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May 28, 2009

Dear Arizona Stakeholder:

The Arizona Department of Health Services (ADHS), Sexually Transmitted Disease (STD) Control Program, is pleased to provide the 2008 Arizona STD Annual Report. The report highlights the impact of sexually transmitted diseases (STDs) among the residents of Arizona. The subsequent information, as depicted in the narrative, graphs, and tables herein, highlights the increasing numbers of STDs affecting our state. All 2008 data are from the ADHS STD Surveillance system as of May 22, 2009. These data are subject to change until final full year 2008 data are available.

Sexually transmitted diseases can cause significant health problems among those who become infected. For instance, untreated chlamydia and gonorrhea can lead to pelvic inflammatory disease (PID). PID can become recurrent among young women and girls often leading to expensive health complications. Other young women may suffer ectopic pregnancies and chronic pelvic pain. Worse still, sexually transmitted diseases can lead to infertility.

Unfortunately, young people, racial/ethnic minorities, and men who have sex with men, bear a disproportionate burden of STDs in Arizona. The ADHS STD Control Program is working to address these health disparities by collaborating with internal partners as well as local/county/tribal health departments, community based organizations, the Indian Health Service, the Centers for Disease Control and Prevention, and countless Arizona medical providers to promote STD prevention and intervention statewide.

Sexual health is everyone's responsibility. Although genital herpes, hepatitis B, human papillomavirus, and trichomoniasis are sexually transmitted diseases that are not included in this report, these infections continue to impact a majority of the sexually active population. At some time during the lifetime of any sexually active individual, they may be at risk for these infections. It is important to be tested routinely in order to prevent transmission as well as the manifestations of untreated infection.

Through this report, we hope to disseminate useful and pertinent data to the Arizona public and community leaders. It is our belief that this information can promote dialogue about disease prevention, promote medical treatment and services, and improve the sexual health of all Arizonans. This is in keeping with our program mission:

Strengthening Sexually Transmitted Disease prevention, intervention, and control in Arizona through education, surveillance, collaboration, and program development.

Please do not hesitate to contact us with further questions regarding STD education, prevention, and screening opportunities.

Sincerely,
Roxanne Ereth, MPH
STD Control Program Manager

Arizona Department of Health Services
Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
Cooperative Agreement No. H25/CCH904361
2008 Annual Progress Report

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TABLE OF CONTENTS		Page#
1. OVERVIEW AND UPDATE		1
A. An Overview & Update of Arizona STD Morbidity, Prevalence, and Trends		1
I	Syphilis	5
II	Chlamydia	21
III	Gonorrhea	26

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

LIST OF FIGURES		
Figure #	Title	Page #
Figure 1	Reported Primary and Secondary Syphilis Cases and Case Rates per 100,000 Population, Arizona 2003-2008	5
Figure 2	Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by County of Residence, Arizona 2003-2008	6
Figure 3	Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by Race/Ethnicity, Arizona 2003-2008	7
Figure 4	Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by Gender, Arizona 2003-2008	10
Figure 5	Reported Primary and Secondary Syphilis Case Rates per 100,000 Population in All Males and Men Having Sex with Men (MSM), Maricopa and Pima Counties, 2003-2008	11
Figure 6	Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Maricopa County 2003-2008	13
Figure 7	Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Pima County 2003-2008	14
Figure 7a	Percentage of Primary and Secondary Syphilis Cases among Men Who Have Sex with Men (MSM) by HIV Status, Maricopa and Pima Counties 2003-2008	15
Figure 8	Reported Early Syphilis Cases and Case Rates by State per 100,000 Population, Arizona 2003-2008	16
Figure 9	Reported Congenital Syphilis Cases and Case Rates per 100,000 Live Births by Birth Year, Arizona and United States, 2003-2008	17
Figure 10	Congenital Syphilis Cases (by Birth Year) in Arizona by Live Birth and Still Birth, 2003-2008	18
Figure 11	Reported Congenital Syphilis (by Birth Year) Cases by County, Arizona 2003-2008	19
Figure 12	Reported Congenital Syphilis (by Birth Year) Cases by Race/Ethnicity, Arizona 2003-2008	20
Figure 13	Reported Chlamydia Cases and Case Rates per 100,000 Population, Arizona 2003-2008	22
Figure 14	Reported Chlamydia Rates per 100,000 Population by Age Group, Arizona, 2008	23
Figure 15	Reported Chlamydia Case Rates per 100,000 Population by Gender, Arizona 2003-2008	24
Figure 16	Reported Chlamydia Case Rates per 100,000 Population by Race/Ethnicity, Arizona 2003-2008	25
Figure 17	Reported Gonorrhea Cases and Case Rates per 100,000 Population, Arizona 2003-2008	27
Figure 18	Reported Gonorrhea Rates per 100,000 Population by Age Group, Arizona, 2008	28
Figure 19	Reported Gonorrhea Case Rates per 100,000 Population by Gender, Arizona 2003-2008	29
Figure 20	Reported Gonorrhea Case Rates per 100,000 Population by Race/Ethnicity, Arizona 2003-2008	30

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

LIST OF TABLES		
Table #	Title	Page #
Table 1	Sexually Transmitted Diseases: Cases & Rates per 100,000 Population by County, Arizona 2008	4

A. An Overview and Update: Arizona sexually transmitted diseases (STD) Morbidity, Incidence and Trends

The incidence of reportable bacterial STDs in Arizona remains high. Coincident with this STD morbidity, Arizona’s population has increased significantly from 2003 to 2008. In 2008, Arizona continued to have the second fastest growing population of all US states (U.S. Census, 2008). Although the US Census Bureau has reported that this population growth is slowing, STD morbidity in the state should be considered in relation to the growth of the population. Specifically, in 2008, Arizona STD case rates reflected varying patterns of change depending on disease type.

In detailed sections of this annual report, Arizona STD morbidity and incidence are presented in a general discussion organized into three geographical areas. These areas include: Maricopa County, Pima County, and the remainder of the state. Maricopa and Pima are the two most populous counties in the state and account for most of Arizona’s sexually transmitted disease morbidity. Each section provides an update of five year trends for chlamydia, gonorrhea, and syphilis morbidity and prevalence. Comparisons between 2008 and previous yearly data are explained in the relevant section. Table 1 provides the Arizona sexually transmitted diseases cases and rates by county for 2008. All data presented in this report are derived from the ADHS NATP STD database. In addition, the population denominators used in this report were obtained from the Arizona Department of Health Services Vital Statistics Division (<http://www.azdhs.gov/plan/>).

This report highlights specific morbidity trends by significant demographic factors. In addition, notable factors that impact STD prevention are discussed. Finally, this annual report details certain aspects of community involvement and collaboration germane to STD prevention and intervention in the state.

Program enhancements during 2008 were many, despite the economic challenges. In April of 2008, Senate Bill 1078 was passed which amends *ARS 32-1401.27* and *32-1854* to allow allopathic, naturopathic, and osteopathic physicians, or physicians’ assistants to dispense or prescribe antimicrobial medications to contacts of patients with communicable diseases without an intervening health assessment of the partner. The application of this statute, for STDs such as gonorrhea and chlamydia, is being communicated as Expedited Partner Therapy (EPT). This law became effective September 26, 2008. The Arizona STD Control Program has developed patient and provider educational materials available at: <http://azdhs.gov/phs/oids/std/>. In addition, a provider targeted media campaign “Expedited Partner Therapy in Arizona: You Can Treat the Partners” included over 1500 postcards that were mailed to physicians, physician assistants and nurse practitioners alerting them to the legality of this practice. The STDP will continue to

Arizona Department of Health Services
Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
Cooperative Agreement No. H25/CCH904361
2008 Annual Progress Report

propagate this information through local publications and provider lectures to encourage the widespread use among members of the Arizona medical community.

In June 2008, the department collaborated with Southwest Center, the local AIDS service organization, to launch a social marketing campaign entitled “Syphilis Happens”. This campaign targets men who have sex with men (MSM) in Maricopa County. In addition, in response to the state’s very high rates of congenital syphilis, the ADHS STD Control Program developed a social marketing campaign, “Your Baby is a Gift”, that included posters, billboards, provider post cards, radio spots, a television ad, and print ads that launched in May 2008. Given the disproportionately higher number of cases of congenital syphilis among Hispanic women, this campaign primarily targeted Spanish speaking women of child bearing age and emphasized early prenatal care that includes syphilis testing.

In May 2008, the STD Control Program created a special report that included figures of the high rates of chlamydia among juvenile detainees tested through the IPP programs. This special report entitled “Sexually Transmitted Diseases among Arizona Youth: The Impact of Chlamydia and Gonorrhea in Adolescents, 2007” was provided to the Governor’s Office, the Governor’s Interagency Workgroup on Teen Pregnancy and STD Prevention, as well as the state epidemiologist and the agency health director. This report will be updated with 2008 data.

In late 2008, the ADHS STD Control Program implemented a syphilis surveillance project designed to alert the program to the possibility of the development of a syphilis outbreak. The program identified fourteen sentinel sites to monitor based primarily upon areas of historically high morbidity. This project monitors positive syphilis laboratory reports and compares numbers of reports by site to historical site-specific trends using standard deviations as a signal for further investigation. While still in its final completion stages, the project is currently being updated and evaluated on a bimonthly basis, with further investigation into any sites of concern for an increase in syphilis morbidity.

The Arizona Department of Health Services (ADHS) STD Control Program receives morbidity reports from two sources: laboratories and medical providers. The redundancy is needed to enhance timeliness and completeness of reporting. Laboratory reports tend to be timelier and reflect morbidity better than disease reports submitted by medical providers; however, they usually lack critical treatment and contact information for follow-up purposes by local health departments and information for trend analysis by gender, race/ethnicity, sexual preference, and geographical location. The program relies on Communicable Disease Report (CDR) forms submitted by medical providers for the information above. The *Arizona Administrative Code R9-6-201* requires that physicians and healthcare administrators report cases and or treatment of syphilis, gonorrhea, chlamydia, chancroid, lymphogranuloma venereum, and genital herpes to the appropriate local health department within five business days of diagnosis and treatment. *Arizona Administrative Code R9-6-202* requires submission of positive laboratory test findings on the above conditions, also within five days, to the state STD Program.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

In order to secure accurate, complete, and timely information, efforts are routinely made by the state and some local STD programs to encourage public and private medical providers and laboratories to comply with the Arizona Administrative Code requirements. Some of these efforts include; letters reminding providers that Communicable Disease Reports need to be submitted for every person that tests positive for reportable conditions, clinic visits, educational lectures on the importance of disease reporting for case management purposes, phone calls to providers with missing reports, frequent reminders to the local health departments (which include county, tribal health departments, and Indian Health Service units), as well as regular site visits to local health departments throughout Arizona. In addition, in early 2009, the ADHS STD Control Program has begun mailing letters to providers requesting the race/ethnicity and the treatment of cases for which this was not initially reported.

Despite the comprehensive efforts to obtain morbidity reports from medical providers, the STD Control Program has had limited success in obtaining both a laboratory and medical provider report for each case. For the 2008 annual report, Arizona chlamydia and gonorrhea data reflect morbidity based on a laboratory confirmed positive result, whether a provider report was received or not. For the purpose of accurate comparison, historical data for years 2003 to 2007 were adjusted to show morbidity based on a positive laboratory result. In addition, primary and secondary syphilis cases from 2003 to 2007 were adjusted based upon the March 2009 database. A lag in syphilis investigation case closure and completion in the state database means that the 2008 data in this report for primary and secondary syphilis are provisional, and the true number will likely be higher. This is a phenomenon that was experienced in 2007 as is evidenced by the difference in number of P&S cases from previous annual reports.

