



Sexually
Transmitted
Diseases

2014

Office of Disease Integration and Services STD Control Program

Annual
Report



Division of Public Health Services

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December 2015

Dear Arizonans:

The Arizona Department of Health Services (ADHS), Sexually Transmitted Disease Control Program (STDCP) is pleased to provide the 2014 Arizona STD Annual Report. This report highlights the impact of sexually transmitted diseases (STDs) among the residents of Arizona by focusing primarily on syphilis, gonorrhea, and chlamydia, the most commonly reported STDs. The following information, as depicted in the narrative, graphs, and tables, details the increasing number of STDs affecting our State. All 2014 data are from the ADHS STDCP Surveillance system.

STDs affect people of all ages, races, ethnicities, educational levels, and economic status. Sexually transmitted infections raise numerous concerns due to the fact that the majority of infections lack symptoms. STDs have the capacity to cause still-births, deformities in newborns, pelvic inflammatory disease, as well as the growing possibility of drug resistance in gonorrhea. Of greatest concern is that persons infected with an STD are more likely to become infected with HIV, if exposed. In 2014, young adults ages 15-29 and men who have sex with men bore a disproportionate burden of STDs in Arizona. The ADHS STDCP is addressing these health disparities by collaborating across ADHS programs and reaching out to county and 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.

In pursuit of the mission of the ADHS STDCP, through this report, our goal is to disseminate useful and pertinent data to the Arizona public and community leaders to promote dialogue about sexual health and disease prevention, to promote screening, medical treatment and services, and to improve the sexual health of all Arizonans. Sexual health is everyone's responsibility.

Please contact us with any further questions regarding STD education, prevention, and screening opportunities.

Sincerely,

Roxanne Ereth, MPH
STD Control Program Manager

Arizona Department of Health Services Office of Disease Integration and Services STD Control Program

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Program Mission

The Mission of the Arizona Department of Health Services (ADHS) STD Control Program (STDCP) is to:

Improve the sexual health of all Arizonans by strengthening the prevention and control of Sexually Transmitted Disease in Arizona through education, surveillance, collaboration, and program development.

Program Organizational Structure

The STDCP has been a part of the Arizona Department Health Services since 1919. The STDCP is under the ADHS Public Health Services Division, Bureau of Epidemiology and Disease Control, Office of Disease Integration Services (ODIS) under Ms. Harmony Duport, Acting Office Chief. ODIS is comprised of the HIV Surveillance Program, Tuberculosis Control Program, Refugee Health, HIV/AIDS Care and Services Program, and the STDCP. The STDCP Central Office is located in downtown Phoenix with field staff located in Maricopa and Pima Counties.

Program Staff and Contributors

The STDCP Central Office Staff:

Roxanne Ereth, MPH, BS, STDCP Manager with 17 years of experience in Public Health. Ms. Ereth's experience includes positions as an Epidemiologist, Manager of the Hepatitis C Program for 2 years and manager of the STDCP for the last 7 years. She has a BS in Microbiology and an MPH in Public Health with a Concentration in Community Health Practice.

Jose Mireles, MPH, Syphilis Surveillance Epidemiologist, holds a BS in Microbiology and an MPH in Public Health. Mr. Mireles has 7 years of experience as an STD Epidemiologist.

Lauren Young, MPH, Gonorrhea Surveillance Epidemiologist, has one year of experience as the Gonorrhea Surveillance Epidemiologist. She holds a BA in Chemistry and Spanish, an MPH with a concentration in Epidemiology and Biostatistics, and a Certificate in Interdisciplinary Women's Health.

Amanda Brunton, MPH, BS, Data Management Epidemiologist, has over a year of experience working with the STD Control Program. Mrs. Brunton's background ranges from microbiological bench-work to evidence-based research. She holds a BS in Biology, a graduate certificate in Biostatistics, and an MPH in Epidemiology.

Patrick Hindman, MPH, BSN, RN, Chlamydia/Gonorrhea Surveillance Epidemiologist, has nearly one year of experience as the Chlamydia/Gonorrhea Surveillance Epidemiologist. Mr.

Hindman holds an MPH with a concentration in Epidemiology, a Bachelor's in the Science of Nursing, and a license to practice nursing in the State of Michigan.

Ryan Kreisberg, MPH, BS, Syphilis Surveillance Epidemiologist, has a year of experience working in HIV prevention and surveillance in South India and nearly a year as the Syphilis Surveillance Epidemiologist. Mr. Kreisberg holds an MPH in Epidemiology and a BS in Optical Sciences and Engineering.

Linda Ripley, Data Entry Specialist has been with ADHS since 2006.

Olivia Kitcheyan, Electronic Lab Reporting Entry Specialist, has been with ADHS for 2 years.

The Centers for Disease Control and Prevention (CDC) has been generous in its support of the ADHS STDCP by providing assistance from the following on-site staff:

Melanie Taylor, MD, MPH, CDC Medical Epidemiologist in the Division of STD Prevention at the National Center for HIV, STD, Hepatitis and TB Prevention (NCHHSTP) since 2002. She is an infectious disease/HIV physician and a Captain in the United States Public Health Service.

Kerry Kenney, BA, CDC Senior Public Health Advisor with 23 years of experience working in state and local STD Programs (City of Chicago, County of Los Angeles, and State of Arizona). He holds a BA in Economics and a Graduate Certificate in Public Health with emphasis in Public Health Policy.

Katherine Browne, BA, CDC Public Health Advisor with 24 years of experience working in state and local STD Programs (County of Los Angeles, State of Indiana, and State of Arizona – Maricopa County and Pima County STD Programs). Ms. Browne holds a BA in Human Biology.

Geri Toyekoyah, MPH, BA, CDC Public Health Advisor with 23 years of experience working in state and local STD Programs (States of Florida, Louisiana, North Carolina, Oklahoma, Mississippi, and Arizona). She holds a BA in History and an MPH in Public Health Administration and Policy.

Purpose

This report highlights the impact of sexually transmitted diseases (STDs) among the residents of Arizona. The information depicted in the narrative, graphs, and tables herein focus on chlamydia, gonorrhea, and syphilis, the most commonly reported STDs affecting our state. Data are from the STDCP surveillance system, 2014 CDC Surveillance Report, and the CDC website, www.cdc.gov.

Executive Summary

Arizona is comprised of fifteen counties and is home to twenty-one federally recognized American Indian tribes. The STDPC conducts and is responsible for all surveillance, data analysis, and program evaluation of STD activities in Arizona. The STDPC epidemiologists monitor disease trends across the state and seek to identify common risk factors and disparities among the affected populations. These activities help to detect unusual trends or outbreaks early so that guidance can be offered to local health departments (LHDs) or Tribes that are affected. In addition, the STDPC provides epidemiological, technical, medical, and programmatic consultation services to all health care providers throughout the state.

The LHDs provide STD control activities through direct clinical care, including testing and treatment; conduct individual case investigations; provide partner services and referrals; and collaborate with community-based organizations to conduct community outreach and educational activities. They also coordinate with medical providers and correctional health staff members within their jurisdiction to provide STD testing and treatment services.

Arizona had consistently been in the top five states for congenital syphilis rates during 2001-2007. Arizona reported the highest rates of congenital syphilis annually for 2001 through 2005, and was ranked number 2 in the nation for 2007. Arizona has brought this rate down considerably. Our state ranks 10th in the nation for its high congenital syphilis rates. Due to this, in accordance with Arizona statute, the Arizona State Public Health Laboratory provides free syphilis testing at the mother's first prenatal visit. Maricopa County has issued a board order requesting a third trimester blood test for syphilis in all pregnant women. This order requires a blood test for syphilis for newborns or their mothers at the time of delivery or the umbilical cord of a stillborn infant to identify congenital syphilis cases.

Although there are multiple STDs, Arizona requires reporting for only five of them: syphilis, gonorrhea, chlamydia, herpes genitalis (provider only), and chancroid. This 2014 Annual Arizona STD Surveillance Report provides descriptive data for chlamydia, gonorrhea and syphilis infections, the most commonly reported STDs.

In 2014, a total of 39,919 cases of STDs were reported in Arizona. The majority of the cases were reported from Maricopa (64.4%), Pima (16.8%), Pinal (4.1%) and Yuma (2.6%) counties. Of the total 39,919 total cases, 4,315 (10.8%) were investigated cases, 98.4 (22.8%) of those were identified in men who have sex with men (MSM).

- 261 (26.5%) investigated cases were positive for chlamydia and identified as MSM
- 420 (42.7%) investigated cases were positive for gonorrhea and identified as MSM
- 303 (30.8%) investigated cases were positive for primary and secondary syphilis and identified as MSM
- 78.1% of all reported cases were young adults 15-29 years of age.
- 13 congenital syphilis cases were reported.

County	Primary & Secondary		Congenital Syphilis		Gonorrhea		Chlamydia	
	Cases	Rates	Cases	Rates	Cases	Rates	Cases	Rates
Apache	*	>1	0	0.0	89	123.7	598	831.3
Cochise	*	<2	0	0.0	67	51.7	494	381.5
Coconino	*	<4	0	0.0	115	84.2	877	642.3
Gila	0	0.0	0	0.0	18	33.9	195	367.6
Graham	*	<3	0	0.0	19	50.7	132	352.2
Greenlee	0	0.0	0	0.0	*	>33	48	530.4
La Paz	0	0.0	0	0.0	11	54.1	92	452.7
Maricopa	409	10.2	11	19.9	5514	137.5	19788	493.5
Mohave	*	<1	*	<55	74	36.4	434	213.8
Navajo	*	<3	0	0.0	150	139.8	754	702.6
Pima	142	14.2	0	0.0	1045	104.9	5518	553.7
Pinal	*	<1	*	>22	291	74.7	1339	343.9
Santa Cruz	0	0.0	0	0.0	16	34.2	168	359.2
Yavapai	*	>1	0	0.0	51	23.7	393	182.7
Yuma	0	0.0	0	0.0	122	60.6	920	457.3
Unknown	0	0.0	0	0.0	0	0.0	0	0.0
Arizona	572	8.6	13	15	7585	114.5	31750	479.1
*cell size under 6 not reported								

STDs in Arizona

Chlamydia

Chlamydial infection is caused by the bacterium *Chlamydia trachomatis*. Chlamydia is the most commonly reported notifiable disease in the United States. More cases of chlamydia have been reported to the CDC since 1994 than any other STD¹. In 2014, there were just over 1.4 million chlamydial infections reported nationwide; however, the CDC estimates that 2.86 million chlamydial infections occur annually.

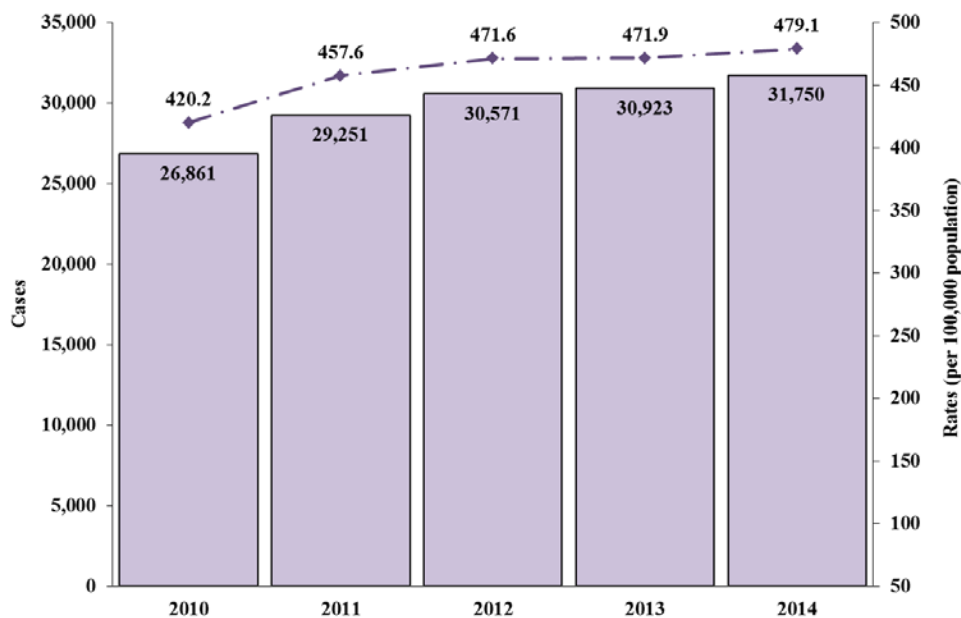
The majority of chlamydial infections are asymptomatic. When left untreated, these infections are considered major causes of pelvic inflammatory disease (PID), ectopic pregnancy, and related infertility among women in Arizona and the United States².

