Yakima Health District
BULLETIN

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Updates on *Chlamydia trachomatis* and *Neisseria gonorrhea* in Yakima County

Inside this issue:

Chlamydia trachomatis (*C. trachomatis*) and *Neisseria gonorrhea* (gonorrhea) are pathogens responsible for the majority of bacterial sexually transmitted diseases (STD) and have significant clinical and public health consequences, particularly for young women of reproductive age. Epidemiology has clearly and effectively demonstrated the public health urgency of effective outreach to the prime targets of genital *C. trachomatis* infection: sexually active women 25 years of age and below.

The Centers for Disease Control and Prevention (CDC) is due to release its updated 2010 STD Treatment Guidelines this summer. The latest guidelines, from 2006, will reflect outdated recommendations in the practice of diagnosis and care of some STDs, particularly gonorrhea, given rising concerns of resistance and treatment failures.

It falls upon clinicians to test patients who either have symptoms of cervicitis, vaginitis, urethritis and proctitis or test those that fall under national screening guidelines. Both *C. trachomatis* and gonorrhea can be asymptomatic infections, especially in women. In fact, only 10-20% of women with chlamydial cervicitis manifest classic signs/symptoms of disease and can be infected for months to years. These women stand to be at greatest risk both for disease transmission to their sex partners and also for the serious sequelae of untreated bacterial STD including pelvic inflammatory disease, tubal scarring, infertility and chronic pelvic pain.

Newer and highly sensitive testing techniques, particularly nucleic acid amplification test (NAAT), provide practitioners with the ease of testing urine samples for genitourinary disease. Forthcoming updates, however, may be making a stronger recommendation for female patients to have vaginal swabs (that are generally self-collected) for the most optimal specimen collection. This practice has already been implemented in some STD clinics. Also, clinicians, depending on the sexual practices of their patients, ought to also be collecting pharyngeal swabs for gonorrhea, and rectal swabs for both *C. trachomatis* and gonorrhea for those who acknowledge receptive oral or anal sex respectively.

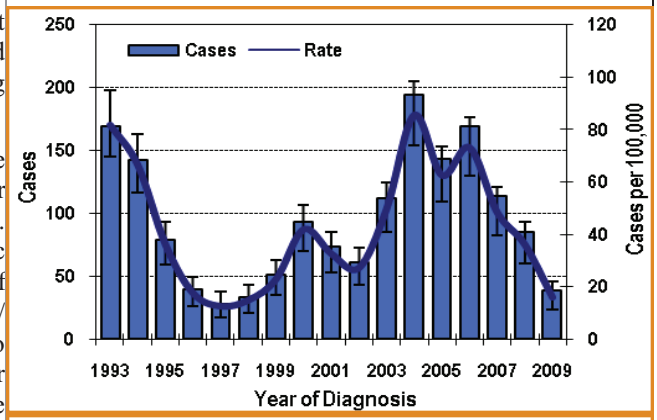
This article will outline the burden of gonorrhea and *C. trachomatis* at both national and state level scales and then focus on some of the tasks at hand for practitioners and community health advocates within Yakima county.