Table 1. Sexually Transmitted Diseases: Cases & Rates per 100,000 Population by County, Arizona 2008

	P&S Syphilis		EL Syphilis		Cong Syphilis		Gonorrhea		Chlamydia	
	Cases	Rates	Cases	Rates	Cases	Rates*	Cases	Rates	Cases	Rates
Apache	<4	***	<4	***	0	0.0	26	34.1	406	533.1
Cochise	<4	***	<4	***	0	0.0	52	37.3	362	259.6
Coconino	<4	***	0	0.0	0	0.0	41	30.2	606	446.9
Gila	0	0.0	0	0.0	0	0.0	11	19.2	140	244.1
Graham	0	0.0	0	0.0	0	0.0	<4	***	187	484.0
Greenlee	<4	***	0	0.0	0	0.0	0	0.0	26	290.5
La Paz	0	0.0	0	0.0	0	0.0	<4	***	25	116.0
Maricopa	208	5.3	146	3.7	19	30.4	2,130	54.3	13,410	341.7
Mohave	<4	***	<4	***	0	0.0	14	6.8	330	161.0
Navajo	<4	***	4	3.5	0	0.0	59	51.4	607	528.8
Pima	74	7.3	63	6.2	11	81.5	520	51.3	3,721	367.1
Pinal	4	1.2	13	4.0	0	0.0	82	25.4	910	282.1
Santa Cruz	0	0.0	0	0.0	0	0.0	4	8.5	120	253.8
Yavapai	0	0.0	0	0.0	0	0.0	22	9.8	345	153.1
Yuma	5	2.5	0	0.0	<4	***	75	36.8	543	266.5
Unknown	17	---	24	---	0	---	407	---	3028	---
Arizona	317	4.9	257	3.9	31	31.3	3,448	52.8	24,766	379.0

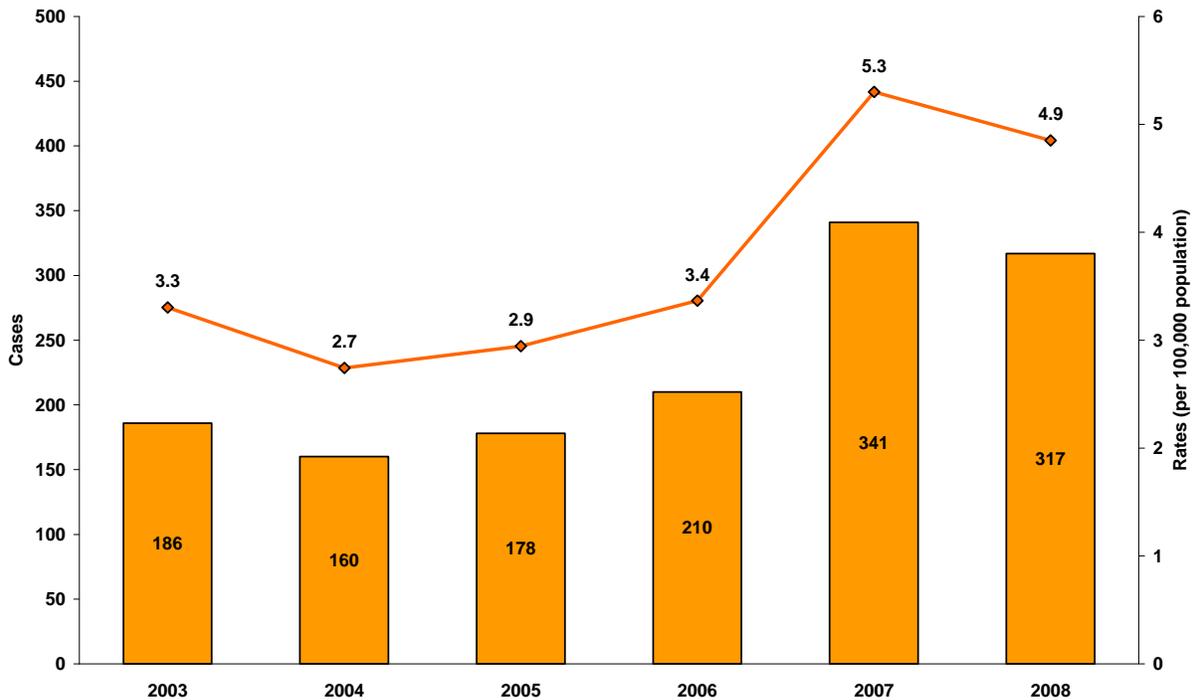
*Rates calculated using 2008 provisional live births (2/12/2009)

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

Syphilis

In 2008, the total number of reported primary and secondary cases decreased by 7% to 317 cases, though remained well above that of 2006 (Figure 1). Over the past six years, the number of reported cases and case rates reached its lowest point in 2004. In 2005, both the number of cases and case rate increased slightly. This trend continued into 2006. Yet, by 2007, both the number of P&S cases as well as the case rate increased dramatically from the previous year representing a 62% increase in cases from 2006 to 2007. This increase was attributed to three significant syphilis outbreaks among Native Americans in the state, endemic syphilis among men who have sex with men (MSM) in Maricopa County, and a rise the number of cases in rural Arizona counties.

Figure 1. Reported Primary and Secondary Syphilis Cases and Case Rates per 100,000 Population, Arizona 2003-2008

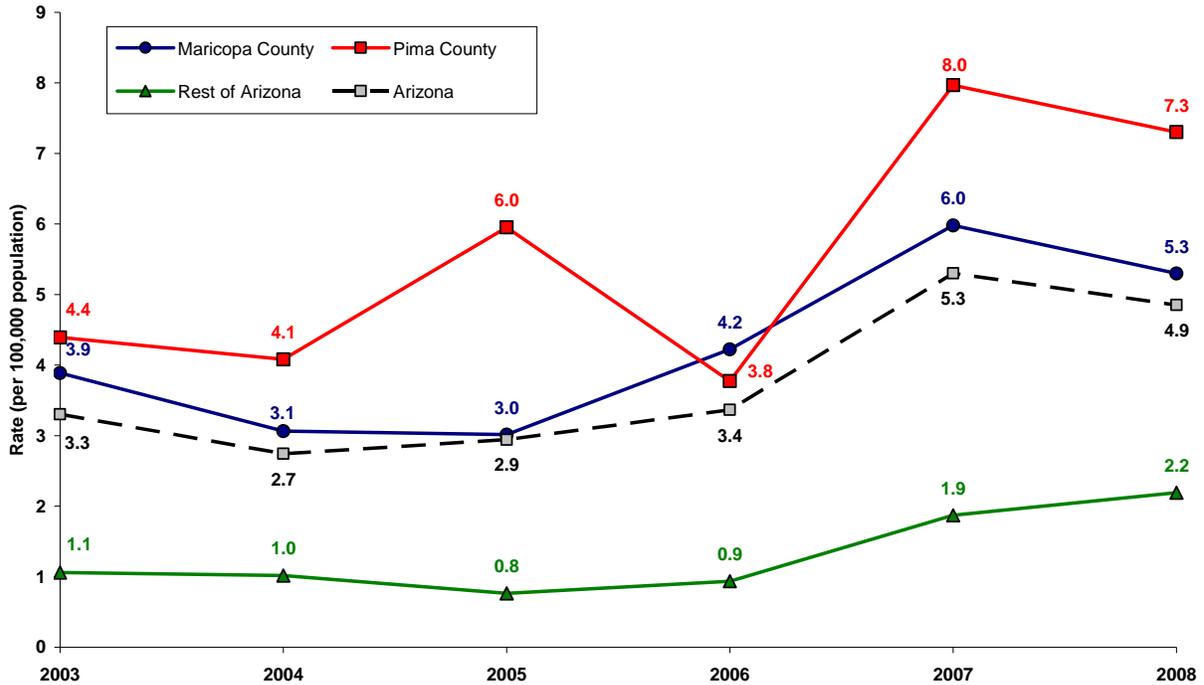


For P&S syphilis, Maricopa and Pima Counties continue to account for a majority of Arizona’s morbidity. As Figure 2 illustrates, the remainder of the state had a relatively low reported P&S syphilis case rate for most of the decade up to 2006. But in 2007, the rate in the remaining 13 counties of Arizona more than doubled to 1.9 per 100,000, which mirrors the increasing trend in Maricopa and Pima counties. The case rate for these 13 smaller counties remained relatively unchanged in 2008. In fact, by 2007, the Maricopa County case rate had nearly doubled its 2005 nadir by reaching 6.0 cases per 100,000 population. Not surprisingly, Maricopa County was designated as a High Morbidity Area (HMA) at the outset of the Syphilis Elimination Project in 1999 and continues to be classified as such. Meanwhile, from 2005 to 2006, the P&S syphilis case rate in Pima County decreased by nearly 37% from 6.0 to 3.8 cases per 100,000 population

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

(Figure 2). By 2007, however, the reported P&S syphilis rate for Pima County rose dramatically to a five year high of 8.0, more than doubling the 2006 case rate.

Figure 2. Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by County of Residence, Arizona 2003-2008

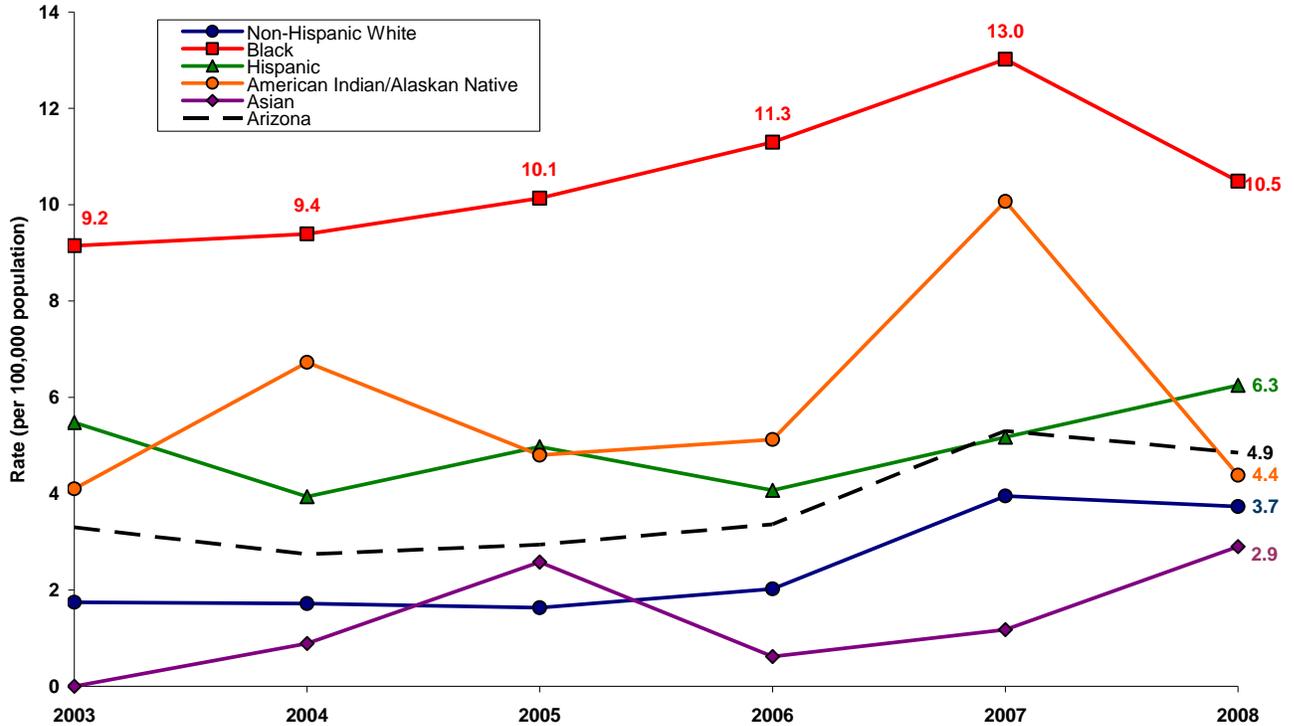


The reported P&S case rate among African Americans in Arizona has remained consistently higher than any other racial/ethnic group in the state from 2003-2008 (Figure 3). This case rate consistently increased from 2003 to 2007, when it reached its six year maximum of 13.0 cases per 100,000 population. The case rate growth was the highest between 2005 and 2007, which mirrors the statewide increase in P&S cases. In 2008, the reported case rate for African Americans decreased by 19% to 10.5 cases per 100,000 population.

Meanwhile, the case rate among Native Americans had spiked in 2004 and decreased through 2006. Yet, by 2007, the rate climbed significantly to 10.1 per 100,000 population, or nearly double the rate from the previous year. Indeed, this substantial increase highlights how several syphilis outbreaks among Native Americans impacted rates among this group.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

Figure 3. Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by Race/ Ethnicity, Arizona 2003-2008



In order to address the multiple outbreak situations, the ADHS STD Control Program requested direct assistance from the CDC in the spring of 2007, and continues to work with county health departments, tribal health agencies, Indian Health Services (IHS), and tribal governments statewide to address the outbreaks comprehensively. In addition, the ADHS STD Control Program continues to provide resources and capacity building assistance statewide to enhance local efforts and outbreak response and control. The ADHS STD Control Program advocated for and received Governor’s Health Crisis funds from the Arizona governor to be used for outbreak response.