Sexually active young people, aged 14-24, are at the greatest risk of acquiring chlamydia. CDC recommends annual screening for all sexually active women younger than 25, as well as older women with risk factors such as new or multiple partners, or a sex partner who has an STD. Screening is recommended for women due to the severe consequences of untreated infection. Routine screening is not recommended for men unless they are at high risk.

¹ Centers for Disease Control and Prevention. (2014). 2013 Sexually transmitted disease surveillance: Chlamydia. Retrieved from: <http://www.cdc.gov/std/stats13/chlamydia.htm>.

² Vranic, Sabina Mahmutovic. (2012). Chlamydia trachomatis infections of the adults. *Edited by Nancy Malla*, 31.

Figure CT 1: Reported Chlamydia Cases and Case Rates, Arizona 2010-2014

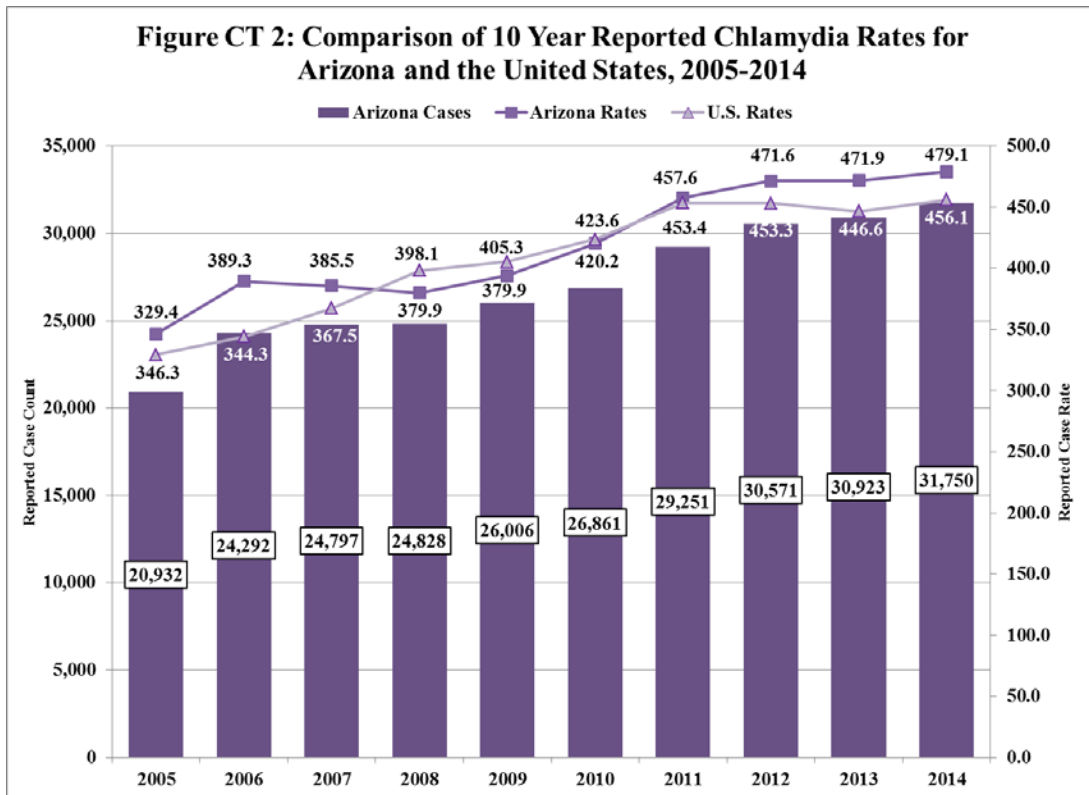


Data is provisional and subject to change.
 * 2013 CDC bridged data used for 2014 case rate population denominators.

Statewide Disease Burden:

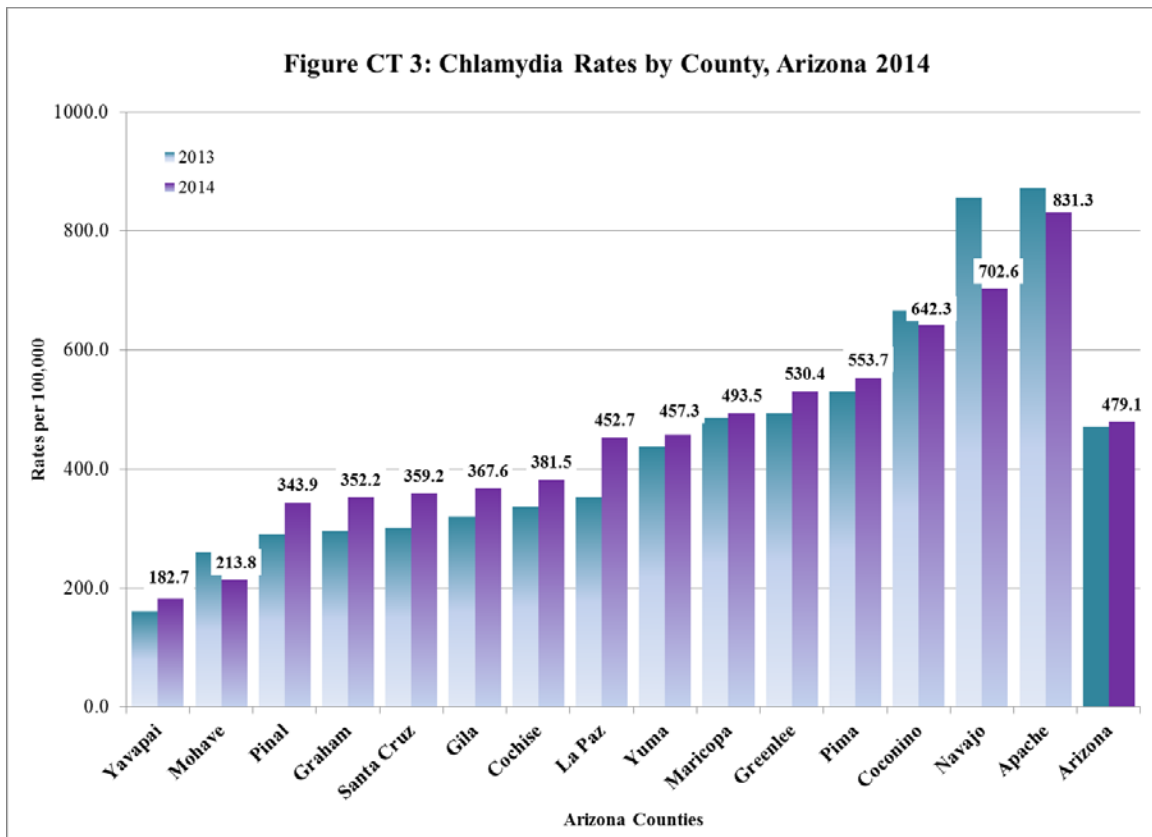
- In 2014, 31,750 cases of chlamydia were reported in Arizona, an increase of 827 cases or 2.7% from 2013 (Figure CT 1).
- The reported case rate for Arizona was 479.1 per 100,000 persons in 2014, an increase of 1.5% from 2013.
- Over the last 5 years, the case rate for chlamydia has increased 14% from 420.2 per 100,000 in 2010 to 479.1 per 100,000 in 2014.
- There continues to be a gradual increase in case counts, further indicating Arizona may be reaching a plateau of chlamydia cases.
- While the case rate in Arizona is on the rise, the case rate in the U.S. has seen a decrease of 1.5% to a case rate of 446.6 per 100,000³ during 2014. This is the largest decrease observed since national reporting of chlamydia began in 1984.
- The continued increases in chlamydia cases observed within Arizona may be the result of increased screening activities among those who are insured, as chlamydia screening is now covered under the Affordable Care Act (ACA).

³ Centers for Disease Control and Prevention. (2014). 2013 Sexually transmitted disease surveillance: Chlamydia. Retrieved from: <http://www.cdc.gov/std/stats13/chlamydia.htm>.



10 Year Trend:

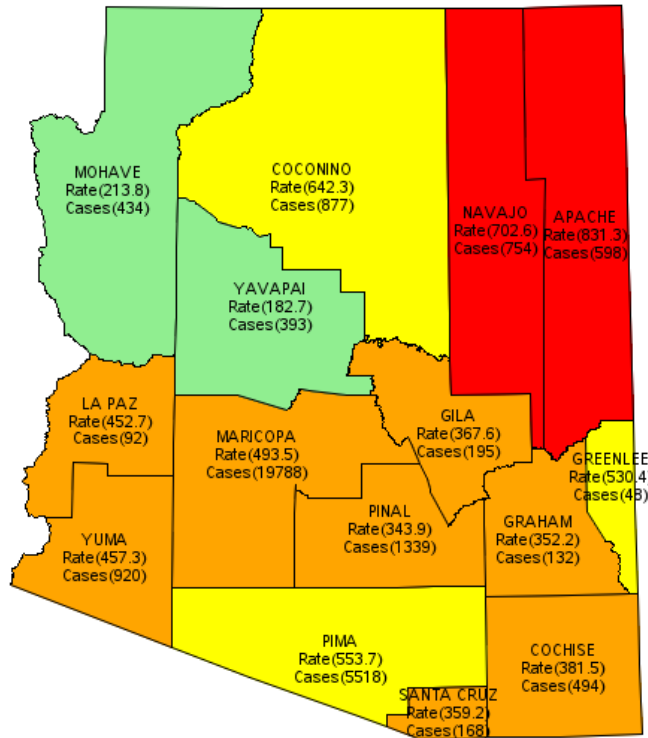
- In 2014, Arizona's case rate for chlamydia was 479.1 per 100,000, which exceeded the U.S. case rate of 456.1 per 100,000 by 5.0% (Figure CT 2).
- The U.S. rate increased 0.2% from 2013-2014, while the rate in Arizona increased 1.5%.
- It is important to contextualize reported infections in Arizona within the national background. Arizona ranked 14th in case rates and 12th in case counts nationally, making up 2.24% of the 1,441,789 cases reported nationwide in 2014.
- Among those who are still uninsured, screening activities continue to be a priority for the State of Arizona, which collaborates with Title X, Title V, selected correctional facilities, and other safety net clinics.



Rates by County:

- Between 2013 and 2014, 11 out of 15 counties had an increase in case rates (Figure CT 3).
- 40% of Arizona counties had case rates higher than that of the State.
- Although the two most populous counties, Maricopa and Pima, were among those with case rates higher than the state average, Navajo and Apache Counties had the highest case rates at 702.6 and 831.3 per 100,000 respectively.
- Apache County reported the highest case rate in 2014 at 831.3 per 100,000.
- Between 2013 and 2014, Greenlee County had the largest increase in the total number of cases and case rate with increases of 85% and 80% respectively. This is likely the result of increased and more comprehensive screening practices.

Figure CT 4: Chlamydia Rates and Cases by County, Arizona 2014



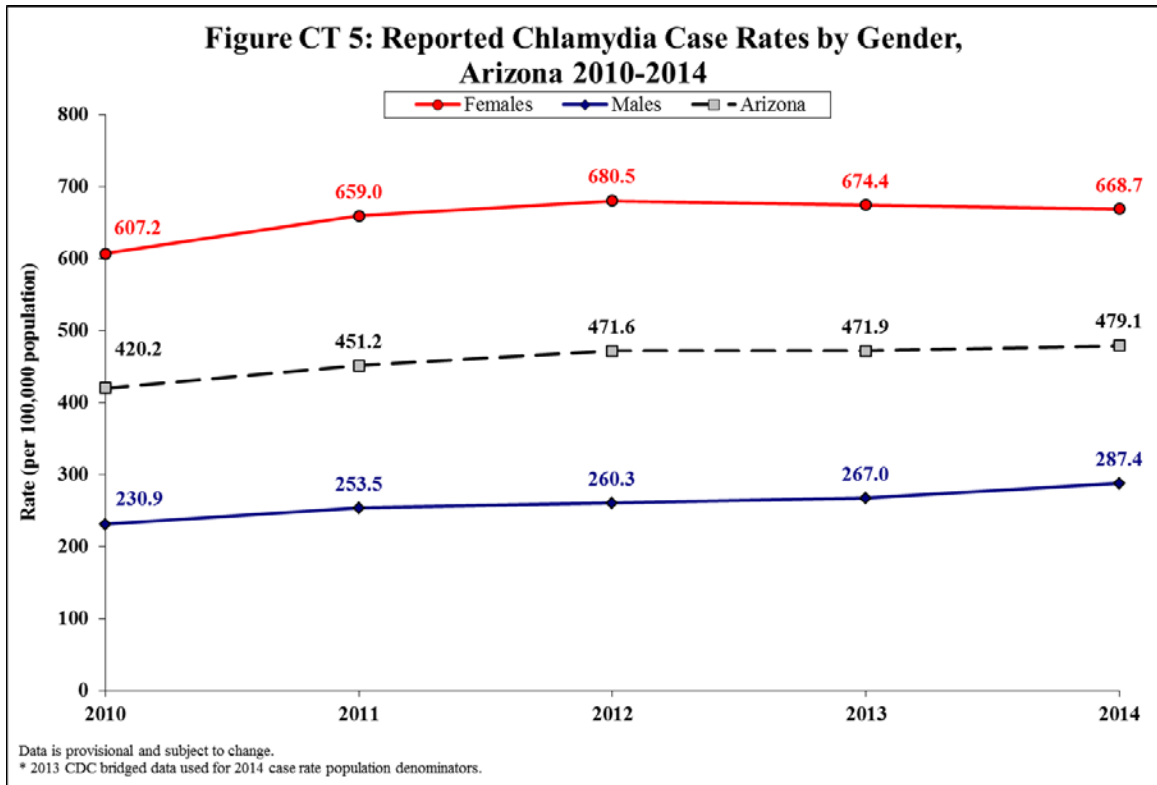
Rate per 100,000 persons

■	Between 100 and 300	■	Between 300 and 500
■	Between 500 and 700	■	Greater than 700

*It is important to note that in counties with small a population, rates and counts can be misleading/skewed.