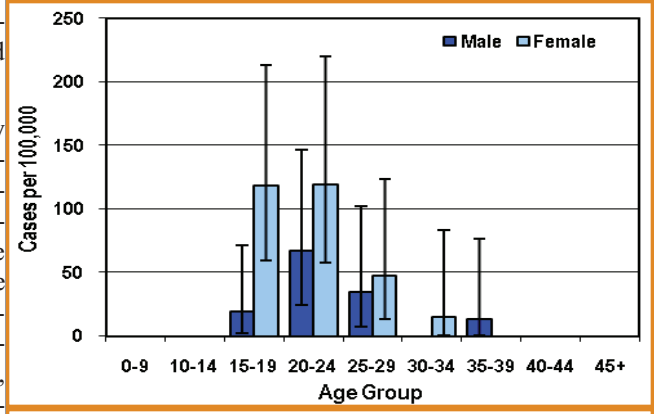
N. gonorrhea

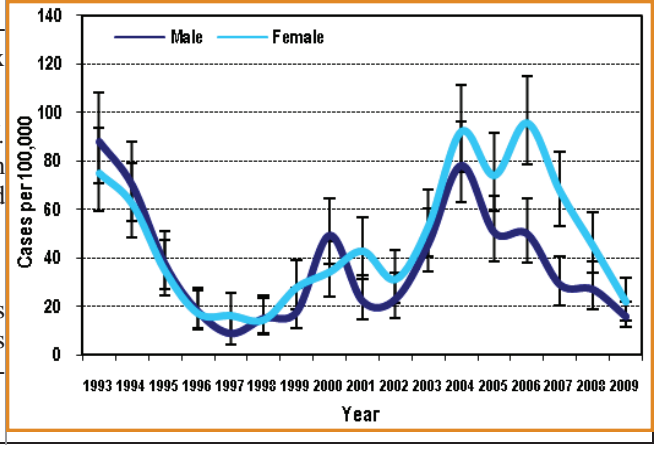
A review of STD epidemiology across Washington reveals that overall there have been declines in gonorrhea across the state. Yakima county ranked seventh, tied with Whatcom county, in total number of reported cases of gonorrhea in 2009. Similar to the counties that had higher numbers of gonorrheal cases, there was a substantial decline between 2009 and 2008. In Yakima county, in 2009, there were 38 cases of reported gonorrheal infection (case rate of 15.9) compared with 85 in 2008(case rate of 36.5).

Refer to graphs on gonorrhea to review trends observed including overall population level declines, but, similar to *C. trachomatis*, high rates among young women ages 15-24. This remains the group most heavily targeted for screening both statewide and nationwide.

Neisseria gonorrhea in Yakima County, Washington: 1993-2009







Worrisome trends in the treatment of gonorrhea have been ongoing for the past few decades. In response to concerns of emerging resistance of gonorrhea to fluoroquinolones, the Gonococcal Isolate Surveillance Project (GISP), a national sentinel surveillance system, was established in 1986 to monitor trends in antimicrobial susceptibilities of strains of gonorrhea across the U.S. Resistance that began to be apparent in parts of Asia drifted into Hawaii and the rest of this hemisphere with concerning trends in all populations, especially among men who have sex with men (MSM). Given the data released by participating STD clinics, newer guidelines recommend the following treatment options for gonorrhea:

Recommended for UROGENITAL infection either:

- Cefixime 400 mg PO x 1
- Ceftriaxone 250 mg IM x 1

Plus co-treat for chlamydia

Alternative:

- Cefpodoxime 400 mg po x 1
- Cefuroxime 1 g po x 1
- Single-dose injectable cephalosporin regimens

GISP and other research efforts have revealed a significant burden of disease on men who have sex with men. This has implications to providers to perform very thorough and careful sexual histories but also to keep in mind some of the variability on treatment options. Given the data on diminished cure rates with oral treatments for pharyngeal disease, only parenteral therapy is recommended in this situation.

Recommended for PHARYNGEAL infection:

- Ceftriaxone 250 mg IM x 1

There is some recent data to suggest some level of resistance to cephalosporins. If a provider suspects this, s/he ought to contact their lab for a full susceptibility profile that can then be conveyed to both the state lab and the CDC. Involvement, at this time, with a specialist in STD and/or Infectious Diseases is recommended.

Practitioners should note that spectinomycin is no longer manufactured and for those patients that have histories of severe reactions to penicillins and cephalosporins, consultation with a specialist in Infectious Diseases is recommended.

Chlamydia trachomatis

C. trachomatis is the most commonly reported STD in the U.S. In 2008, 1,210,523 chlamydial infections were reported to CDC from 50 states and the District of Columbia. Between 1989 through 2008, the rate of reported chlamydial infection increased from 102.5 to 401.3 cases per 100,000 population.