In addition, in the spring 2008, the ADHS STD Control Program undertook a specialized surveillance project to investigate the rates, geographic distribution, and time to treatment of all sexually transmitted diseases among American Indians living in Arizona. The results of this project were used to develop a combined epidemiology and clinical educational presentation that was completed for health care providers caring for Native Americans in several locations throughout the state. The program plans to continue these presentations into 2009. As collaboration and communication continue to build between the tribes, the state, the counties, and IHS, the outlook remains positive as reflected by the high rates of reported P&S syphilis among Native Americans seen in 2007 declining by 56% in 2008 to 4.4 per 100,000 population.

Arizona Department of Health Services
Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
Cooperative Agreement No. H25/CCH904361
2008 Annual Progress Report

The cases rates for Hispanics have remained consistently high from 2003 to 2008, with the rates for those two particular years being similar at 5.5 and 6.3 cases per 100,000 population, respectively (Figure 3). The reported P&S case rate among Asians in Arizona has fluctuated between 0.0 and 2.9 cases per 100,000 population over the past six years. The total number of cases for this racial group is small, ranging from 0 to 5 cases per year.

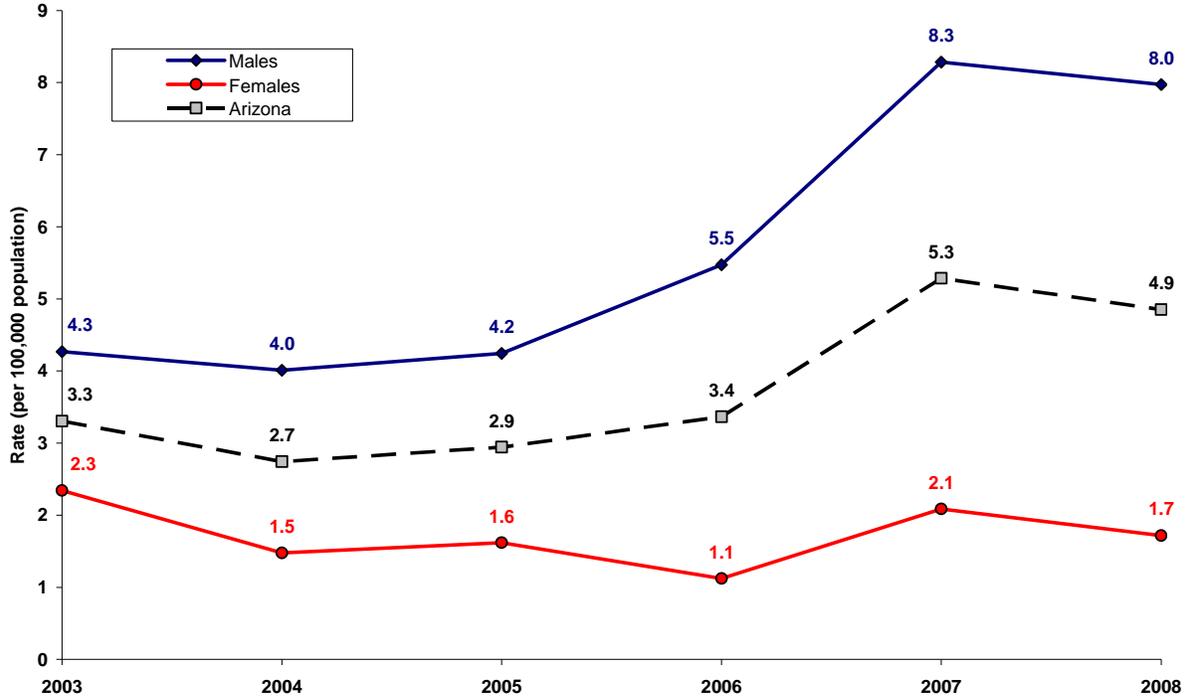
A moderate increase in the P&S case rate for non-Hispanic whites has occurred since 2003, with the rate standing at 4.9 in 2008 (Figure 3). A greater number of P&S syphilis cases among white men who have sex with men (MSM), beginning in 2003, may be contributing to this increase (see P&S syphilis among MSM section narrative for additional details).

Of note, any evaluation of P&S syphilis in Arizona by race is limited by the number of cases with unknown race recorded in the database. The percentage of total P&S cases with unknown race from 2003 – 2008 is as follows; 8.6%, 0.0%, 1.1%, 8.6%, 7.3%, and 2.5%, respectively. The Arizona STD Control Program is working with the counties to retrospectively complete the race/ethnicity field in the database for all reported sexually transmitted diseases.

As has been the case for most of the decade, more male cases of P&S syphilis were reported than female cases in 2008. In fact, in 2008, males accounted for 82% of P&S cases. This trend is maintained across all ethnic groups, except for Native Americans in 2004 and 2007, where more cases occurred among females. The ratio of male to female cases in Arizona has increased quite dramatically from 1.9 in 2003 to 4.7 in 2008 (Figure 4). The endemic nature of syphilis among MSM likely contributes significantly to this phenomenon. On the other hand, in 2007, the case rate among females almost doubled, from 1.1 in 2006 to 2.1 in 2007. Several syphilis outbreaks among Native Americans in 2007 included sizable numbers of infected females and may account for this marked increase in the female rate. The decrease in the reported case rate among Arizona women in 2008 may reflect the decrease in case rate that occurred among Native Americans that year as well.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

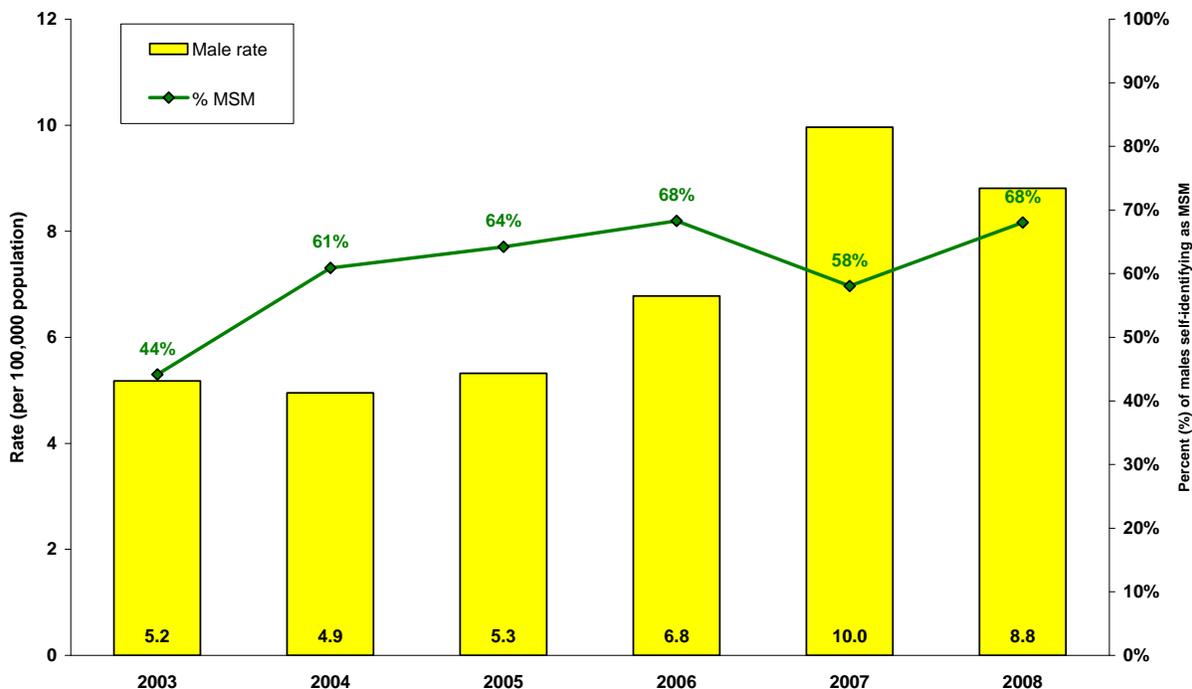
Figure 4. Reported Primary and Secondary Syphilis Case Rates per 100,000 Population by Gender, Arizona 2003-2008



Nonetheless, MSM P&S syphilis rates continue to drive syphilis morbidity, particularly in Maricopa County. Data on MSM syphilis morbidity are only available for Maricopa and Pima counties. These are the two largest counties in Arizona, with approximately 76 percent of the state's population. As such, Figure 5 depicts the P&S case rates among all males residing in Maricopa and Pima counties from 2003 to 2008. Since 2004, males that self-identify as MSM account for the majority of P&S syphilis cases among males in Maricopa County. On the other hand, beginning in 2005, MSM in Pima County no longer accounted for the majority of cases among males.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

Figure 5. Reported Primary and Secondary Syphilis Case Rates per 100,000 Population in All Males and Men Having Sex with Men (MSM), Maricopa and Pima Counties, 2003-2008



In recent years, the county and the state health department have improved their ability to capture risk factors and modes of STD transmission among those who interviewed for partner services. Nonetheless, underreporting and non-disclosure of MSM behavior among Hispanics and African Americans may not present an accurate percentage of males who have sexual relations with other men. Consequently, the Arizona STD Program works with Maricopa and Pima County Health Departments, as well as community-based organizations to reach black and Hispanic male populations to promote syphilis screening and education in venues where non-identifying MSM may access.

Furthermore, the ADHS STD Control Program is working closely with Maricopa County to study and implement behavioral and community wide interventions that address the high rates of P&S syphilis among MSM. To that end, the ADHS STD Control Program applied for a CDC Public Health Prevention Specialist (PHPS) to assist with this endeavor. The PHPS began her work with the Arizona Department of Health Services in early October 2007. She has been working on a behavioral intervention targeting HIV positive MSM at risk for syphilis infection. An analysis of that intervention is currently being performed. Through 2008, the PHPS developed an MSM stakeholder group which meets monthly. This group planned and launched in June 2008 a social marketing campaign entitled “Syphilis Happens” that targets MSM in Maricopa County. She and the stakeholder group are currently in the process of analyzing the results of a survey conducted mostly among Maricopa County MSM to evaluate the campaign. In addition, she is planning several focus groups in the spring of 2009 designed to evaluate the

Arizona Department of Health Services
Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
Cooperative Agreement No. H25/CCH904361
2008 Annual Progress Report

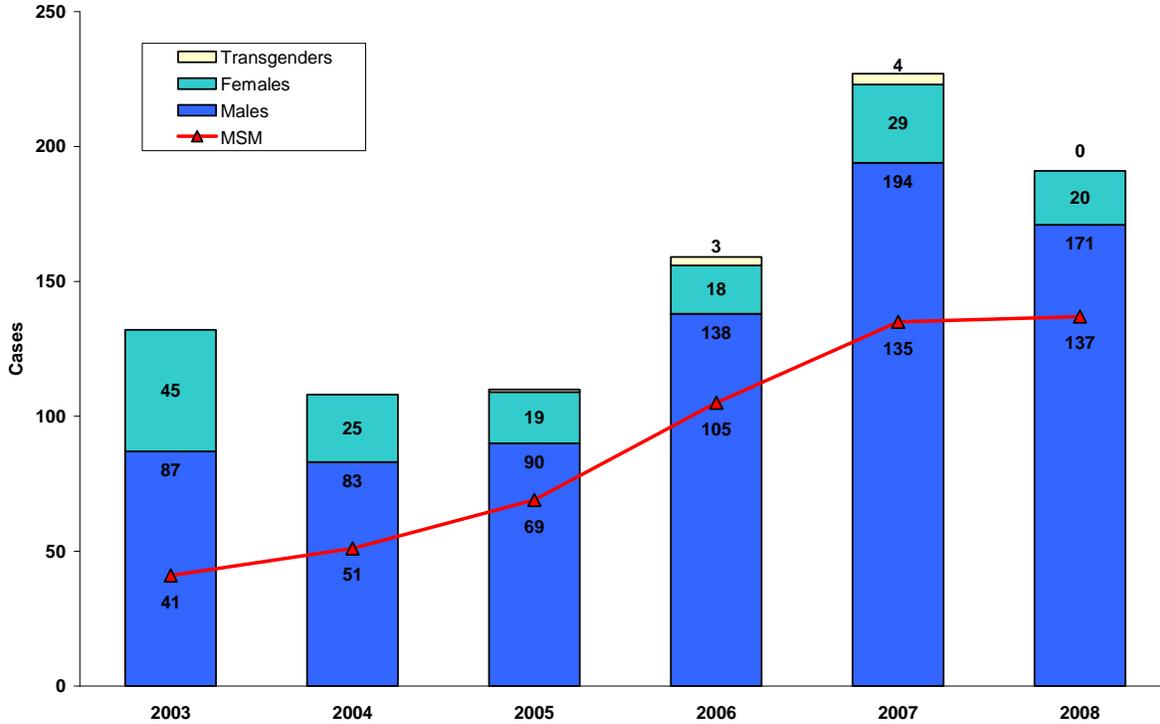
campaign and to better understand the most appropriate and preferred methods of reaching the MSM community in Maricopa County with possible future behavioral and social marketing interventions.