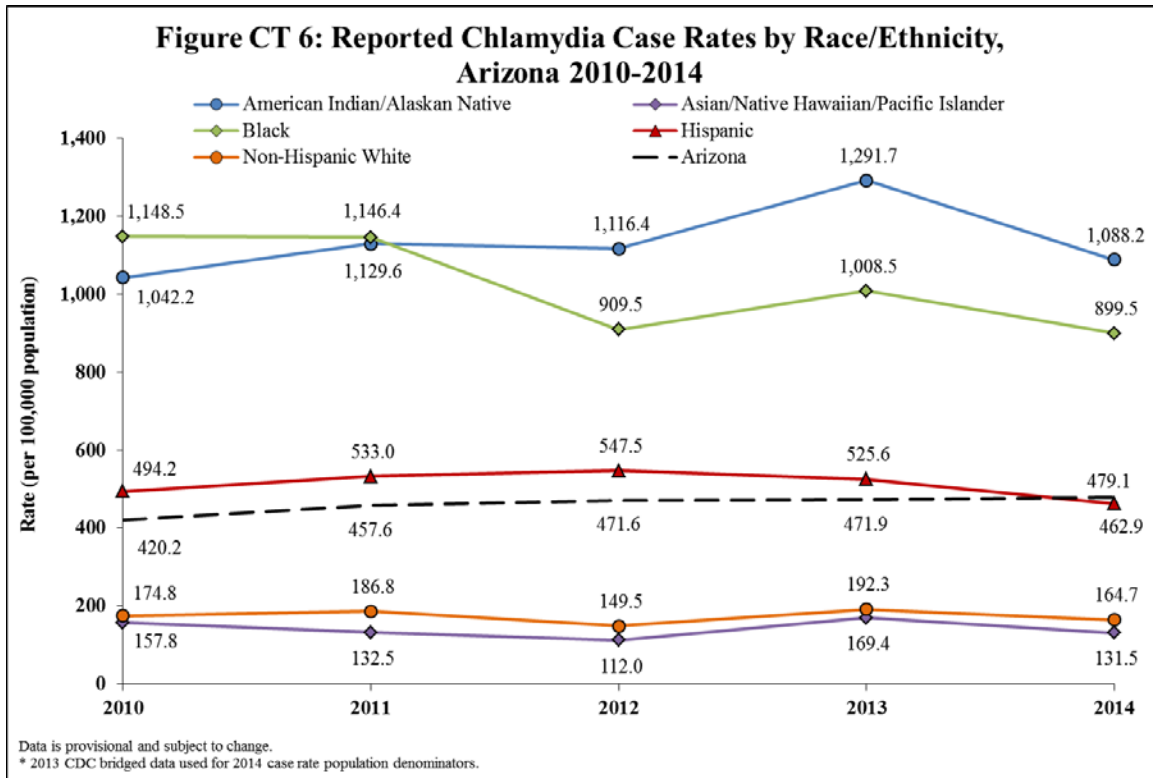
Case Rates and Counts by County:

- The map above (Figure CT 4) depicts the case rates and total number of cases for each county.
- It is important to note that although Apache and Navajo Counties represent the highest case rates across the state at 831.3 per 100,000 and 702.6 per 100,000 respectively, the cases counts in these counties only represent 1.9% and 2.4% of the total cases.
- Arizona’s two largest counties, Maricopa and Pima, account for 62.3% and 17.4% of the total cases respectively, which is roughly 80% combined.



Rates by Gender:

- Similar to nationwide trends, Arizona females are disproportionately affected by chlamydia (Figure CT 5). The rate among females is nearly 2.5 times higher than the rate among males and nearly 1.5 times higher than the combined rate in Arizona.
- Starting in 2011, the rate among females started to decrease slightly³. The gradual downward trend among the female case count continues from 2013 to 2014 as there was a 0.8% decrease observed.
- The male population continued to increase with a significant increase in case rates between 2013 and 2014 of 7.6%.
- Within the last 5 years, the male case rate has increased by 24.5%, while the totals of Arizona and female case rates have increased 14% and 10.1% respectively.



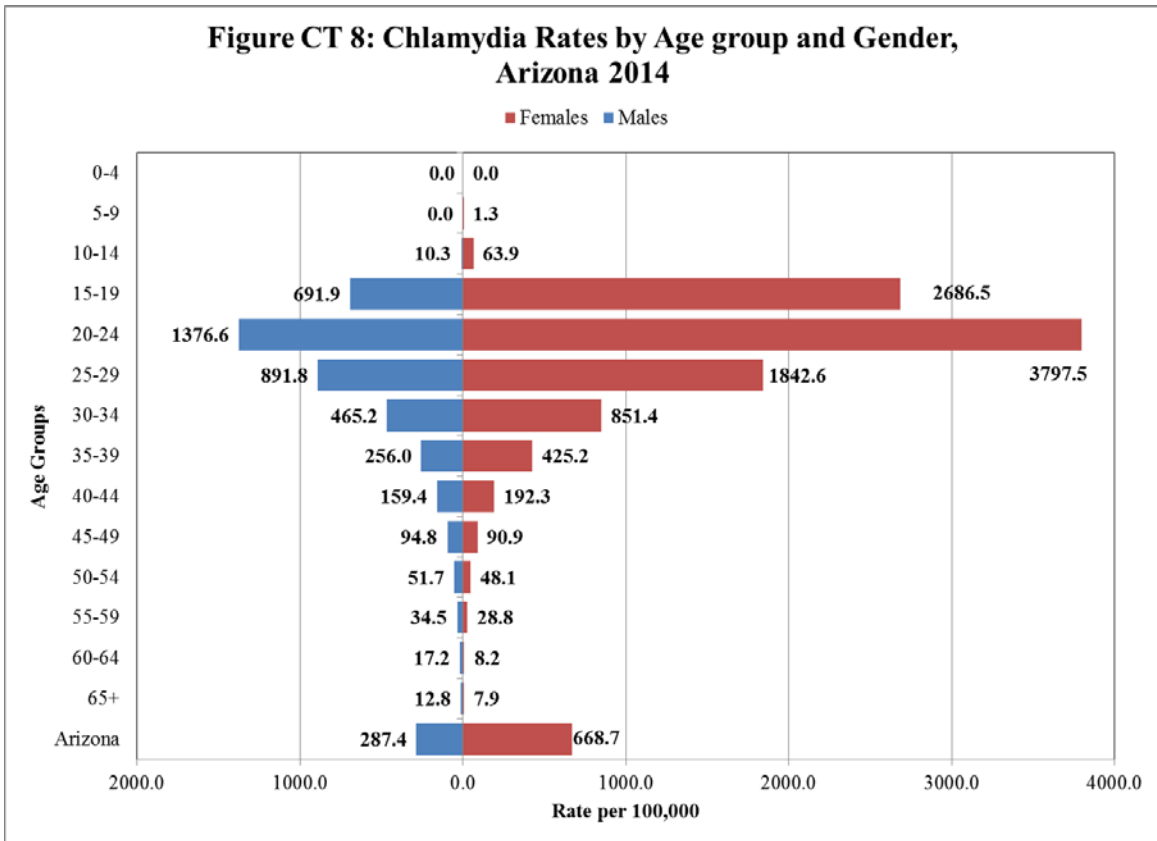
Rates by Race/Ethnicity:

- There is a clear disparity when comparing chlamydia rates in Arizona by race/ethnicity (Figure CT 6). American Indians/Alaskan Natives (AI/AN) and Blacks continue to maintain the highest rates of chlamydia.
- In 2014, the AI/AN rate was the highest reported rate at 1,088.2 per 100,000. This is a 15.8% decrease from 2013, and represents the largest decrease and the second lowest rate among AI/AN observed in the last 5 years.
- In 2014, the rate of chlamydia among Blacks was the second highest, reported at 899.5 per 100,000. This is a 10.8% decrease in rate from 2013, and represents the lowest rate observed among Blacks in the last 5 years.
- The Hispanic population had the highest count of reported cases at 9,282. This is 1,104 fewer cases than in 2013. The Hispanic population had the 3rd highest rate of chlamydia at 462.9 per 100,000.
- It is important to note that 10,166 (32%) reported chlamydia cases had missing race/ethnicity data. This has a substantial impact on race-based statistics and the conclusions that may be drawn from them.

Table CT 7: Reported Chlamydia Cases and Case Rate per 100,000 Population by Age Group, Arizona 2012-2014						
	2014		2013		2012	
Age group	N	Rate	N	Rate	N	Rate
10-14	167	36.6	162	35.7	226	49.9
15-19	7,482	1659.6	7,737	1727.7	8,671	1923.8
20-24	12,332	2544.3	12,231	2578.0	11,781	2542.4
25-29	5,950	1348.1	5,456	1229.1	5,131	1156.4
30-34	2,880	653.8	2,713	625.2	2,372	555.5
35-39	1,388	339.7	1,189	293.2	1,252	308.2
40-44	740	175.7	690	164.0	664	159.8
45-49	378	92.9	384	93.2	371	88.6
50-54	214	49.9	205	48.0	158	37.3
55-59	128	31.5	88	22.2	79	20.5
60-64	46	12.4	34	9.2	32	8.6
65+	42	4.1	30	3.1	31	3.4
Total	31,750	479.1	30,923	471.9	30,768	474.9
Percent under 25	63%		65%		67%	
Percent under 30	82%		83%		84%	
*Ages 0-9 not shown, Arizona rate reflects all ages						

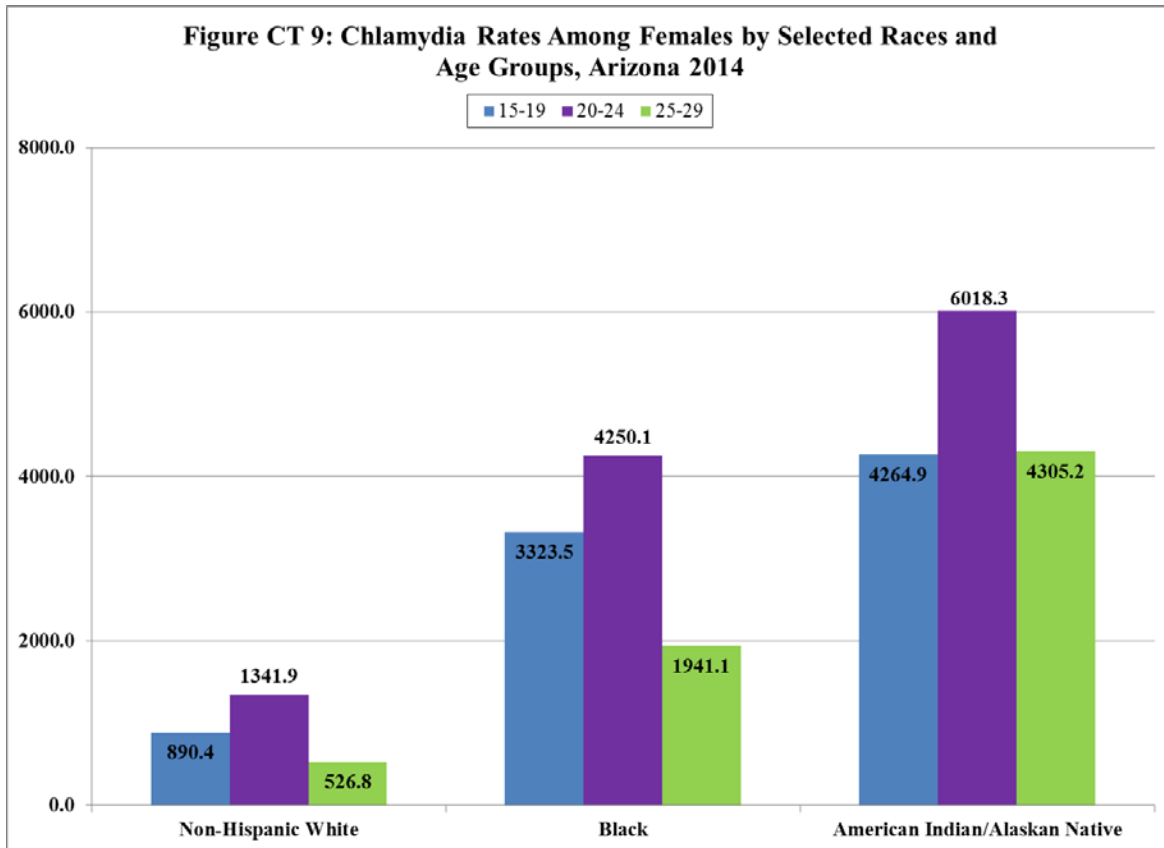
Rates by Age:

- Adolescents and young adults in Arizona continue to be disproportionately affected by chlamydia (Figure CT 7).
- The rate among those aged 20-24 remains the highest at 2,544.3 per 100,000, a 1.3% decrease from 2013.
- The second highest rate is observed among those aged 15-19 at 1,659.6 per 100,000, a 3.9% decrease from 2013.
- In 2014, 63% of reported chlamydia cases were identified in persons under the age of 25, and 82% of cases were identified in persons under the age of 30.