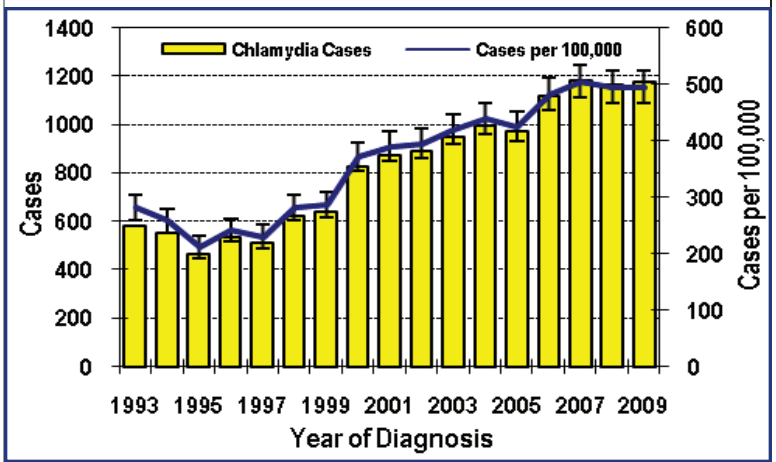
In 1988, widespread screening and treatment for *C. trachomatis* began in Alaska, Idaho, Oregon and Washington (U.S. Public Health Service Region X). This effort targeted sexually active women under age 25 in the region's family planning clinics, with focused outreach to upwards of 50,000-60,000 clinic visits per year. This effort, in Region X represented the nation's first chlamydial prevalence monitoring surveillance system using standardized testing and data collection and became the basis for the national Infertility Prevention Program (IPP).

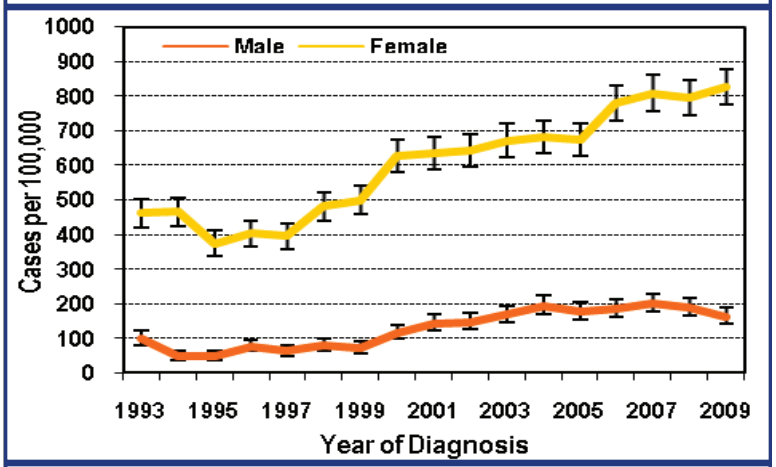
Data derived from the IPP describes that prevalence of *C. trachomatis* varies widely by sex, race/ethnicity, age and geography. Blacks and Alaska Native/American Indian women below the age of 25 are disproportionately affected by Chlamydia. These young women represent some of the most challenging and hard to reach populations in the country and certainly in the Pacific Northwest.

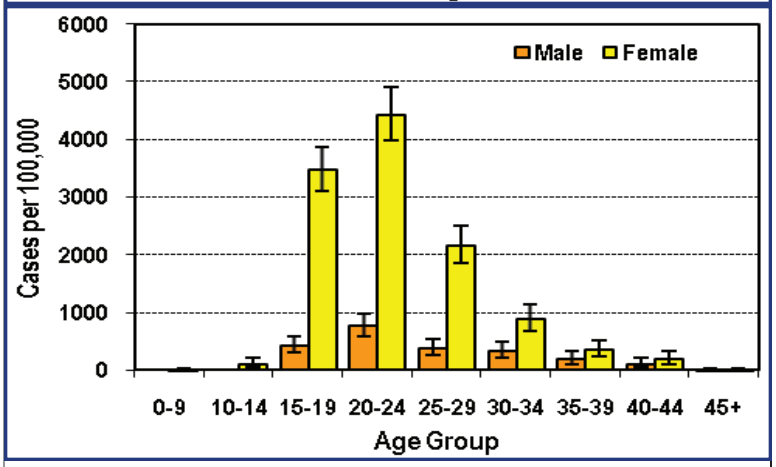
It is helpful to look at overall rates and trends for Yakima. As shown in the following graphs, rates for *C. trachomatis* have been rising with the sharpest trajectory appearing around 1997. The overall rate of infection, over the past few years, was largely stable. Despite relative stability, as evidence by the graphs, chlamydial infection remains in high prevalence among young women between the ages of 15-24.