In an effort to improve time to treatment and interview, the STD Control Program medical director has worked closely with Maricopa County and the top three reporting private providers for syphilis to place DIS in their clinics on a once-weekly and/or on-call basis. All three of these clinics are primary HIV care providers. Since the spring of 2008, the Maricopa County DIS in these three clinics perform syphilis interviews and partner interviews on site and deliver penicillin to syphilis patients in two of these clinics. Improvements in the following four areas have been observed: (1) improved willingness of MSM to be interviewed (2) improved time to treatment (eliminates period of referral to the health department for treatment) (3) improved time to interview (4) increased numbers of partners elicited from interview.

Figure 6 highlights that MSM accounted for about 72% of all P&S syphilis cases in Maricopa County in 2008 and 80% of all male cases of P&S syphilis; consequently, the ADHS STD Control Program will continue to prioritize this group. Finally, over the last several years, better interviewing and data capture techniques among partner services staff have allowed ADHS to document cases in the transgender community. In 2007, four P&S cases were reported among individuals who identify as transgender in Maricopa County. There were no such cases in 2008. Figure 6 highlights Maricopa County P&S syphilis cases by gender and sexual preference for the male cases. Notably, P&S syphilis cases among females in Maricopa County remained relatively unchanged from 2004 to 2008.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

Figure 6. Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Maricopa County 2003-2008

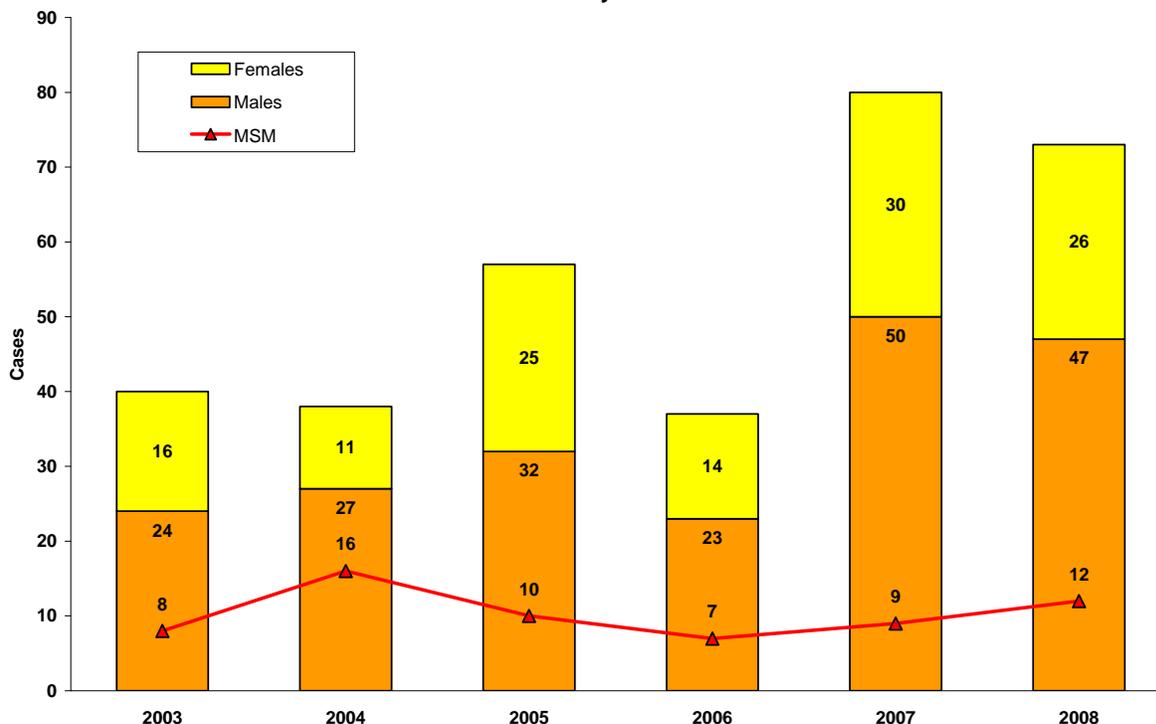


Conversely, Figure 7 shows that in Pima County, the number of cases among MSM has varied between 18% and 33% of the male cases for the county, except for 2004, where they represented nearly 60% of the male cases for that year. In 2008, 12 cases were reported among MSM individuals. From 2003 to 2005, Pima County implemented a comprehensive educational and community media campaign among the Tucson GLBT (Gay, Lesbian, Bisexual, and Transgender) community. This may have had an impact upon the number of cases of syphilis within that community.

ADHS and the Pima County Health Department have concluded that heterosexual transmission has accounted for most P&S syphilis in Pima County since 2005. Despite a decrease of 38% in cases from 2005 to 2006, the number of P&S syphilis cases increased once again in 2007 and has remained high with the preliminarily reported case numbers of 2008. The ADHS STD Control Program and the Pima County Health Department will monitor closely the epidemiology of syphilis in this county.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

Figure 7. Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Pima County 2003-2008



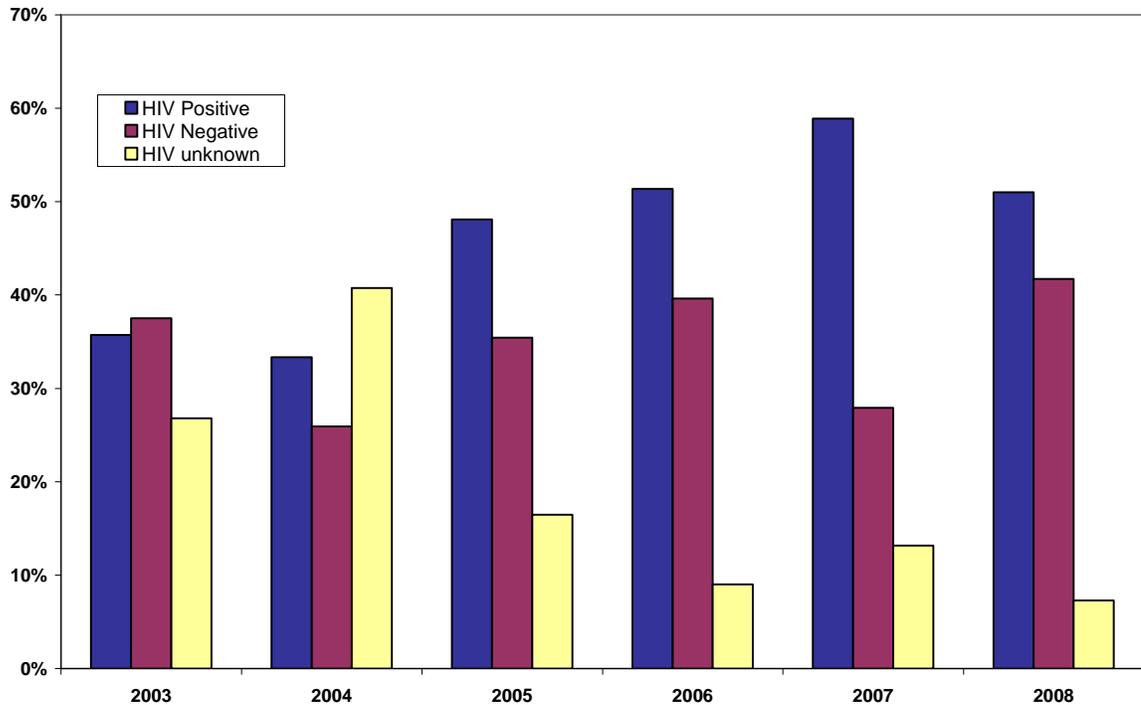
The Centers for Disease Control and Prevention (CDC, www.cdc.gov) reports that individuals with syphilis lesions can pass on and become infected with HIV more easily than those who do not have syphilis lesions. In fact, studies have shown that if a person with a syphilis ulcer is exposed to HIV, that person is 2-5 times more likely to become infected with HIV. Figure 7a highlights this issue in Pima and Maricopa Counties in Arizona. That is, since 2005, approximately half of the cases of infectious syphilis among men who have sex with men were also HIV positive. In general, the HIV positive percentage is trending upwards. Given the known increased transmission and acquisition rates of HIV among those with primary or secondary syphilis, these numbers are very concerning. In response to this issue, Figure 7a shows that the STD departments have been successful in decreasing the number of PS cases with unknown HIV status. ADHS recognizes the importance of monitoring and understanding HIV/STD co-morbidity trends within the state in order to be able to appropriately implement programs and direct resources aimed at reducing these trends.

In an effort to improve time to treatment and interview, the STD Control Program medical director has worked closely with Maricopa County and the top three reporting private providers for syphilis to place DIS in their clinics on a once-weekly and/or on-call basis. All three of these clinics are primary HIV care providers. Since the spring of 2008, the Maricopa County DIS in these three clinics perform syphilis interviews. They also conduct partner interviews on site and deliver penicillin to syphilis patients in two of these clinics. Improvements in the following four areas have been observed: (1) improved willingness of MSM to be interviewed (2) improved

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

time to treatment (eliminates period of referral to the health department for treatment) (3)
 improved time to interview (4) increased numbers of partners elicited from interview

Figure 7a. Percentage of Primary and Secondary Syphilis Cases among Men Who Have Sex with Men (MSM) by HIV Status, Maricopa and Pima Counties 2003-2008

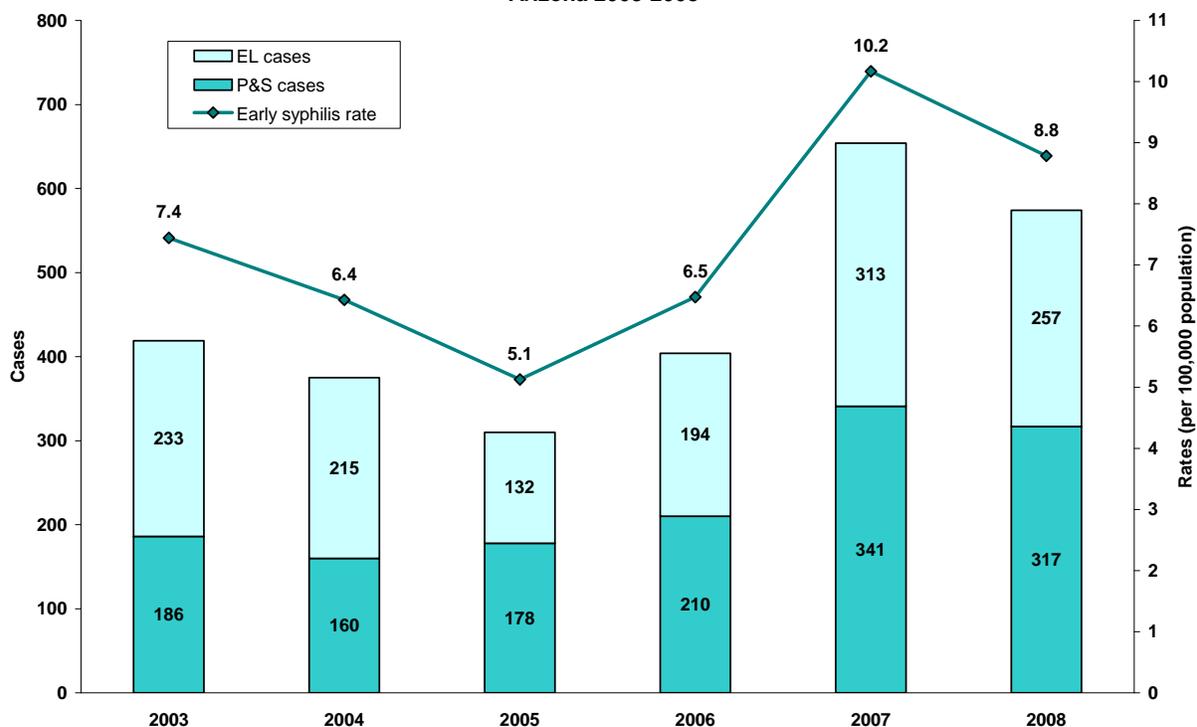


Early Syphilis

Figure 8 highlights early syphilis cases and case rates for the period 2003 to 2008. Early syphilis cases include P&S cases as well as early latent cases. From 2003 to 2004, early latent syphilis cases accounted for the larger proportion of early syphilis cases. However, a change occurred in 2005 as P&S syphilis accounted for a larger proportion of early cases. Once again in 2006, P&S syphilis accounted for a greater proportion of early syphilis, even as both P&S and early latent cases increased. By 2007, both the number of cases for early latent and P&S syphilis increased strikingly (a 59% increase in early syphilis cases), although P&S still accounted for a plurality of early cases. In 2008, the number of early syphilis cases decreased by nearly 16%. The majority of these early cases remained those staged as primary and secondary. The high number of primary and secondary syphilis cases in the state is very concerning to the Arizona STD Control Program. At the same time, a higher proportion of P&S cases suggest appropriate diagnosis. This is encouraging as these stages represent the most infectious states of syphilis infection.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