Rates by Age Group and Gender:

- Females aged 15-24 represent the highest rates by age and gender (Figure CT 8).
- The highest rate is observed among females aged 20-24 at 3,797.5 per 100,000, which is approximately 5.6 times the rate observed among all women with chlamydia in Arizona.
- The rates for females aged 15-19 and 20-24 decreased from 2013 to 2014 by 6.2% and 3.2% respectively.
- It was the male population aged 15-19, 20-24, and 25-29 who saw the highest increases in case rates of 4.8%, 3.6%, and 15.3% respectively from 2013 to 2014.
- Between 2013 and 2014, the overall female case rate decreased by 0.8%, while the male case rate increased by 7.6%.



Rates by Gender, Race, and Age:

- Further analysis of chlamydial infection among young non-Hispanic White, AI/AN, and Black females demonstrates high rates among those between the ages of 20 and 24 years (Figure CT 9).
- In 2014, AI/AN females aged 20-24 yielded the highest rate of chlamydia among any demographic in Arizona, at 6,018.3 per 100,000.
- Despite the differences observed in case rates, it is important to note that AI/AN females in this age range contributed 9% of cases among females aged 20 to 24, compared to the 16.8% non-Hispanic White females contributed.
- For comparison, the 2013 chlamydial rate among 20-24 year old AI/AN females nationwide was 4,772.6 per 100,000, roughly 1.3 times less than the rate in Arizona.
- The second highest chlamydia rate for any Arizona demographic was observed among Black females, ages 20-24 at 4,250.1 per 100,000. This demographic comprises 6% of the cases among females 20-24 years old.
- Conversely, the rate among Black females ages 20-24 in the U.S. in 2013 was much higher at 7,342.7 per 100,000.
- It is important to note that a large percentage of race data is missing. Roughly 37% of all reported chlamydia cases have missing or unknown race/ethnicity data for 2014 and this must be factored into any conclusions drawn from race-based statistics.

Gonorrhea

Gonorrhea is caused by the bacterium *Neisseria gonorrhoeae*. It is the second most commonly reported infectious disease in the United States and the state of Arizona. In 2013, there were 333,004 cases of gonorrhea reported to the CDC, which is roughly 41% of the CDC estimated 820,000 new gonorrheal infections annually.

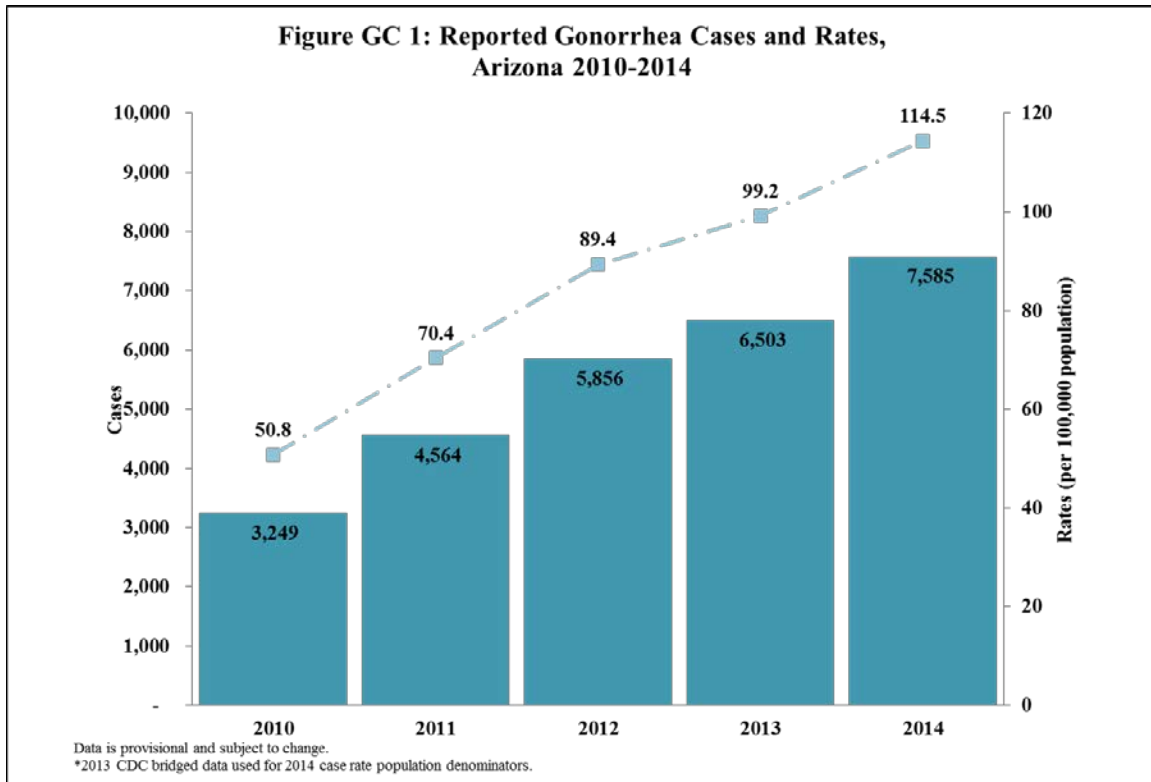
Gonococcal infection often goes undetected as many men and women are asymptomatic. Untreated gonococcal infection may lead to serious, irreversible morbidities such as pelvic inflammatory disease (PID), premature delivery and neonatal blindness among pregnant women and infants, and infertility in men and women. Untreated and repeat gonococcal infections have also been linked to increased risk of transmission of HIV for those co-infected with both diseases, as well as increased risk of HIV acquisition among the non-infected⁴.

Gonococcal infections can manifest in diverse sites (pharyngeal, anal, and urethral/cervical), although genital infections are the most commonly examined and reported. Numerous studies have indicated that a significant proportion of gonococcal infections would remain undetected if clinicians rely solely on genital-based testing among high-risk populations, such as adolescents and MSM, and persons with a history of gonococcal infection. Significant efforts have been made to encourage the routine documentation of a sexual health history into screening practices, ensuring that all potential sites of infection are detected^{5 6}.

⁴ Murray, P.J., Braverman, P.K., Adelman, W. P., Breuner, C.C., Levine, D.A., Marcell, A.V., O'Brien, R.F. & Burstein, G.R. (2014). Screening for Nonviral Sexually Transmitted Infections in Adolescents and Young Adults. *Pediatrics*, 134(1), e302-e311.

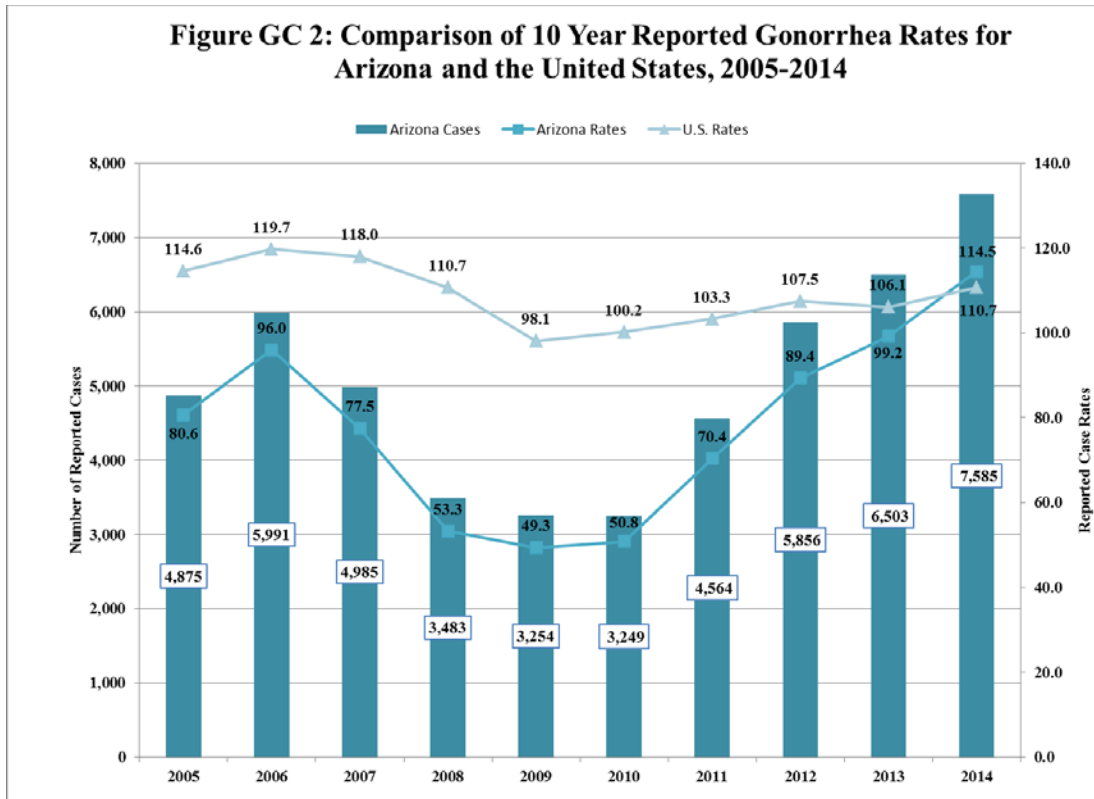
⁵ Klausner, J.D., Kohn, R., & Kent, C. (2004). Etiology of clinical proctitis among men who have sex with men. *Clinical infectious diseases*, 38(2), 300-302.

⁶ Peters, R.P., Nijsten, N., Mutsaers, J., Jansen, C.L., Morr , S.A., & van Leeuwen, A.P. (2011). Screening of oropharynx and anorectum increases prevalence of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infection in female STD clinic visitors. *Sexually transmitted diseases*, 38(9), 783-787.



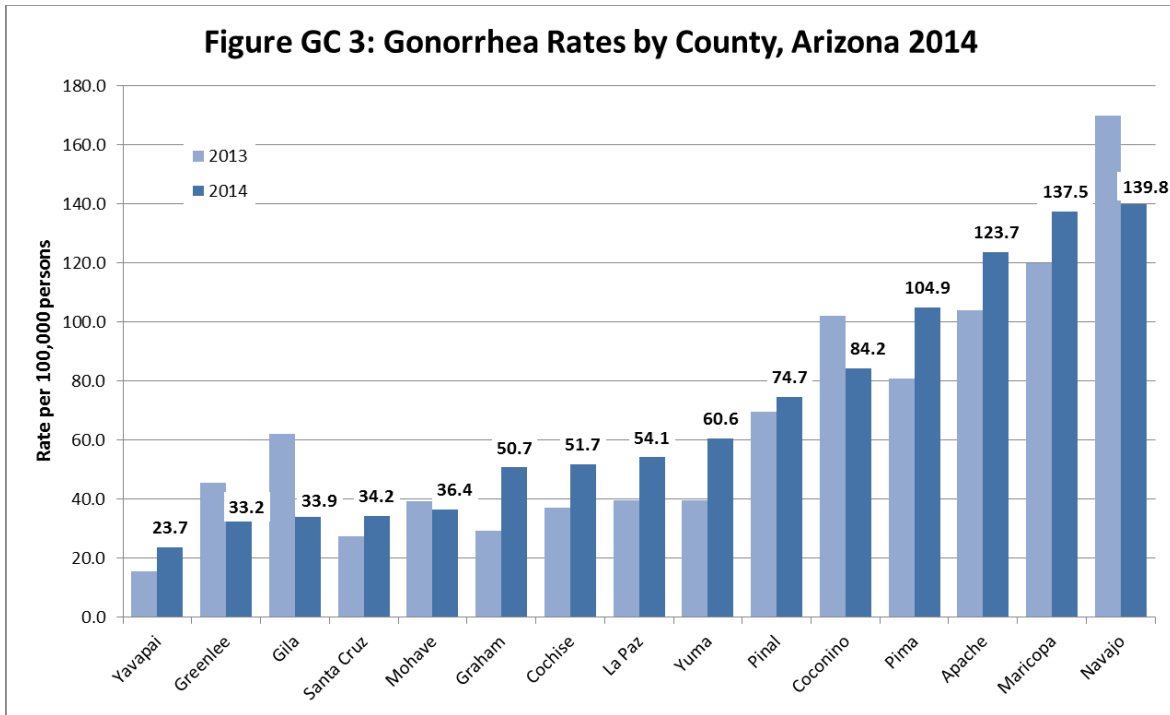
Statewide Disease Burden:

- Over the last five years, counts and rates of reported gonococcal infections have significantly increased in the state of Arizona (Figure GC 1).
- The number of reported infections has more than doubled from 3,249 in 2010 to 7,585 in 2014; a 133.5% increase.
- The reported case rates have also more than doubled within the same five year time frame, from 50.8 per 100,000 persons in 2010 to 114.5 per 100,000 persons in 2014; a 125.4% increase.