In 2009, Yakima county topped the state with the highest case rate of chlamydial infection. Yakima had 1,180 cases of *C. trachomatis*, representing a rate of 495.0 per 100,000. Other counties with impressive burden of chlamydial disease included Pierce county and Franklin county with rates of 474.6 and 426.4 per 100,000 respectively. Overall rate of *C. trachomatis* in Washington state is 317.6 per 100,000.

Chlamydia in Yakima County, Washington: 1993-2009







Treatment for *C. trachomatis* is not expected to change with upcoming 2010 STD Guidelines.

Discussion

Reasons for relatively stable numbers for *C. trachomatis* versus

fluctuation, and, in large part, drops in numbers over time, for *N. gonorrhea*, include a number of potential factors. Looking at both national and state level trends, rates of *C. trachomatis* have been rising, or in some populations remaining steady, since the mid-to late 1980s.

Much of this rise can be attributed to the expansion of chlamydia screening activities targeting young women, improvements in the reporting system and use of more sensitive and accurate diagnostic tests. Shifting from culture based diagnosis to molecular methods, specifically, NAAT, resulted in extremely high positive predictive values for diagnosing genital *C. trachomatis* in women.

The 1970s and 1980s saw record numbers of *N. gonorrhea* in the U.S. with rates, at that time, of approximately 460 per 100,000. Interestingly, the rate since that time has remained below 130. Reasons for the decline in gonorrhea remain enigmatic to state epidemiologists. A general message remains that practitioners should beware of trends that may not be accurate or ones that may change quickly. Although overall case rate of gonorrhea is down in Yakima, there is evidence at the state level of persistently high rates among MSM and young women, highlighting ongoing needs to pursue testing and treatment.

While rates of *C. trachomatis* are high in the context of the rest of the state and rates of gonorrhea appear low, epidemiologic trends in other parts of the state describe certain populations that are classically and disproportionately affected by STDs, including these two pathogens. These populations include racial/ethnic minorities, including Hispanics and Native Americans, that comprise a sizeable segment of Yakima county's population. Analysis of subpopulations within Yakima would require dedicated leadership in STD epidemiology and data design driven to extract infections by:

-race/ethnicity
-socioeconomic status
-sexual orientation and sexual practices
-immigration status
-healthcare access status

The balance of clinical encounters with public health in the arena of STD must include interventions that promote STD and unintended pregnancy prevention, timely STD screening, effective treatment and rigorous adherence to expedited partner therapy programs.

Several local representatives, including individuals from Planned Parenthood and public health advocates from Yakima nation, met on May 26 at YHD to discuss some of the sexual and reproductive health crises in the county. These individuals, in round table fashion, described challenges in primary and secondary schools in providing comprehensive sexual health education that includes accurate and appropriate messages on teenage pregnancy prevention, STD and HIV education and prevention.

For those interested in learning more about local challenges and the expected STD changes with the CDC's 2010 update, plan to attend the conference entitled ***Addressing Health Disparities in Hispanic and Native Rural Communities: Integrating Family Planning, STIs, HIV, Tuberculosis, and Substance Abuse*** in Yakima on July 9-10 with sessions dedicated to STD and HIV. There is no fee for this conference. Registration is available online at:

http://www.centerforhealthtraining.org/

Click on View all Training Events. Registration remains open at this time.