**Figure 8. Reported Early Syphilis Cases and Case Rates by Stage per 100,000 Population
 Arizona 2003-2008**

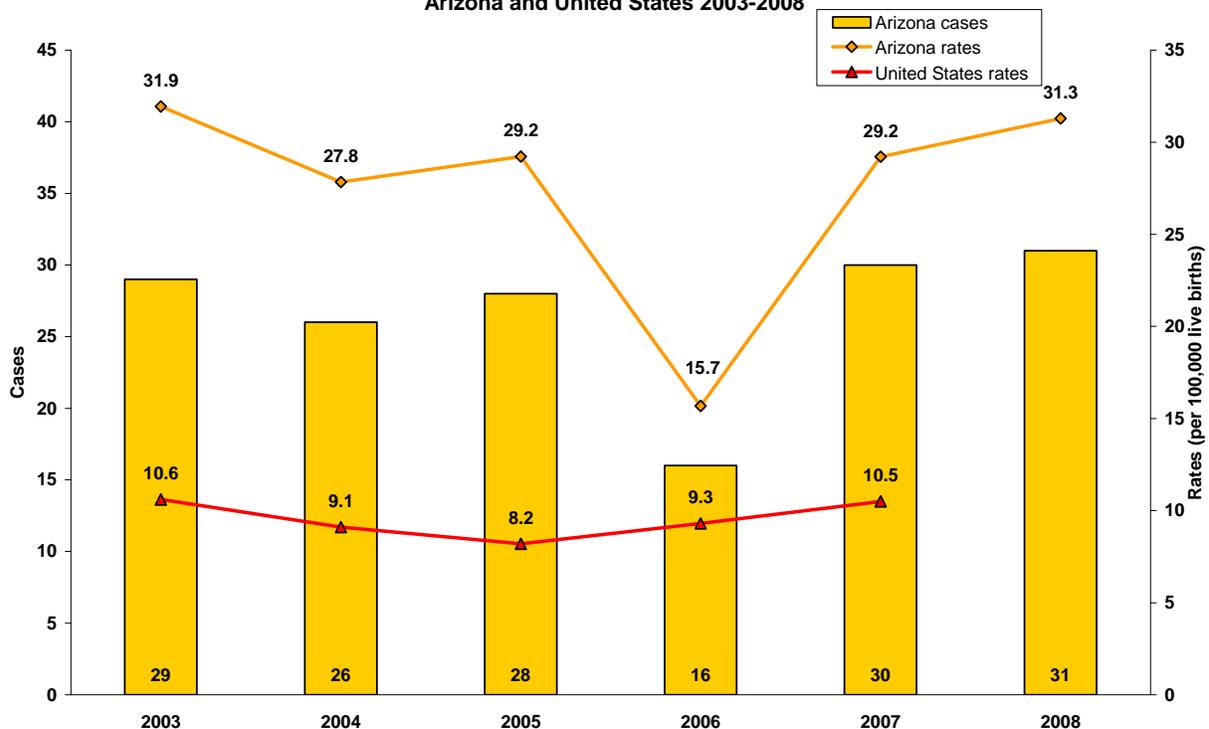


Congenital Syphilis

In 2008, Arizona continued to face the challenge of high congenital syphilis rates. Between 2007 and 2008, the congenital syphilis rate in Arizona decreased slightly from 29.2 to 31.3 cases per 100,000 live births. The 2007 case rate of 29.2 cases per 100,000 live births in Arizona far exceeded the average United States rate of 10.5 cases per 100,000 live births. The CDC reported Arizona's ranking as second in the nation for 2007 state rates of congenital syphilis (www.cdc.gov/std). These high rates of congenital syphilis continue to occur in Arizona despite decreasing rates of P&S syphilis among women. This is a phenomenon the program has begun to investigate more closely during 2009. Figure 9 presents reported congenital syphilis cases and rates per 100,000 live births by birth year in Arizona and in the United States for the period 2003 to 2008. Arizona Vital Statistics live births data was used as the denominator for these congenital syphilis rate calculations. The 2008 live birth denominator is provisional as of February 12, 2009.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

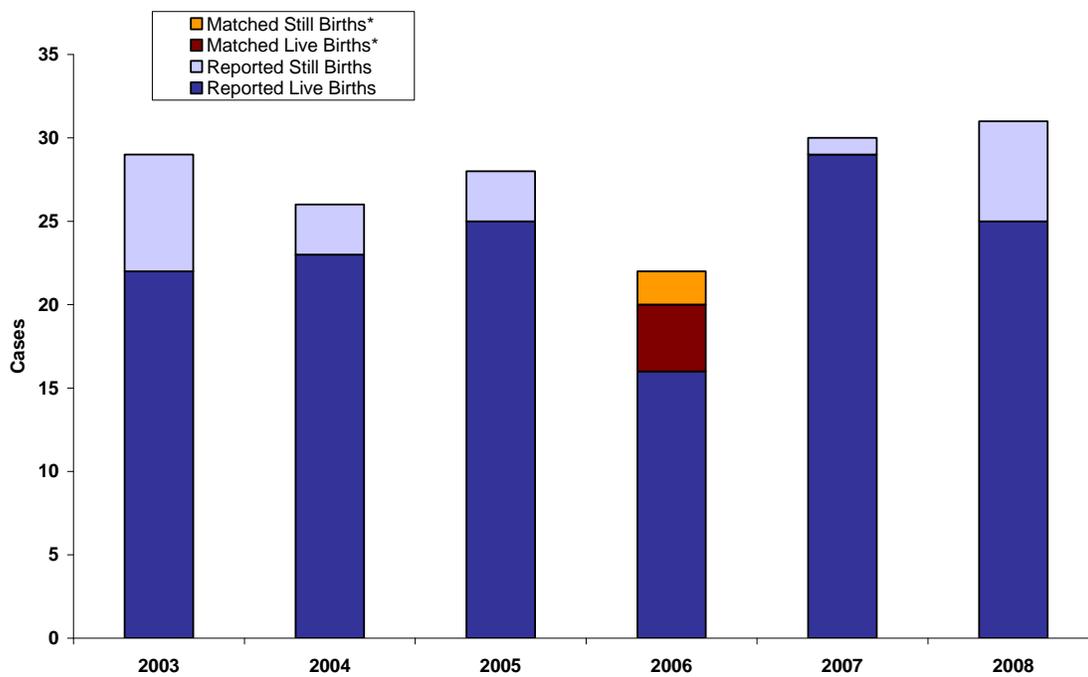
Figure 9. Reported Congenital Syphilis Cases and Case Rates per 100,000 Live Births by Birth Year, Arizona and United States 2003-2008



Although the reported case rate fell in 2006 in comparison to the time period of 2003 to 2005, it climbed upwards again in 2007 and again in 2008. In order to investigate further the reported case rate drop in 2006 in Arizona, the ADHS STD Control Program undertook a cross-match between the fetal demise and live birth registries with the women with any positive syphilis lab reported and recorded in the state sexually transmitted diseases database. This project was completed in the fall of 2008 and the goal was to identify possible unreported congenital syphilis cases in the 2006 year. Unreported congenital syphilis cases demonstrate the limitations of a passive surveillance system for this disease, and the need for expeditious investigation of all women with positive syphilis results. In addition, unreported congenital syphilis cases may represent gaps in provider knowledge of required reporting and/or proper diagnosis and treatment. Preliminary results of this cross-match identified 6 total cases of unreported cases of congenital syphilis for Arizona in 2006. Two of these cases were stillbirths and four live births (ADHS, unpublished data). The addition of these cases to the reported 2006 cases increases the congenital syphilis cases from 16 to 22, a 27% increase. The case rate per 100,000 live births increases from 15.7 to 21.5 (using Arizona Vital Statistics 2006 live births denominator). These results indicate that the 2006 drop in reported congenital syphilis cases was not a true drop in morbidity for that year. With 25 cases reported in 2008, it is clear that congenital syphilis has historically been, and continues to be, a major concern for the ADHS STD Control Program. Congenital syphilis cases by year and either live birth or still birth, including those unreported cases identified through the cross match, are visually represented in Figure 10.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

Figure 10. Reported and Matched Congenital Syphilis Cases (by Birth Year) in Arizona by Live Birth and Stillbirth, 2003-2008

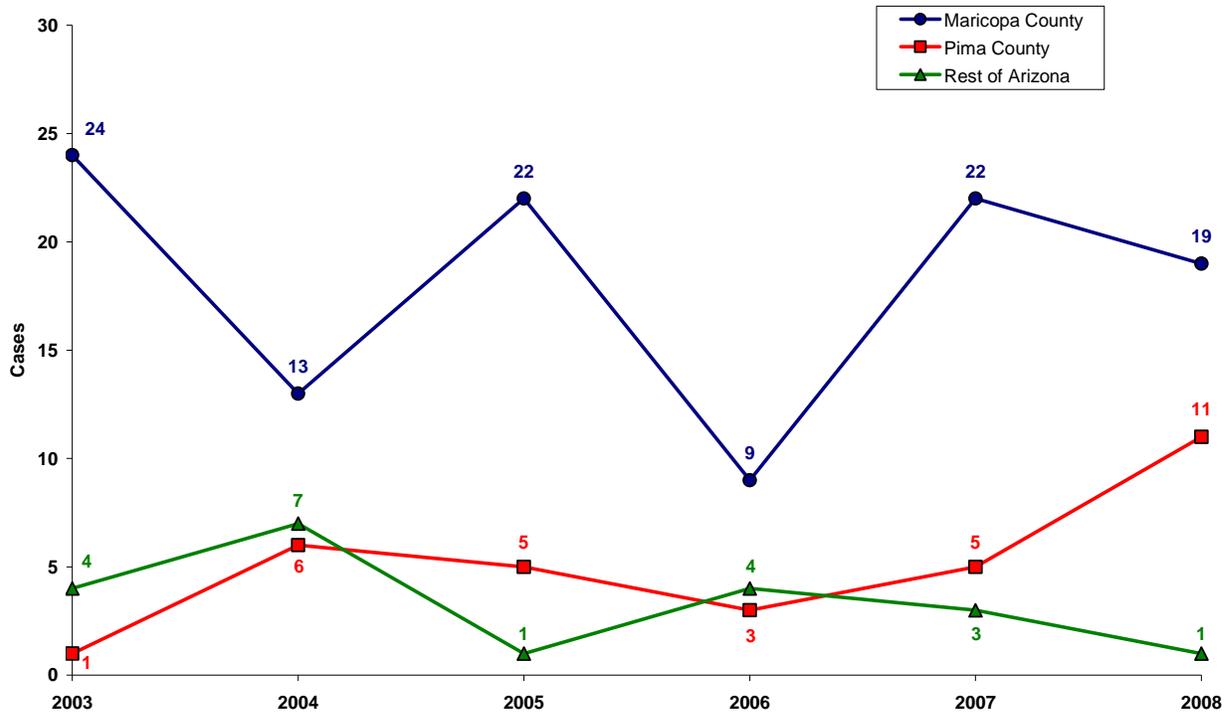


*2006 Matched Live Births and Still Births identified with 2008 cross match of Arizona live birth and still birth records with reported positive syphilis labs among women during 2005-2007

When evaluating congenital syphilis cases by county, Maricopa County accounts for most of the congenital syphilis cases in Arizona from 2003-2008 (Figure 11). This is consistent with its larger population and greater syphilis burden. In Pima County, the state's second largest county, the congenital syphilis cases increased from zero cases in 2002 to one case in 2003. In 2004, however, Pima County had 6 cases of congenital syphilis. From 2004-2007, the county has experienced a steady number of cases, between 3-6 cases per year. There were 11 Pima County cases reported in 2008, more than double the number from the county in 2007. The increase and maintenance of congenital syphilis cases in Pima County mirrors that county's increase in P&S syphilis during the same period. In early 2009, the chief medical officer of the Pima County Health Department sent a letter out to primary care providers in the county. The letter described the congenital syphilis public health issue the county is currently facing, and encouraged providers to screen for syphilis once in the first trimester and twice in the second trimester of pregnancy as, per current CDC guidelines, for high prevalence communities. In October 2008, the program developed a legislative proposal mandating statewide screening at three intervals during pregnancy including testing at delivery. This proposal was not chosen for presentation to the governor for the 2009 legislative session.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

**Figure 11. Reported Congenital Syphilis (by Birth Year) Cases by County
 Arizona 2003-2008**



The remainder of Arizona (not including Maricopa and Pima counties) has experienced fluctuating numbers of cases. In 2005, the number of cases outside of Maricopa and Pima counties dropped significantly from 2004 to only one case. In 2006, however, the number of congenital syphilis cases identified in the remainder of Arizona increased to four and then dropped in 2007 to three cases and then back to one case in 2008. Throughout the past year, the ADHS STD Control Program has completed several clinical and epidemiological educational programs throughout the smaller counties of the state. Additional informational campaigns and educational opportunities about the disease burden of congenital syphilis may be needed throughout the state as a way to address the potential for additional cases in the future.