10 Year Trend:

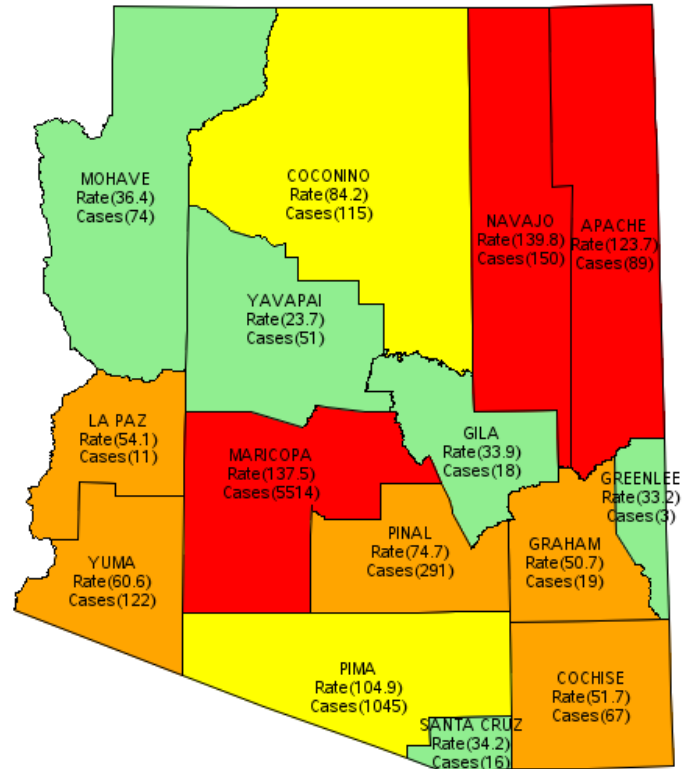
- When compared to national reported gonorrhea trends, Arizona rates have mimicked the increases and decreases observed nationwide over the last ten years (Figure GC 2).
- The State's reported infection rate just surpassed the national rate in 2014 (114.5 vs. 110.7); however, the percent difference is the smallest we have seen in the last 10 years (3.4%).
- If trends persist, the rate in Arizona will continue to surpass the national rate.
- It is important to contextualize reported infections in Arizona within the national background. Arizona ranked 16th in case rates and 14th in case counts nationally, making up 2.21% of the 350,062 cases reported nationwide in 2014.



Rates by County:

- Reported gonococcal infections emulate the population distribution of the state, with over 85% of cases reported in Maricopa and Pima Counties, which comprise 75.3% of the State’s population.
- Maricopa County ranked 7th among counties/independent cities in the U.S. for reported gonorrhea cases in 2013, which underscores the impact this population center has on statewide and nationwide trends.
- Though disease burden is heavily concentrated in metropolitan counties in Arizona, rural counties have experienced significant growth in both case counts and rates over the last five years.
- Apache and Navajo Counties account for 2 of the 3 highest case rates within the State of Arizona at 123.7 per 100,000 and 139.8 per 100,000 respectively. Although these two counties have high cases rates, they only account for 3.2% of the total disease burden within the State.

Figure GC 4: Gonorrhea Rates and Cases by County, Arizona 2014



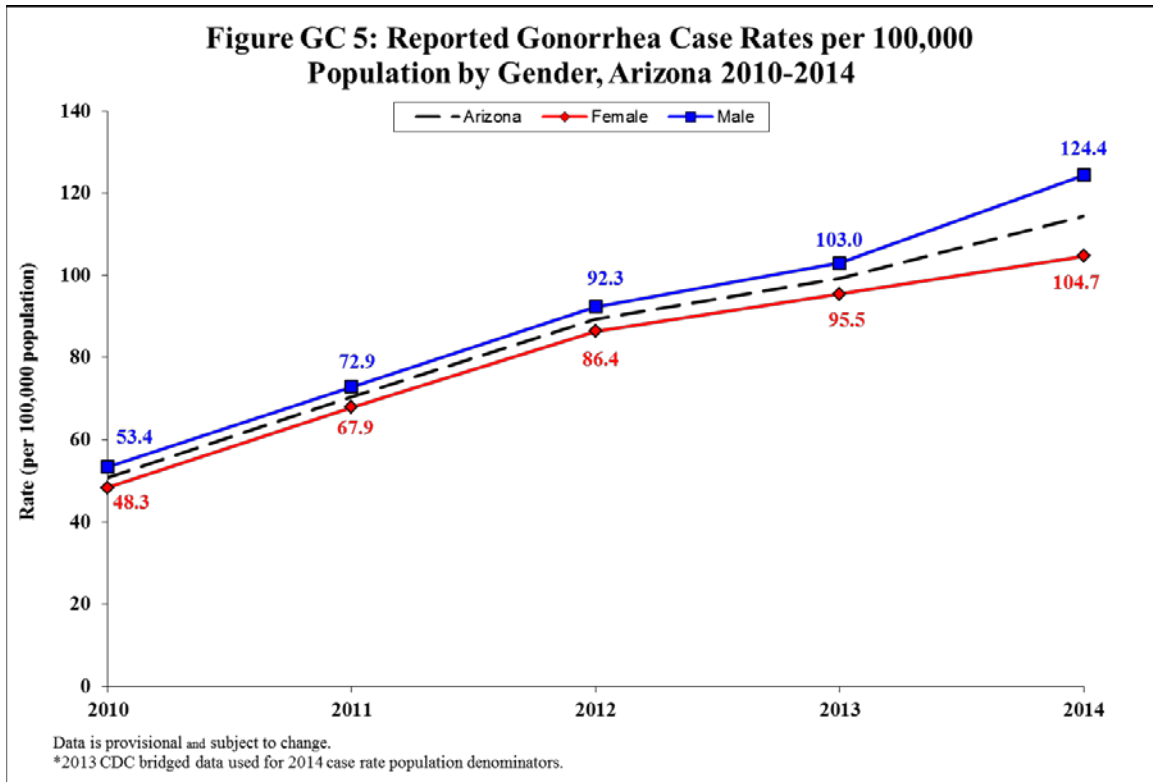
Rate per 100,000 persons

■	Between 0 and 40	■	Between 40 and 80
■	Between 80 and 120	■	Greater than 120

*It is important to note that in counties with small a population, rates and counts can be misleading/skewed.

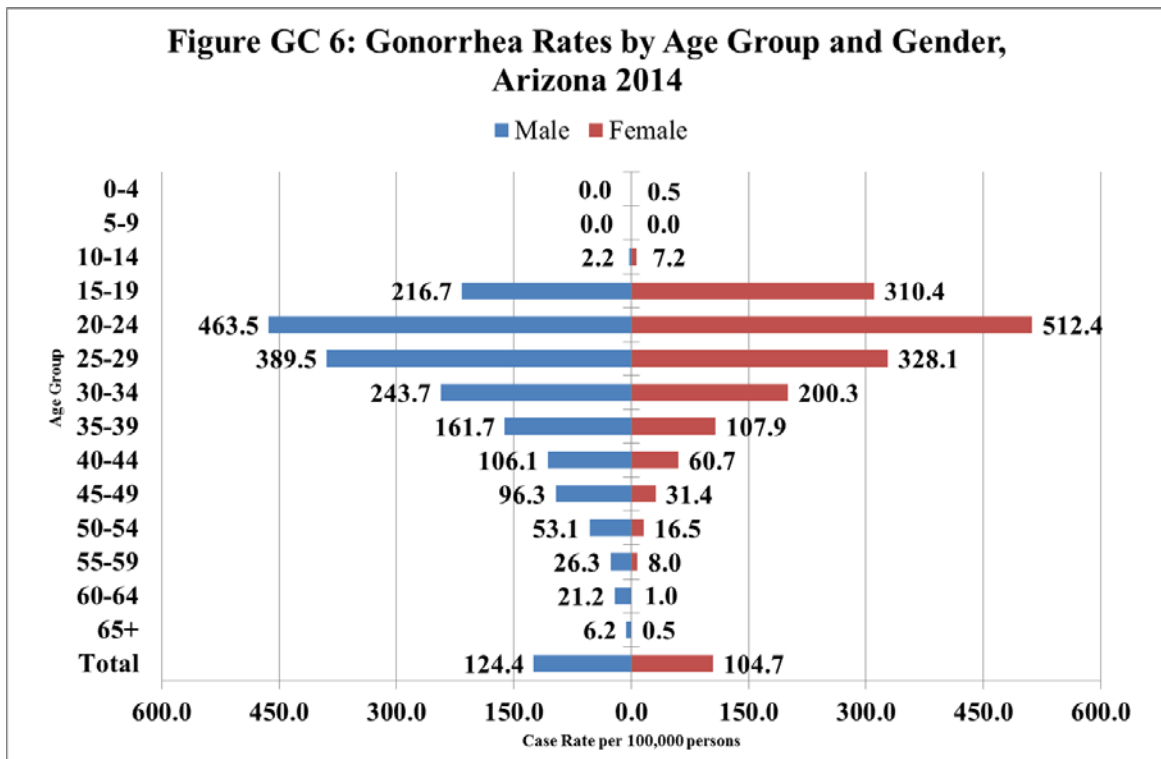
Case Rates and Counts by County:

- Gonococcal infection has persistently affected various groups within Arizona’s population in a disparate manner. Significant differences in case counts and rates have been observed among the counties (Figure GC 4).
- Although Maricopa County has the highest number of total cases with 5,514, Navajo County has the highest case rate at 139.8 per 100,000.
- Maricopa and Pima Counties account for 86.5% of the total cases in 2014.



Rates by Gender:

- Nationally, as well as in Arizona, males continue to bear the burden of disease when compared to females (Figure GC 5).
- The case rate for the male population was 124.4 per 100,000 in 2014, an increase of 20.7% from 2013.
- The case rate for the female population was 104.7 per 100,000 in 2014, an increase of 9.6% from 2013.
- The gap observed between males and females in 2014 is the largest gender-based gap we have seen in the last 5 years, a difference in case rates of 19.7 per 100,000.
- Over the last 5 years, the case rate among males has increased 133%, while the case rate among females has increased 117%.