REFERENCES:

Juliann Simon, DOH, STD Surveillance Coordinator, WA Department of Health
www.cdc.gov
WA DOH CDH IDRH STD Services
STD Monthly Morbidity Reports
Personal correspondence/communication with reviewers for CDC's STD Division

Yakima Valley Groundwater

Over the past several years, representatives from state and local agencies and the Environmental Protection Agency (EPA) have invested time and resources into a public health evaluation of groundwater quality in the Lower Yakima Valley. Specific concerns exist for consequences of nitrates and some bacteria that may occur in greater than expected concentrations in some areas of the Yakima Valley. Private residential water wells may be at some risk of contamination due to location and construction.

Well water may become contaminated with nitrate due to its presence in fertilizers and manure. These materials can then seep deeper or are washed into groundwater through rain or irrigation. Local public health officials have yet to observe some of the potential health effects. The scientific community has not reached consensus over the issues around potential ill effects of nitrate risks in well water.

Concern exists on the part of Department of Health of Washington and the EPA that individuals, particularly very young children, that ingest drinking water from wells contaminated with high levels of nitrates may be at risk for a condition known as acquired methemoglobinemia. This is characterized by an alteration from hemoglobin to methemoglobin with resulting diminished ability for the blood in circulation to effectively bind and deliver oxygen to the body. Symptoms of methemoglobinemia: shortness of breath; bluish skin color and fatigue and lethargy.

There are isolated and small concerns for methemoglobinemia among adults as well, particularly those who use certain medications that decrease stomach acid and pregnant women.

Also, rarely, individuals who lack the enzyme, methemoglobin reductase, which converts affected red blood cells back to normal, may be at risk. At this time, the Yakima Health District knows of no ongoing or historical local diagnoses of methemoglobinemia in the county.

Perhaps of greater concern and consequence to residents is that well water stands the risk of containing harmful bacteria, which can cause acute diarrheal diseases, especially in children.

Symptoms of acute bacterial gastroenteritis: nausea/vomiting and severe diarrhea.

While there are laws that mandate testing of public water supplies to ensure the safety of the water that is provided, there are no such requirements for drinking water from private wells.

Jointly, Gordon Kelly, Director of YHD's Environmental Health Program and other officials representing the Benton-Franklin Health District, are taking a stand to ensure sound and effective public health messages to the communities that are at risk in the lower valley. Specifically, health officers representing the two counties, Drs. Christopher Spitters and Larry Jecha, respectively, concur with the American Academy of Pediatrics policy recommending that private well owners test their drinking water at least once per year for nitrate and coliform bacteria to protect public health, particularly those serving infants less than six months old.

If residents discover that their wells contain pathogenic forms of bacteria, the state and local health departments work closely with water system managers to resolve and eradicate the problem with repairs, flushing and sometimes, chlorination.

Additional information on drinking water-related diseases is available at the CDC web site:
http://www.cdc.gov/healthywater/drinking/private/wells/diseases.html

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http://www.yakimapublichealth.org

	Cases			Total Cases by Year	
Condition *(includes confirmed and probable cases)*	**Jan-May**	**Jan-May**	**Jan-May**	**Total Cases by Year**	**Total Cases by Year**
	2010	**2009**	**2008**	**2009**	**2008**
Campylobacteriosis	35	22	31	101	118
Cryptosporidiosis	0	1	1	3	7
Enterohemorrhagic E. coli	1	6	3	9	12
Giardiasis	6	11	12	26	24
Salmonellosis	15	15	13	40	49
Shigellosis	0	1	2	7	8
Hepatitis A acute	0	2	1	2	2
Hepatitis B acute	0	1	1	1	2
Hepatitis B chronic	3	4	5	9	9
Hepatitis C acute	1	1	0	2	0
Hepatitis C chronic	145	60	62	191	182
Meningococcal	2	0	1	2	1
Pertussis	2	19	6	34	29
Tuberculosis	4	2	0	7	10
HIV New	4	3	4	12	9
HIV Deaths	1	1	2	5	16
HIV Cumulative Living	172	160	154	171	159
Chlamydia	467	489	512	1181	1167
Genital Herpes—Initial	24	18	34	57	66
Gonorrhea	9	14	53	38	85
Primary and Secondary Syphilis	2	2	1	2	1

Notifiable Conditions Summary Jan - May, 2010