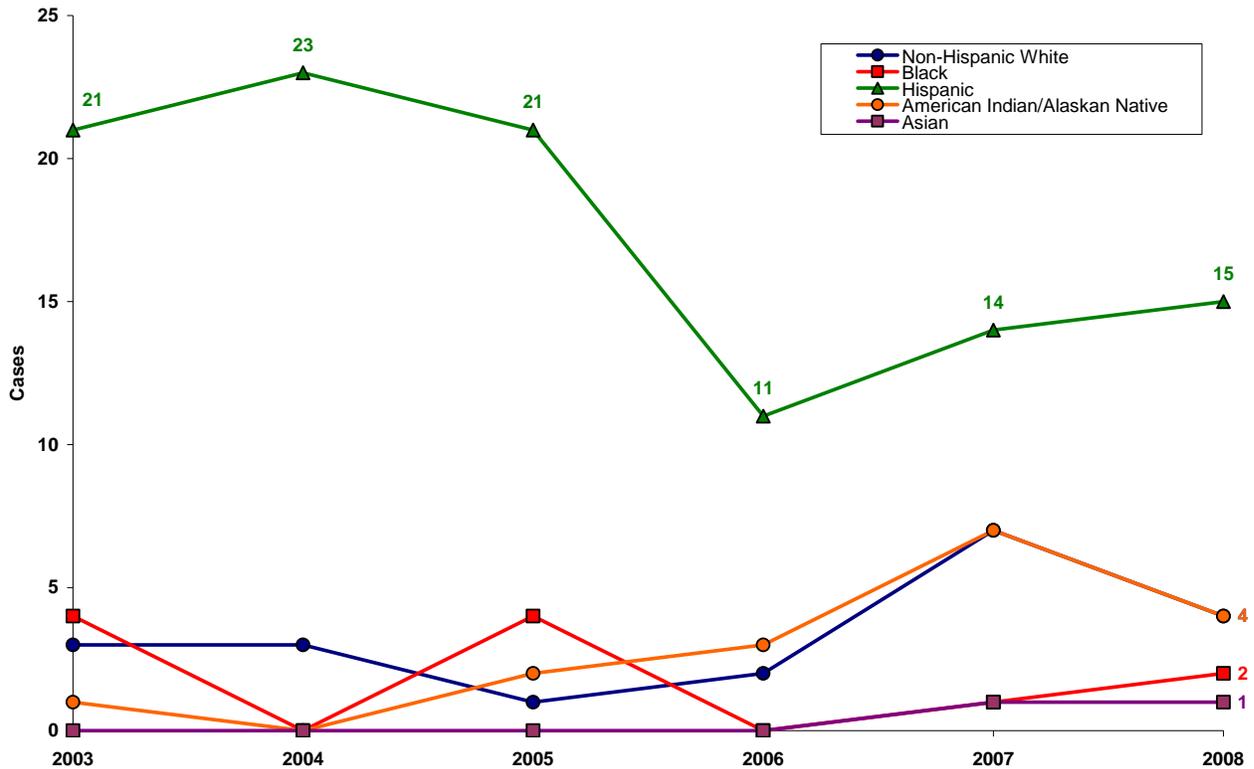
In 2003, the Maricopa County Board of Public Health initially distributed a *Letter to Providers* requiring syphilis testing at the time of the first pre-natal visit, recommending testing at the beginning of the third trimester, and requiring testing at delivery. This may have impacted the reduction in the number of congenital syphilis cases in Maricopa County in 2006. The Board has extended this order through October 2009. With 19 cases of congenital syphilis in the county in 2008, this Board recommendation remains very important in the state's efforts to recognize and eliminate congenital syphilis.

In 2008, more Hispanic babies were born with congenital syphilis than any other race/ethnicity (Figure 12). Indeed, since 2002, the number of cases among Hispanics has been considerably

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

greater than in other racial/ethnic groups. For this decade, the greatest number of cases (23) among Hispanics occurred in 2004. Since then, the number decreased to as low as 11 annual in 2006, but again consistently increased in 2007 and 2008. The high number of cases of congenital syphilis among American Indian infants during 2007-2008 reflects the multiple outbreaks of syphilis among these populations.

**Figure 12. Reported Congenital Syphilis (by Birth Year) Cases by Race/Ethnicity
 Arizona 2003-2008**



The steady increase of congenital syphilis cases among American Indian populations since 2004 is of considerable concern. This increase reflects the high morbidity of syphilis among heterosexual American Indian populations throughout the state, as well as focused outbreaks among some tribes during 2005-2008.

In response to a critical need to address the high number of cases, the ADHS STD Control Program requested Governor’s Health Crisis funds. In July 2007, the Governor proclaimed congenital syphilis as an urgent health crisis and directed the program to use \$100,000 in state funds to address the situation. The ADHS STD Control Program developed a social marketing campaign “Your Baby is a Gift” that included posters, billboards, provider post cards, radio spots, a television ad, and print ads that launched in May 2008. Given the disproportionately higher number of cases of congenital syphilis among Hispanic women, this campaign primarily targeted Spanish speaking women of child bearing age.

Arizona Department of Health Services
Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
Cooperative Agreement No. H25/CCH904361
2008 Annual Progress Report

Chlamydia

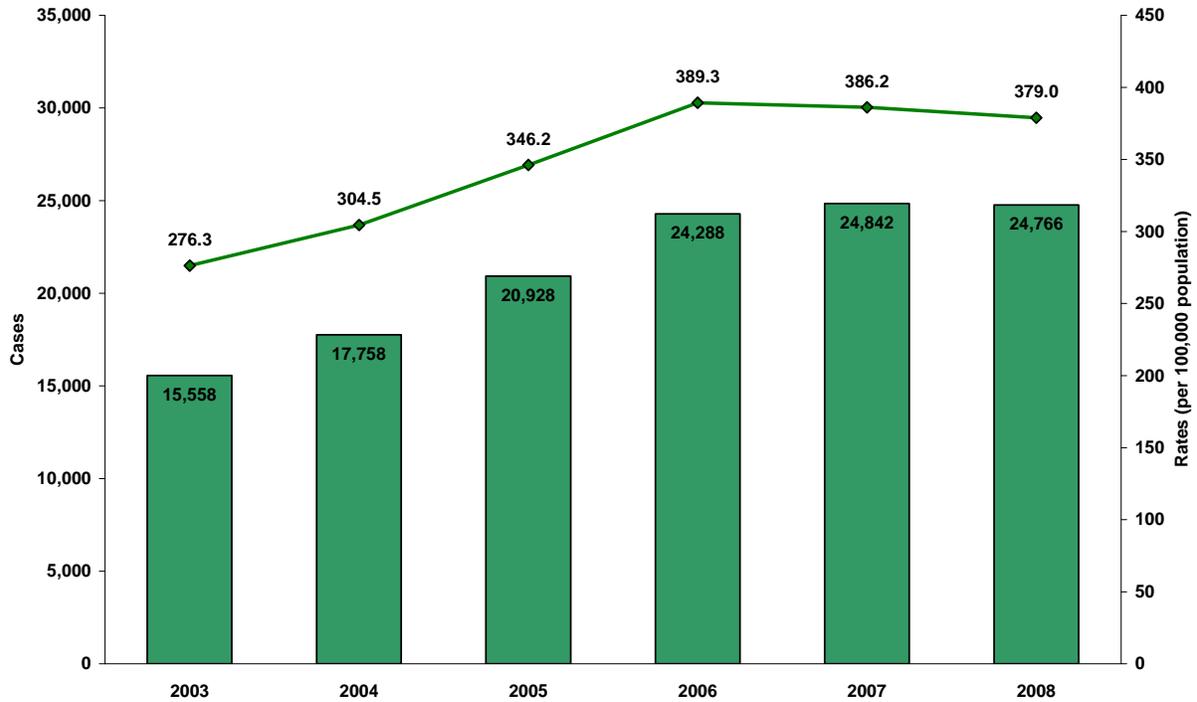
The Arizona STD Program had collaborated with the Arizona Family Planning Council, the Maricopa County Public Health Laboratory, and the state health laboratories in Flagstaff and Tucson to facilitate chlamydia-screening activities in Arizona. Due in part to this collaboration, chlamydia screening efforts have expanded in family planning clinics, STD clinics, and correctional health facilities through the Infertility Prevention Project (IPP). In Title X family planning clinics, screening focuses on sexually active women 25 years of age or younger, as well as symptomatic males, and those males with a history of exposure to an infected partner, a new partner, or multiple partners. IPP shares its chlamydia-screening data with the Regional Infertility Prevention Project in Region IX on a regular basis. These data are presented in their semiannual meetings.

As a result of these concerted chlamydia screening activities, along with ever increasing private sector morbidity, the number of cases identified in Arizona increased from 15,558 cases reported in 2003 to 24,865 cases in 2007 (Figure 13). The chlamydia cases for 2008 remained level at 24,696. Although better case finding may account for the increase in morbidity from 2003-2007, it is likely that the incidence of chlamydia has grown as well. Increasing cases and rates of chlamydia are also being seen on a national level. Increased screening has resulted in earlier detection and treatment of young females, particularly in family planning clinics and juvenile detention centers.