Rates by Age Group and Gender:

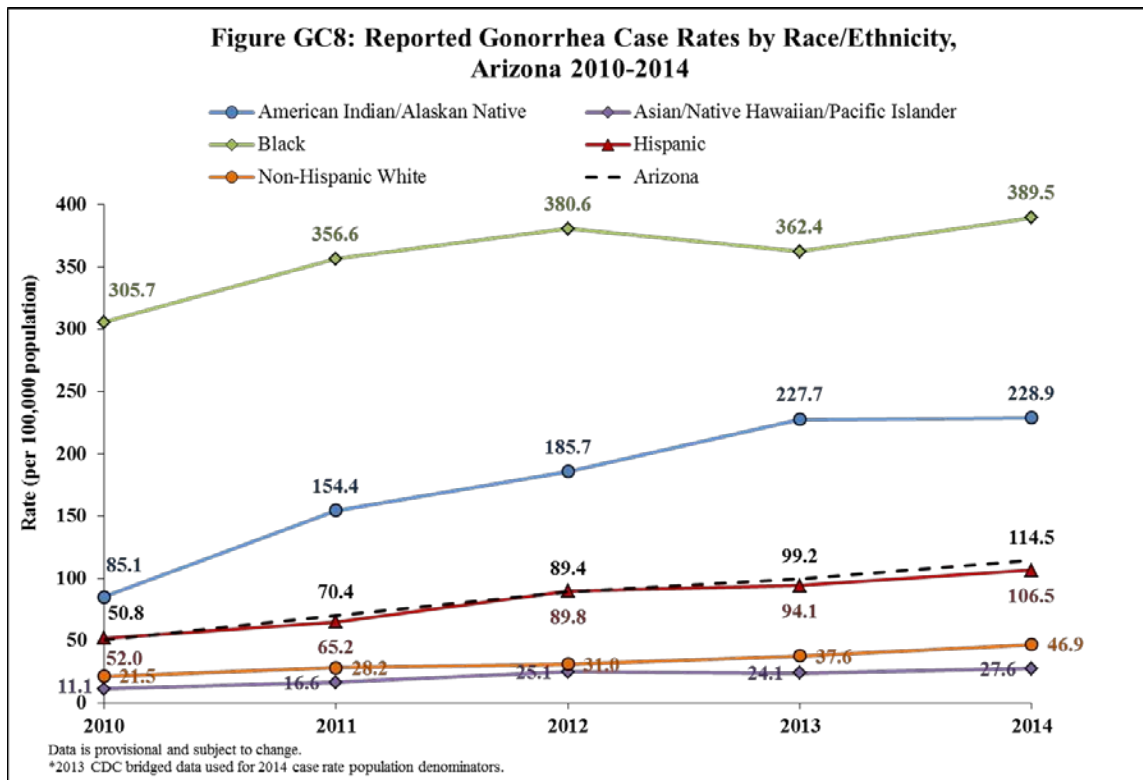
- Inconsistencies in the counts and rates between age groups among males and females may indicate the need for further investigation (Figure GC 6).
- The case rate among all males in Arizona in 2014 was 124.4 per 100,000, which is a 20.7% increase from 2013.
- The case rate among all females in Arizona in 2014 was 104.7 per 100,000, which is a 9.6% increase from 2013.
- In 2014, reported infection counts and rates were higher among females in the high morbidity age range of 15-24 than among males in the same age range.
- The male population is significantly burdened beginning with the 25-29 age group and continuing through every age group beyond, having anywhere from 3 to 20 times the case rate of their female counterparts.

Table GC 7: Reported Gonorrhea Cases and Case Rates per 100,000 by Age Group, Arizona 2012-2014						
	2014		2013		2012	
Age Group	Number	Rate	Number	Rate	Number	Rate
10 – 14	21	4.6	30	6.6	27	6
15 – 19	1182	262.2	1116	249.2	1276	283.1
20 – 24	2361	487.1	2146	452.3	1929	416.3
25 – 29	1589	360.0	1239	279.1	1049	236.4
30 – 34	980	222.5	747	172.1	664	155.5
35 – 39	552	135.1	447	110.2	346	85.2
40 – 44	352	83.6	297	70.6	242	58.3
45 – 49	260	63.9	209	50.7	164	39.1
50 – 54	148	34.5	145	34.0	76	17.9
55 – 59	68	16.8	66	16.6	48	12.4
60 – 64	39	10.5	37	10.1	18	4.9
65 and older	32	3.1	16	1.6	15	1.6
Total	7584	114.4	6495	99.2	5856	90.4
Percentage 15 - 29	67.7%	-	69.0%	-	72.6%	-
Percentage 30 - 49	28.3%	-	26.1%	-	24.2%	-

*Ages 0-9 not shown, Arizona rate reflects all ages

Rates by Age:

- As previously indicated, age-based disparities also persist in Arizona (Figure GC 7). Reported infections and infection rates remain highest among the high morbidity age range of 15-29 year olds, representing 67.7% of all Arizona cases in 2014.
- Age groups 30-34 and 35-39 continue to increase steadily, with increases in case rates of 29.3% and 22.6% respectively.
- There was a significant decrease in cases and case rates observed among the 15-19 year old age group from 2012-2013; however, there has been an increase in cases and case rates observed from 2013-2014 of 66 and 5.2% respectively.
- There has been a 26.5% increase in overall case rates observed from 2012-2014 (90.4 per 100,000 in 2012 and 114.4 per 100,000 in 2014).



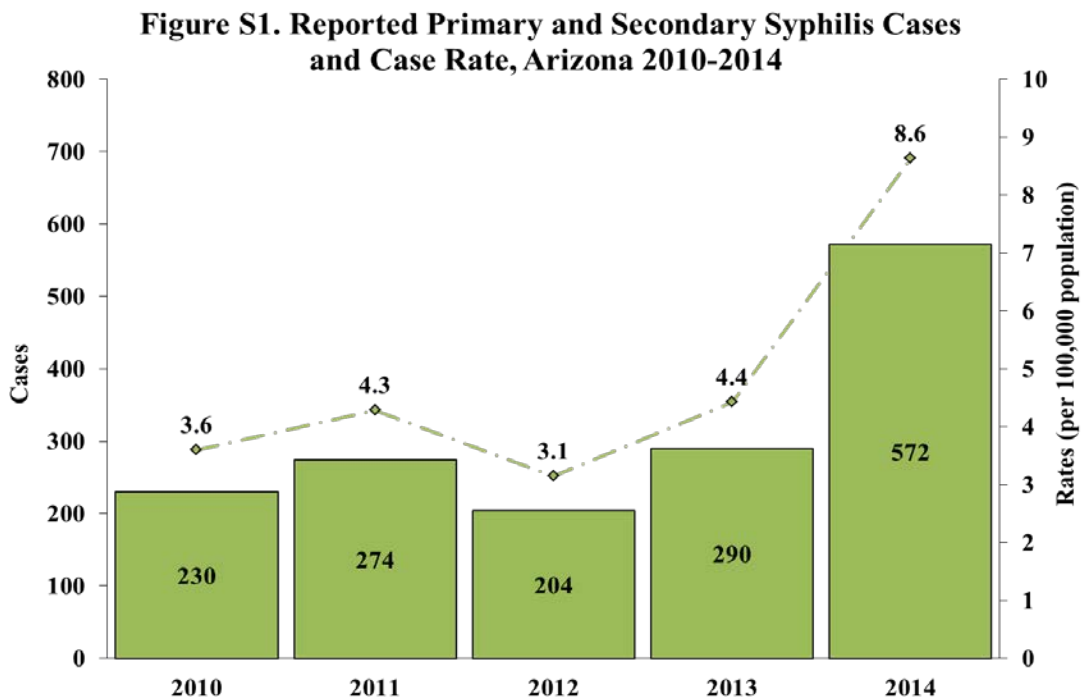
Rates by Race/Ethnicity:

- Racial/ethnic differences in reported case rates are also indicative of a disease burden disparity in Arizona (Figure GC 8). While 28.1% of all 2014 reported infections were reported among Hispanics, the highest infection rates were observed among Blacks and AI/AN with rates of 389.5 and 228.9 cases per 100,000 persons, respectively.
- Although the AI/AN population has the second highest case rate, the increase from 2013 to 2014 was only a mere 0.5%, which may signal the leveling off of this particular case rate.
- Hispanics not only represent the majority of infections, they also saw the largest increase in case rates from 2013-2014 with an increase of 13.2%.
- It is important to note that 1,802 (23.8%) of all reported gonococcal infections had no indicated race or ethnicity. This may have a substantial impact on race-based statistics and the conclusions that may be drawn from them.

Primary and Secondary Syphilis

Syphilis is a sexually transmitted infection caused by the bacterium, *Treponema pallidum*. CDC estimates that 55,400 persons in the U.S. are infected with syphilis annually. The CDC has reported there were 19,999 cases of primary or secondary (P&S) syphilis in the U.S. in 2014. This corresponded to a rate of P&S syphilis in the U.S. of 6.3 cases per 100,000 population.

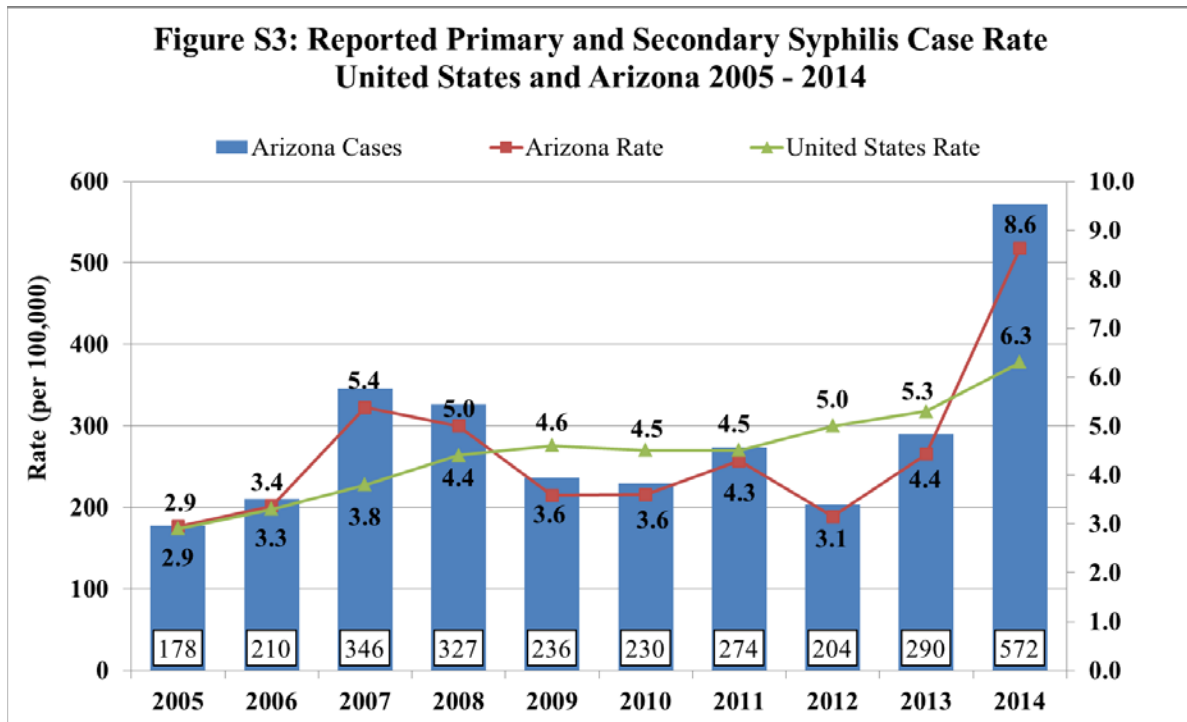
Symptoms of primary syphilis are characterized by a painless lesion known as a chancre (also known as sores or ulcers) at the site of infection. If left untreated, this lesion may be followed by symptoms of secondary syphilis (rash, mucous membrane lesions, or alopecia). Syphilis is often known as the great imitator as the rashes that develop may appear similar to other skin infections including allergic reactions and chicken pox. If continued to be untreated, late manifestations of untreated syphilis may include blindness, dementia, damage to internal organs and possible death. CDC recommends that all persons with symptoms of syphilis be examined and all pregnant women be routinely tested. Any sexually active person at risk for acquiring syphilis should discuss their risks with a health care provider who can determine if testing is recommended.



Statewide disease burden:

- In 2014, the number of reported P&S syphilis cases in Arizona reached a 5 year high of 572 (Figure S1).
- This increase in reported cases corresponds to a 97% increase in reported cases since 2013 and a 148% increase compared to 2010.

- In the previous 10 years, the highest number of P&S syphilis cases reported was 346 in 2007.
- Maricopa and Pima Counties reported the highest rates of P&S syphilis in 2014.
- The rate of P&S syphilis for the State of Arizona nearly doubled from 2013 to 2014 increasing from 4.4 cases per 100,000 to 8.6 cases per 100,000 population, respectively.



