onset or diagnosis. Patients should be instructed to abstain from sexual intercourse until they and their partners have completed treatment. Because a test of cure usually is not recommended, abstinence should be continued until 7 days after a single-dose regimen or after completion of a 7-day regimen. Timely treatment of sex partners is essential for decreasing the risk for reinfection and preventing transmission to others.

BENEDICTION

Infection rates in Oregon are essentially unchanged over the last three years. The *Chlamydia* epidemic is ongoing among sexually active teens and adults in their twenties. Behavioral interventions targeting these groups may help reduce the transmission rates. In addition, active screening of persons in these populations by private and public health care providers, followed by active treatment of infected persons and their partners will continue to be necessary to further decrease infection rates. With rates of sexual experience as high as 50-60% among high school seniors, practitioners who care for adolescents should seriously consider implementing screening in routine health care. The STD Program links with various community agencies serving adolescents, drug treatment programs, teen parent groups, prenatal projects, and others to distribute condoms and STD/HIV unintended pregnancy information and education to their sexually active clients. It appears that the triad of abstinence programs (e.g., STARS), condom availability, and access to STD screening and treatment is required to further attenuate the *Chlamydia* epidemic.

REFERENCES

1. Centers for Disease Control and Prevention. 1998 Guidelines for treatment of sexually transmitted diseases. MMWR 1998;47(No. RR-1):[inclusive].
2. Scholes D, Stergachis A, Heidrich FE, Andrilla H, Holmes KK, Stamm WE. Prevention of pelvic inflammatory disease by screening for chlamydial infection. New Engl J Med 1996;334:1362-6.

Chlamydial Infection Rates among Women at Selected [Quasi] Public Sites, Jan–June, 1998

Site	*N*	*% Pos.*	*Site*	*N*	*% Pos.*
STD Clinics	1,913	7.2%	Prenatal Clinics	1,189	3.6%
Juvenile Detention	96	13.5%	Family Planning	12,955	2.9%
School-based Clinics	912	7.0%	Migrant Clinics	616	2.1%
College Health	811	2.0%	Planned Parenthood	3,935	2.7%