From 2003 to 2006, chlamydia rates and cases increased considerably in Arizona. However, from 2006 to 2007, the chlamydia case rate dropped slightly while the number of cases increased from 24,288 to 24,865 due to the growth of the Arizona population in 2007. Figure 13 demonstrates the case and case rate trends from 2003 to 2008. In general, chlamydia cases and rates have leveled off during 2006-2008.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

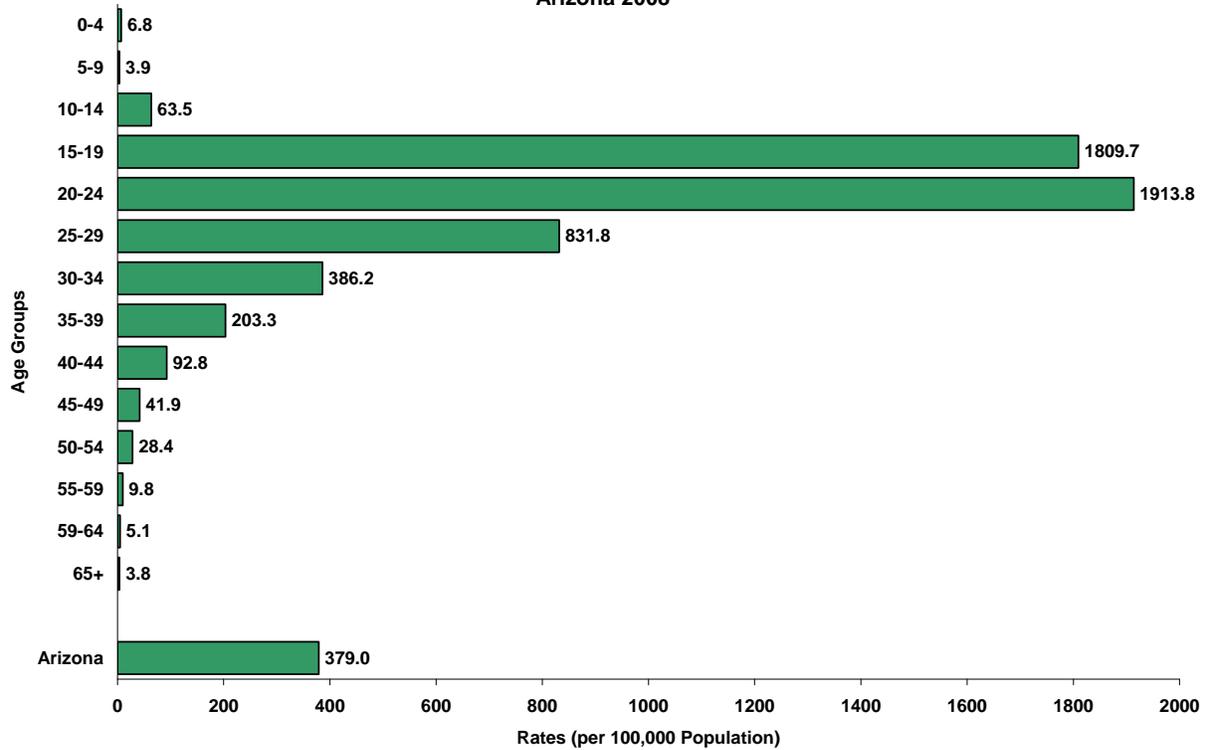
**Figure 13. Reported Chlamydia Cases and Case Rates per 100,000 Population
 Arizona 2003-2008**



Although the cases and case rates seem to have leveled off over the last three years, a closer examination of chlamydia rates among young people ages 15-24 reveals extremely high values. In 2008 among 15-19 year olds, the chlamydia case rate remained very high at 1,809.7 per 100,000 population and was 1,913.8 per 100,000 population for 20-24 year olds. These rates are essentially unchanged from the 2007 case rates for these two age groups; 1,806 and 1,917 per 100,000 population, respectively. A breakdown of 2008 chlamydia rates by age group is presented in Figure 14.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

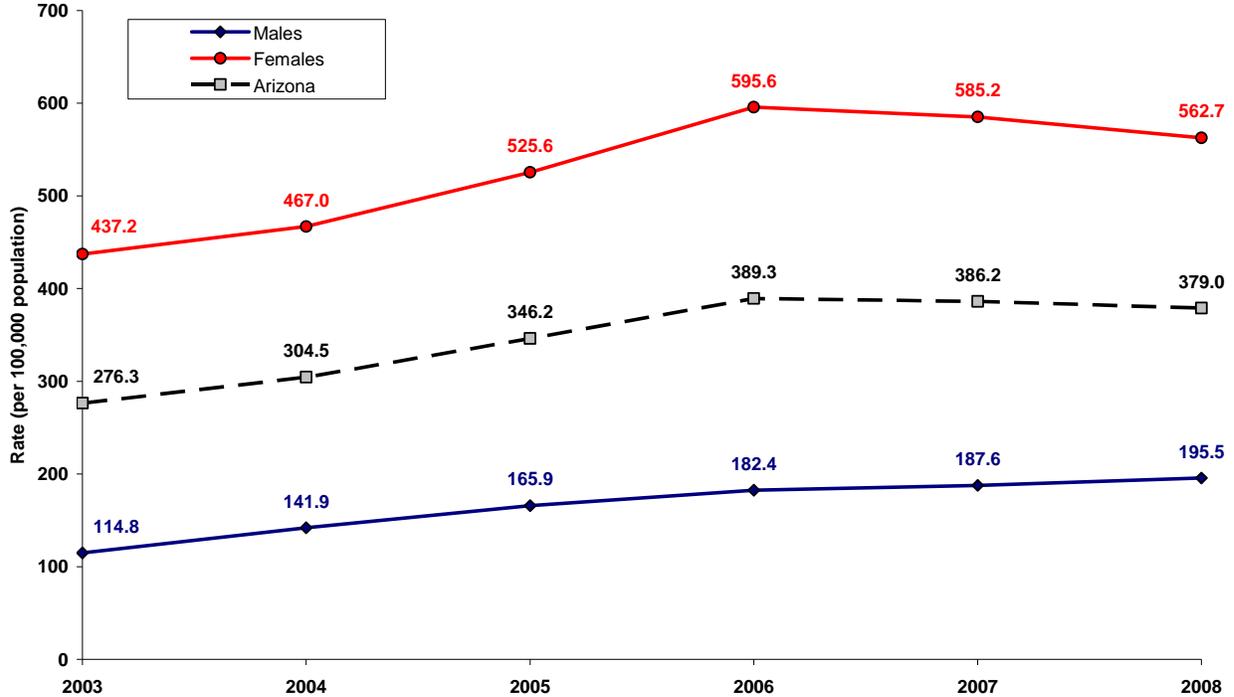
**Figure 14. Reported Chlamydia Rates per 100,000 Population by Age Group
 Arizona 2008**



From 2003 to 2008, Arizona chlamydia case rates have tended to be three to four times higher in females than in males (Figure 15). In 2008, the female chlamydia case rate was 2.9 times that of males. These divergent case rates can be attributed to IPP and CDC recommended screening guidelines that call for increased chlamydia screening among females when compared to males, as well as differing healthcare access behavior and symptom experience between males and females.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

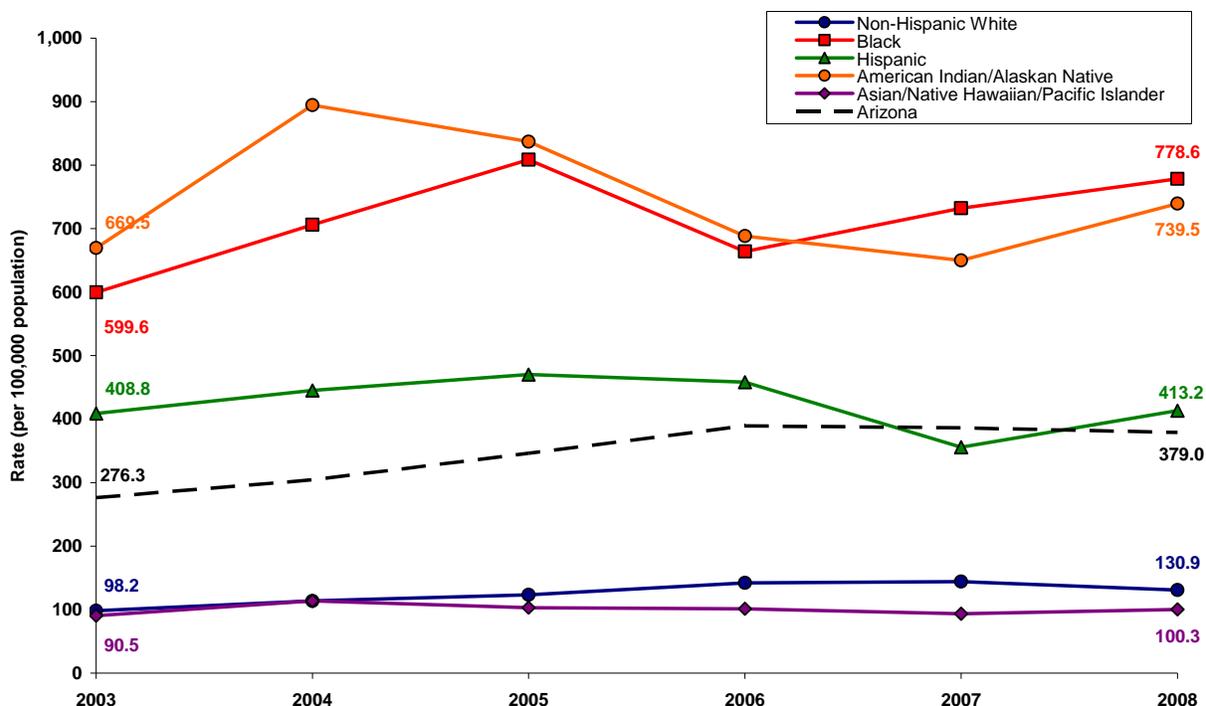
**Figure 15. Reported Chlamydia Case Rates per 100,000 Population by Gender
 Arizona 2003-2008**



There is a clear health disparity when looking at chlamydia rates in Arizona by race/ethnicity. That is, African Americans and Native Americans have maintained disproportionately higher rates of chlamydia from 2003-2008 and the population experienced a small increase in chlamydia rates from 732.2 to 778.6 cases/100,000 population during 2007-2008. In 2008, the chlamydia case rate among African Americans was 5.9 times higher than non-Hispanic whites. The Native American rate was 5.6 times higher than the non-Hispanic white rate for the same year. This population, and the Hispanic population in Arizona, both experienced an increase in case rates from 2007 to 2008 (Figure 16). Interestingly, these are the only two race/ethnic groups that experienced a decrease in case rates from 2006 to 2007. Of note, the number of unknown race/ethnicity cases has steadily increased over the past five years (2,956 in 2004 to 7,082 in 2008) decreasing the reliability of chlamydia analysis by race. ADHS STD Control Program has begun in early 2009 to actively contact providers to complete missing race/ethnicity in historic cases in order to improve the completeness of this data.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

**Figure 16. Reported Chlamydia Case Rates per 100,000 Population by Race/Ethnicity
 Arizona 2003-2008**



Over the period 2002 to 2006, race-specific rates were generally much lower among non-Hispanic whites when compared to most minorities, i.e., Hispanics, blacks, and Native Americans. Meanwhile, the chlamydia case rate among Asians for this time period remained similar to or below the rate for whites. From 2002 to 2006, the rate among Native Americans represented the highest race-specific rate in the state. This may have been in part due to the aggressive and comprehensive chlamydia testing conducted by Indian Health Services in the state. The rising rate of chlamydia among blacks from 2003 to 2007, however, probably suggested a true increase in morbidity, especially since expanded screening efforts were not identified. The ADHS STD Control Program will continue to closely monitor the increasing rate of chlamydia among blacks and will implement additional surveillance measures accordingly. Effective in January 2007, new state laws restricting health and public services to undocumented immigrants may have had an adverse impact on the number of Hispanics presenting for health care services; consequently, many Hispanics may not have been tested for common sexually transmitted diseases (Figure 16).

In April of 2008, Senate Bill 1078 was passed which amends ARS 32-1401.27 and 32-1854 to allow allopathic, naturopathic, and osteopathic physicians, or physicians' assistants to dispense or prescribe antimicrobial medications to contacts of patients with communicable diseases without an intervening health assessment of the partner. The application of this statute, for STDs such as gonorrhea and chlamydia, is being communicated as Expedited Partner Therapy in Arizona (EPT). This law became effective September 26, 2008. The Arizona STD Control

Arizona Department of Health Services
Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
Cooperative Agreement No. H25/CCH904361
2008 Annual Progress Report

Program has developed patient and provider educational materials available at: <http://azdhs.gov/phs/oids/std/>. In addition, over 1500 postcards were mailed to physicians, physician assistants and nurse practitioners alerting them to the legality of this practice. The STDP will continue to propagate this information and encourage the widespread use among members of the Arizona medical community.

Of note, in 2008, the Arizona state laboratory located in Flagstaff was closed, and those gonorrhea and chlamydia labs that had been previously run in Flagstaff were transferred to the state laboratory located in Tucson for evaluation. In early 2009, Arizona also announced the impending closure of the Tucson state laboratory, and the program is currently in the process of arranging for the transfer of the labs that had previously been run in Tucson to the only remaining state laboratory located in Phoenix.