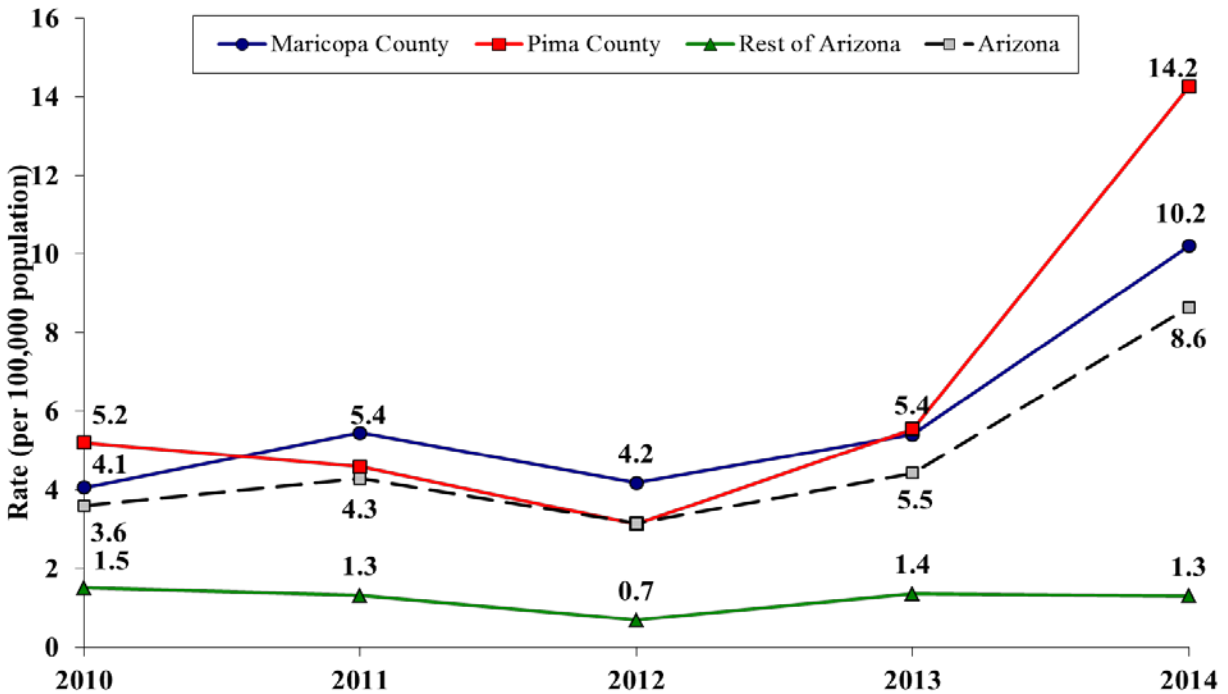
Ten Year Trend:

- Since 2005, the rate of reported P&S syphilis cases in Arizona has been relatively similar to the rate reported for the United States.
- Beginning in 2009, the rate of P&S syphilis in Arizona has been less than the rate for the U.S.
- In 2013, the rate of P&S syphilis for the U.S. was 5.3 cases per 100,000 population and Arizona reported a rate of 4.4 per 100,000. In 2014, Arizona surpassed the rate for the U.S. with a rate of 8.6 per 100,000.
- While the U.S. as a whole has experienced steady increase in rate over the past decade, the rate in Arizona has displayed more year to year fluctuations. However, the rate for both the U.S and Arizona is greater in 2014 than it was in 2005 (Figure 3.) During this timeframe the U.S. experienced a 117% increase in the rate of P&S syphilis and Arizona experienced a 196% increase.
- The large increase in Arizona P&S syphilis cases reported in 2014 resulted from an increased number of cases reported by Maricopa and Pima Counties. Both of these

counties reported higher numbers of P&S syphilis cases among males in 2014 (505 cases) compared to 2013 (192 cases).

- In addition, over 82% of these males identified as MSM in 2014.

Figure S4: Reported Primary and Secondary Syphilis Case Rates by County of Residence, Arizona 2010 - 2014

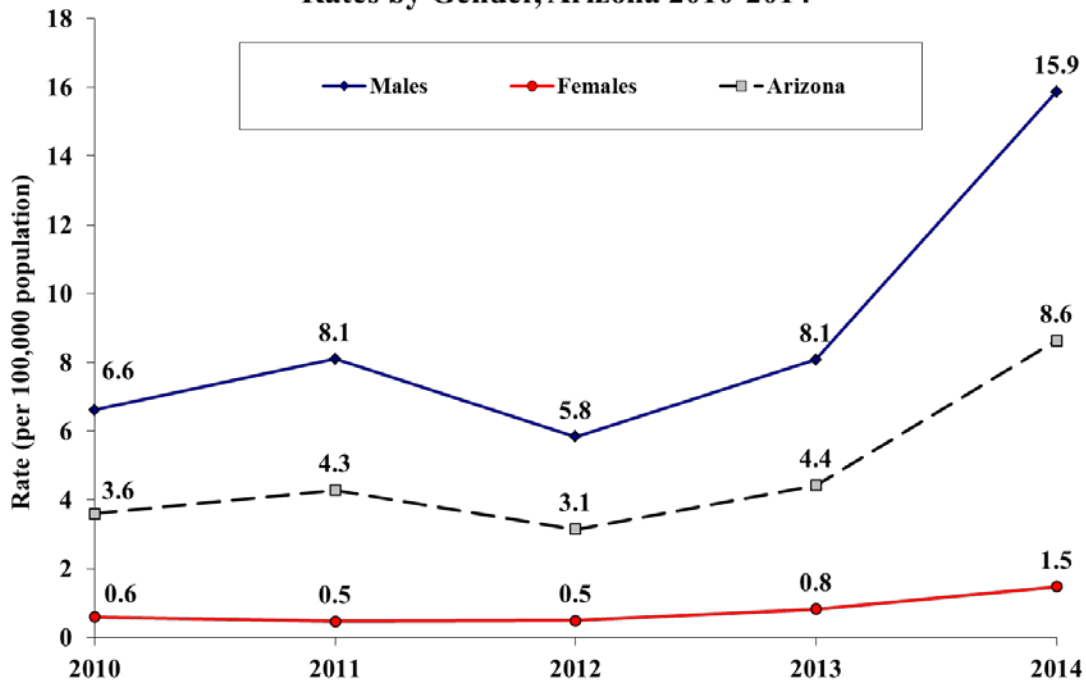


Rates by County:

- Maricopa and Pima Counties, the two most populous of Arizona’s 15 counties, accounted for approximately 96% of all P&S syphilis cases reported in 2014. This is the largest proportion seen in the previous 5 years.
- Maricopa County recorded 213 case of P&S syphilis in 2013 and 409 in 2014.
- The 409 reported cases is the largest total reported in over 10 years.
- As a result of this year to year increase, the P&S syphilis rate in Maricopa County increased by 89% (5.4 cases per 100,000 population in 2013 and 10.2 in 2014) (Figure S4).
- Pima County recorded 55 cases of P&S syphilis in 2013 and 142 in 2014. The 142 reported cases is the largest total reported in over 10 years. As a result of the year to year increase, the P&S syphilis rate in Pima County increased by 158% (5.5 cases per 100,000 population in 2013 and 14.2 in 2014) (Figure S4).

- Outside of Maricopa and Pima Counties, the number of reported P&S syphilis cases decreased slightly from 2013 (22 cases) to 2014 (21 cases).
- Only Coconino and Mohave Counties reported increases in case counts from 2013 to 2014.
- All other counties reported a year to year decrease or no change in case counts.

Figure S5: Reported Primary and Secondary Syphilis Case Rates by Gender, Arizona 2010-2014



Rates by Gender:

- The increase in P&S syphilis cases in 2014 was seen mostly among males. In 2013, 263 male cases of P&S syphilis were reported while 523 were reported in 2014. This represents a case increase of 99% among males.
- Among females, the case count increased from 27 in 2013 to 49 in 2014. The 2014 rates for both males and females represent the highest reported values in over 10 years.
- Since 2010, the P&S syphilis rate disparity between men and women in Arizona has been greater than 10 fold. As the majority of P&S syphilis cases continue to be diagnosed among MSM, this disparity is likely to persist (Figure S5).

Table S1. Reported Primary and Secondary Cases and Case Rate per 100,000 Population by Age Group, Arizona 2012 - 2014*						
Age group	2014		2013		2012	
	n	Rate	n	Rate	n	Rate
10-14	0	0.0	0	0.0	0	0.0
15-19	30	6.7	12	2.7	15	3.3
20-24	130	26.8	71	15.0	48	10.4
25-29	101	22.9	52	11.7	26	5.9
30-34	80	18.2	45	10.4	33	7.7
35-39	58	14.2	21	5.2	16	3.9
40-44	55	13.1	25	5.9	16	3.9
45-49	48	11.8	27	6.6	28	6.7
50-54	33	7.7	19	4.4	11	2.6
55-59	22	5.4	14	3.5	8	2.1
59-64	12	3.2	*	<1	*	<1
65+	*	>0	*	>0	*	>0
Total	572	8.6	290	4.4	204	3.1
Percent under 30	46%		47%		44%	-
Percent Under 40	70%		69%		68%	-

*Denotes case counts less than 6

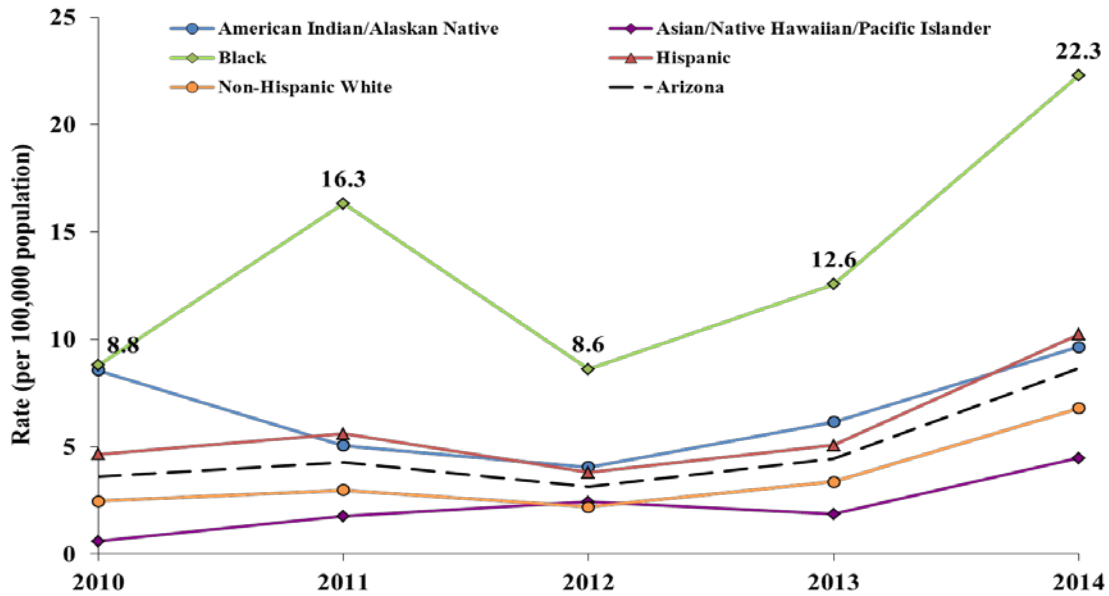
< or > denotes rounded rate due to low case count

**Ages 0-9 not shown, Arizona rate reflects all ages.

Rates by Age:

- Every age group experienced an increase in reported P&S syphilis cases in 2014 compared to 2013 except for the 10-14 age group for which no cases were reported in either year (Table S1).
- Individuals less than 30 years of age accounted for approximately 46% of all P&S syphilis cases in 2014 compared to 47% in 2013. Since 2010, the 20-24 age group has accounted for both the highest number of reported P&S syphilis cases as well as the highest P&S syphilis rate among the age groups displayed.
- Despite the large increase in number of cases the proportion of cases by age group has not changed significantly.

Figure S6: Reported Primary and Secondary Syphilis Case Rates by Race/ Ethnicity, Arizona 2010 - 2014



Rates by Race:

- Historically, the highest rates of P&S syphilis have been seen among Blacks. This trend continued in 2014 as Blacks in Arizona experienced a large increase in the rate of P&S syphilis for the years 2012 to 2014. In 2014 the rate of P&S syphilis among Blacks in Arizona was 22.3 cases per 100,000 population compared to 8.6 per 100,000 in 2012 (Figure S6).
- The largest percent increase over this two year time frame was seen among Non-Hispanic Whites. In 2012, the rate among this population was 2.2 cases per 100,000 population and 6.8 in 2014. This corresponds to 208% increase.

