Trends in *Chlamydia trachomatis* Infection in Maricopa County Adolescents, 2006-2010

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Background

Chlamydia trachomatis (CT) is the most common reportable sexually transmitted infection in the United States. Undiagnosed and untreated infection with the bacteria is known to contribute to sequellae including pelvic inflammatory disease, ectopic pregnancy, and tubal infertility. These negative outcomes are preventable with proper screening and treatment. Adolescents aged 15-19 are considered a high risk group due to high incidence of infection and thus USPSTF guidelines recommend all sexually active females younger than 25 have annual CT screening.

Objective

The purpose of this study is to illustrate and analyze the current trend of CT infection specifically in Maricopa County adolescents, with the hope of reinforcing the need for targeted screening in this age group.

Table 1: CT cases 2006-2010, Maricopa County, AZ (N = 73,283)

	2006	2007	2008	2009	2010	2006-2010
Gender						
Male	2699	3934	3341	4078	4452	18504
Female	9283	13002	10321	10675	11485	54766
Unknown/Transgender	6	3	1	1	2	13
						73283
Age Group						
<14	131	176	160	140	153	760
15-19	3704	5224	4439	4539	4761	22667
20-24	4372	5898	4861	5266	5896	26293
25-29	2152	3131	2284	2562	2679	12808
30-34	906	1329	999	1164	1267	5665
35-39	383	611	515	543	641	2693
>40	340	570	405	540	542	2397
Provider Type						
Private Physician	1552	2116	1687	1439	1718	8512
Private Facility	5871	8664	6513	6844	7610	35502
Private PA/Nurse/Other	15	4	1	3	1	24
Public Facility	780	1177	1039	1149	1495	5640
Indian Health Services	541	575	687	596	667	3066
Health Department	1318	1912	1723	2681	2642	10276
Family Planning	10	32	17	12	20	91
Planned Parenthood	970	1270	1130	1067	728	5165
Correctional Facility	527	595	416	383	414	2335
Military	83	162	113	222	187	767
Public School	190	203	122	154	130	799
Private School	0	1	0	0	0	1
other/not specified	131	228	215	204	327	1105

Table 1: From 2006-2010, 73,283 total positive CT test results were reported to the CDC from Maricopa County. Of these, 54766 (75%) were female and 23,282 cases (32%) were reported among adolescents ages 15-19.

Methods

Data for this study was sourced from the state surveillance system of reportable diseases at the County level. The study population consisted of all individuals aged 15-19 reported with positive CT result from 2006-2010. Available variables included demographic data (age, sex, home zip code) as well as provider type. The study population consisted of individuals in the 15-19 year age group at the time of their positive test result. An expedited IRB was approved through the University of Arizona.

Results

CT infection remains high in young, adolescent females. CT incidence in adolescents remained between 1500 and 2000 cases per 100,000 population from 2006-2010 without a statistically significant trend upward or downward. Geographically, CT incidence was concentrated near central Phoenix. The most utilized provider types for testing services included private physicians, private clinics, and the public health department.

Figure 2: Adolescent CT Cases by Age, Maricopa County 2006-2010

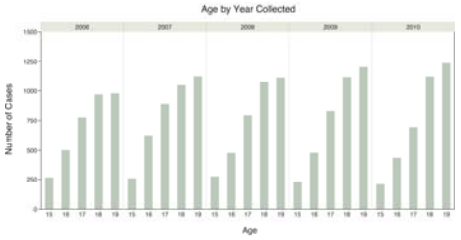

Figure 2: Reported CT cases in the adolescent age group remain stable from 2006-2010 when individual years are considered separately

Figure 3: Adolescent CT Cases by Zip Code

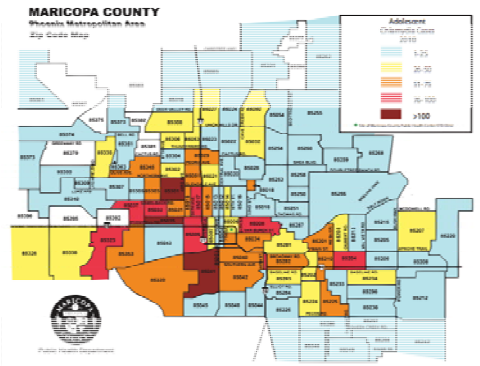

Figure 1: Age Distribution of CT Cases in Maricopa County 2006-2010

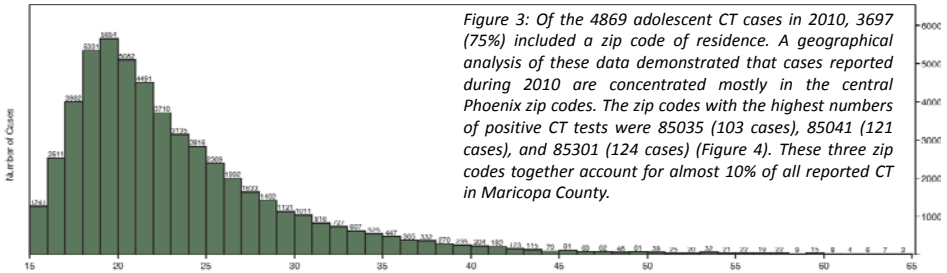

Figure 3: Of the 4869 adolescent CT cases in 2010, 3697 (75%) included a zip code of residence. A geographical analysis of these data demonstrated that cases reported during 2010 are concentrated mostly in the central Phoenix zip codes. The zip codes with the highest numbers of positive CT tests were 85035 (103 cases), 85041 (121 cases), and 85301 (124 cases) (Figure 4). These three zip codes together account for almost 10% of all reported CT in Maricopa County.

Figure 1: A distribution of all cases for 2006-2010 demonstrates an increase in case numbers during adolescence with a peak in the early 20s and a progressive decline in older age groups.

Discussion and Conclusions

National Health and Nutritional Examination Survey (NHANES) data indicate that the national burden of CT is decreasing, even in younger populations. However, inspection of surveillance data from Maricopa County indicate that incidence of CT in adolescents has not changed over a 5 year period. Unfortunately, barriers exist that preclude adequate screening, including patients' access to healthcare, hesitancy to offer complete sexual histories, and inconsistent screening by providers. Targeted preventative screening efforts, education, and counseling and testing services could be directed towards schools where teens would have enhanced access.

Future Directions

The knowledge obtained form this study can be used to develop a program tailored to the needs of Maricopa County adolescents. This could increase CT screening and compliance with national guidelines. One such method to accomplish this would be to make self-collected vaginal swab kits, as well as disease education and counseling, available in public high schools. Other effective venues to promote self testing could include Planned Parenthood and family planning clinics.

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