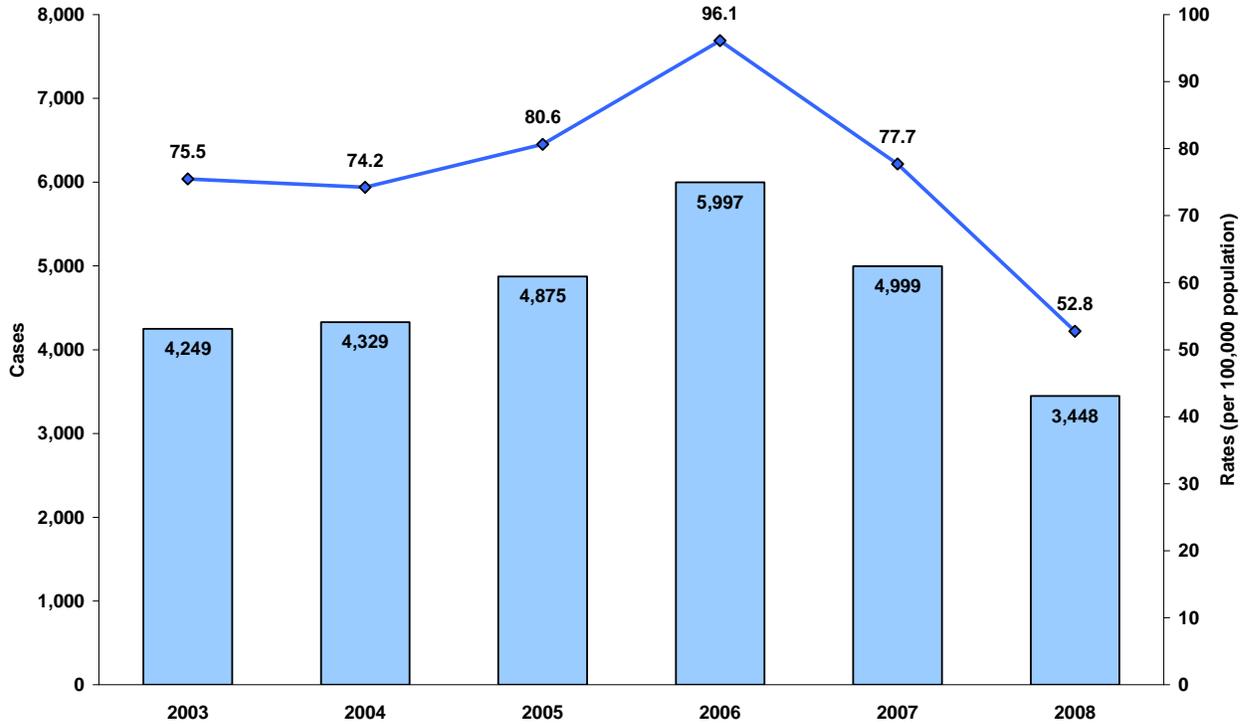
Gonorrhea

In 2008 there were 3,448 gonorrhea cases reported in Arizona, with a corresponding case rate of 52.8 per 100,000 population. This rate represents a continued decline in gonorrhea rates in Arizona since 2006. Specifically, the Arizona gonorrhea rate decreased 31% from 2007 to 2008 (Figure 17) and has decreased 43% from 2006 to 2008. The case rate for gonorrhea remained almost static from 2002 to 2004. Then in 2005, the gonorrhea case rate increased slightly to 80.6, or a 12.6% increase from the previous year. The increase in cases from 2004 can be partially explained by an increased use of nucleic acid amplification tests (NAAT) which have higher sensitivity and produce more positive results than traditional probe or culture tests. In addition, the increase in the amount of chlamydia screening statewide has likely increased gonorrhea detection as chlamydia and gonorrhea tests tend to be paired with the NAAT testing.

By 2006, the gonorrhea case rate had increased dramatically to 96.1. Yet, by 2007, the rate decreased considerably to a rate of 77.7 cases per 100,000 population, and continued to decrease in 2008 to 52.8 cases per 100,000 population. This decrease is noteworthy since the incidence of gonorrhea had exhibited a modest increase from 2004 to 2006 (Figure 17). After careful review and analysis in early 2008, and again in early 2009, the STD Control Program staff has determined that the incidence of gonorrhea seems to have truly decreased in Arizona. An important factor contributing to this determination is the likely fact that the epidemiology and etiology of gonorrhea in Arizona has remained distinct from neighboring western states. Specifically, while fluoroquinolone resistant gonorrhea has surged in other western states, the same cannot be said of gonorrhea in Arizona. Consequently, it is likely, although not conclusive, that gonorrhea infection may be decreasing through appropriate and adequate treatment. In addition, increased screening for chlamydia, which inherently tests for gonorrhea as well, has likely detected a large number of asymptomatic cases that were present in the population.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

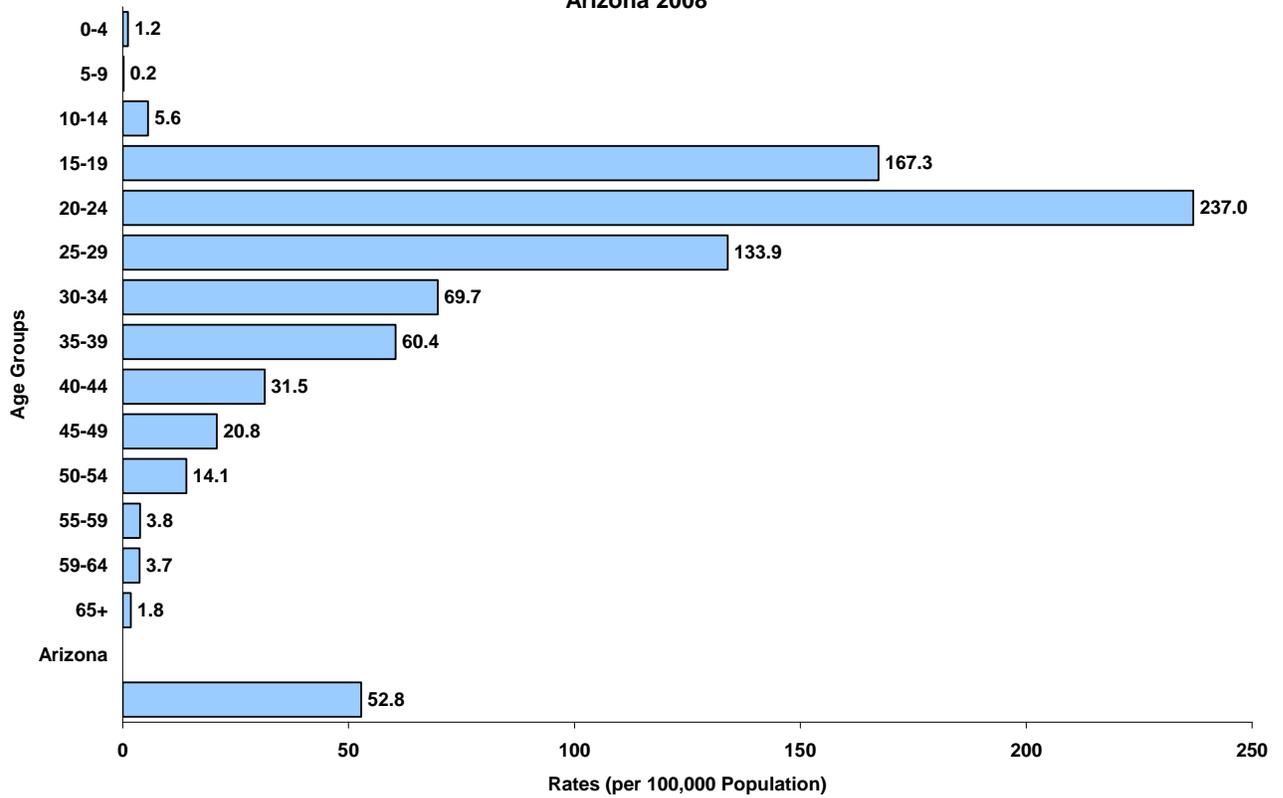
**Figure 17. Reported Gonorrhea Cases and Case Rates per 100,000 Population
 Arizona 2003-2008**



Similar to chlamydia, the general gonorrhea case rate for 2008 may not reflect the population specific burden of disease in the state. Indeed, the case rate among younger people, especially those between the ages of 15-24, shows a much higher burden of disease. Figure 18 presents gonorrhea case rates by age group for 2008 and demonstrates the impact of gonorrhea among Arizona adolescents and young adults.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

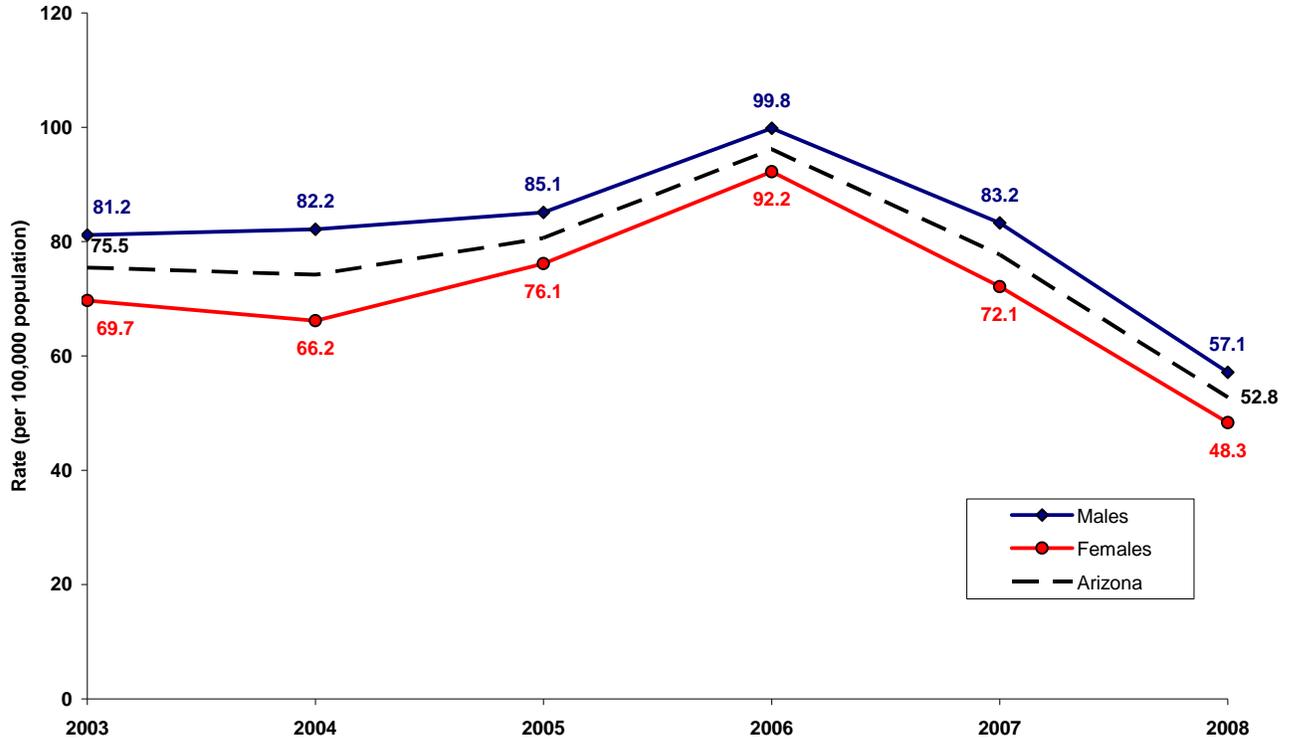
**Figure 18. Reported Gonorrhea Rates per 100,000 Population by Age Group
 Arizona 2008**



In general, gonorrhea morbidity is higher in males than in females. In 2008, the gonorrhea case rate for males stood at 57.1 per 100,000 and 48.3 per 100,000 for females. Figure 19 depicts gonorrhea case rates by gender from 2003 to 2008. The case rate for both males and females declined, by 31% and 33% respectively, from 2007 to 2008.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

**Figure 19. Reported Gonorrhea Case Rates per 100,000 Population by Gender
 Arizona 2003-2008**



As depicted in Figure 20, race-specific rates in Arizona show a general decline for gonorrhea. Morbidity among blacks declined from a high of 404.8 in 2005 to 256.8 in 2008 (Figure 20). Despite an overall decline in gonorrhea morbidity among blacks, rates remain disproportionately high compared to other racial/ethnic groups. Among Native Americans, the case rate spiked in 2004, but declined since then to 73.3 cases per 100,000 population in 2008. Overall, the 2008 reported gonorrhea case rate showed a decline from the previous two year period. For factors previously presented, gonorrhea incidence could be on the decline in Arizona.

Arizona Department of Health Services
 Comprehensive Sexually Transmitted Disease (STD) Prevention Systems
 Cooperative Agreement No. H25/CCH904361
 2008 Annual Progress Report

**Figure 20. Reported Gonorrhea Case Rates per 100,000 Population by Race/Ethnicity
 Arizona 2003-2008**