Figure S7. Reported Rate of Primary and Secondary Syphilis Cases among Males and the Percentage of Male Cases that Self-Identify as Men who Have Sex with Men (MSM), Maricopa and Pima Counties, 2010-2014

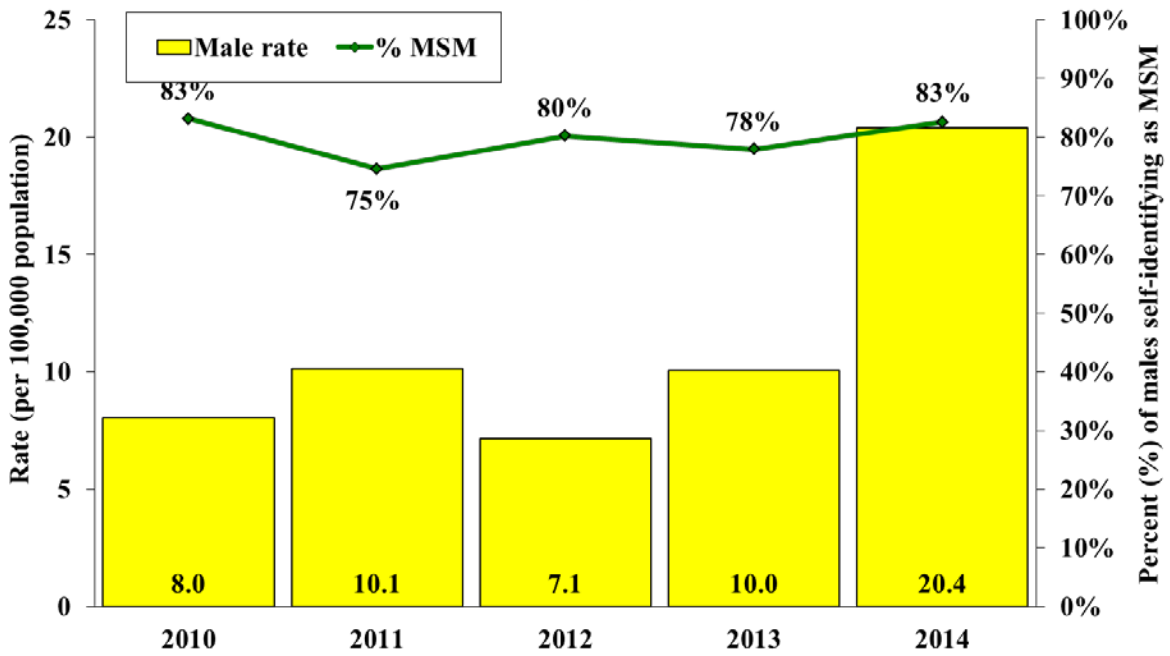
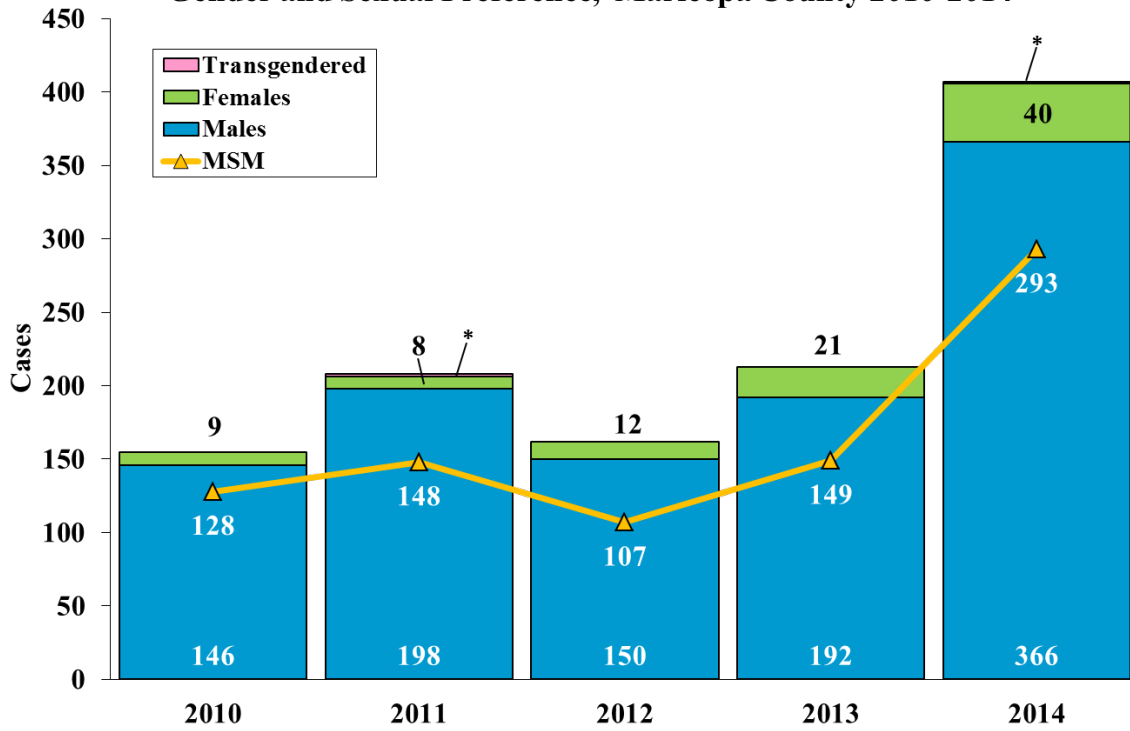
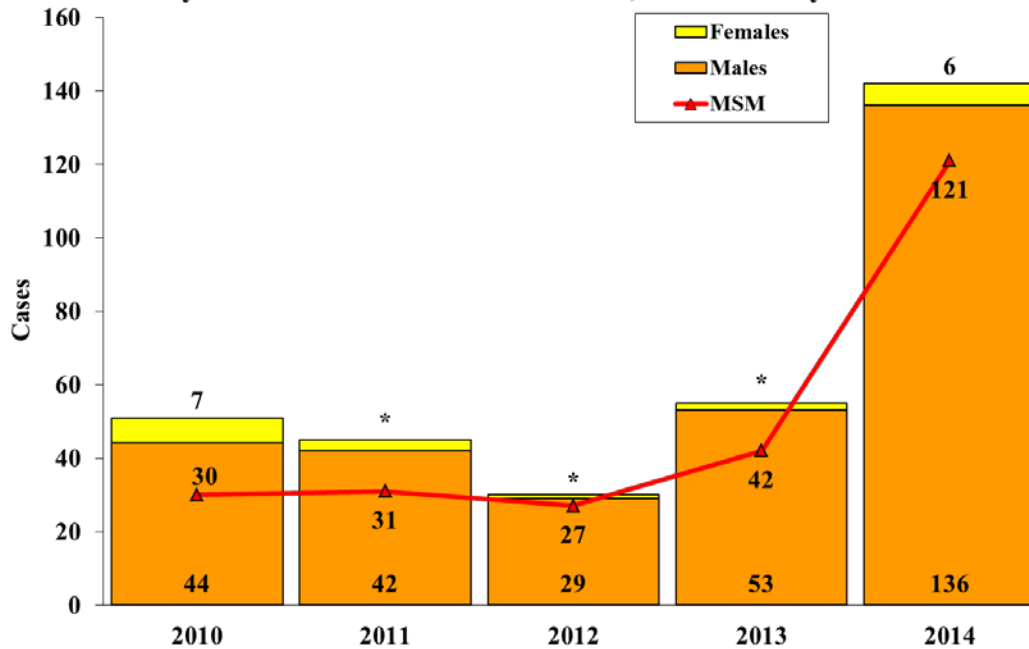


Figure S8: Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Maricopa County 2010-2014



*Denotes case count less than 6

Figure S9: Reported Primary and Secondary Syphilis Cases by Gender and Sexual Preference, Pima County 2010-2014



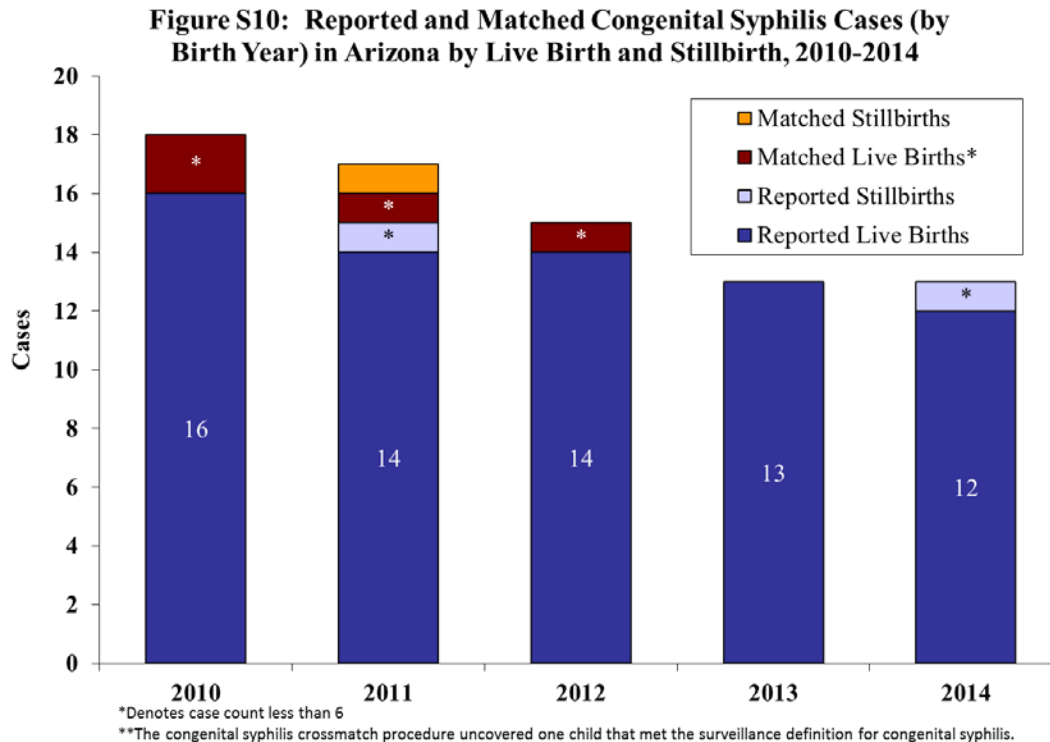
*Denotes case count less than 6

Rates by Sexual Preference:

- MSM continue to make up a large percentage of reported P&S syphilis cases in Arizona.
- In 2014, 83% of all male cases reported from Maricopa and Pima Counties self-identified as MSM (Figure S7).
- The rate of P&S syphilis among all men in these two counties has increased by 155% from 2010 to 2014.
- Since 2009 at least 75% of male P&S syphilis cases reported in Maricopa County self-reported as MSM.
- The number of reported P&S syphilis cases among men that self-reported as MSM in Maricopa County reached a 5 year high (293 cases) in 2014 (Figure S8).
- Pima County has experienced 2 consecutive years of large increases in the count of reported P&S cases among MSM. In 2014, 121 cases of P&S syphilis were reported among MSM resulting in a 348% increase since 2012.

Congenital Syphilis

Mother to infant transmission of syphilis, also known as congenital syphilis, can occur transplacentally and at any time during pregnancy. The complications of congenital syphilis may include low birth weight, congenital defects such as deafness, bone disorders, failure to thrive, and stillbirth. With early detection and treatment that is initiated at least 30 days before delivery, congenital syphilis may be prevented.



- Nationwide, the number of reported congenital syphilis cases decreased from 2008-2012; however, the number of reported cases in 2014 is the highest reported since 2002. Concurrently, the number of congenital syphilis cases in Arizona has slowly decreased (Figure S10). In 2014, 458 cases of congenital syphilis were reported nationwide. This corresponded to a rate of 11.6 per 100,000 live births, the highest case rate observed since 2001.
- Thirteen cases of congenital syphilis were reported in 2014 in Arizona (Figure S10). The number of reported cases remained unchanged from 2013.
- Since the number of reported cases of P&S syphilis is usually associated with the number of statewide syphilis cases among women, we would expect to see a larger number of reported congenital syphilis cases if the number of P&S cases among women in Arizona continues to increase.

Conclusion

As detailed in this report, STDs affect people of all ages, races, ethnicities, educational levels, and economic status. As in previous years, during 2014, young adults ages 15-29 bore a disproportionate burden of STDs in Arizona. Sixty-three percent of reported chlamydia cases were identified in persons under the age of 25, and 82% of cases were identified in persons under the age of 30. Reported gonorrhea infections and rates are highest among adolescents aged 15-29, representing 67.7% of all Arizona cases in 2014. Individuals less than 30 years of age accounted for approximately 46% of all P&S syphilis cases in 2014. Men who have sex with men bore a disproportionate burden of STDs in Arizona. This fact is most apparent with syphilis where 83% of the male cases in Maricopa and Pima Counties self-reported as MSM.

The overall increase in STD cases in Arizona is alarming. Over the last five years the number of gonorrhea cases reported infections more than doubled from 3,249 in 2010 to 7,585 in 2014; a 133.5% increase. This increase is accompanied by an increase in drug-resistance to the most effective antibiotics prescribed for gonorrhea. As well, the number of reported P&S syphilis cases in Arizona reached a 5 year high of 572. This increase in reported cases corresponds to a 97% increase over 2013. The ADHS STDCP is addressing these health disparities by collaborating across ADHS programs and reaching out to county and 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. In pursuit of the mission of the ADHS STDCP, we hope that you will find that this report provides useful and pertinent data. It is important that the Arizona public and community leaders promote dialogue about sexual health and disease prevention, to promote screening, medical treatment and services, and to improve the sexual health of all Arizonans. Sexual health is everyone's responsibility.